Behavioural Study on Consumers' Engagement in the Circular Economy

Final Report

October 2018

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LE Europe, VVA Europe, Ipsos, ConPolicy, Trinomics

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Contact: Jeroen Van Laer

E-mail: Jeroen.VAN-LAER@ec.europa.eu

European Commission
B-1049 Brussels

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Prepared by LE Europe, VVA Europe, Ipsos, ConPolicy and Trinomics.

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Authors:

Dr Annette Cerulli-Harms (LE Europe)

James Suter (LE Europe)

Wouter Landzaat (LE Europe)

Dr Charlotte Duke (LE Europe)

Adriana Rodriguez Diaz (VVA Europe)

Lucas Porsch (VVA Europe)

Timothé Peroz (VVA Europe)

Dr Sara Kettner (ConPolicy)

Prof. Dr Christian Thorun (ConPolicy)

Katarina Svatikova (Trinomics)

Jurgen Vermeulen (Trinomics)

Tycho Smit (Trinomics)

Femke Dekeulenaer (Ipsos)

Elena Lucica (Ipsos)

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Executive summary

Objectives

In 2017, LE Europe, VVA, Ipsos, ConPolicy and Trinomics were commissioned by the European Commission to conduct a behavioural study on consumers' engagement in the Circular Economy (CE). The objective was to provide policy-relevant insights to assist with the implementation of the EU Circular Economy Action Plan.

The study sought to:

1. Identify barriers and trade-offs faced by consumers when deciding whether to engage in the CE, in particular whether to purchase a more or a less durable good, whether to have a good repaired, or to discard it and buy a replacement;
2. Establish the relative importance of economic, social and psychological factors that govern the extent to which consumers engage in the CE, especially purchasing durable products and seeking to repair products instead of disposing of them; and
3. Propose policy tools to enable and encourage consumers to engage in CE practices related to durability and reparability.

Methodology

The study mainly focussed on the following five products: **vacuum cleaners, televisions, dishwashers, smartphones and clothes**.

A **systematic literature review** was carried out across all 28 EU Member States, Norway, Iceland, Switzerland, Japan, Canada, and the USA.[1] This review was complemented by insights collected through **50 interviews with stakeholders** from e.g. business and consumer associations, NGOs, public authorities and academia, and **consumer focus groups** with the general public and potentially vulnerable consumer groups in 4 countries.[2] These activities contributed towards the results of the study and informed the design of an **online consumer survey** and **behavioural experiment** conducted in respectively 12 and 6 countries with 12,064 and 6,042 respondents who were representative of the general population for each country in terms of age, gender and geographic region.[3]

The survey collected information on consumers' experiences with CE practices such as repairing, renting, leasing and purchasing second hand products, their reasons behind engaging in the CE (or not), as well as general socio-demographic characteristics and self-declared attitudes towards the CE.

The behavioural experiment contained two tasks: a purchasing and a repair experiment. Both experiment tasks were financially incentivised for enhanced realism and external validity.

The **purchasing experiment** tested different forms of durability and reparability information and their effects on consumers' product choices. The following treatments were tested: 'manufacturer warranties' and 'expected lifetime' claims; durability commitments and reparability ratings included in the EU Energy and Ecolabels using novel icons.[4] Additionally, the effects of behaviourally motivated 'nudges' via claims such

[1] Literature was reviewed in English, German (AT, DE), Czech, French (FR, LU, BE), Hungarian, Dutch (NL, BE), Romanian and Spanish.

[2] Two groups were conducted in each of: CZ, DE, IE and SE. One group was held with participants from the general public, the other with potentially vulnerable consumers (people who struggle, or are in arrears, with bills, and are unemployed, retired, long-term sick or disabled, or single parents).

[3] The online consumer survey was conducted in: AT, CZ, FR, DE, HU, IE, LV, NL, PT, RO, ES and SE. The behavioural experiment was embedded in the survey in CZ, DE, IE, RO, ES and SE.

4 'Manufacturer warranty' and 'Expected lifetime' were not explained or defined further in the experiment.

as '*Products that last longer may save you money over time*' and '*A majority of people choose products that last longer and are easier to repair*' were tested.

The **repair experiment** confronted respondents with a broken product for which they could decide whether to have it repaired, or to replace it with either a brand new or second hand product. The experimental conditions tested how the trade-offs between repairing and replacing were affected by a real effort task which increased the effort required to respectively repair, or replace, and framing effects of the repair option.

Behavioural experiments allow the isolation of the drivers of consumer choice and are widely used by policy makers internationally to test information provision on consumer decision-making. Experiments are necessarily simplifications of the real world, as such the findings of the experiment should be viewed in conjunction with the experimental set-up which consisted of a simplified process with streamlined and standardised product information.

Findings and conclusions

In brief, all strands of research found that consumers were **generally willing to engage** in CE practices. But **actual engagement was rather low**. While a majority of consumers repair products (64%), a substantial share have **not repaired products** in the past (36%), and/or have **no experience renting/leasing or buying second hand products** (~90%). A reason for this low engagement in CE practices could be that **consumers lack information** regarding product durability and reparability as well as the lack of sufficiently developed markets (e.g. for second hand products, renting, leasing or sharing services etc.). In the behavioural experiment the **provision of such information was found to be highly effective** at shifting purchasing decisions towards products with greater durability and reparability. The survey and experiment also found that **repair decisions are easily disrupted if arranging repair requires effort**. These findings indicate that there is a **large potential** to close the gap between consumers' willingness to engage and their actual engagement.

Understanding consumer engagement in the Circular Economy

Survey respondents reported that they keep things they own for a long time (93%), recycle unwanted possessions (78%), and repair possessions if they break (64%). A minority, yet still sizable share (10-25%), of survey respondents were interested in engaging with novel CE practices such as leasing products instead of purchasing them.

The study uncovered a **high level of consistency between self-reported pro-CE attitudes in the survey and actual behaviour in the monetarily incentivised behavioural experiment**: Consumers who self-claimed having pro-CE attitudes were also more likely to repair products in the experiment, or to buy second hand rather than brand new products.

The different research methods showed that **interest in product durability and reparability** was generally **higher for large and expensive products** (e.g. white goods), and slightly lower for fashion items (e.g. clothes, smartphones). For fashion products there was however a higher willingness to buy second hand (clothes, smartphones), or to rent or lease such products (smartphones).

Consumer expectations and experiences with durability and reparability

All research methods found that **consumers most associate durability with product quality** and **reparability was most associated with availability of spare parts.** Reparability was throughout the study found to be less important to consumers than durability. According to the survey this is because consumers trust manufacturer warranties and would not expect durable products to break.

Durability on EU labels was defined as: *The period in which the manufacturer promises to replace or repair the product free of charge.*

Reparability on EU labels was defined as: *Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.*

The study did not find overwhelming evidence of a 'throwaway economy'. Across all products, a **majority of survey respondents (~60%) reported having repaired products** in the past. Repairs were mostly done by professionals (26% repair services, 17% manufacturers) but to some extent also by friends/family (8%)). Self-repair was less frequent but still substantial, especially for clothes (12%). Overall people were happy with professional repair services. Over 70% had their **expectations in terms of convenience, speed, quality and friendliness of the repair met**, or even exceeded. These findings seem to dispel perceptions that consumers are marked by negative experiences with repair services which were reported by several stakeholders.

A joint analysis of the behavioural experiment and survey revealed that **consumers who have received durability information** via manufacturer warranties, or durability promises at the point of sale in a purchasing exercise **were significantly more likely to expect free replacement or free repairs of faulty products**. Instead, those who had not seen such information were significantly less likely to expect free repairs or replacements and instead expected to pay for these services.

Drivers, barriers and trade-offs faced by consumers

It emerged clearly from the different strands of research that the **price-quality ratio** is the **most important driver and simultaneously barrier** for consumer engagement in the CE, **followed by convenience**. Many consumers were willing to pay more for products with better durability and reparability but can be persuaded by low prices to disregard CE credentials. Similarly, when replacement is more convenient than repairing, consumers are easily led to purchase new products. This was especially pronounced for consumers with a preference for new trends and technology. However, only about one in ten consumers in the survey reported having strong preferences for new trends and technology.

The study found that repairing is popular but not ubiquitous. Most consumers who did not repair expected repairs to be too expensive (25-50% across products), preferred getting a new product (17-25%), or felt the old product was obsolete or out of fashion (20-30%). Some (5-10%) however felt they did not know how/where to repair products, or that it would be too much effort to repair (8-14%).

In the online behavioural experiment, 62-83% (depending on the product type) of respondents chose to repair rather than replace products. But, repairs became less frequent when additional effort was required to arrange the repair, while an identical level of effort left motivations to replace products unaffected. Beyond convenience, marketing practices which increase the salience of repair had only a limited effect on consumer decisions in the experiment. Moreover, consumers in the experiment were indifferent to use repair services offered by manufacturers or independent repair shops.

Effects of product information on purchasing decisions

Many **consumers claimed they were aware of the durability and reparability of products** they had purchased, yet the study uncovered that **CE product information** (i.e. information on durability and reparability of products) **was in fact difficult to find** and **consumers wanted to receive better information**.

Evidence from the literature review, stakeholder interviews, focus groups, and experiment showed that improved information provision at the point of purchase (e.g. on EU labels, or provided by manufacturers) was effective at promoting CE behaviours amongst consumers. When, respectively, durability or reparability information was provided in the experiment **consumers were almost three times more likely to choose products with the highest durability** on offer, and **more than two times more likely to choose products with the highest reparability ratings**. General CE preferences were strongest when durability and reparability information was presented together. That is, when durability and reparability information was shown together on the product label, individuals were most likely to purchase products which rated highly in both dimensions – durability and reparability. Durability was again clearly the more influential factor. These shifts in product choice resulted from consumers turning away from low durability/reparability products in favour of those with better CE credentials.

These findings are corroborated by consumers' **significant willingness-to-pay for better durability/reparability** for all product categories. Depending on how durability/reparability information was presented, willingness-to-pay for an additional year of durability ranged between €20-36 for vacuum cleaners and dishwashers, €92-148 for TVs, €148-217 for smartphones[5], and €14-27 for coats. Willingness-to-pay for an improved reparability[6] rating was around €29-54 for vacuum cleaners, €83-105 for dishwashers, €77-171 for TVs, €48-98 for smartphones and €10-30 for coats.

'Nudges' informing consumers of the benefits and social norms of buying durable/repairable products **increased the saliency** of CE characteristics and triggered shifts in preferences towards more durable/repairable products.

Suggestions for future policy action

The study makes recommendations as outlined below to further enhance consumer engagement in the CE.

- ***Recommendation 1*** *– Boosting CE engagement by strengthening pro-environmental attitudes and awareness*: Environmental awareness and positive attitudes towards environmentally favourable practices, like buying second hand products and repairing products, were found to be key determinants for sustainable consumer choices. From the study follow at least three specific areas of action which could be taken by policy makers and industry:
    - *Boosting pro-environmental attitudes*: One way this could be done is by focussing on educating young people by, for example, including environmental awareness education within school curricula.
    - *Increasing consumer awareness of second hand, renting/leasing and repair markets:* Recently, there has been an increase in the number of CE initiatives such as repair cafés. Similar initiatives could be promoted for second hand products, renting/ leasing of products.
    - *Promoting benefits of durability and reparability*: According to the study findings it would be beneficial to link durable and easily repairable products with 'high-quality' and 'cost-savings' in the long-term. Instilling such associations with durability and reparability could alter social norms towards the purchase of more durable and more easily repairable products.
- ***Recommendation 2*** *– Making repair easier*: Consumers are generally willing to repair broken products, yet their intentions can easily be tainted if repair is viewed as too much effort compared to simply replacing the product. Repair could be made easier for example by:
    - *Making essential product components replaceable by consumers*;
    - *Including repair instructions for minor defects in user manuals*;
    - *Ensuring the availability of spare parts in the longer run*. For example by requiring manufacturers to provide spare parts for a defined time period (and also after a product has been discontinued);
    - *Encouraging manufacturers to offer a commitment to repair*. Commitments could function in a similar way to manufacturer guarantees. The study found consumers have high trust in these guarantees and they are more likely to seek repair of a product if it is covered by guarantee.
- ***Recommendation 3*** *– Create financial incentives for reparability and durability*: Building on the importance of price in consumer decision-making, fiscal instruments providing economic incentives to producers and consumers to produce and

[5] Willingness-to-pay for additional durability of smartphones was measured in months and subsequently extrapolated to years. A linear relationship between time and willingness-to-pay was assumed (i.e. each extra month has the same value).

[6] The willingness-to-pay was measured **per year** for durability and per **two-step** increase on the A-G scale for reparability(e.g. from G to E, C to A).

purchase/rent/lease durable products or to repair could enhance CE engagement. However, further consumer research would be required to determine if there is sufficient price sensitivity in consumers for such stimuli to be effective.

- ***Recommendation 4*** - *Making durability and reparability information available at the point of sale:* The study showed that consumers lack durability and reparability information and that the provision of such information is potentially very influential on purchasing decisions. Therefore, the following options should be explored:
    - Integrate durability and reparability information into existing (EU) labels;
    - Develop new EU rules for this purpose;
    - Examine the development of a scoring system for reparability of products[7];
    - Provide information to consumers on the availability of spare parts and repair services.
- ***Recommendation 5*** – *Strengthened enforcement of legislation requiring the provision of accurate information to consumers:* The provision of information not only needs to be presented in a way that consumers can understand and effectively use in their decision-making, but it also needs to be accurate. In order to ensure the accurate provision of information to consumers at the point of sale, continued and strengthened enforcement of national consumer laws (such as on unfair commercial practices) is of great importance to support consumers in their choices surrounding engagement in the Circular Economy.

[7] For more information see: http://susproc.jrc.ec.europa.eu/ScoringSystemOnReparability/index.html

1. Introduction and background

The purpose of this behavioural study on consumers' engagement in the Circular Economy was to provide policy-relevant insights to assist with the implementation of the EU Circular Economy Action Plan, especially an analysis of options and actions for a more coherent policy framework for the different work elements in the area of EU product policy in their contribution to the Circular Economy. In particular, the study informed the durability and reparability aspects of the Ecodesign and Energy Labelling framework (as set out in the Ecodesign Working Plan 2016-2019).

1.1. Policy context

Action on the circular economy ties in closely with key EU priorities, including jobs and growth, the investment agenda, climate and energy, the social agenda and industrial innovation, and with global efforts on sustainable development.[8] Although the European commitment to a transition to the Circular Economy is relatively recent, it is now regarded as an essential contribution to the EU's efforts to develop a sustainable, low carbon, resource efficient and competitive economy.[9] Transition to a Circular Economy in the EU was first promoted in a European Commission Communication **"Towards a Circular Economy"** (COM/2014/398) in 2014.

This was followed by the adoption of an ambitious Circular Economy Package in December 2015, containing various elements to stimulate Europe's transition towards a Circular Economy with resources used in a more sustainable way, including revised legislative proposals on waste and a comprehensive action plan "Closing the loop - An EU action plan for the Circular Economy" (COM/2015/0614 Final). The proposed plans and actions are expected to contribute to "closing the loop" of product lifecycles through greater recycling and re-use, while also fostering energy saving and reducing greenhouse gas emissions.

The Circular Economy Package established a clear long-term vision to increase recycling and reduce landfilling, while proposing concrete measures to address obstacles on the ground to improve waste management and taking into account the different situations across Member States. The following are relevant in this regard:[10]

- Directive of The European Parliament and of The Council amending Directive 2008/98/EC on Waste[11]
- Proposed Directive on the landfill of waste (amending Directive 1999/31/EC)[12]
- Proposed Directive on packaging and packaging waste (amending Directive 94/62/EC)[13]
- Directive on end-of-life vehicles, on batteries and accumulators and waste batteries and accumulators, and on waste electrical and electronic equipment (amending Directives 2000/53/EC, 2006/66/ and 2012/19/EU)[14]

The EU Action Plan for the Circular Economy[15] establishes a concrete and ambitious programme of action, with measures covering the whole cycle from production and

8 COM/2015/0614.

9 European Commission Communication "Towards a Circular Economy" (COM/2014/398) in 2014.

10 http://www.europarl.europa.eu/EPRS/EPRS-Briefing-573936-Circular-economy-package-FINAL.pdf

11 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CONSIL:PE_11_2018_REV_2&from=EN

12 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015PC0594&from=EN

13 https://eur-lex.europa.eu/resource.html?uri=cellar:b68494d2-999f-11e5-b3b7 01aa75ed71a1.0019.02/DOC_1&format=PDF

14 http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2018-0113+0+DOC+XML+V0//EN&language=EN#BKMD-9

15 European Commission Communication "Closing the loop - An EU action plan for the Circular Economy" (COM/2015/0614 Final), http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015DC0614.

consumption, to waste management and the market for secondary raw materials. An annex to the Action Plan sets out the timeline of when the actions will be completed. By stimulating sustainable activity in key sectors and new business opportunities, the Action Plan is believed to help to unlock the growth and jobs potential of the Circular Economy.

The transition to a Circular Economy will be supported financially by ESIF funding, €650 million from Horizon 2020 (the EU funding programme for research and innovation), €5.5 billion from structural funds for waste management, and investments in the circular economy at national level[16].

One relevant initiative in the Action Plan timetable[17] in the context of this study is to "examine options and actions for a more coherent policy framework of the different strands of work of EU product policy in their contribution to the circular economy", scheduled for 2018. According to the Action Plan, EU product policy includes "Ecodesign, Energy Labelling, Ecolabel, Green Public Procurement, and other relevant product legislation". Therefore, some relevant legislation pertinent to the present study includes:[18]

- Energy Labelling Regulation (repealing Directive 2010/30/EU)[19]
- Regulation on the EU Ecolabel (Regulation (EC) No 66/2010)[20]
- Ecodesign Directive (Directive 2009/125/EC)[21]
- Energy Efficiency Directive (Directive 2012/27/EU)[22]
- Further legislation relating to Green Public Procurement[23]
- Legislation on waste from consumer goods[24] including the proposed directives mentioned above.

Of particular relevance is the Energy Labelling Regulation, which in addition to revising the energy efficiency scale to a scale of A to G also includes, for the majority of product groups, the absolute energy consumption in order to assist consumers to understand the impact on energy bills. The regulation also states;

"The Commission should provide a long-term working plan for the revision of labels for particular energy-related products including an indicative list of further energy-related products for which an energy label could be established. The working plan should be implemented starting with a technical, environmental and economic analysis of the product groups concerned. That analysis should also look at supplementary information including the possibility and cost of providing consumers with information on the performance of an energy-related product, such as its energy consumption, durability or environmental performance, in coherence with the objective to promote a circular economy. Such supplementary information should improve the intelligibility and effectiveness of the label towards consumers and should not lead to any negative impact on consumers." (Clause 39).

Most recently, the Commission published in early 2018 its report on the implementation of the Circular Economy Action Plan[25], which presents an overview of actions already

[16] European Commission press release of 2 December 2015, http://europa.eu/rapid/press-release_IP-15-6203_en.htm

[17] http://eur-lex.europa.eu/resource.html?uri=cellar:8a8ef5e8-99a0-11e5-b3b7-01aa75ed71a1.0012.02/DOC_2&format=PDF

[18] Further relevant legislation might include Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles, and Regulation (EC) No 106/2008 on energy-efficiency labelling of office equipment.

[19] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R1369&from=EN

[20] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010R0066

[21] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02009L0125-20121204

[22] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012L0027

[23] http://ec.europa.eu/environment/gpp/eu_related_en.htm

[24] http://eur-lex.europa.eu/summary/chapter/environment/200403.html?root=200403

delivered and introduces key deliverables for 2018. Some actions key in initiatives set out in the report that were especially relevant in the context of the present study include:

- Adoption of the Ecodesign Working Plan 2016-2019, which outlines the priorities for the coming years in terms of new product groups for investigation, and reviews of existing Ecodesign and Energy Labelling regulations.
- Moves by European standardisation organisations, on the Commission's request, to develop generic standards on the durability, reusability and recyclability of products (with the submission of a working plan and establishment of a working group).
- Updated Guidance on the Unfair Commercial Practices Directive[26] which includes specific elements to make green claims more trustworthy and transparent.
- The Commission's publication of the Fitness Check on EU Ecolabel in 2017.[27]

1.2. Objectives of the study

The project addressed three objectives:

- Identify barriers and trade-offs faced by consumers when deciding whether to engage in the circular economy, in particular whether to purchase a more or a less durable good, whether to have a good repaired, or to discard it and buy a replacement;
- Establish the relative importance of economic, social and psychological factors that govern the extent to which consumers engage in the circular economy, especially purchasing durable products and seeking to repair products instead of disposing of them; and
- Propose policy tools to enable and encourage consumers to engage in circular economy practices related to durability and reparability.

The study did not use a precise definition of what constitutes a 'durable' or 'repairable' product. Instead, it was one of the main aims of the study to uncover what consumers associate with the concepts of 'durability' and 'reparability'. The study thus potentially takes a different point of view on these CE concepts compared to studies that are focussed on industry standards. Naturally, industry standards require clear definitions of what can be considered a 'durable' or 'repairable' product to be enforceable. This study instead covers the views and perceptions around durability and reparability of the general population across different EU Member States.

To meet the objectives of the study, three main areas of work have been undertaken:

- A preparatory phase, involving a literature review, desk research, collection of market data, collection of information on business practices, assessment of repair service business models, and focus groups with consumers. This early phase formulated hypotheses for testing in the behavioural experiment (see below). In addition, the evidence collected in this phase contributed to answering the research questions set out in the Tender Specifications, and to the development of analytical conclusions and policy recommendations.
- Behavioural experiment and surveys: This task tested the hypotheses formulated in the preparatory phase through a behavioural experiment and consumer survey in Sweden, Germany, Ireland, Spain, Czech Republic and Romania. The behavioural experiment firstly tested, situations in which consumers take durability and/or reparability information on products into account in purchasing decisions, and secondly, situations in which respondents choose to repair rather than replace products for five products/product categories.
- A consumer survey was conducted in Austria, the Czech Republic, Germany, Spain, France, Hungary, Ireland, Latvia, the Netherlands, Portugal, Romania and Sweden. The survey explored consumers' understanding of 'durability' and 'reparability', their

[25] http://ec.europa.eu/environment/circular-economy/index_en.htm

[26] http://ec.europa.eu/justice/consumer-marketing/files/ucp_guidance_en.pdf

[27] http://ec.europa.eu/environment/emas/emas_publications/policy/fitness_check_en.htm

engagement in the Circular Economy and drivers and barriers to this (non-)engagement, and their expectations, understanding and awareness with respect to durability and reparability

- Analysis of results, conclusions and policy recommendations, which involved quantitative and qualitative analysis in order to develop analytical conclusions and recommendations for EU level policy tools.

METHODOLOGY

2. Methodology

This section presents brief overviews of the methods applied for each of the strands of research. Some parts refer the interested reader to the annex document which contains further details.

The section is organised as follows:

- Section 2.1 presents the country selection
- Section 2.2 presents the product selection
- Section 2.3 presents the approach to the literature review and desk research
- Section 2.4 presents the approach to the stakeholder interviews
- Section 2.5 presents the methodology for the focus groups
- Section 2.6 presents a short description of the consumer survey including brief details on the sampling and questionnaire content
- Section 2.7 presents how the behavioural experiments for this study were conducted including a brief description of the tasks, experimental treatments, outcome measures and incentives

2.1. Country selection

The sample of Member States covered in the study needed to reflect different levels of CE engagement and aim for the broadest geographical coverage possible. To create a robust indicator of CE engagement across the EU Member States two types of measures were used in the country selection, namely consumers' self-declared **attitudes** towards different aspects of the Circular Economy, and their actual **behaviour** with respect to the Circular Economy.

To capture consumers' **attitudes**, published data from Eurobarometers 388 and 397 was used as follows:

- **General environmental impact**: This dimension described how much the environmental impact of goods or services influences consumers' choices of goods or services, based on question 5 of Flash Eurobarometer 397 survey (*"Considering everything you bought during the last two weeks, did the environmental impact of any goods or services influence your choice?"*).
- **Durability of products**: This dimension captured the importance of the longevity of products to consumers in their purchasing decisions, based on question 11 of Flash Barometer 388 survey (*"Which of the following aspects do you consider most important when buying a durable product, like a washing machine or a fridge?"*, where respondents could select *"You can use the product for a long time"* as an answer option).
- **Recycling**: This dimension captured the relevance of the recyclability of products in consumers' purchasing decisions, based on question 11 of Flash Barometer 388 survey (*"Which of the following aspects do you consider most important when buying a durable product, like a washing machine or a fridge?"* where respondents could select *"The product can be recycled after you use it"* as an answer option).
- **Reuse of products**: This dimension captured the importance to consumers of being able to resell products, based on question 11 in Flash Barometer 388 survey (*"Which of the following aspects do you consider most important when buying a durable product, like a washing machine or a fridge?"* where respondents could select *"You can easily sell the product when you no longer want to use it"* as an answer option).

To capture consumers' **behaviour** (i.e. the extent that their attitudes materialise) Eurostat statistics were used to describe Member States on two variables:

- **Recycling rate**: This dimension represented the actual recycling rate across countries, based on Eurostat statistics (dataset: Municipal waste by waste operations, code: *env_wasmun*).
- **Waste production**: This dimension captured how much waste each country generates per capita (again using Eurostat data).

The country selection was based on these six dimensions. The selection captured different parts of the distribution for these six measures (i.e. countries with relatively high levels and those with relatively low levels) while paying attention to the **geographical coverage**, (i.e. the selection covered all the different regions of the EU; North, South, East and West), such that the findings may be extrapolated to all the Member States, Iceland and Norway.

For the online survey and experiment the country selection comprised of:

- **Survey** (12 countries): Austria, Netherlands, Sweden, Czech Republic, Germany, France, Ireland, Hungary, Latvia, Spain, Portugal and Romania
- **Behavioural experiment** (6 countries): Sweden, Germany, Ireland, Spain, Czech Republic and Romania.

The literature review covered literature published in English from all 28 Member States and further literature in seven additional European languages (French, German, Czech, Hungarian, Dutch, Portuguese and Romanian).

Additional **online desk research** and **semi-structured interviews** were conducted in 10 countries: Austria, Netherlands, Sweden, Czech Republic, Germany, France, Ireland, Hungary, and Romania. This selection thus covered all experiment countries, and ten of the twelve survey countries (except Latvia and Portugal).

A subset of four of the six experiment countries were selected for the **focus groups**, these were Germany, Ireland, Sweden, and the Czech Republic.

The country selection is presented in the table below.

Table 1 : Country selection

	Literature review		Online Desk Research	Semi-structure interviews	Consumer focus group	Survey (S), Experiment (E)
	English	National language				
AT	EN	DE	x	x		S
BE	EN	FR / NL				
BG	EN					
HR	EN					
CY	EN					
CZ	EN	CZ	x	x	x	S + E
DK	EN					
EE	EN					
FI	EN					
FR	EN	FR	x	x		S
DE	EN	DE	x	x	x	S + E
EL	EN					
HU	EN	HU	x	x		S
IE	EN		x	x	x	S + E
IT	EN					
LV	EN					S
LT	EN					
LU	EN	FR/DE[1]				
MT	EN					
NL	EN	NL	x	x		S
PL	EN					
PT	EN					S
RO	EN	RO	x	x		S + E
SK	EN					
SI	EN					
ES	EN	ES	x	x		S + E
SE	EN		x	x	x	S + E
UK	EN					
Count:	28	10	10	10	4	S=12 E=6

Note: The researchers searched for literature from Luxembourg in English, French and German. Luxembourgish was not covered.

2.2. Product selection

This section provides an overview of the criteria applied for the selection of the products the study focuses on. The study covered five products based on their relevance for the Circular Economy namely: smartphones, televisions, vacuum cleaners, dishwashers, and clothing.

The product selection followed four criteria. Each criterion has been applied to ten potential products that could have been covered in the project, which formed the basis for our suggested choice. This choice was then narrowed down to the five products mentioned above.

- Criterion 1: The first criterion concerned the reasoning on **why consumers replace** a product. The sample contains products that are replaced mainly for fashion reasons and products that are replaced only if broken or technologically outdated.
- Criterion 2: This criterion aimed to cover **different options for more circular processes** offered by different products (e.g. repair, recycling, reuse or sharing).
- Criterion 3: The third criterion described the potential positive environmental outcomes that could be achieved by **reducing resource use** in these product categories. (e.g. environmental performance throughout their lifecycle, product environmental footprint (PEF), and organisation environmental footprint (OEF))
- Criterion 4: The final criterion related to the **political relevance** of the product category especially whether the product was covered by a number of different

relevant Directives like the Ecodesign Directive and/or Energy Labelling Regulation or in other EU studies on similar subjects. Additionally, a product type was favoured if existing industry initiatives show that the industry sees some potential for Circular Economy changes.

Using these criteria on an initial set of products, the Consortium finally selected the following five products mentioned:

1. **Smart phones**: purchases are innovation and fashion driven as innovation cycles are swift and smart phones are important status symbols. There is a big potential for recycling and repair, use of critical raw materials, many on-going initiatives, and lastly, they fall within the scope of the Ecodesign Directive, were a focus of a REFIT (Regulatory Fitness and Performance) study on consumer rules (EC DG Justice and Consumer, 2016), and were also covered in an EU study on lifespan labelling (European Economic and Social Committee, 2016).
2. **Televisions**: innovation cycles have been also very quick in recent years but compared to smart phones TV are less of a status symbol, so it should be expected that innovation is important in the purchasing decision and fashion less so. There is a large potential for repairing and recycling, use of critical raw materials and high GHG emissions, there are many on-going initiatives, and lastly TVs are covered by the Ecodesign Directive and the Energy Labelling Directive, and were studied in the REFIT study, recent studies on energy labelling (London Economics & Ipsos, 2014) and lifespan labelling (European Economic and Social Committee, 2016), and the study on EU environmental and carbon footprint label options conducted in 2012 (London Economics, Ipsos & AEA, 2012).
3. **Vacuum cleaners**: as innovation cycles are slower than in TV and smart phones and vacuum cleaners are less of a status symbol, purchasing decisions are probably more driven by durability and less by technology or fashion. There is a large potential for recycling and repairing and some potential for sharing. Vacuum cleaners are covered by the Ecodesign Directive and the Energy Labelling Regulation and were studied in the lifespan labelling study (European Economic and Social Committee, 2016).
4. **Dishwashers**: as innovation cycles are slower than in TV and smart phones and dishwashers are less of a status symbol, purchasing decisions are again probably more driven by the longevity (i.e. durability) of products, there is some potential for repair, recycling, and reuse, high GHG emissions, and lastly, dishwashers are covered by the Ecodesign Directive and the Energy Labelling Regulation.
5. **Clothing**: purchasing decisions are largely driven by fashion. There is some potential for repair and reuse, and although they are not covered by the Energy Labelling Regulation or Ecodesign Directive, clothing items are covered by the lifespan labelling study, which studied trousers and sport shoes (European Economic and Social Committee, 2016).

Furthermore, including clothing in the sample had an added value since technological innovation is not such an important factor for clothing compared to the other product categories. For the other four product categories, fashion plays a smaller role when replacing a product.

2.3. Methodology for the literature review and desk research

A literature review of existing English-language studies and documents in all EU Member States, Norway, Iceland and four other non-European countries (Canada, Switzerland, Japan, and the United States) was carried out. Additionally, literature in six other languages, namely French, German, Czech, Dutch, Spanish, and Romanian were reviewed. The literature review and desk research were conducted in parallel. The aim of the literature review was to provide an overview on the existing published knowledge relevant to the research questions. In order to answer the studies' research questions (see Section 1 in the Annex document), the researchers focused on the following aspects:

- Characteristics of the Circular Economy, such as: durability and reparability of products and the difference between durability and reparability characteristics across the five product categories (televisions, smartphones, vacuum cleaners, dishwashers, and clothes), types of information on durability and reparability of products, as well as key features of other circular practices such as product leasing services and the sharing economy.
- Aspects of consumer purchasing decisions in the Circular Economy, such as: consumer willingness to engage, drivers, barriers and trade-offs faced by consumers, consumer awareness, understanding of and expectations about durability and reparability and the role of durability and reparability information in the purchasing decision.
- Market data on manufacturing, complete recycling and/or reuse, consumption and usage patterns, and disposal trends) for the five products categories.
- Existing European and national policy measures in the area of the Circular Economy and eco-innovation and their impacts at European and national level.
- Business models that can be found today in the Circular Economy, with a focus on product reparability and recyclability.

During the literature review and desk research, the study team pre-screened 224 documents including national and European consumer studies, regulatory reports, and academic articles. From those the study team fully analysed 105 documents. Based on the executive summaries or abstracts the documents were analysed if any of the research questions seemed to be covered by the report. The research questions were structured and summarised into the following 10 themes to allow an easier overview:

- Theme 1 - Drivers, barriers and trade-offs
- Theme 2 - Willingness to engage
- Theme 3 - Consumers' expectations regarding durability
- Theme 4 - Consumer expectations regarding reparability
- Theme 5 - Importance of CE characteristics
- Theme 6 - Durability information
- Theme 7 - Reparability information
- Theme 8 - After-sales expectations
- Theme 9 - Policy tools
- Theme 10 - Business models and market data

The collected information of the fully reviewed documents was organised in an excel file to allow the analysis of all collected information by question.

2.4. Methodology for the stakeholder interviews

2.4.1. List of stakeholders

During the inception phase, a preliminary list of relevant stakeholders was developed. Relevant stakeholders were identified via desk research by searching for knowledgeable individuals in 11 categories of organisations:

- European trade and business/industry associations;
- European consumer associations;
- European NGOs, in particular focusing on CE/sustainable consumption;
- National public authorities;
- National consumer associations;
- National trade associations;
- National NGOs, in particular focusing on CE/sustainable consumption;
- Independent repair services/associations;
- Standardisation/certification/verification bodies;
- Eco-labelling bodies/institutions;
- Academics specialising in consumer-related policy and behavioural economics.

The preliminary list of interviewees was further developed using suggestions of the Commission and results of the desk research at Member State level. The study team identified additional organisations that hold up-to-date data and information about the Circular Economy and contacted these organisations as well.

2.4.2. Preparation ahead of the interviewing process

To ensure that the study team had a full understanding of the questions and objectives of both the study and the interviewing process, the core team provided internal guidelines to be used by the researchers. The internal guidelines included:

- an introduction and the objectives of the study;
- research questions;
- descriptions of the research activities

The final interview guide is presented in Section 5 in the Annex document.

2.4.3. Interviews at European and Member State level

The researchers contacted stakeholders at the European level, in Switzerland and across 13 Member States: Austria, Belgium, France, the Czech Republic, Germany, Spain, Ireland, the Netherlands, Hungary, Romania, Sweden, Portugal and the United Kingdom.

Interviews aimed at obtaining up-to-date and first-hand information on the relevant issues, exploring in depth the study objectives with the help of the stakeholders' expertise, and lastly ensuring that no critical studies or data were missed.

The interview questionnaire was shared with the interviewees allowing them to prepare beforehand and gather necessary data before the interview.

Most of the interviews were undertaken in the national languages. In some specific cases, upon request from the stakeholders, the interview guide was translated (i.e. German, Czech, and Romanian).

Overall, the study team completed 50 interviews. Table 2 shows their distribution between different types of stakeholders and between the 14 countries covered in this study, plus the European level.

Table 2: Distribution of interviews (in number of interviews).

	Trade and business/ industry associations	Consumer associations	NGOs, focusing on CE/ sustainable consumption	Public authorities	Academics/ experts	Other	Total
EU	6	3	1				10
AT		1					1
BE	1		2			1	4
CH					1		1
CZ		3	1	1			5
DE		1		1	2	1	5
ES	1	1					2
FR	1					1	2
HU	1		1				2
IE			1				1
NL				2		2	4
PT			1				1
RO	1		2		1		4
SE	1			2			3
UK	1	1	2		1		5
						Total	**50**

The study team used a similar approach to conduct interviews to the approach used for the literature review and desk research, dividing the interview questions into the following sections to allow a better overview and to help the interviewer structure the interview:

Section 1 - Drivers, barriers and trade-offs
Section 2 - Willingness to engage
Section 3 - Consumers' expectations on durability
Section 4 - Consumer expectations on reparability
Section 5 - Importance of CE characteristics
Section 6 - Durability information
Section 7 - Reparability information
Section 8 - After-sales expectations
Section 9 - Policy tools
Section 10 - Business models and market data

Under each section, there was a minimum set of three questions. While the questions under sections 1, 5, 6, 7 and 9 were asked in all interviews the more detailed question in the other sections were only asked if the interviewee had some expertise or interest in the topics.

The gathered information for the literature reviews and interviews was recorded in two excel files. The data in both files are structured by research question.

2.5. Methodology for the focus groups

Eight consumer focus groups were carried out, aiming to explore consumers' awareness, understanding, attitudes and expectations with regard to circular economy practices.

Two focus groups were conducted in each of Ireland, Germany, Sweden and the Czech Republic. In each country, groups were moderated in the local language. Each group session was designed to last 90 minutes.

2.5.1. Sampling and recruitment

It was aimed to recruit on average eight participants per group. In each country, one group was carried out with vulnerable consumers – defined as people who are in arrears with household bills, or who struggle from time to time with household bills and are in any of the following situations: unemployed, retired, long-term sick or disabled, or single parents.[28] The second group included a "mix" of participants in terms of circular economy engagement – people who tend to engage in circular economy practices, people who tend not to, and people who tend to do this but only to a certain extent.

In each group, it was aimed to include a balanced mix of men and women, aged 25 to 60 years old. This age range was set in order to ensure that the age gap between participants was not too wide, bearing in mind the need to maximise communication and participation, and create an efficient group dynamic.

In summary, all participants had to meet the following eligibility requirements:

- Had not participated in another focus group in the past six months; and
- Had completed the screener questionnaire in order to assess their group membership (circular economy engagement, and vulnerability).

Respondents were recruited using the screener questionnaire. In each country, recruiters were thoroughly trained by the project managers from the local fieldwork agencies. The recruitment process was strictly monitored.

The following table presents the number of participants who took part in the focus groups in each country, as well as the fieldwork dates:

Table 3: Participation in focus groups

	Group	Date	Number of participants
Czech Republic	Mixed	27.06.17	8
	Vulnerable	27.06.17	8
Germany	Mixed	06.07.17	9
	Vulnerable	06.07.17	7
Ireland	Mixed	05.07.17	9
	Vulnerable	05.07.17	8
Sweden	Mixed	29.06.17	8
	Vulnerable	29.06.17	8

[28] For a definition of consumer vulnerability, see, for example: European Commission (2016). Consumer Vulnerability in Key Markets in the EU.

In each country, participants received an incentive for attending the groups, as a "thank you" for their participation. The following table provides information with regards to the incentives provided[29]:

Table 4: Incentives for participation in focus groups

Country	Incentive (per participant)
Czech Republic	700 CZK
Germany	50 EUR
Ireland	50 EUR
Sweden	600 SEK

2.5.2. Discussion guide

The discussion guide aimed to include questions that focused on three aspects of the circular economy (durability, reparability and recyclability) and referred to various types of products (washing machines/dishwashers, vacuum cleaners, televisions, smartphones and clothing). The document was structured as follows:

- Introduction: presentations, introduction and brief definition of the three key concepts (durability, reparability and recyclability);
- Awareness, understanding, attitudes and expectations regarding circular economy practices;
- Barriers and drivers: factors that encourage consumers from undertaking circular economy practices, as well as those that prevent them from it;

Expectations with regard to information provision about durability, reparability and recyclability, and how it should be presented.

2.6. Methodology for the consumer survey

An online consumer survey was conducted in Austria, the Czech Republic, Germany, Spain, France, Hungary, Ireland, Latvia, the Netherlands, Portugal, Romania and Sweden with approx. 1000 respondents each. The obtained sample was representative in terms of age, gender and geographic region (see weighting strategy further below).

All survey participants received a monetary incentive for their participation in the survey. As outlined in the following section, respondents who also conducted the experimental task as part of the survey could earn additional incentives through their choices in the experiment.[30]

The survey contained questions in the following areas:

- Consumers' understanding of 'durability' and 'reparability'
- Consumers' CE engagement and drivers and barriers of this (non-)engagement. This section included questions in the following sub-areas:
    - Experience with owning different types of products
    - Experience with broken products
    - Experience with repair and self-repair
    - Experience with renting/leasing products and purchasing second hand products
    - The importance of durability and reparability information on purchasing decisions
    - General CE-related behaviours
- Durability and reparability information

[29] In each country, incentives were established by the local agencies who conducted the groups, according to their standard practice for compensating respondents for taking part in focus group research.

[30] The participation fee paid in Ipsos points converted into roughly €1-€2 depending on the country and the additional incentive paid for choices in the experiment amounted to an additional €0.50 - €1.

- Expectations, understanding and awareness with respect to durability and reparability
- Buying versus leasing products
- After-sales expectations
- Socio-demographics, and respondent attitudes and behavioural traits relevant to the CE

This study did not address whether consumers' attitudes were different for situations in which products were still covered by the 2-year legal guarantee covering all goods sold in the EU, by additional Member State rules which are stricter than the 2-year legal guarantee (e.g. in SE), or covered by additional (extended or commercial) warranties. As a result, when asking respondents, for example, about their repair behaviour or after-sales expectations the survey questions commonly referred to both guarantees, and warranties. The survey did not give specific explanations about the difference of legal and commercial guarantees.

Sampling and weighting of the obtained data

Respondents in each country were randomly drawn from the online panels based on available profile data (age, gender and geographic region) and pre-defined sub-sample sizes (i.e. quota) based on official population statistics published by Eurostat (2017). "Flexible" quota were used, meaning that some leeway was granted to achieve the target number of interviews in each sub-sample group. In Romania, the target number of interviews for the oldest age group was not reached at the end of the fieldwork period. Any imbalance in the representativeness of the data due to the use of flexible quota is managed using post-stratification weights. Two types of weights are produced for this study: country weights and cross-national weights.

Country weights adjust for gender and age distributions in each country such that the weighted data matches the Eurostat statistics (2017) population data. These weights are applied when analysing the data at individual country level.[31]

Cross-national weights adjust for country population size. These weights are applied when analysing the data across multiple countries. Two weighting variables are included in the dataset: (1) a cross-national weighting variable to be applied when analysing all 12 countries; (2) a cross-national weighting variable to be applied when only analysing the six countries where respondents completed the experiment.

[31] These weights are generated using the iterative proportional fitting command *ipfweight* in Stata software package. *ipfweight* is based on the iterative proportional fitting algorithm (also known as raking) first proposed by Deming and Stephan in 1940. It performs a stepwise adjustment of weights to achieve known population margins (gender and age); the adjustment process is repeated until the difference between the known population margins and the weighted margins of the variables gender and age is minimised.

Table 5: Sample composition: Unweighted gender and age distribution

Country	Number of completed interviews	Gender distribution (%, unweighted)		Age distribution (%, unweighted)				
		Men	Women	18-29y	30-39y	40-49y	50-59y	60+y
AT	1005	51.8	48.2	15.4	17.6	19.3	19.8	27.9
CZ	1004	50.7	49.3	17.4	18.0	18.8	15.5	30.2
DE	1009	50.7	49.3	13.5	16.3	19.4	19.4	31.4
ES	1020	51.9	48.1	16.0	19.6	19.5	17.2	27.8
FR	1002	52.6	47.4	16.4	18.9	17.8	15.3	31.7
HU	1003	53.2	46.8	17.2	17.9	19.5	18.3	27.2
IE	1003	50.6	49.5	17.7	23.6	19.5	17.7	21.5
LV	1005	55.1	44.9	19.0	15.8	18.9	16.7	29.6
NL	1002	51.0	49.0	16.9	17.2	18.0	17.8	30.2
PT	1005	53.1	46.9	20.1	14.4	20.9	16.5	28.1
RO	1005	53.1	46.9	20.1	26.0	20.3	20.6	13.0
SE	1001	50.9	49.2	17.0	15.3	15.0	18.8	34.0

Source: Ipsos analysis of fieldwork data

2.6.1. Random allocations of respondents to survey items, product categories and experimental treatments

As explained above, the survey and experiment covered five different product categories – dishwashers, vacuum cleaners, televisions, mobile phones and clothing items – and tested a large number of experimental treatments (see components of the purchasing and repair experiments below). To keep the tasks manageable for respondents in terms of time, and complexity and to avoid respondent fatigue, not all respondents answered strictly all questions for all products. Instead, a system of random allocations was set up to obtain a balanced data set across the various products and scenarios tested.

To this end, at the start of the consumer survey each respondent was asked about their experience with purchasing/owning any of the five products under examination and whether they had purchased these products themselves (rather than having received these as gifts or alike), and whether any of these products had broken down in the past.

This information was then used to form three sets of respondents as shown below to ensure respondents were routed to relevant questions throughout the survey:

- **Set 1:** Respondents in Set 1 answered in-depth survey questions for up to two randomly selected products which they **currently or previously owned** and which **have broken down** in the past. Products which respondents purchased themselves were prioritised.

Sets 2 and 3 slightly relaxed some requirements of Set 1 in the following way:

- **Set 2:** Respondents in Set 2 answered questions for up to two randomly selected products which they **currently or previously owned** and which they **purchased themselves**. Products which respondents have broken down were prioritised.
- **Set 3:** This set finally covered two randomly selected products where it was sufficient for **respondents** to have simply **owned the products**. Products which were bought by the respondent and products which have broken down were prioritised, but it was not necessary to have such experiences to be included in Set 3.

The final allocation across sets and products was as follows:

Table 6: Number of respondents allocated to different sets and products

Set	Vacuum cleaners	Dishwashers	TVs	Mobile phones	Coat or jacket
Set 1	2,350	2,008	2,045	3,053	1,503
Set 2	4,848	4,096	4,855	4,893	4,883
Set 3	4,907	4,463	4,908	4,914	4,917

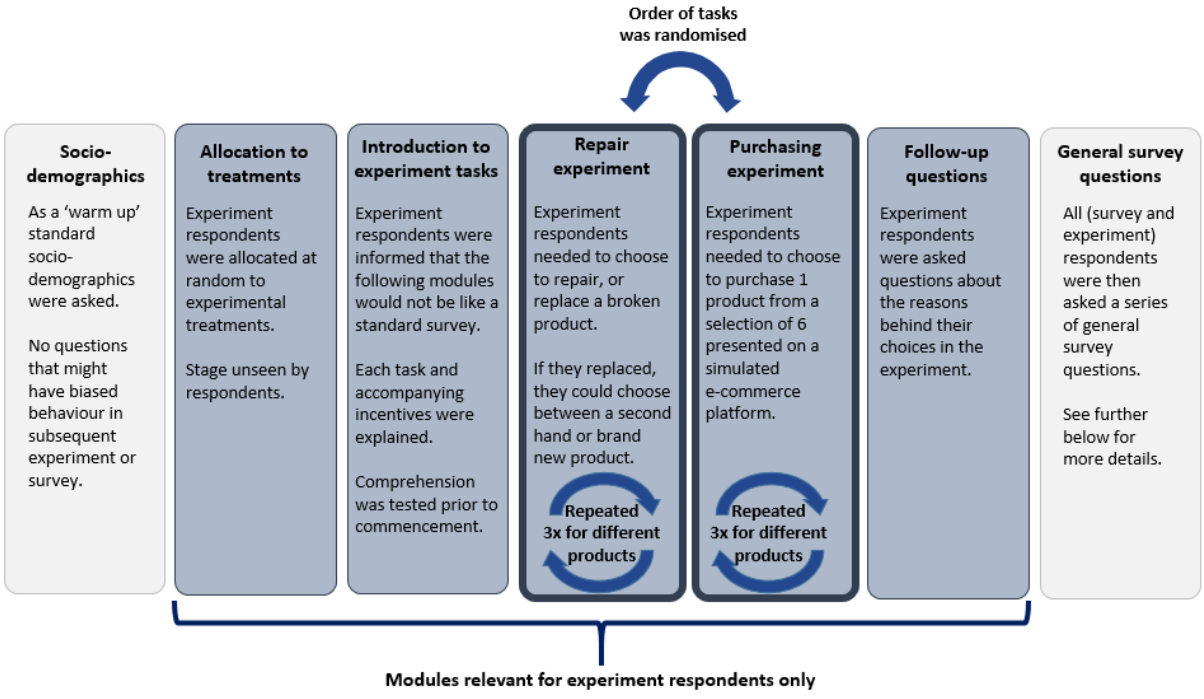
Allocations to the various treatments in the experimental tasks were done independently and randomly across the different allocations. This resulted in a full factorial design between products and treatments. This means that group sizes for different variants within each treatment category were roughly equal and each respondent had the same likelihood of being assigned to any specific treatment. This also ensures that, on average, there should not be any interactions between different types of experimental treatments (see Section 9 in the Annex document for the full argument). In the analyses in the following sections, sample sizes for the various groups are mentioned in table notes.

2.7. Methodology for the behavioural experiment

The behavioural experiment was embedded as an additional module within the general consumer survey. All respondents answered questions regarding their socio-demographic background and general survey questions (see above). Respondents from countries in which the behavioural experiment was conducted, i.e. in the Czech Republic, Germany, Spain, Ireland, Romania and Sweden, additionally completed two additional tasks, namely a **repair experiment** and a **purchasing experiment**.

The sequence of these different components is shown in Figure 1 below, each component is described in further detail in turn in the following sub-sections.

Figure 1: Components and sequence of the consumer survey and behavioural experiment



Source: LE Europe.

2.7.1. Components of the repair experiment

The repair experiment was targeted to test behaviour in the circular economy with a focus on the drivers and barriers of repair decisions. Furthermore, it assessed attitudes towards replacing broken products with second hand as opposed to brand new products.

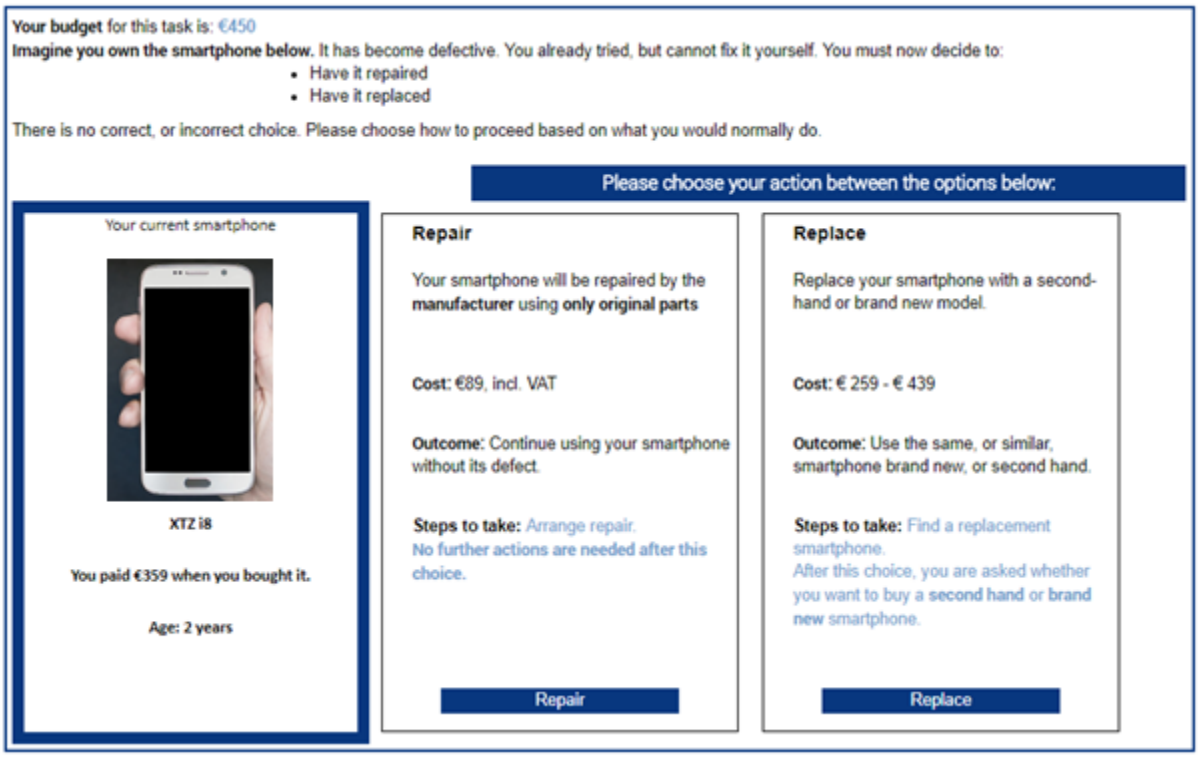
Respondents were given a scenario in which they owned a defective product which could not be self-repaired and which, due to its age, was no longer covered by a legal guarantee. Respondents were asked to choose whether to have their product repaired, or to replace it either with a second hand, or a brand new product.

Decisions in the repair game followed a two-step process. Firstly, respondents were asked to choose whether they wanted to repair a product or replace it. Secondly, if respondents decided to replace a product, they were asked to choose whether to replace their faulty products with a second hand or brand new product.

Example screenshots of both decisions are shown in the two figures below.

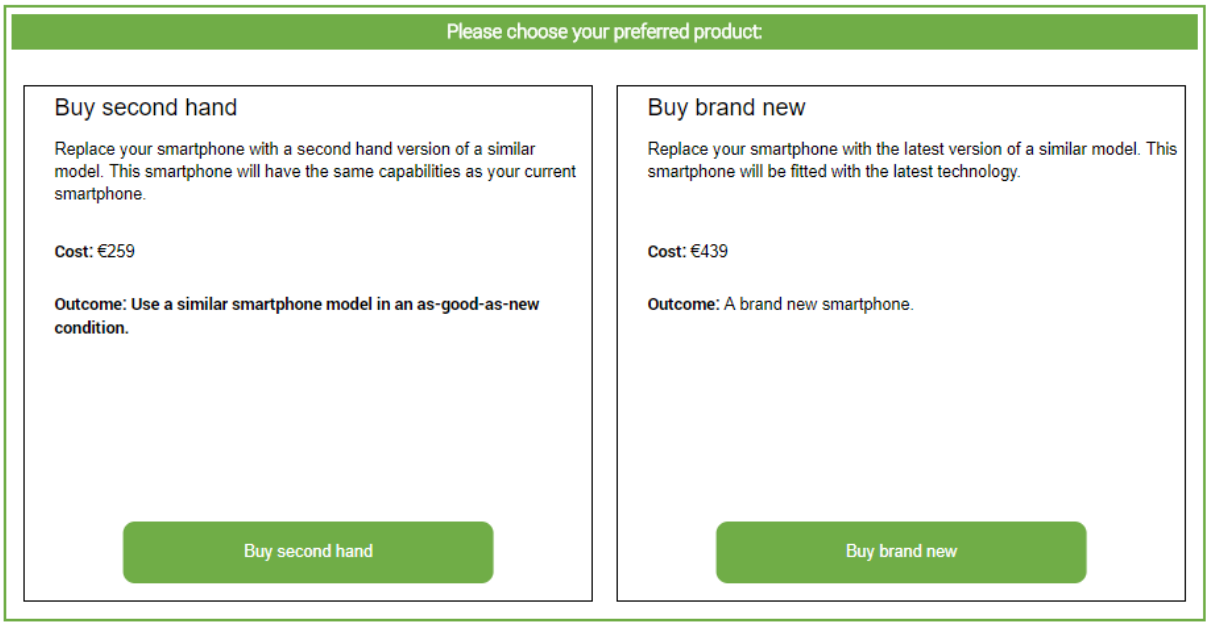
The experiment was monetarily incentivised (see further below) and the prices used were calibrated to closely mimic real decisions. Repairing cost was approximately 25% of the original product price (i.e. price of the broken product when it was new). Replacing the defective product with a brand new version (new, unused and of latest technology) cost 120% of the original product price. Replacing it with a second hand product (used, same technology as defective product, but fully functional) cost 70% of the original product price. The cost for repair or replacement was held constant within a product category.

Figure 2: Decision to repair or replace in the repair experiment



Notes: The picture of the mobile phone shown in this figure is different from the one seen in the experiment by respondents for copyright reasons.

Figure 3: Decision to buy second hand or brand new in the repair experiment



Product coverage in the repair experiment

The experiment was conducted for TVs, dishwashers, vacuum cleaners, smartphones and coats. Each respondent repeated the task for three different products. Which products were covered and the order in which respondents saw the different products were randomised.

Outcome measures of the repair experiment

There were two main outcome measures in this experimental task:

- Likelihood of choosing to repair
- Likelihood of choosing a second hand product. This choice was evidently only relevant for respondents who chose to replace the product in the first stage.

Experimental treatments in the repair experiment

The experimental treatments systematically varied the look and feel of the experimental task for different respondents. Allocations to the various treatments in the experimental tasks were done independently and randomly across the different allocations. This resulted in a full factorial design between products and treatments. This means that group sizes for different variants within each treatment category were roughly equal and each respondent had the same likelihood of being assigned to any specific treatment. This also ensures that, on average, there should not be any interactions between different types of experimental treatments (see Section 9 in the Annex document for the full argument).[32]

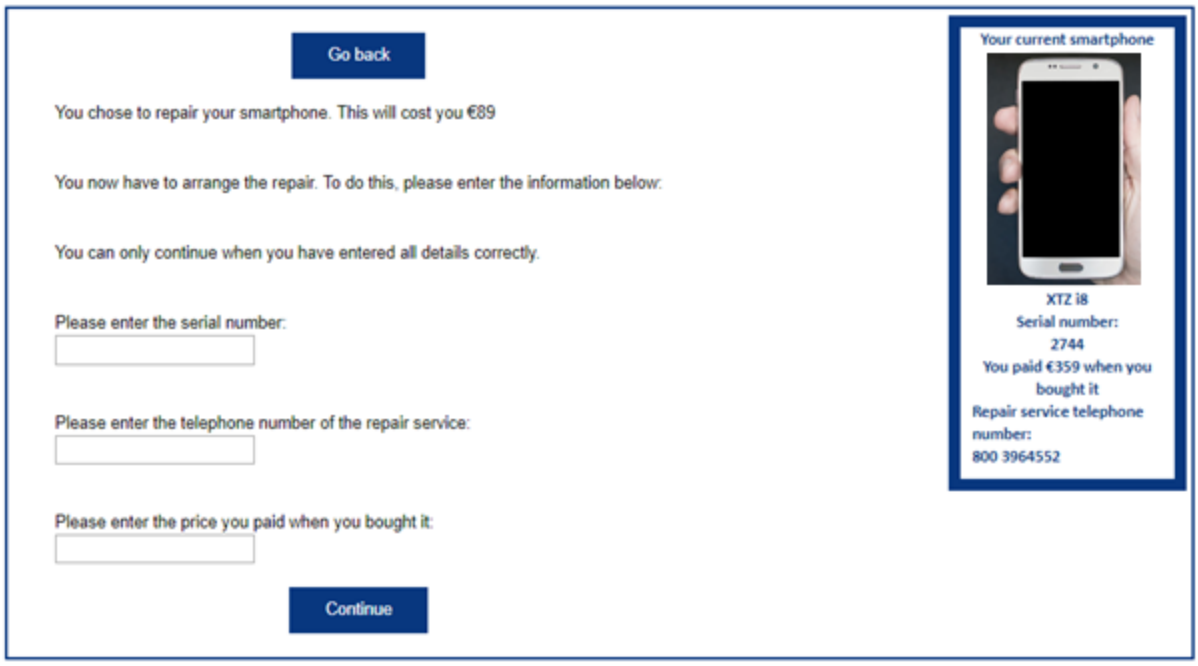
- **Effort treatment**: This treatment changed the relative cost of either repairing or replacing the product by introducing a real effort task. This treatment aimed to test whether non-price related frictions, such as search costs, time investment etc. represent barriers for engagement in the CE. There were three variants:

[32] Since the same percentage of participants were exposed to a specific treatment variant in all other treatments (e.g. the same number of respondents saw the no effort, effort after repair, effort after replace conditions in all other treatments), the effect of the treatment on other treatment is cancelled out, on average. In the analysis, each treatment is analysed in isolation, i.e. averaging across all variants of any other treatment. This setup should safeguard that there is no 'contamination' between different types of treatments and is common practices in large-scale controlled behavioural experiments like this one (see for example the setup of the behavioural experiment (experiment 3) in the 'Consumer Market Study to support the Fitness Check of EU consumer and marketing law', European Commission 2017, available at: http://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=59332.

- **No effort**: Both, repairing and replacing were 'effortless'.
- **Repairing was associated with effort**: The repair decision was followed-up by an effort task, replacing an item (with a brand new version, or a second hand version) instead was effortless.
  - **Replacing was associated with effort**: This was the flipside of the above. Effort was required for buying a second hand or a brand new product while repairing was effortless.

Figure 4 provides an example of the effort task associated with repairing. The effort task associated with replacing was the same, except for the framing of the reason for repair. The fact that effort was required was announced in previous stages of the repair experiment. That is, on the first decision screen, see Figure 2, in the effort treatment it was indicated under 'Steps to take' that respondents needed to complete an additional task.

Figure 4: Effort in the repair experiment



Notes: the picture of the mobile phone shown in the figure is different from the one seen in the experiment by respondents for copyright reasons.

- **Framing of the source of repair**: This treatment varied who would repair the product – the manufacturer, or an independent repair shop. Moreover, it varied whether the repair was done using original parts only, or a mix of original and non-original parts. This setup resulted in the following 2 x 2 factorial design with 4 variants:

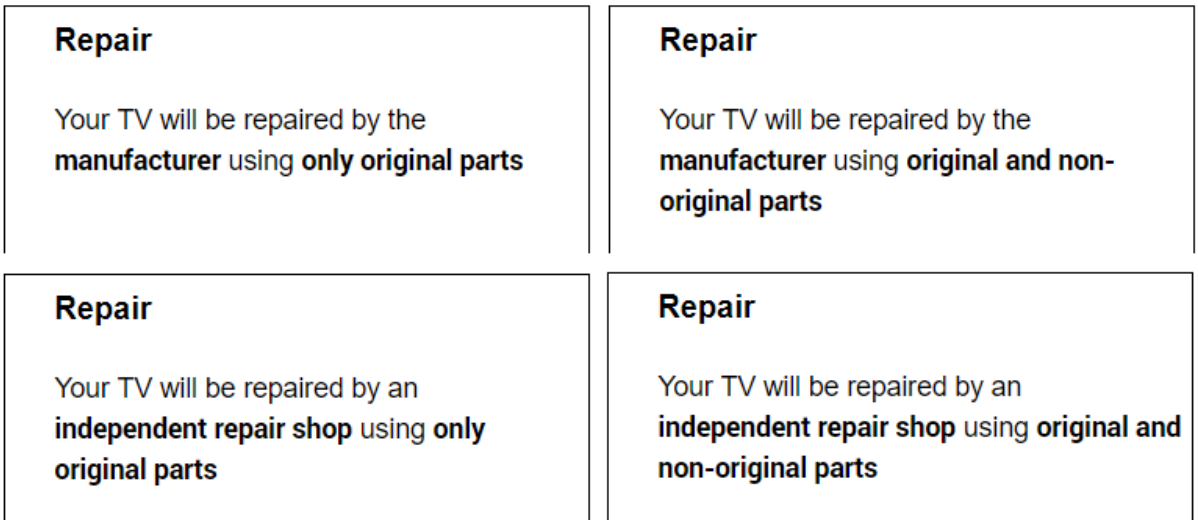
Table 7: Design for the framing of the source of repair

	Original parts only	Original and non-original parts
Manufacturer repair	A	B
Independent repair	C	D

The variants A & C varied whether the manufacturer or an independent repair shop would perform the repair. Variants B & D varied the type of spare parts to be used for repair. The treatment aimed to test whether certain characteristic of a repair service make the option to repair more or less attractive.

The source of repair was shown to respondents with information on repair in the first stage of the experiment (see Figure 2). Figure 5 provides an example of the way that different sources of repair were shown.

Figure 5: Framing of the source of repair in the repair experiment



- **Framing repair prices as VAT exempt**: This treatment had two variants and varied whether prices were shown as including VAT or as VAT exempt. This treatment aimed to test whether framing repair prices as VAT exempt made the option to repair a product more attractive. This can be considered purely as an advertising practice. Prices were not varied, i.e. VAT exempt prices were not actually cheaper compared to VAT incl. prices. The treatment only tested the way prices were presented, not the actual price elasticity. In the behavioural economics literature, framing of choices is often found to be very influential on how individuals perceive and choose between options.[33]

  VAT exemption for repair was shown to respondents in two ways (see Figure 6). Firstly, the price for repair included explicit reference vat exemption or inclusion. Secondly, a red-bordered label was shown if repair was VAT exempt.

[33] See for example: UK Office for Fair Trading (2010) 'The impact of price frames on consumer decision making', a report prepared by London Economics; Tversky and Kahneman (1981) 'The framing of decisions and the psychology of choice', Science; Levin et al. (1998) 'All frames are not created equal: A typology and critical analysis of framing effects', Organizational Behavior and Human Decision Processes.

As a result this study aimed to test such framing effects only. Standard economy theory tells us that demand for repair prices would increase if prices were lowered by the amount of VAT. This study did not aim to measure the precise price elasticity of demand for repair services and thus omitted testing price changes in this treatment.

Figure 6: Framing of VAT exemption in the repair experiment

Each respondent was randomly allocated to one variant within each of the treatment categories, resulting in a full factorial experiment design (see Section 9 in the Annex document for the full argument).

Incentives in the repair experiment

The repair experiment was incentivised. Respondents could earn additional Ipsos survey points through their choices. More specifically, respondents were given a budget for each of the three rounds of the experiment task which they could use to pay for replacing/repairing their products.

The cost of repairing/replacing was deducted from the budget to reflect real-life budgetary constraints. Respondents then 'earned' points for the longevity of their repaired (or replacement) product. This latter mechanism reflected real-life monetary advantage of durable products.

The setup of the tasks and incentive structure were clearly explained before starting the task (see box below). Additionally, respondents answered comprehension questions on the functioning of the task and incentives to ensure they indeed understood. A more detailed description of the experiment incentives is provided in Section 11 in the Annex document.

The following instructions[34] were shown to respondents:

TASK DESCRIPTION

You will play 3 rounds of this game.

In every round, you will be given a budget. You can use this budget to repair or replace a product. Whatever you don't spend, you keep. You will receive 1 point for every €100 you have at the end of this survey.

Like in reality, you will get some 'benefits' from using a well-functioning product, like the pleasure of clean plates from your dishwasher, or using technology on a smartphone.

These benefits, in form of additional survey points accrue over time. You will get some indication on the benefits of your choice, but like in reality, this information might not be accurate. The more benefits you get from your choice, the more points you earn.

Each choice is designed to be an attractive option, so you must choose what you think is the best choice for yourself.

2.7.2. Components of the purchasing experiment

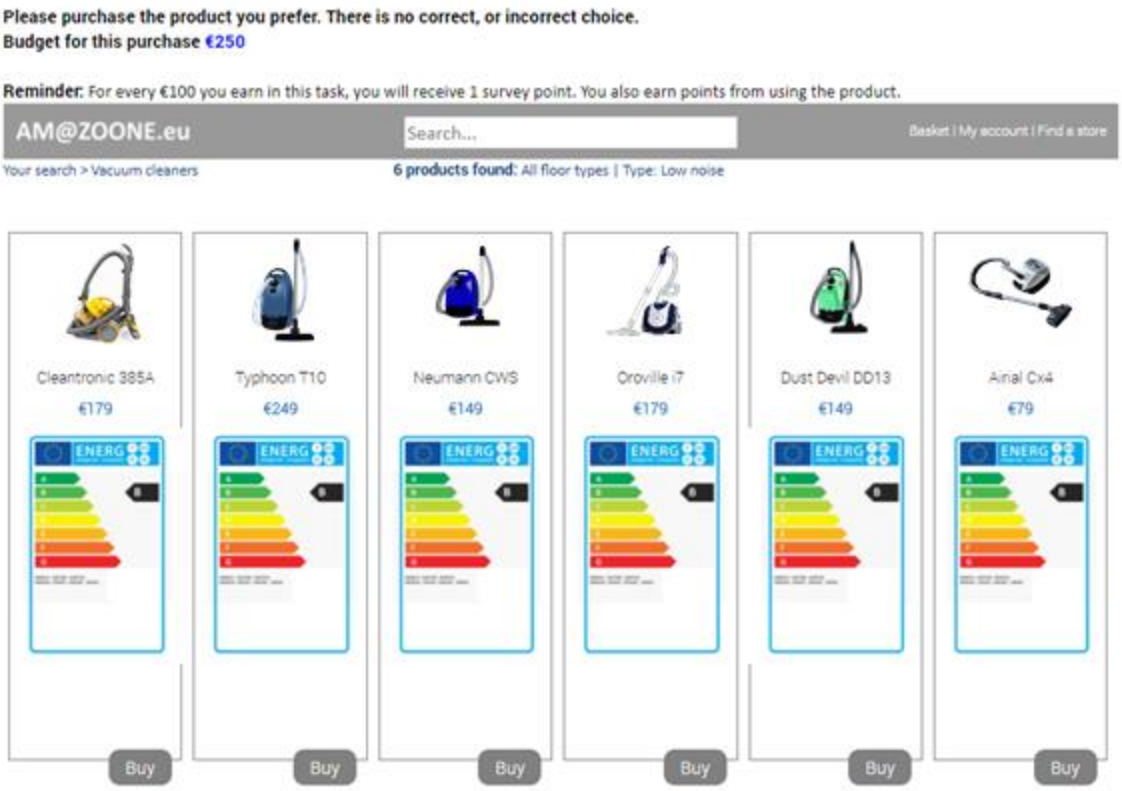
The purchasing experiment was targeted to test what drives CE considerations in purchasing decisions. In particular, the experiment tested how the presentation of product information regarding durability and reparability of products at the point of sale impacts product choice and willingness-to-pay for better durability and/or reparability of products.

[34] Prices were converted into local currencies in non-Euro countries.

To this end, respondents were given a scenario in which they needed to shop for a product on a simulated e-commerce website showing them six products to choose from (e.g. six different models of vacuum cleaners were shown, and one needed to be chosen). Figure 7 and Figure 8 show the basic components of this simulated website. For each product, respondents saw the following: picture, name and price of the product and a label. The EU Ecolabel was employed when respondents needed to make decisions on coats (see Figure 8). For all other products, the EU Energy Label was used (see Figure 7). Additionally, durability and/or reparability information was inserted as described further below.

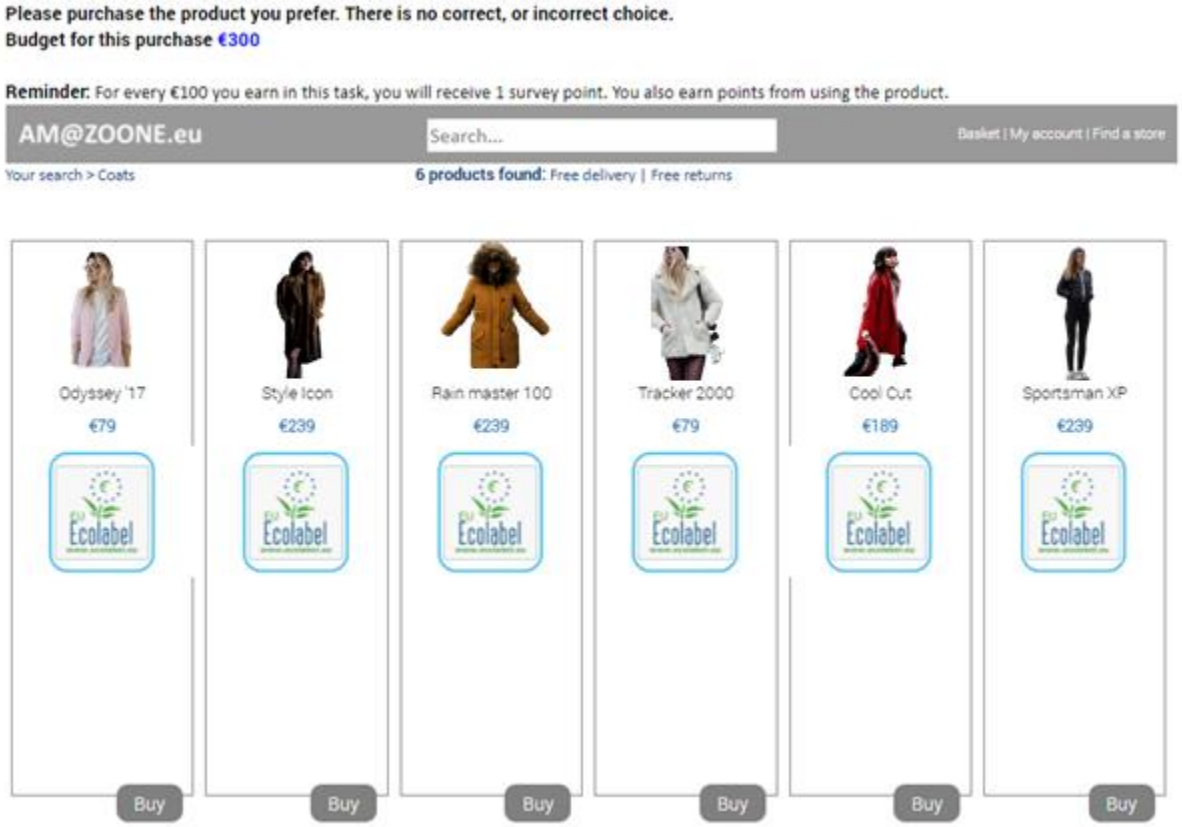
Pictures and product names were varied across the 6 products. The energy rating was held constant at class 'B' for all products (no rating applied to coats). This was done to simplify the setup such that the impact of durability and reparability information could clearly be measured.

Figure 7: Purchasing experiment using EU Energy Labels



Notes: The pictures of vacuum cleaners shown in this figure are different from the ones seen in the experiment by respondents for copyright reasons.

Figure 8: Purchasing experiment using EU Ecolabels



Notes: The pictures of coats shown in this figure are different from the ones seen in the experiment by respondents for copyright reasons. The experiment used gender-neutral images of coats.

Product coverage in the purchasing experiment

Analogous to the setup of the repair experiment, the purchasing experiment was also repeated three times, each time for a different product. Each respondent thus was randomly assigned to making purchasing decisions for 3 out of 5 products among TVs, dishwashers, vacuum cleaners, smartphones and coats.

Outcome measures of the purchasing experiment

There were three main outcome measures in this experimental task:

- **Preferences for durability**: Preferences for durability were measured as the likelihood of choosing a product with a specific level of durability. Moreover, the average durability per product category was measured across the different experimental conditions, as well as for different groups of respondents.
  Each product was assigned one of four levels of durability. For each product category, a given durability level mapped to a specific number of years/months of durability as shown in the table below.

Table 8: Levels of durability and reparability in the purchasing experiment

	Durability level					Reparability level
	Vacuum cleaners	**Dish-washers**	**TVs**	**Smart-phones**	**Coats**	**All products**
Level 1	10 years	15 years	7 years	42 months	10 years	A
Level 2	7 years	10 years	5 years	36 months	7 years	C
Level 3	4 years	5 years	4 years	30 months	4 years	E
Level 4	2 years	2 years	2 years	24 months	2 years	G

In the analyses further below, we refer to respondents having either:

- **Preferences for high durability**: respondents who chose;
  - the highest level of durability three times; or,
  - the highest level of durability twice and never the lowest level; or,
  - the highest level of durability once and the second highest level of durability twice;
- **Preferences for low durability**: respondents who chose;
  - the lowest level of durability three times; or,
  - the lowest level of durability twice and never the highest level; or,
  - the lowest level of durability once and the second lowest level of durability twice; and
- **Intermediate preferences**: respondents who were neither had a preference for high or low durability.
- **Preferences for reparability**: In analogy to the setup for durability, there were also 4 levels of reparability. More specifically, reparability was rated on an A-G scale as a potential addition to the EU Energy Label. Also, analogously, respondents are referred to as having a high, intermediate or low preference for reparability. These preferences were defined similarly as the definitions used for durability preferences.
- **Willingness-to-pay**: Willingness-to-pay for additional durability or reparability was measured via a choice modelling approach (see Section 8 in the Annex document for a detailed methodology). In brief, the products presented to different respondents were systematically varied in terms of their attributes price, name, picture, durability and reparability.[35] For example, some respondents saw during the experiment a more expensive price for a very durable product; others saw a lower price for the same level of durability. Some saw products with higher, others with lower durability, and similarly for reparability etc.

- WTP was then estimated, using statistical methods, by pooling responses across respondents. This approach avoids that respondents would be primed by any specific product attributes, or by any price relationships with durability/reparability.

Experimental treatments in the purchasing experiment

As for the repair experiment, the experimental treatments systematically varied the look and feel of the experimental task for different respondents. Once again, allocations to the various treatments in the experimental tasks were done independently and randomly across the different allocations. This resulted in a full factorial design between products

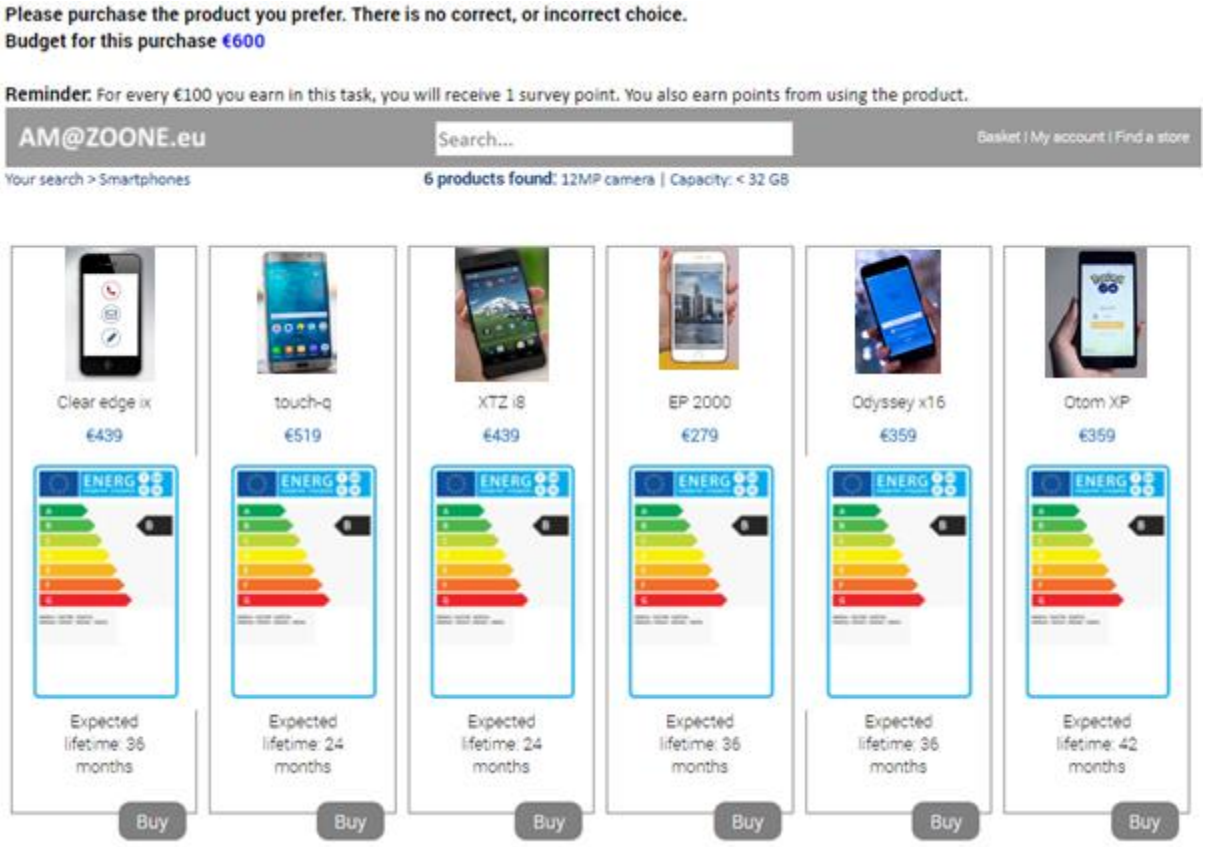
[35] Product attributes were varied in addition to varying the way this information was presented via experimental treatments (see next subsection).

and treatments. This means that group sizes for different variants within each treatment category were roughly equal and each respondent had the same likelihood of being assigned to any specific treatment. This also ensures that, on average, there should not be any interactions between different types of experimental treatments (see Section 9 in the Annex document for the full argument).[36]

- **Framing of durability and reparability information:** All respondents were always shown the EU Energy Label, or Ecolabel (for coats) as shown in Figure 7 and Figure 8. This information treatment varied how and whether information on durability and/or reparability was available **in addition** to the EU Energy/Ecolabel. The setup was a full factorial design with 2x6 variants as shown in Table 9 below (see Section 9 in the Annex document for the full argument).

  An example of how the experiment screen looked with durability information is shown below in Figure 9. Table 9 then shows the different information variants and examples of these are shown thereafter.

Figure 9: Purchasing experiment using the EU Energy Label and durability information treatment displayed as 'Expected lifetime'



Notes: The pictures of mobile phones shown in this figure are different from the ones seen in the experiment by respondents for copyright reasons.

[36] Since the same percentage of participants were exposed to a specific treatment variant in all other treatments (e.g. the same number of respondents saw the no claim, social claim, savings claim conditions in all other treatments), the effect of the treatment on other treatment is cancelled out, on average. In the analysis, each treatment is analysed in isolation, i.e. averaging across all variants of any other treatment. This setup should safeguard that there is no 'contamination' between different types of treatments and is common practices in large-scale controlled behavioural experiments like this one (see for example the setup of the behavioural experiment in the Lot 3 study to support the 'Study for the Fitness Check of EU consumer and marketing law', European Commission 2017.

Table 9: Treatment variants of the framing of durability and reparability treatment

Durability information	Reparability information	Label type	Variant number
Not shown	Not shown	Mini label	1a
		Full label	1b
Shown on EU label[2] (handshake icon & years, months)	Not shown	Mini label	2a
		Full label	2b
Not shown	Shown on EU label (spanner & screwdriver icon with A-G rating)[3]	Mini label	3a
		Full label	3b
Shown on EU label[2] (handshake icon & years, months)	Shown on EU label (spanner & screwdriver icon with A-G rating)[3]	Mini label	4a
		Full label	4b
Shown as '*Manufacturer warranty*'[1], not on EU label	Not shown	Mini label	5a
		Full label	5b
Shown as '*Expected lifetime*'[1], not on EU label	Not shown	Mini label	6a
		Full label	6b

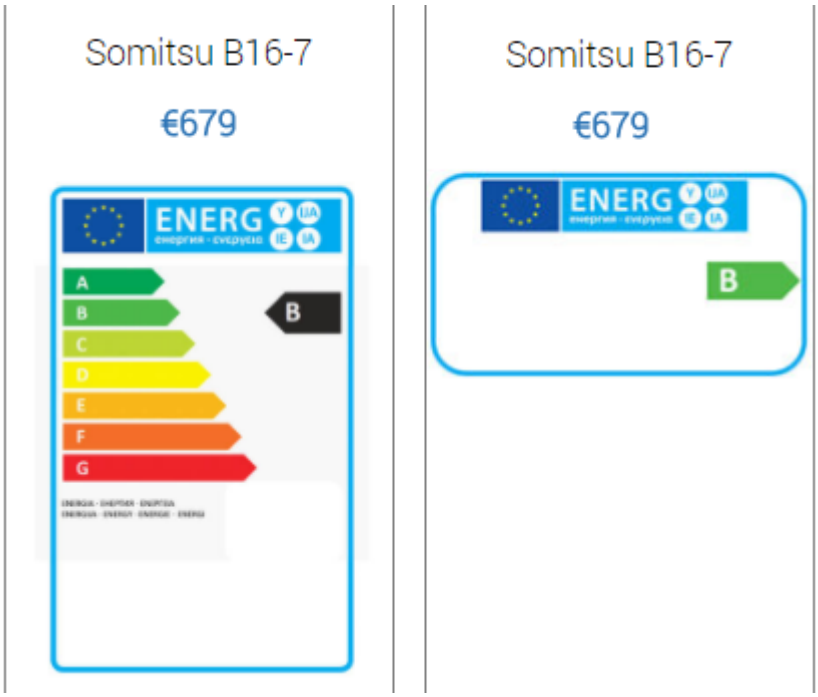
Notes: [1] 'Manufacturer warranty' and 'Expected lifetime' were not explained or defined further in the experiment. It is a common market practice for manufacturers and retailers to display durability claims beyond the legal guarantee of 2 years in this way. Manufacturer warranties and expected lifetimes may be seen as a service to consumers, or a possible signal for quality, but the experiment remained silent about the precise meaning.

[2] Durability on EU labels was defined as: The period in which the manufacturer promises to replace or repair the product free of charge.

[3] Reparability on EU labels was defined as: Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.

The 'mini label' refers to a reduced version of the EU Energy Label which was shown as part of the product description. Such 'mini labels' are commonly found in product descriptions of online retailers. Full labels instead are usually shown on products in brick-and-mortar shops. Like in reality, clicking on the label expanded it to the 'full label' version and showed additional information on the label elements (e.g. descriptions of the meaning of its elements). In the 'full label' variants, the full EU Energy Label was featured on the product descriptions right away. Clicking on the label expanded its size and showed additional information as in the mini version. The two label versions, as they appeared in the purchasing experiment are shown in the figure below:

Figure 10: Full label and 'mini-label' in the purchasing experiment



The different types of durability and reparability information were shown to respondents either within an EU label (i.e. EU Energy or EU Ecolabel) or outside of it. Figure 11 shows the look of durability and reparability information within the EU Energy Label. The label using the handshake icon represents durability information (here, 15 years).[37] The label with the spanner and screwdriver icon represents reparability information (here, category A).[38]

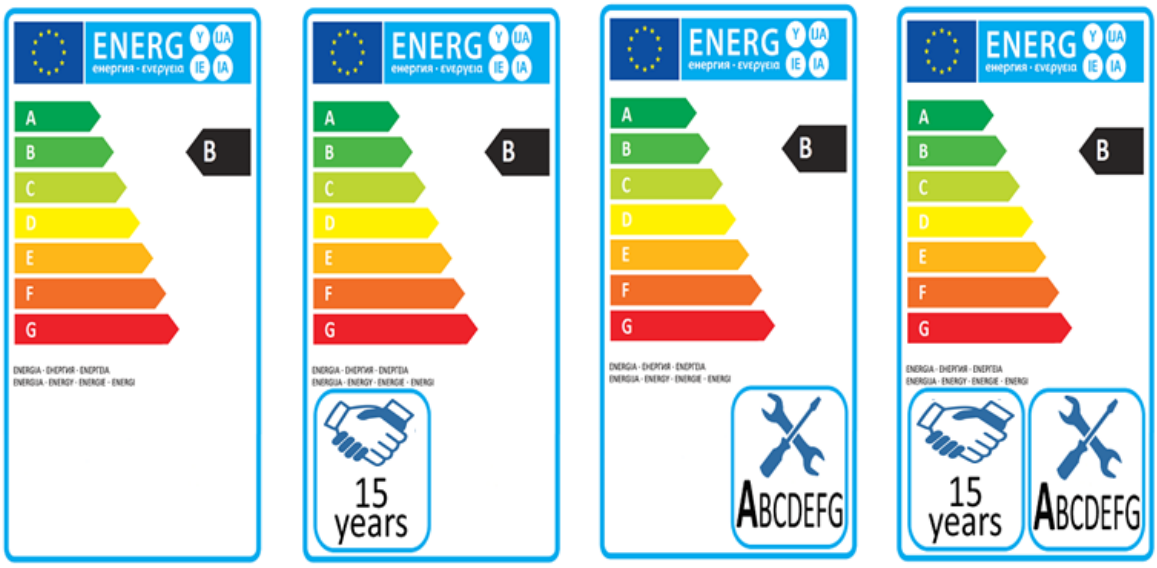
Clicking on the EU labels enlarged the label and provided additional information on the meaning of the different label elements. Durability and reparability were defined as follows:

- **Durability**: The period in which the manufacturer promises to replace or repair the product free of charge.
- **Reparability**: Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.

[37] Different icons were discussed for representing durability in the experiment design phase. The handshake icons was chosen but not tested beforehand. It is thus possible that other types of icons would be more or less effective compared to the icon chosen for this study.

[38] As for durability, different icons were discussed for representing reparability as well. Previous studies seemed to suggest that the chosen A-G scale is well understood by consumers. Instead, scales with, for example star ratings, or numeric ratings may work less well.

Figure 11: Durability and reparability information within EU labels

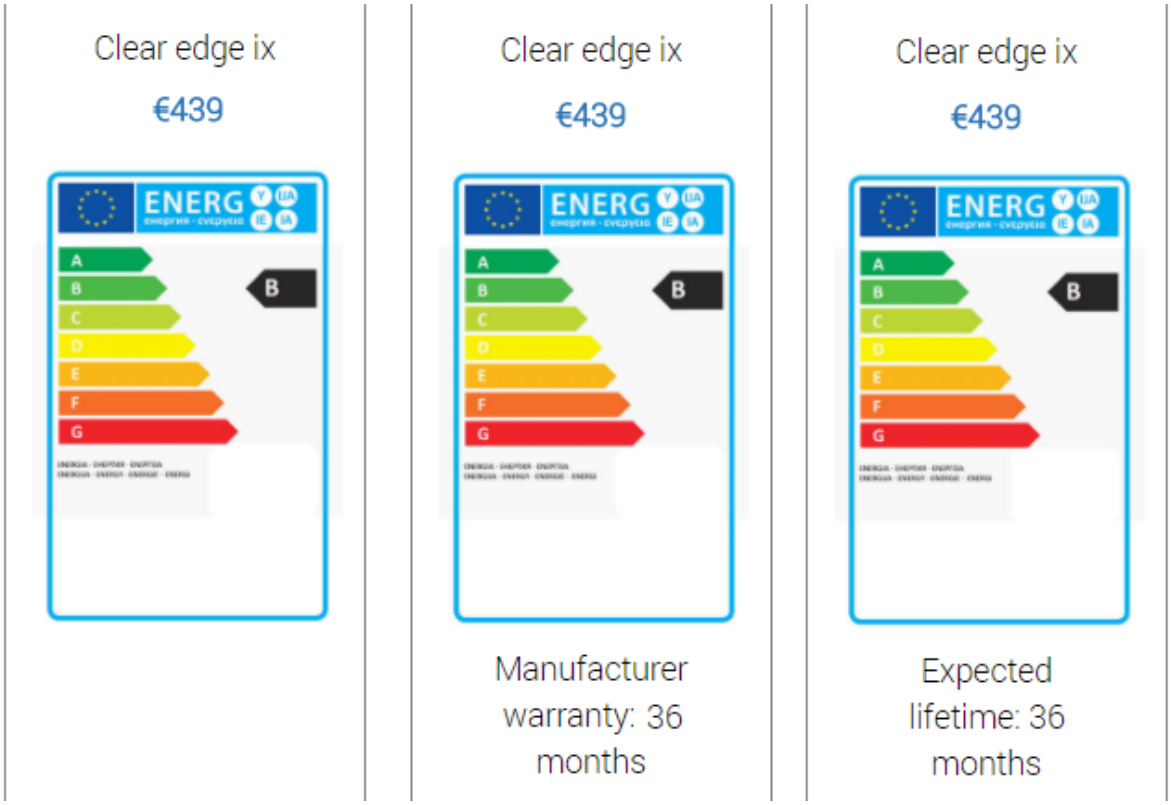


Notes: the handshake icon shown in the figure is different from the one seen by respondents in the experiment for copyright reasons.

Label variants as numbered in Table 9 above. From left to right: 1b, 2b, 3b, 4b. Durability ranged from: 2-10y for VC, 2-15y for DW, 2-7y for TVs, 2-10y for coats and 24-42 months for smartphones. Reparability took values A, C, E or G (see Table 8).

Figure 12 shows durability information shown outside of an EU label, as it would appear in the experiment for smartphones. As the figure shows, the EU label was always shown to respondents.

Figure 12: Durability information outside of EU labels



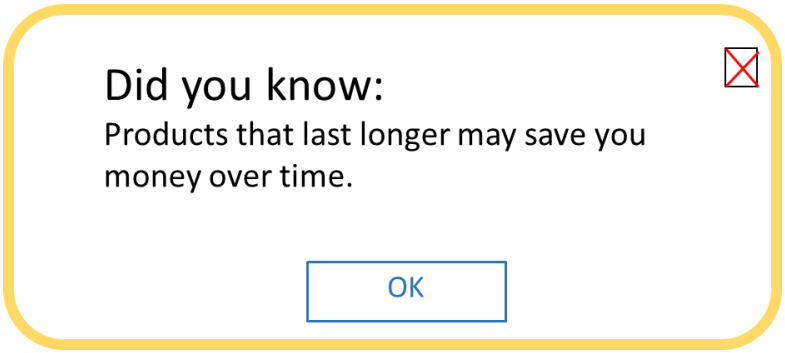
Note: Label variants as numbered in Table 9 above. From left to right: 1b, 5b, 6b. Durability ranged from: 2-10y for VC, 2-15y for DW, 2-7y for TVs, 2-10y for coats and 24-42 months for smartphones (see Table 8).

The way durability and reparability information were shown was carefully designed in line with existing evidence on the types of labels which can be expected to be most impactful and best understood by consumers. A European Commission study[39] on environmental labelling tested star ratings, 'water drop' ratings and letter (A-G) ratings and found that the letter rating was universally best understood. The study revealed that star ratings were appealing to consumers, which was also found in focus group discussions in this study (see section 6.3), however, this appeal did not translate into better understanding. Similar conclusions were also drawn by an EESC study.[40]

Another European Commission study in 2017[41] tested the presentation of durability information in terms of years and functional lifetime. The study showed that providing durability information had an impact on behaviour, but there was no difference between the different presentations of durability information. Other evidence instead seems to suggest that consumers find it difficult to understand functional lifetime information because they have difficulty estimating the meaning of different unit or their use of products.[42]

- **Nudges and claims about durability:** This treatment varied whether respondents would see a claim highlighting potential positive impacts of durability. Similar claims have been shown to have significant effects on subsequent behaviour.[43] The following variants were used:
  - **No claim:** Respondents did not see any claim about durability.
  - **Claim about long-term savings:** Respondents in this variant saw the claim that more durable products may generate long-term savings. Figure 13 shows a screenshot of this claim in the experiment.
  - **Claim about other people:** Respondents in this variant saw a different claim which stated that the majority of people choose more durable and more easily repairable products. Figure 14 provides an example of the claim as used in the purchasing experiment.

Figure 13: Savings claim in purchasing experiment



Notes: The claim was shown to respondents in the respective treatment as a pop-up on screen at the beginning of each purchasing stage.

[39] European Commission (2012) 'Research on EU product label options - Study delivered by Ipsos MORI, London Economics and AEA', available at: https://ec.europa.eu/energy/sites/ener/files/documents/2012-12-research-eu-product-label-options.pdf.

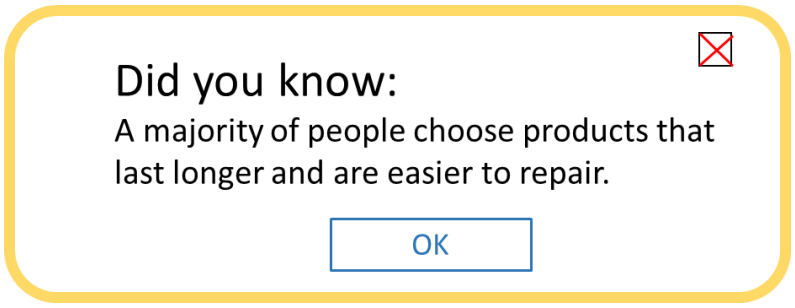
[40] European Economic and Social Committee (2016) 'The Influence of Lifespan Labelling on Consumers', available at: https://www.eesc.europa.eu/resources/docs/16_123_duree-dutilisation-des-produits_complet_en.pdf.

[41] European Commission (2017) 'Consumer Market Study to Support the Fitness Check of EU Consumer and Marketing Law', a study by GfK Belgium, available at http://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=59332.

[42] Larrick, Soll (2008) 'The MPG Illusion', Science. Schwarz (1999) 'Self-reports: How the questions shape the answers' American psychologist.

[43] See The Behavioural Insights Team (2015) EAST Four simple ways to apply behavioural insights, available at: http://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf; Allcott (2011) 'Social norms and energy conservation', Journal of Public Economics; Coffmann et al. (2017) 'Can Social Information Affect What Job You Choose and Keep?', American Economic Journal: Applied Economics.

Figure 14: Social claim in purchasing experiment



Notes: The claim was shown to respondents in the respective treatment as a pop-up on screen at the beginning of each purchasing stage.

This 'claims' treatment was tested in addition to the treatment above which varied whether and how durability/reparability information was disclosed. It could be expected that the claims treatment would have increased the attention respondents paid to the durability/reparability information in the other treatment, i.e. there could have been a positive interaction between these two treatment conditions. Due to the way the experiment was set up, such potential 'contamination' effects have been controlled for because there was an equal number of respondents who saw 'no claim', the 'savings claim' and the 'social claim' and who would have seen respectively, 'no CE information', 'durability information on an EU label' etc. When analysing the results of the information treatment, an average of all respondents in the claims treatment is taken (i.e. including those who saw a claim and those who did not) such that one would expect the effect of the 'claims' treatment to average out and not contaminate the 'information' treatment. This approach is common practice in similar controlled behavioural experimental studies (see for example the design of the Lot 3 study supporting the 'Study for the Fitness Check of EU consumer and marketing law', European Commission 2017, and the Annex for a theoretical development of the validity of this approach).

Incentives in the purchasing experiment

Similar to the setup of the repair experiment, the purchasing experiment also had additional monetary incentives.

The following instructions[44] were shown to respondents:

TASK DESCRIPTION

You will play 3 rounds of this game.

In every round, you will be given **a budget.** You can use this budget to purchase products in this game. **Whatever you don't spend, you keep.** You will receive 1 point for every €100 you have at the end of this survey.

Like in reality, you will get some **'benefits' from using a product**, like the pleasure of watching a film on a nice TV, or looking good in a new coat. **These benefits, in form of additional survey points, accrue over time.** You might get some indication on how long the product will work well, but like in reality, this information might not be accurate. The more benefits you get from a product, the more points you earn.

Each product is designed to be an attractive option, so you must **choose what you think is the best product for yourself.**

As for the repair experiment, respondents were given a budget for each of the three rounds of the experiment task which they could use to pay for purchasing the products.

[44] Prices were converted into local currencies in non-Euro countries.

The cost of the purchased product was deducted from the budget to reflect real-life budgetary constraints. Respondents then 'earned' points for the longevity of their products. This latter mechanism reflected real-life monetary advantages of durable products.

As before, respondents completed a comprehension stage with a detailed description of the task and incentives as well as comprehension questions.

EVIDENCE AND FINDINGS

3. Consumers' willingness to engage in the Circular Economy

This section of the report provides information gathered from the literature, stakeholder interviews, focus groups, and consumer survey on consumers' willingness to consider the durability and/or reparability of products, in other words: consumers' willingness to engage in the Circular Economy. This section highlights if, why, and how consumers take the durability and reparability of products into account in general, for example when purchasing new products and when using products.

Later sections dive deeper into many of the topics which were touched upon in this section.

Key findings

- All strands of research demonstrated that **consumers were generally willing to consider the durability and reparability of products** when purchasing new products.
- All strands of research found indications that consumers are motivated to engage in the CE because they care for the environment. The focus groups furthermore highlighted that being able to save money was another key motivator for purchasing more durable products.
- A majority of survey respondents **claimed to be aware of the durability of the products they purchased (64%) as well as of repair services (58%)**. Respondents also indicated that they **frequently searched for durability and reparability information** of products (62% for durability and 55% for reparability). Yet, as found in the further analysis presented in section 4, respondents often felt durability and reparability information was difficult to find and would like to receive better information regarding these types of product characteristics
- A majority of respondents (93%) reported that they kept things they owned for a long time, recycled unwanted possessions (78%), and repaired possessions if they broke (64%). Respondents furthermore felt that their peers (close friends and family) displayed similar levels of engagement in CE practices.
- These stated attitudes in the survey were widely supported by the literature, stakeholder interviews and focus groups.
- Some previously conducted surveys assessed as part of the literature review found that consumers are, at least to some extent **willing to change their lifestyle to address sustainability issues**. In particular, some previous studies as well as interviews with stakeholders have documented that consumer are willing to pay for products with better environmental credentials. Yet, the French CREDOC for example reported that consumers could be **reluctant to adopt more sustainable purchasing choices**. Other experts have highlighted that survey research needs to be interpreted with caution as there might be a **discrepancy between what people say about their CE behaviours and what they actually do**.
- Generally, there was agreement across the different strands of research that many CE decisions depend on a trade-off between price and other considerations (such as e.g. quality, convenience, caring for the environment, being good at repairing). The literature, stakeholder interviews and focus groups reported a certain level of caution towards CE product characteristics. Consumers may find it difficult to assess whether repairing a product would be worthwhile, whether refurbished or second hand products presented good value for money. Such uncertainty can lead consumers to purchase brand new products instead, especially, when the price difference between new and second hand, or refurbished products is not substantial.
- Regarding product-specific willingness to engage in the CE, according to the literature, stakeholders and focus groups, durability and reparability were seen as most important for large, more expensive and less fashion-dependent products such as white goods. Instead, these CE credentials were seen as less important for fashion and technology items which are replaced more frequently. At the same time, consumers can become attached to fashion items, especially clothing, which then makes them reluctant to replace items and opt for repair instead.

- Furthermore, for fashion products there was a higher willingness to buy second hand (clothes, smartphones), or to rent or lease such products (smartphones).
- It emerged from the focus group discussions that some consumers, especially those in potentially vulnerable situations, were interested in purchasing smartphones second hand to save money compared to brand new phones.
- **A minority, yet still sizable share**, of survey respondents were **interested in** engaging with novel CE practices such **as leasing products instead of purchasing them.** The share of respondents who would be willing to lease a product rather than purchase it was lowest for vacuum cleaners (10%) and highest for smartphones (25%). These relatively low levels of interest may have been partly driven by general unfamiliarity with such practices. Yet, taking into consideration that leasing practices are novel, there seems to be a **sizable market potential** currently untapped by leasing providers. Leasing and renting practices are further discussed in section 4.4.2.

3.1. Evidence from the literature and data collection

3.1.1. General willingness to engage in CE practices

The literature shows that consumers are, to a certain extent, willing to engage in CE practices and are willing to pay for more durable products. Consumers' willingness to engage in sustainable purchasing practices derives primarily from their concern about the environmental impact of the linear economy and to a lesser extent from their desire to save money, for example by repairing or buying a second hand product.

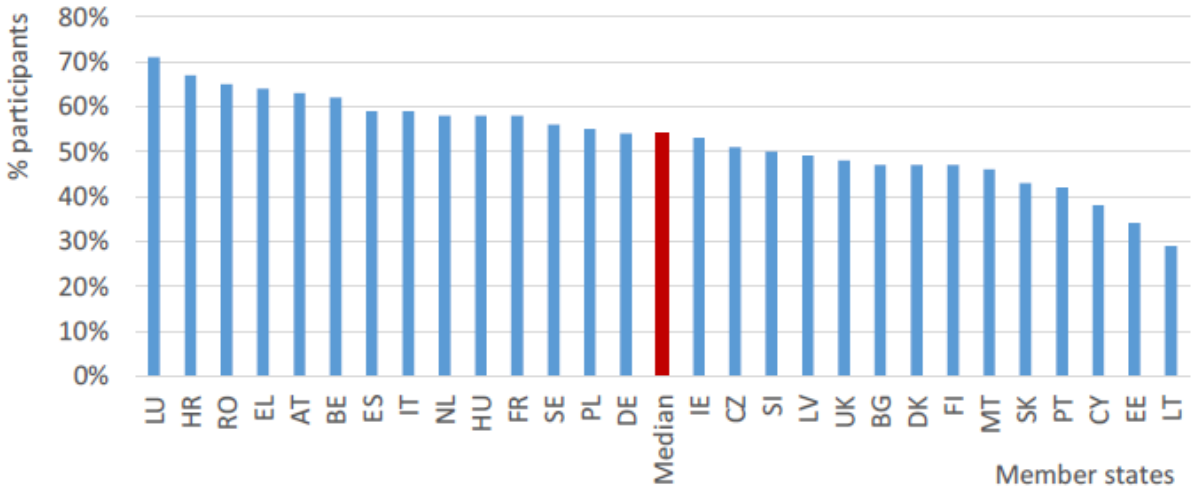
As several surveys show, **consumers take the environmental impact of their purchasing decisions into account.** In a survey carried out by the French Agency for Environment and the Management of Energy, ADEME, in 2013, 65% out of a panel of 1,000 French respondents reported environmental issues as being the most important of their concerns while 53% chose better material and a better life standard as one of their considerations when purchasing new products (ADEME, 2014, p. 10). Recent research has found that German consumers also prioritise global environmental challenges like climate change, deforestation, and over-fishing over more local and personal problems, such as the health advantages of bio-products[45] . In Romania, consumers are also aware of the benefits of recyclability (32%), energy waste (34%), and water waste (29%)[46]. At EU level, Flash Eurobarometer 397 conducted in 2015, shows that on average more than half of consumers (median of country-level results = 54%) reported that they take the environmental impact of goods and services into account when making a purchasing choice.[47] Figure 15 illustrates consumer attitudes towards the environmental impact of products by country.

[45] Benthin & Gellrich, 2016

[46] Bejan, Crisan, Lakatos, & Lakatos, 2012

[47] European Commission, 2013

Figure 15: Consumer attitudes towards the environmental impact of products[48]



Source: TNS Political & Social, 2013

Apart from taking the environmental impact of their purchasing decisions into account, recent Eurobarometer research has shown that 77 % of EU citizens are generally willing to pay somewhat more for products if they are confident that they are environmentally friendly[49]. Moreover, **consumers also tend to be willing to pay more for longer lasting products without necessarily knowing their environmental impact.** Research, making use of a focus group in England and Wales and a nationally representative survey of 1,104 consumers, has shown that more than eight out of ten consumers would be willing to pay extra for household electrical appliances that are advertised to last longer and have a longer commercial guarantee or warranty. On average they would be willing to pay 10% more.[50] Although it is generally not the foremost consideration when buying a new product, consumers do see a long lifetime as a core requirement and there is a clear interest from consumers in longer lasting products.[51]

In the Netherlands, 55% of consumers take durability into consideration when making purchases, up from 50% last year. Brüggenwirth & Witte, (2016, p. 1) find that 29% of consumers remain highly enthusiastic about the Circular Economy and are the forerunners in engaging in CE practices. These are known as the so-called "drivers" and "sympathisers". However, the group of the "willing", people who are willing to participate in the Circular Economy but who are not leaders and who need to be motivated to engage, has grown, from 22% to 26% last year.

Consumers in the Nordic countries (SE, NO, FI, and DK) are more willing to establish circular behaviours, such as recycling, repair and second hand trade rather than renting and co-owning products. According to a survey conducted in the four Nordic countries in which 300 respondents per country participated, **the main reason for consumers to repair or buy second hand products is to save money.** To be specific, 74% of Swedish, 67% of Norwegian, 68% of Danish and 59% of Finnish respondents were interested in repairing or buying second hand products because of potential cost savings. The same study highlights that millennials (young people born between 1990 and 2000) in the Nordic countries are much more interested than the average population in engaging in CE practices such as recycling, repair, and second hand trade, and that

[48] Note: Values on the y-axis represent the percentage of respondents that answered the question "Considering everything you bought during the last two weeks, did the environmental impact of any goods or services influence your choice?" in the survey with "Yes, for all or most goods or services you bought", "Yes, but only for some", or "Yes, but only for one or two".

[49] European Commission, 2013, p. 55

[50] Knight, King, Herren, & Cox, 2013

[51] Knight, King, Herren, & Cox, 2013, p. 4

women age between 30 and 44 years with children living in urban areas are more open to participate in circular activity of any description in the near future. They are characterised as "change makers". Nordic citizens are the most circular today and open to do even more tomorrow, and therefore they are the ones that companies and governments should target.[52] In a 2014 Eurobarometer, 77% of citizens in the EU claim to prefer making an effort to repair their products to buying new ones and 37% are willing to buy second hand household appliances because of the expected economic savings.

Moreover, the decision to repair a product or buy a more durable product may be influenced by the behaviour of others. As mentioned above, in the Netherlands, the group of people who are willing to participate in the Circular Economy but who are not leaders and who need to be motivated to engage was the fastest growing, from 22% in 2014 to 26% last year.[53] This role as "launching customer" could be played by national governments or the European Union.[54]

Several factors play a role in accounting for the growing consumer interest in participating in CE practices. For instance, consumers can frequently change their behaviour patterns because of their growing concern about environmental preservation: 85% out of the 1,000 French respondents indicated that they believed that a change of lifestyle was needed because of environmental concerns, resulting in a bigger commitment to reuse products.[55] Moreover, social factors may also account for the willingness of consumers to engage in the Circular Economy. As in Spain this commitment can also be explained by a renewed interest for the feeling of belonging to a community and the wish to participate in social networks.[56] Culturally, consumers will need to abandon their conception of ownership of the product for more sustainable usage.[57] Lastly, the rise of collaborative consumption tends to indicate an increasing consumer preference for having access to a product rather than owning it (European Environment Agency, 2017). A survey of 8,670 respondents carried out in Belgium, Italy, Portugal and Spain indicated that 72% of the respondents participate in collaborative economy activities. [58] For an in-depth discussion of the drivers that play a role to encourage consumers to engage in CE practices, see Sections 4.1.1, 4.2.1, and 4.2.1.

However, despite this willingness to preserve the environment as mentioned above, it appears that **consumers can be quite reluctant to adopt more sustainable purchasing choices.** CREDOC, a French observatory specialising in making analyses of the living conditions in French households, researches yearly consumption behaviours. In 2013, only 14% out of all the households surveyed indicated that they would adopt by themselves consumption behaviour in line with the Circular Economy.[59] (A total change of mind-set may be required to shift from linear economic consumption to a circular).

3.1.2. Willingness to engage in CE practices across products

The reviewed literature did not provide much information on consumer willingness to engage in Circular Economy practices across products. Only the WRAP study on the product life time of electrical and electronic products stated consumers' willingness to purchase more durable product for a specific product category. The study illustrates consumers' willingness to engage into certain CE practices for specific product types; "workhorse" products which include washing machines, fridges, and vacuum cleaners.

[52] SB Insight, 2017

[53] Brüggenwirth & Witte, 2016, p. 1

[54] Pijnenburg, 2014

[55] ADEME, 2014, p. 10

[56] Cerdá & Khalilova, 2015

[57] SPF Santé publique, Sécurité de la chaîne alimentaire et Environnement, 2014

[58] Split of respondents per country: BE (2,132), IT (2,336), PT (1,698) & ES (2,313). OCU et al., 2016

[59] French Ministry of Ecology, Sustainable Development and Energy, 2014, p. 38).

The study suggests that consumers are willing to pay over 30% more for such products that are backed by a longer standard warranty[60], also discussed in section 4.1.1.

3.2. Evidence from the stakeholder interviews

3.2.1. General willingness to engage in CE practices

The interviewees tended to confirm the findings from the literature review: **consumers are generally willing to engage in Circular Economy practices**. The main difference between the literature reviewed and stakeholder interviews is that only one interviewee mentioned consumers' increasing environmental concern as a primary factor for consumers' engagement in more sustainable purchasing practices. Also, a representative of a European e-commerce trade association highlighted that online purchasing consumers do not pay much attention to durable or repairable products. Thus, according to interviewees consumers are less concerned than they claim to be about the environmental impact when engaging in circular purchasing practices. Furthermore, interviewees highlighted differences in attitudes towards Circular Economy practices across EU Member States.

Representatives of European and national consumer associations highlighted that consumers are **willing to engage in CE practices such as buying more durable products even if that means that they need to pay more for these products.** One European consumer association mentioned that consumers with lower incomes are normally more impacted if a product breaks, therefore they tend to have a greater interest in the durability of products. A good way of measuring consumers' engagement with product durability and reparability is to examine whether at the moment of purchase consumers buy an extended guarantee, service plan, or insurance. If a consumer has purchased one of these things, it is very likely they have considered durability and ease of repair to some degree, according to a representative of an NGO based in the UK. However, it is important to note that consumers may take longer warranties/extended commercial guarantees[61] as a proxy for durability. The European trade association representative highlighted that even though longer warranties/extended commercial guarantees are used as proxies, it does not mean that products with longer warranties/extended commercial guarantees are easier to repair or more durable.

Regarding reparability, the situation is a bit different according to a representative of a European consumer association, as **consumers are interested in repair, but the process is often too difficult, long, or expensive**. A Dutch Circular Economy expert also emphasised that people are very interested in repair and self-repair and he mentioned that repair is still a very niche practice among consumers but that it has a lot of potential. However, an NGO representative from the Czech Republic indicated that 'the Czech Republic is a nation that is used to repairing if something breaks.'

Most of the national and European trade associations also believe **consumers are willing to engage in more suitable purchasing practices.** In addition, national and European trade association representatives highlighted that consumers **are starting to shift their need from product ownership to product accessibility**. According to a representative of a European trade association, in Austria consumers are starting to rent washing machines from an organisation that repairs used electronic appliances. The organisation offers repair services and replacement services in case the rental machine stops working. When available, leasing and repair services are being considered more often than before by consumers. Only a representative of a European e-commerce trade association highlighted that consumers are less willing to engage in more suitable

[60] WRAP, 2013

[61] According to Article 2 (14) of the Directive 2011/83/EU, a commercial guarantee is defined as "any undertaking by the trader or a producer (the guarantor) to the consumer, in addition to his legal obligation relating to the guarantee of conformity, to reimburse the price paid or to replace, repair or service goods in any way if they do not meet the specifications or any other requirements not related to conformity set out in the guarantee statement or in the relevant advertising available at the time of, or before the conclusion of the contract". See: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011L0083&rid=1

purchasing practices, meaning buying longer lasting goods and products that could be repaired, when buying online. The interviewee highlighted that this is due to the decreasing prices of technology, consumers tend to change their products more regularly.

Representatives from two Dutch public authorities said that there are important differences between what consumers say in surveys and what their actual considerations are when purchasing products. This is because, **price differences between durable and less durable products still play an important role.** However, as mentioned by the same interviewees, it is important to take into account the **type of consumers**. Many consumers do not care about the Circular Economy at all, but some consumers are intrinsically motivated to live sustainably and are usually willing to consider the durability or reparability of products.

3.2.2. Willingness to engage in CE practices across products

From the interviews conducted, it has become clear that there are some variations across products: for certain products, consumers are more willing to engage in CE practices than for other products.

Consumers are willing to invest more in durable products that are less dependent on fashion trends like washing machines and other white goods, as highlighted by a Dutch public authority representative. On the other hand, according to an expert in the field of Ecodesign, product durability is a concern for consumers only for those products that break down often (e.g. smartphones). Both interviewees agreed that for large domestic appliances durability is a concern when purchasing a new product and consumers would be willing to pay more if these products lasted longer. Interviewees confirmed this statement from the literature review in Section 3.1.2: consumers are willing to pay more for more durable washing machines. An interviewee from a Hungarian NGO also highlighted that consumers take durability characteristics of large domestic appliances more into account in comparison to smartphones when purchasing, because there is more durability information available for this product category.

According to a Circular Economy expert from the clothes industry, if consumers perceive pieces of clothing to be more fancy or special, they take better care of them and **they are more willing to bring it to a repair service or repair it themselves**. It is important to note that the degree to which consumers are willing to pay for the repair of their products is dependent on the consumer's perception of how special the piece of clothing is and not how expensive the piece of clothing actually was. On the other hand, an NGO representative mentioned that young consumers are not used to self-repair; they do not know how to sew anymore and are not interested in acquiring the skill. The **willingness to repair or replace a product is influenced by the degree of product attachment**. People feel an emotional attachment to certain products (clothes and phones for instance), and consequently they want these to last longer, as highlighted by a representative of a UK NGO.

Furthermore, two Czech interviewees, one representing a consumer association and the other an NGO, highlighted that **consumers expect more durability and reparability from electronic products than from clothes**, even though they have observed that consumers are getting more and more used to products not being repairable. However, the interviewees reported that consumer willingness to engage more in CE practices depends on how convenient a repair would be for them. For the two product categories mentioned, electronic products and clothes, there are established repair services and therefore these are easier to repair. For other products this is less so, therefore consumers are also less willing to let these products be repaired. The interviewees noted that consumers are also more willing to engage in CE practices for product groups such as white goods, which are traditionally more consumer-oriented, and which have more developed systems for customer care services including repair.

3.3. Evidence from the focus groups

3.3.1. Willingness to engage in CE practices across products

Durability

Focus group participants considered **durability** - the time period during which a product can be used before it breaks down – to be highly important (see also section 4.3.1). Therefore, participants across the four countries were very interested in purchasing products that lasted longer. This was particularly the case for products that participants considered to be "important investments", such as dishwashers and washing machines.

When talking about white goods (washing machines/dishwashers), views with regard to the importance of durability were nearly unanimous. Opinions with regard to the importance of durability varied more when talking about other types of products. Some participants felt that durability was just as important for products such as **televisions** and **smartphones**, while for others, technological progress was a factor influencing them to purchase this type of products more frequently, and therefore their expectations with regard to these products' lifetime were lower.

> *"I like having products a long time. I do not need the newest device. I still have my TV that I bought 30 years ago. It still works so why should I buy a new one?" (Man, vulnerable group, Berlin)*

> *"Well you know, there are so many new developments and sure I like to have a new TV or a new Smartphone from time to time. I have old smartphones in my drawers and I think they still work." (Man, mixed group, Berlin)*

Similarly, for **clothing**, participants expected durability to vary according to price and brand. Fashion was also brought up because people tend to purchase certain clothing items more often due to changing fashion trends.

Reparability

Opinions varied with regard to having products **repaired**. Participants were generally willing to have products repaired (particularly **white** goods such as washing machines and dishwashers) as long as they were still under warranty. Once products were no longer under warranty, preferences towards having them repaired or replaced with new ones varied according to various factors, such as:

- **Price of repair vs. price of the new product**: *"If the difference in cost between repair and a new one is too little, I prefer the new one. Maybe I also get some improvements." (Male, vulnerable group, Stockholm)*
- **The price of the product itself** (the lower the price, the more likely participants were to prefer a replacement): *"My hoover for 19 euros, I wouldn't think about fixing it". (Man, mixed group, Dublin)*
- **The time it would take to have a product repaired**
- **Technological progress**
- **Trust towards the quality of the repair**: *"When they repair a product you never know if it will really work again properly and you do not know how long it will work again. I would rather decide on a new one, also because there are new technologies out there yet again." (Man, mixed group, Berlin)*

Views also varied in the case of **smartphones.** Some would prefer buying a new one because technology for smartphones progresses fast. Others flagged the fact that smartphones carry a lot of personal data (such as pictures). This factor adds emotional value to them; moreover, transferring this type of information from one device to another was perceived as difficult. As such, having a smartphone repaired was sometimes seen as preferable:

> *"My smartphone has all my pictures and memories on it. I would even say I have an emotional connection to it. That is why I do prefer to repair it. Also, because it is always a hassle to transfer everything on a new phone." (Woman, vulnerable group, Berlin)*

In Germany and Ireland, willingness to have products repaired was somewhat stronger among some of the participants from the vulnerable groups. However, the above-mentioned factors were also taken into account by these participants.

For **clothing**, Irish participants (particularly from the vulnerable group) flagged the fact that they would be willing to have them repaired. This applied, however, mainly to more expensive purchases such as shoes or coats, and to a lesser extent to other clothing items.

> *"I had a jacket for ages, and the buttons started to come off, so I asked my dad to sew them back on. That's reparability". (Man, mixed group, Dublin)*

When discussing reparability, participants mainly took into account aspects such as saving money or being able to keep their products. Reparability being linked to **environmental** aspects was also brought up, although to a much lesser extent. For example, some participants in Sweden brought up the possibility of saving resources:

> *"I really do want to think about these things. We have to take care of the planet." (Male, mixed group, Stockholm)*

Recyclability

Participants in Sweden, Germany and Ireland were generally willing to recycle products – whether it was electronics or clothing. Willingness to recycle was somewhat lower in the Czech Republic. In this country, recycling was seen as time consuming, as well as too much of an effort. Participants felt that recycling should be motivated by a financial bonus, for example a discount on the next purchase.

Purchasing refurbished goods and second hand products

Views with regard to purchasing refurbished **electronics** (whether large white goods or smartphones) were mixed. In Ireland, some participants (particularly from the vulnerable group) were more willing to do this, as long as they felt that the price-quality ratio was good, or that there was a large price difference between refurbished (or second hand) products and new ones. Others were concerned with the fact that products bought refurbished or second hand would break down more easily.

> *"Anything if it's quality for a bargain. If the price is right, also a washing machine". (Man, vulnerable group, Dublin).*

> *"Smartphone - I would be tempted because they are cheaper. Smartphones are so expensive. The price is great then and they give the details, and mention it's refurbished. My current smartphone is really old and it got my money's worth out of it. I would love to get a new one. In the refurbished shop it will be 3/4th of the price to buy a new one". (Woman, vulnerable group, Dublin).*

> *"The last time I went to buy a new phone I actually went in and looked at the second hand phones but then still bought a new one. For the same money, I can buy a new phone. The other one second hand was about 2-3 years. You know what you get. What you get is an old phone, and for a bit more money you get a new one". (Man, mixed group, Dublin).*

In the Czech Republic, purchasing refurbished electronics was not very common, and some participants even had bad experiences with such purchases:

> *"We wanted to buy a Rainbow vacuum cleaner that cannot be bought in shops, just from dealers, I heard only good things about them, how wonderful they were, but they are very expensive. Because we have allergic kids I wanted to buy it, so because of the price I got some refurbished one. It was terrible, it did not vacuum much. Moreover, it was from Germany, I kept writing to them that it did not work, but at the end it stayed with us, so I threw it away and bought a normal bag-less one." (Woman, mixed group, Prague)*

On the contrary, across the four countries, purchasing **second hand clothing** was a lot more common (especially among the more vulnerable groups). Reasons for this were related to cost, but also to quality. Many participants felt that second hand (or "vintage") clothing was of higher quality and more durable than new clothing.

> *"In the past clothing was of much better quality than today and often you find clothes that have hardly been worn." (Woman, vulnerable group, Prague)*
>
> *"I really like to buy second hand clothing and I also repair my clothes when I really like them. I feel it is a good thing to do." (Woman, vulnerable group, Berlin)*
>
> *"I went to second hand shop because I was looking for a costume for a party but then I got good pair of jeans Levi's and they were very cheap (20 euros) and very good quality, and now I'm going to go back. And you see stuff that you've never seen before but if you go into another shop you look at stuff that is current". (Man, vulnerable group, Dublin)*

Participants also felt positive about purchasing **second hand furniture** or furniture made from recycled materials. Participants were not only motivated to purchase second hand furniture by economic reasons, but also aesthetics:

> *"I buy furniture second hand and polish them again. It depends. I shop in second hand shops. I would buy glasses and different things". (Woman, vulnerable group, Dublin)*
>
> *"There are some shops that only sell products made from recycled material, but that is clothes or small stuff, not machines. Even Ikea has a small department of stuff like that. It is a good idea." (Man, mixed group, Stockholm)*

Generally, participants' willingness to engage in **circular economy practices** was mainly driven by financial factors and by the need of having products taken away once they break down or are no longer in use (recyclability). Environmental reasons were also brought up, but to a slightly lesser extent. Participants in the Czech Republic were somewhat less inclined to mention environmental reasons than those in other countries.

3.4. Evidence from the consumer survey

Participants were asked to assess several statements regarding general CE related behaviours. Results are depicted in Table 10.

With respect to **keeping things for a long time**, agreement rates were high. Overall, 93% agreed to this statement with 42% even stating strong agreement. In addition, 78% of the participants agreed that they **always recycle their unwanted possessions**, including 26% even strongly agreeing. Agreement with the statement of **always repairing possessions if they break** was lower, 64%, including 11% stating strong agreement with the statement. **Buying products second hand** received the lowest agreement rates with respect to CE related behaviours (28% including 5% strongly agreeing).

In addition, participants were asked for their preference for fashion and new gadgets. Only 34% agreed with **always buying the latest fashion for clothes** including 5% strongly agreeing. **New electronic goods and gadgets** seemed to be more important to participants. Overall, 45% agreed to always buy new gadgets including 8% who even strongly agreed.

Table 10: Agreement to statements on general CE-related behaviours (in %)

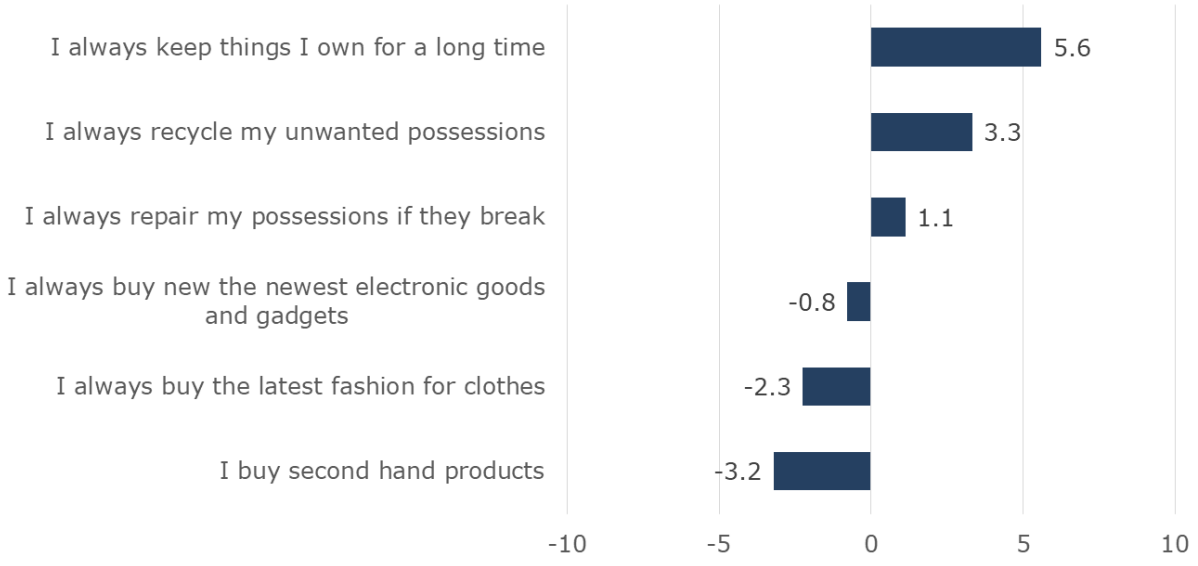
	Strongly disagree	Tend to disagree	Tend to agree	Strongly agree
I always keep things I own for a long time	0.8	5.8	51.7	41.7
I always recycle my unwanted possessions	3.4	18.8	52.0	25.8
I always repair my possessions if they break	7.4	29.1	52.7	10.8
I buy second hand products	31.1	40.5	23.8	4.6
I always buy the latest fashion for clothes	21.7	45.0	28.9	4.5
I always buy new the newest electronic goods and gadgets	15.2	39.6	37.1	8.2

Note: Participants had to rate six different statements regarding the question Q3.5: "To what extent do you agree or disagree with the following statements about yourself?"; N=12,064.

Source: ConPolicy analysis of consumer survey data.

These results are supported by results displayed in Figure 16. When calculating average agreement to these statements and ranking them, it was found that consumers in the survey showed the strongest agreement to the statement 'I always keep things I own for a long time' followed by 'I recycle my unwanted possession'. In contrast, average agreement rates were below 0, i.e. (rather) disagreeing, for buying second hand products. Similarly, buying new gadgets or fashion resulted in negative average agreement, i.e. consumers in the survey indicated that they (on average) disagreed with the corresponding statements.

Figure 16: Agreement to statements on general CE-related behaviours (average)



Note: Participants had to rate six different statements regarding the question Q3.5: "To what extent do you agree or disagree with the following statements about yourself?" Answer categories were labelled with "Strongly agree" corresponding to a value of +10, "Tend to agree" corresponding to a value of +3 1/3, "Tend to disagree" corresponding to a value of – 3 1/3 and "Strongly disagree" corresponding to a value of -10. Average values above 0 correspond to (rather) agreeing to the statement while values below 0 correspond to (rather) disagreeing. Hence, an average value of 0 corresponds to neither agreeing nor disagreeing; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Next, these answers where analysed by country and socio-demographic factors. The results are displayed in detailed tables in Section 7 in the Annex document and summarised here below.

For the statement **'I always keep things for a long time'** respondents in all countries on average revealed high agreement rates. The three countries with the highest average agreement rates were Germany, Austria, and Portugal. The lowest agreement rates were found in the Czech Republic, Hungary, and Latvia. With respect to participants' age a positive trend was found. The higher the age category, the higher average agreement. With respect to education and income no systematic differences between average agreements were observed.

Respondents agreed less to the statement of always **recycling their possessions** compared to keeping things for a long time. The highest agreement rates were found in Sweden, but Ireland and Spain similarly revealed high agreement rates. The lowest agreement rates were observed in Hungary, and Latvia. Again, a positive trend was observed for the different age groups while education and income seemed to not follow systematic patterns.

As stated above, respondents less often said they always **repaired their possessions**. This was true for all the different Member States. The Czech Republic and Romania on average even rather disagreed with the repair statement. While all other Member States at least tended to agree. With respect to the other socio-demographic factors, i.e. age, education and income, no systematic patterns were found.

Agreement with **buying second hand products** was, on average, even lower. The country averages indicated disagreement with the statement especially in Austria, Spain, and the Czech Republic. When looking at the different age categories a negative trend was found. The higher the age category was, the lower was the self-reported agreement rate. With respect to the other socio-demographic factors no systematic patterns were observed.

In the **fashion-category** there were interesting country differences as well. In all countries but Romania survey participants on average tended to disagree with 'always buying the latest fashion for clothing'. Agreement rates were lower among older age groups. With respect to education and financial status differences were not as pronounced.

Lastly, agreement rates on **buying new electronic gadgets** were on average also low. Romania was again an exception in this category. On average Romanian consumers indicated to tend to agree to buy new electronic items. The same was true for the Netherlands and France. With respect to age and education no specific patterns were observed while consumers indicating their financial situation to be very difficult indicated less agreement to buying new gadgets compared to wealthier income groups.

In parallel, participants were asked the same question but this time not with respect to their own behaviour but with respect to the behaviour of their close friends and relatives. Results are displayed in Table 11.

It appears that a majority of respondents think that their peers reveal similar CE-related behaviours to themselves. A majority (80%) agreed that their friends and relatives **keep things they own for a long time** including 12% who strongly agreed. They also believe that their friends and relatives **recycle their unwanted possessions** (70% tended to agree and 12% strongly agreed) and the majority of participants also stated agreement to the statement that friends and relatives **always repair their possessions if they break** (61% including 6% strong agreement). Similar to their own behaviour, agreement to friends and relatives **buying second hand products** was lower with 34% (including 2% strongly agreeing).

Friends' and relatives' preferences for fashion or gadget trends were similarly aligned with own behaviour. 43% agreed with the statement that their friends and relatives **always follow the latest trend or fashion,** including 4% stating their strong agreement. In addition, 46% indicated their agreement to the statement that their friends and relatives always **buy the newest electronic goods and gadgets** (including 5% strongly agreeing).

Table 11: Agreement to statements on general CE-related behaviours of friends and relatives (in %)

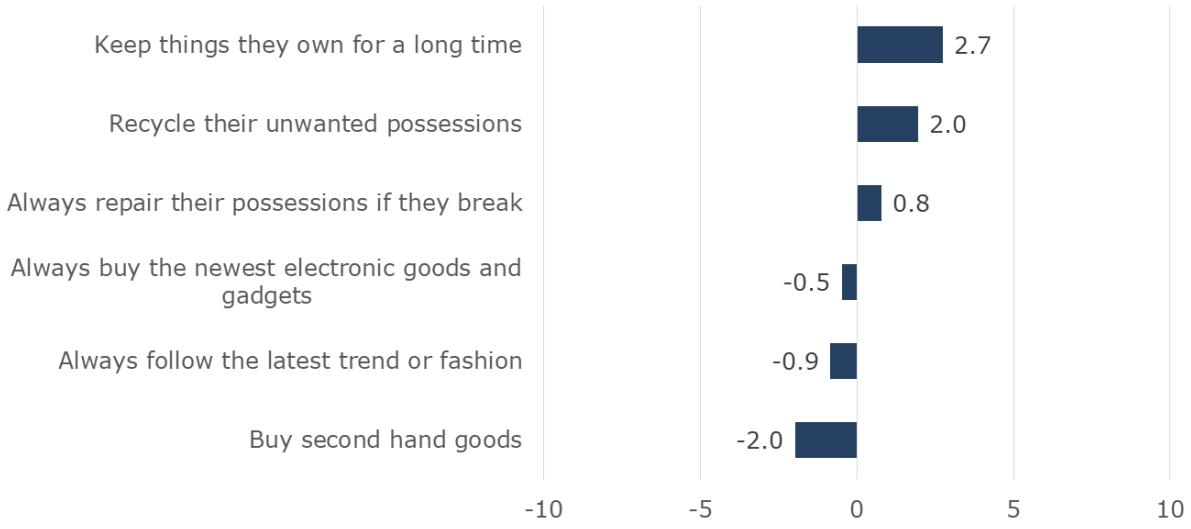
	Strongly disagree	Tend to disagree	Tend to agree	Strongly agree
Keep things they own for a long time	1.0	19.0	67.8	12.1
Recycle their unwanted possessions	2.6	27.4	58.0	12.0
Always repair their possessions if they break	4.3	35.2	55.0	5.5
Buy second hand goods	16.0	49.9	31.9	2.2
Always follow the latest trend or fashion	10.0	46.8	39.4	3.8
Always buy the newest electronic goods and gadgets	8.7	45.0	41.3	5.1

Note: Participants had to rate six different statements regarding the question Q9.1: "To what extent do you agree or disagree with the following statements about your close friends and relatives? Most of my close friends and relatives…"; N=12,064.

Source: ConPolicy analysis of consumer survey data.

These results are supported by Figure 17 wherein average agreement to the corresponding statements is displayed. The ranking of agreement rates for friends and relatives is in parallel to those for survey participants themselves (compare Figure 16 from above).

Figure 17: Agreement to statements on general CE-related behaviours of friends and relatives (average)



Note: Participants had to rate six different statements regarding the question Q9.1: "To what extent do you agree or disagree with the following statements about your close friends and relatives? Most of my close friends and relatives…"; Answer categories were labelled with "Strongly agree" corresponding to a value of +10, "Tend to agree" corresponding to a value of +3 1/3, "Tend to disagree" corresponding to a value of – 3 1/3 and "Strongly disagree" corresponding to a value of -10. Average values above 0 correspond to (rather) agreeing to the statement while values below 0 correspond to (rather) disagreeing. Hence, an average value of 0 corresponds to neither agreeing nor disagreeing; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Next, participants were asked to rate their agreement with further statements regarding environmental attitudes and general CE-behaviours. Results can be found in Table 12.

With respect to environmental attitudes high agreement rates can be found. Overall, 91% of the participants agreed with the statement that it is **important to be environmentally friendly** including 40% agreeing strongly. Another 62% agreed with the statement that they want their **friends to know that they care for the environment** including 14% agreeing strongly.

Generally, respondents displayed attitudes in favour of CE practices. A majority of participants (64%) stated that they **know the expected lifespan of a product when they buy things** (with 7% agreeing strongly). Agreement with **being aware of repair services for the products they own** was 58% with 9% indicating strong agreement. With respect to the statement that **second hand products are usually good quality** 49% of participants indicated their agreement including 3% agreeing strongly.

At the same time, a majority of respondents, 77%, also indicated **preferences for brand new possessions**. Yet, only 18% of participants stated that they agreed to the statement that they wanted their **friends to know that they own the latest trend or fashion** (including 3% strong agreement).

Table 12: Agreement to further statements on general CE-related behaviours and environmental attitudes (in %)

	Strongly disagree	Tend to disagree	Tend to agree	Strongly agree
It is important to be environmentally friendly	1.5	7.4	51.6	39.5
I want my friends to know that I care for the environment	8.5	29.0	48.6	13.9
When I buy things, I know the expected lifespan of the product	4.4	31.9	56.9	6.7
I am aware of repair services for the products I own	6.7	34.9	49.5	8.9
Second hand products are usually good quality	5.0	45.7	46.0	3.2
I much prefer possessions that are brand new	3.4	19.1	55.2	22.2
I want my friends to know I own the latest trends or fashion	38.1	43.9	15.4	2.7
I trust claims made by companies about their products	7.2	45.4	44.6	2.8
I am usually very busy and lack free time	10.3	39.5	42.0	8.1
If something is good enough I don't need it to be perfect	1.7	14.5	68.6	15.2

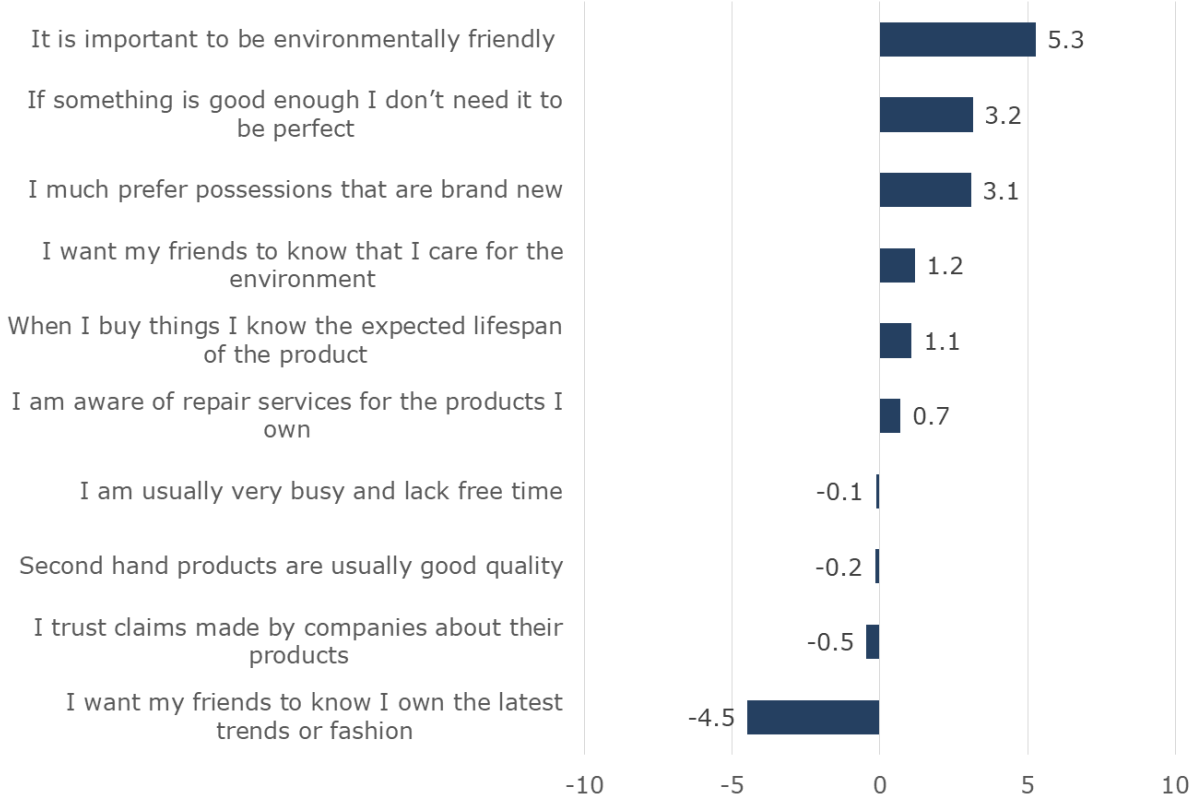
Note: Participants answered the question Q4.1: "To what extent do you agree or disagree with the following statements?"; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Figure 18 presents further insights on the question. Here, average agreement was calculated for each item and results were ranked by average agreement. The highest

average agreement was reported for the importance of being environmentally friendly. On the lower end, survey participants on average disagreed with the statement 'I want my friend to know I own the latest trends or fashion'.

Figure 18: Agreement to further statements on general CE-related behaviours and environmental attitudes (average)



Note: Participants answered the question Q4.1: "To what extent do you agree or disagree with the following statements?"; Answer categories were labelled with "Strongly agree" corresponding to a value of +10, "Tend to agree" corresponding to a value of +3 1/3, "Tend to disagree" corresponding to a value of – 3 1/3 and "Strongly disagree" corresponding to a value of -10. Average values above 0 correspond to (rather) agreeing to the statement while values below 0 correspond to (rather) disagreeing. Hence, an average value of 0 corresponds to neither agreeing nor disagreeing; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Finally, participants were asked to indicate whether they search for durability and reparability information when purchasing a product. Table 13 shows the results.

62% indicated that they always **search for information on how long a product will last** (including 10% strong agreement). Similarly, a majority also indicated **searching for reparability information** (55% including 8% strongly agreeing with the statement).

Table 13: Agreement to searching for durability and reparability information (in %)

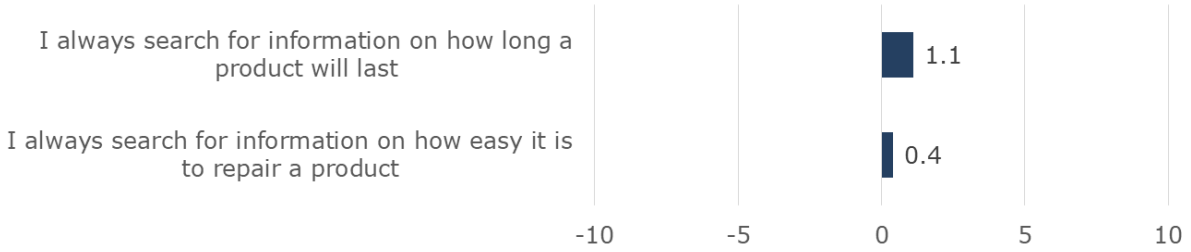
	Strongly disagree	Tend to disagree	Tend to agree	Strongly agree
I always search for information on how long a product will last	5.4	32.9	51.6	10.2
I always search for information on how easy it is to repair a product	7.3	37.8	46.4	8.4

Note: Participants answered the question Q5.1: "To what extent do you agree or disagree with the following statements?"; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Figure 19 displays results when transferring answer categories and calculating average agreement. It can be found that average agreement rates for both statements resulted in a positive but rather low average agreement, i.e. survey participants indicated that they rather agreed on searching for durability and reparability information.

Figure 19: Agreement to searching for durability and reparability information (average)



Note: Participants answered the question Q5.1: "To what extent do you agree or disagree with the following statements?"; Answer categories were labelled with "Strongly agree" corresponding to a value of +10, "Tend to agree" corresponding to a value of +3 1/3, "Tend to disagree" corresponding to a value of – 3 1/3 and "Strongly disagree" corresponding to a value of -10. Average values above 0 correspond to (rather) agreeing to the statement while values below 0 correspond to (rather) disagreeing. Hence, an average value of 0 corresponds to neither agreeing nor disagreeing; N=12,064.

Source: ConPolicy analysis of consumer survey data.

In addition, results on searching for durability as well as reparability information were analysed by country and socio-demographic factors which are summarised here below and displayed in detail in Section 7 in the Annex document.

With respect to **searching for durability information** the highest agreement rates were found for Romania. In contrast, the lowest agreement rates were observed in Sweden, the Netherlands and Germany where participants on average indicated that they neither agreed nor disagreed to the statement. With respect to age, a small positive trend was observed and similarly participants with higher education also revealed higher average agreement rates. Respondents' financial situation, on the other hand, did not influence agreement rates.

Searching for reparability information was country dependent as well. While countries such as Portugal, Romania and Hungary tended to agree that they searched for reparability information, Germany, Sweden and, in particular, the Netherlands revealed agreement rates below 0, i.e. on average they disagreed with the statement of searching for reparability information. There were also small age trends. While agreement rates among the youngest age group were below 0, indicating that on average participants did not tend to search for reparability information, it was above 0 among older age groups. Education again did not seem to play an important role while respondents' financial situation did in the sense that poorer individuals were more likely to search for reparability information.

3.4.1. Willingness to engage with leasing products

As a next step participants' willingness to engage with leasing products was analysed. A few companies across the EU have recently launched leasing models for baby clothing, consumer electronics, or jeans.[62] The leasing business model is based on circular practices as the products are not owned by the individual but instead, the leasing price includes maintenance and repair, as well as exchange of the products when it has gone out of fashion, or when the consumer wishes an upgrade. This way, the same product may be used by more than one consumer, and materials from old products may be recycled into new ones.

The consumer survey tried to elicit consumer preferences for such leasing models via a hypothetical choice exercise. Each respondent was asked to indicate their preference between a 'standard' full ownership of a product, or a leasing contract for a varying number of months. Respondents were told that repairs and replacement services in case of a defect were included in the monthly price.

Respondents were given the following choices:

- Purchase the product for full price
- Lease product for 6/12/24/48/60 months.

To ensure realism of the task, monthly lease prices were calibrated using examples from actual leasing business models. Since actual business models tend not to exceed a maximum lease of 24 months, longer leases in this exercise were calibrated assuming that beyond 24 months, a product would become more likely defective, or require replacement, pushing costs beyond the initial full purchasing price.

The total cost of leasing for different lease durations amounted roughly to[63]:

Table 14: Duration and cost of leasing

Lease duration	Total cost of lease contract
6 months	approx. 40% of full purchasing price
12 months	approx. 60-70% of full purchasing price
24 months	approx. 100-110% of full purchasing price
36 months	approx. 130-135% of full purchasing price
48 months	approx. 150-165% of full purchasing price
60 months	approx. 165-190% of full purchasing price

Visible from Figure 20, across all product types, a vast majority of participants preferred purchasing the product instead of leasing it. Around 10-15% of respondents indicated an interest in the various leasing propositions for TVs, dishwashers, vacuum cleaners and jeans. Only for smartphones, interest in leasing was higher, around 25% and another 18% of respondent indicating 'Don't know' which may be an indicator for indecision.

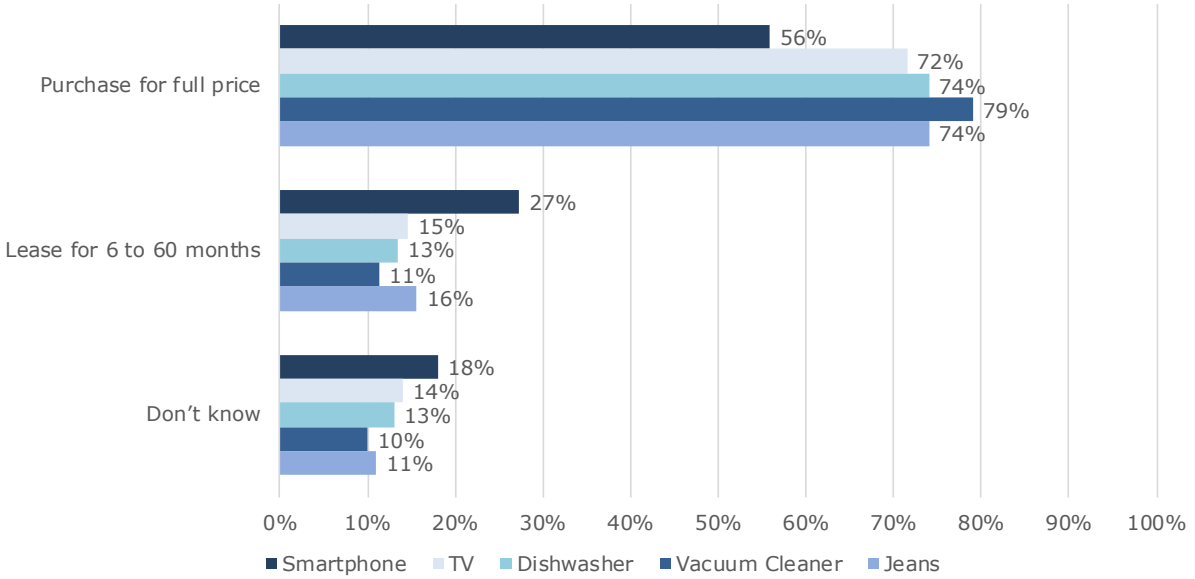
[62] See for example https://vigga.us/ (baby clothing), https://www.ottonow.de/ (consumer electronics and durables), and http://www.mudjeans.eu/ (jeans).

[63] Price levels were adapted for each type of product between smartphones, TVs, dishwashers, vacuum cleaners and jeans.

Over all products longer lease durations were less preferred that shorter ones. While between 2-8% of the participants indicated to be willing to lease between 6 and 24 months, only 0-3% stated to be willing to lease between 36 and 60 months.[64]

The Annex displays results for the individual lease duration categories and by product in more detail.

Figure 20: Willingness to lease products for different time periods (in %)



Note: Participants answered the question Q7.1: "Suppose you wish to get a new smartphone / TV / dishwasher / vacuum cleaner / jeans. You have the option to either buy the phone outright for €349.99 / €719.99 / €359.99 / €159.99 / €59.99, or lease it for a certain number of months. Leasing the product means that you will not own the product, instead you will return it at the end of the lease, for example, to start a new lease for a new product, or continue to use your product at a lower price. Included in the monthly lease are repairs and replacement services in case of a defect. Which option would you prefer?"; Smartphone N=2,412 ; TV N=2,416 ; Dishwasher N=2,409 ; Vacuum cleaner N=2,412 ; Jeans N=2,415.

See the Section 7 in the Annex document for a breakdown of different lease durations between 6 and 60 months.

Source: ConPolicy analysis of consumer survey data.

When further splitting preferences for different lease durations and products, 6-7% of the participants were willing to lease televisions, dishwashers and vacuum cleaners for a year or less at a cost-equivalent of less than 70% of the actual total purchasing price. Longer leases tended to be less popular. Thus, it seems that there was little willingness to pay a mark-up on original purchasing prices for maintenance and replacement services which would be offered by leasing companies. For smartphones, 5-7% of respondents indicated interest in leasing the product for each length of 6, 12 and 24 months. It is quite likely that the willingness to lease smartphones is grounded in the fact that phone providers across the EU have for a long time offered phone contracts which included communication and a handset with typical contract durations between 12 and 24 months.

The results here are corroborated also by findings presented in section 4.4.2 which report respondents' actual experience with renting or leasing products. Indeed, only a small minority of respondents (1-3%) have rented or leased any of the products under examination in the past 5 years. It is thus likely that the relatively low willingness to lease products in this hypothetical exercise was at least partly driven by substantial unfamiliarity[65] with the novel type of business model. Indeed, it could be conjectured

64 Within the two duration categories, i.e. shorter with 6 to 24 months and longer with 36 to 60 months no sizable differences were found with respect to respondents' willingness to lease.

65 In situations of uncertainty, individuals have been shown to use the decision heuristic of choosing what is familiar to them instead of considering their true preferences. See for example Della Vigna (2009) 'Psychology and Economics: Evidence from the Field'. Journal of Economic Literature.

that the willingness to engage with leasing contracts is actually sizable, given the unfamiliarity with this type of business model. With growing familiarity, it is well possible that the market size for renting and leasing products could further grow thus enhancing consumer engagement in with the Circular Economy.

Findings presented in this study, see for example section 4.4 show that respondents desired fully owning their products, and wished to use new, unused products. These preferences clearly limit the attractiveness of leasing models and the study does not deliver evidence as to whether these preferences might change if leasing models become more widely available and better known.

4. Drivers, barriers and trade-offs faced by consumers

This section provides information gathered on **factors which motivate and discourage consumers to engage in the CE** for example via **buying more durable products**, **repairing products** when they are broken rather than replacing them, **buying second hand products**, or **leasing products** rather than buying them. In other words it provides evidence gathered on the drivers (i.e. motivators) and barriers (i.e. obstacles) to consumer engagement in the Circular Economy.

This section reports findings from all methods (i.e. literature, stakeholder interviews, focus groups, consumer survey and behavioural experiment). The literature, stakeholder consultations and focus groups covered a broad scope to capture a wide range of drivers and barriers. The consumer survey built upon the findings of this qualitative research by asking about consumers' past experiences with CE practices, and their reasons for taking Circular Economy decisions (or not). Finally, the behavioural experiment looked more closely into what drives consumers' decisions to repair or replace a broken product. The relative importance of economic, social, and psychological aspects that determine consumers' engagement in Circular Economy practices is also highlighted in this section.

Key findings

- It emerged clearly from the different strands of research that **price is the most important driver and simultaneously a barrier for consumer engagement in the CE**, followed by **convenience**.
- More specifically, in the literature, three **main drivers** have been named for consumers to participate in the Circular Economy which were also confirmed by the interviewed stakeholders:
    - Providing consumers **more and better information** about the durability of products;
    - **Designing products with better CE credentials**; and
    - Widening the offer of **repair services** from manufacturers and retailers.
- Four **main barriers** were distinguished in the literature review and corroborated by stakeholders as well, namely:
    - consumers' **lack of knowledge**;
    - the **absence of reliable information** about durability/reparability features of a product;
    - **high cost** of repair services; and
    - consumers' **lack of trust** in repair services
- It seems to emerge from the findings in the literature, stakeholder interviews and focus groups that **consumers are to some extent willing to trade-off price and CE product characteristics**. For example, consumers in a previously conducted behavioural study were found to be willing to pay more for products with higher durability. However, as highlighted by stakeholders, such willingness to pay for more durable products hinges on information provision about product durability.
- Individual stakeholders have named various other factors which could act as drivers of more engagement with the CE such as social norms about (resource) efficiency, extended warranties, and better education about the topic. On the other hand, they named as potential barriers to more CE engagement: practical problems with repair, the availability of low-quality, but cheap products, fashion and style, social pressure, marketing and advertising, conspicuous consumption, and the cultural problem, where society does not reward consumers who do engage in CE practices.
- A key barrier identified by the focus groups was that **consumers found it difficult to pinpoint the durability of products**. Furthermore, there was a sense that newer generations of products were less durable than products that were produced some years ago. This discussion around lower durability of newer products sometime led participants to mention the concept of **planned obsolescence**.
- The consumer survey has instead revealed that survey respondents **generally indicated being aware of product durability and reparability** (section also 3.4). Yet, when asked specifically about the provision of such information, many

indicated a **desire for receiving better information**, because they felt that it was often difficult to find information regarding how long products would last and how easy it was to repair products.

- Some interesting **country differences** emerged from the survey. Dutch and German survey respondents were less likely to search for durability information compared to respondents from other Member States. Dutch respondents also did not seem to lack better information, while German respondents felt strongly that durability and reparability information was difficult to find. Respondents from Romania on the other hand were more likely to search for durability information, found this information relatively easy to find but still desired further improvement of information provision.
- With respect to other socio-demographic factors, age played a role for drivers and barriers. While **older participants indicated to search more frequently for durability and reparability information** (section 3.4), they also expressed a stronger **preference for better information** and indicated more frequently that it was **difficult to find the appropriate information**.
- This indicates that the current state of **information provision** regarding product durability and reparability might be a **potential barrier** for engaging in the CE. Providing information consistently and in straightforward format might thus be seen as a driver for further CE engagement. Findings from the behavioural experiment shown in section 6.5 confirmed these findings from the consumer survey.
- The study did not find overwhelming evidence of a 'throwaway economy'. This means that the study results were mixed: Though **large shares of respondents have not repaired** broken products (36%), **a majority of consumers instead did repair broken products** across all product categories (63%). Results by product are presented in section 4.4.1.
- Among those with repair experience, a majority had products repaired for them by friends, family or professional services.
- **Self-repair was generally less frequent** (12%) compared to having products repaired (51%). The incidence of self-repair furthermore varied by product category. **Self-repair was most prominent for clothing items** (24.4%). There were some significant incidences of self-repair reported also for vacuum cleaners and dishwashers, whereas self-repair very rarely occurred for mobile phones and TVs.
- The highest non-repair rate was observed among Dutch survey participants (on average 56%) while the lowest was observed among Romanian participants (on average 25%). Age and other socio-demographic factors did not play an important role with respect to repair behaviour.
- Those who have self-repaired products in the past indicated **lower costs**, **being good at repairing**, **convenience** and **environmental reasons** as the main reasons for having self-repaired.
- The top reasons for not repairing products were **price** of repair, the **preference to get a new product**, **fashion/technology** or products being beyond repair.
- Depending on the product category, consumers had meaningful experience with third party repair services. Overall, experiences with such services were positive and frequently even exceeded expectations in terms of convenience, speed of repair, consumer friendliness and quality of repair.
- The behavioural experiment corroborated many of the findings from the consumer survey. In line with reported behaviour in the survey, a **majority of respondents also decided to repair** defective products in a task which simulated the decision to repair or replace a faulty product with realistic monetary incentives (see section 2.7.1 for the methodology, section 4.5 for results).
- The experiment has clearly confirmed the finding from the qualitative research that **convenience and ease of accessibility of repair are important drivers of repair decisions**. When repairing involved slightly more effort compared to replacing an item, many respondents refrained from repairing and bought replacement products instead. The same level of effort instead did not prevent individuals from replacing products.

- Other behaviourally motivated mechanisms, which did not change the cost of repairing or replacing, remained largely without effects. Merely framing repair prices as VAT exempt (while keeping prices constant), or providing details about the characteristics of the repair services (e.g. whether repair was done by the manufacturer, or an independent shop, again at constant prices), did not have meaningful effects on repair decisions. Such practices seemed to only strengthen the decisions of certain groups of respondents. For example, those with pro-environmental attitudes were even more likely to repair products when repair services were framed as VAT exempt. Instead, those who attributed highest importance to trends and fashion were further deterred from repairing by the same treatment.
- **Personal self-declared attitudes towards the CE were largely consistent with actual engagement in the CE in the monetarily incentivised experimental repair vs. replace task**. For example, respondents who categorised themselves as attaching high importance to fashion and technology, were significantly less likely to repair products, while individuals with more self-rated pro-CE attitudes were indeed significantly more likely to repair their products. This is an important finding because it is often argued, including by some stakeholders in this study, that self-reported attitudes are a result of wanting to please the survey administrators and would not translate into actual behaviour. The behavioural experiment provided strong evidence against such predicaments and instead reinforced that **attitudes can translate into actual behaviour**, especially when certain conditions are met (e.g. provision of CE information).
- **Experience with renting, leasing (1%) and buying second hand (6%) was rather low** in the surveyed population. The main reasons for not having engaged with such practices were that respondents **wished to own their products**, and generally that **they preferred new, unused products**. Among the few respondents who have rented or leased products in the past, their motivations to do so were mixed. Convenience, the possibility to test the product, the chance of reusing the product after use or budget considerations, all seemed to play a role. When comparing respondents' actual experience with leasing and their willingness to lease as presented in section 3, there seems to exist a sizable market potential for business models offering leasing products.
- Market data from **Scandinavian countries** instead showed that consumers would in general be willing to make some **sacrifices**, unless it required **sharing goods** and letting their own **goods being used by other consumers**.
- According to the survey, **a limited share of consumers had purchased second hand vacuum cleaners, dishwashers, TVs, smartphones and clothes**. Main motivators for buying second hand were **price**, items being better value for money and **environmental reasons**. The main barriers to buying second hand products seemed again to be the preferences for using new, unused products, a **lack of trust** in second hand products as well as the **perception that new products were better value for money**.
- **Romania stood out with highest rates of buying second hand** (15%) while for Portuguese consumers much lower incidences (3%) were found. Participants from Ireland and Hungary also revealed comparatively larger shares of buying second hand (10%). Older respondents were generally less likely to purchase second hand. Instead, consumers in a very difficult economic situation indicated a higher frequency of buying second hand (11%).
- In line with findings from the survey, in the behavioural experiment as well, there was relatively **little engagement with second hand products**. In the experiment, second hand products were presented with the same prominence and availability as new products, nevertheless only about one to two respondents in ten decided to purchase a second hand product to replace a defective product.
  As in the survey, the likelihood of purchasing second hand in the experiment was slightly higher for smartphones and clothes (20% chose a second hand phone or coat) compared to the other products (13-14% chose second hand). For coats, it appeared to be the least fashion driven consumers who most often decided to buy second hand. Second hand products might be attractive if they help balance the

desire to change a product with budgetary pressures (see also further findings from the consumer survey reported in section 6.4).

4.1. Evidence from the literature and data collection

4.1.1. Drivers

From the literature review, three main drivers for the participation of consumers in more Circular Economy practices emerged.

- The first driver is to provide more and better **information about the durability** potential of the product which mirrors the lack of knowledge. For an in-depth discussion of which information should be included exactly, see sections 6.1.2 and 6.1.4;
- The second driver pertains to **the design of the product itself;**
- The third driver is a greater offer of repair services from manufacturers.

Academic reports, regulatory reports, and other sources reviewed stress that **better information for consumers on product features may drive their participation in more Circular Economy (CE) practices.[66]**

In that sense, **labels are useful tools for the information they provide**. In March 2016, a study was carried out by the SIRCOME agency, the University of South Brittany, and the University of South Bohemia commissioned by the European Economic and Social Committee on the influence of lifespan labelling on consumers.[67] Some 2,917 participants were asked to choose between different goods with or without labels. The products displaying lifespan information were on average chosen 4.6% more often than the ones without such information. In addition, in the same category of products, the ones with a lifespan information label were sold 13.8% more often than the ones without. The label displaying lifespan in years or months had the greatest impact on consumers; however, consumers had difficulty mentally picturing large numbers.[68] According to S. Maurer and U. Pachl, providing information on a product's lifespan could also encourage less wealthy households to pay more for a product that is expected to last longer.[69]

The literature also suggests that a **label providing information on the energy performance of the good would have a positive impact on consumers' behaviours.[70]** The lack of information about the environmental footprint of specific goods may again be a barrier to consumers participating in the Circular Economy. For instance, B.Haze, A. Jones-Farmer, and R. Overstreet pointed out that consumers lack awareness about the environmental impact of refrigerators.[71] However, a report carried out for the French Ministry of Environment stressed the risk of potential confusion for consumers by the possible duplication of information with the existing Ecolabels. A clearer hierarchy would be in that sense useful.[72] Underlying further the influence of a label as developed above, the *White Book for a Circular Economy in Greater Paris* suggests the creation of a label for second hand goods.[73]

In addition, some **brands have also developed their own label.** For instance, in 2016 the French brand SEB - one of the leaders of household appliances manufacture-launched a logo (Figure 21) stating that the product will be repairable for ten years.[74]

[66] Westblom, 2015; BEUC, 2015; European Commission Joint Research Centre, 2017a

[67] European Economic and Social Committee, 2016).

[68] European Economic and Social Committee, 2016

[69] BEUC, 2015

[70] French Ministry of Ecology, Sustainable Development and Energy, 2014

[71] Haze, Overstreet, & Jones-Farmer, 2011

[72] French Ministry of Environment, 2014

[73] ADEME, 2016

[74] Leboucq, 2016

This logo will be added to every product sold by the brand. According to a survey carried out by SEB, consumers would be positively influenced by this label in their purchasing decisions.[75]

Figure 21: SEB logo

Source: Leboucq, 2016[76].

Consumers also need more **guidance on how to choose more durable products and how to take care of these products**. Regarding clothes, for instance, consumers could be made aware of the importance of evaluating seams and the density of stitches, or the fact that fibre content plays a big role in clothing durability.[77] The department store John Lewis provides shop floor staff with a guide (the Selling Partner Learning Guide[78]) containing information that they can communicate to customers. This includes messages from WRAP's Love Your Clothes Campaign and shares key messages on clothing durability by making the connection between durability and higher quality, the lower environmental impact of those garments in comparison to disposable fashion, and by explaining how washing habits can affect the life expectancy of clothes and reduce their environmental impact. If labels can positively enhance consumer behaviour, **the design of the products itself can incentivise a change.**

B.Haze, A. Jones-Farmer, and R. Overstreet (2011) define consumption not only as an act of purchasing, but also as 'developing routines and rituals of use and modifying the product concretely or symbolically'. Therefore, designers and design can impact consumers' use of products in a more durable way. For instance, equipping refrigerators with a transparent door can have an energy saving effect.[79] The user would directly take the product he needs instead of opening the door and then start looking for it.

Companies and manufacturers are the intermediaries between goods and consumers. Some of **their strategies** can drive more consumers to participate in the Circular Economy. For instance, according to a report from Digital Europe on the Circular Economy, there is a growing trend towards establishing more repair services. Besides, do-it-yourself shops where people who tend to perform self-repair can buy the necessary

[75] Leboucq, 2016

[76] Leboucq, 2016

[77] WRAP, 2017

[78] WRAP, June 2017, Sustainable Clothing: a practical guide to enhancing durability and quality of clothes

[79] Haze, Overstreet, & Jones-Farmer, 2011

tools in order to do so, **companies have invested in establishing in-house repair services and sub-contracting repair operators.**[80] Some market leaders have also been committed to providing more remanufacturing/refurbishment facilities. Digital Europe gives the example of Nokia, which has been remanufacturing telecommunications equipment since 1991. Considering, as mentioned above, the importance of the consumers' trust in the quality of the repair services, this involvement in the repair service market from manufacturers may enhance consumers' participation in more CE practices. The fact that companies have established more repair services comes from the growing interest of consumers in these services and in turn the new repair services may attract more consumers to let their products be repaired rather than replace them when they break down. Besides, SEB -one of the world leaders for household appliances- supports consumers in their choice to repair instead of buying new product though economic incentives. They commit themselves to offer replacement parts which will not exceed a threshold of 50% of the price of a new product. In addition, the cost of repair will not exceed 1/3 of the price of the new item. SEB also encourages the consumers to rent certain products as well as to repair damaged goods by themselves. Parts and accessories will be available on a website and the brand will provide tutorials on how to repair products.[81]

4.1.2. Barriers

The literature review identified three main barriers faced by consumers when taking durability/reparability of products into consideration. They relate to cognitive, economic, and psychological factors and can be summarised as follows:

- The **lack of knowledge** about durability/reparability features of a good and the lack of **reliable information** about it;
- The **cost of repair** services;
- The **lack of trust** from the consumer in repair services.

As economic agents, consumers tend to be rational when making purchasing decisions. Wang and Hazen note that consumers assess the value and risk of the goods they are buying.[82] (Two important variables were identified by the authors: while 'quality knowledge' exerts the strongest effect on perceptions, the cost awareness is the second most important factor influencing a purchase'.[83]

The lack of knowledge of durability and reparability may hinder the purchase of more durable appliances. For instance, S. Maurer and U. Pachl highlight that consumers do not feel knowledgeable about how long fridges, washing machines, and vacuum cleaners last, nor do they know where to find reliable information on these features. In addition to the lack of awareness about the expected lifetime of a product, consumers also lack crucial information on the reparability of goods as well as on the availability and costs of spare parts.[84] Without such information, consumers are not able to reward manufacturers who produce long lasting and easy repairable goods. For a more detailed discussion of consumers' expectations, understanding, and awareness of the durability and reparability of the products they buy, see section 5.

The other main barrier to consumer participation in repair services is the cost of such services, as identified in an article dated from 2008, in which M. Watson reviewed literature on consumers' perceptions and behaviour relating to remanufactured, repaired, and reused products.[85] It clearly appears that a lower price is the main reason people would buy repaired goods rather than new ones. Moreover, the author quoted a survey

[80] Digital Europe, 2017

[81] Leboucq, 2016

[82] Wang & Hazen, 2016

[83] Wang & Hazen, 2016, p. 466

[84] BEUC, 2015

[85] Watson, 2008

which found that 68% of respondents mention high cost as the main reason they did not get items repaired.[86] Similarly, households with higher incomes are associated with a higher probability of replacement.[87] As mentioned above, consumers assess value and risk when making a purchasing decision.[88] Once informed about the cost advantages of remanufactured products compared to new ones, the value of the product tends to increase while the risk perception decreases.[89]

When households need to repair an appliance, they balance between the cost of repair and the price of replacing it with an equivalent new product. According to the literature reviewed, **the ratio between the cost of repair and the price of replacement is the main variable accounting for the replacement of product.** Where the cost of repair or upgrading is higher than that of replacement, consumers will logically go for a replacement purchase.[90] The cost of repair can be relatively high compared to the price of a new good, particularly bearing in mind that a repair usually is labour-intensive work. As a result, nearly half of the EU citizens (47%) did not repair any faulty product during the last 12 months. As a national example, French consumers are generally not willing to pay more than 30% of the price of a new product for repair.[91] J. McCullough (2009), in an article written in 2009, provided a historical perspective of this relation between the cost of repair and that of replacement.[92] Appliances are made in countries where labour is cheaper than the country in which they will be repaired. Therefore, buying new products tends to be cheaper than repairing old ones. In a consumer report from 2001, 34% of the respondents revealed that they did not repair a product because of the decreasing replacement prices.[93] J. McCullough (2010) provides another example of this balance between repair and replacement prices for consumers through the impact of discount rates. Consumers with a high discount rate have a tendency toward instant gratification and will replace an old appliance by a new one despite the fact that the older appliance could still be repaired. Once again, this illustrates that a replacement price lower than the repair cost will tend to hinder consumer use of repair services.

The final barrier identified in the literature reviewed is the lack of trust with consumers in repair services. Consumer trust acts as an important psychological factor when making purchase decisions. J.McCollough (2009) reviewed a substantial part of the scientific literature on the factors impacting the demand for repair services. It seems that considering the information asymmetry between technicians and consumers, consumers' trust in the quality of the repair service has a great influence on their decision to use it. Indeed, according to J. McCullough, 'the more trust a consumer has in a mechanic (either because the mechanic is certified, or has an excellent word of mouth" reputation, or has been endorsed by a rating agency), the higher the expectation that a repair will be correctly made'.[94] According to the information provided in an expert workshop about repairs of household products, a significant share of EU citizens (39%) think that repairing a broken product is often difficult or economically disadvantageous. This is mainly due to incomplete information (e.g. low transparency on the repair price) but it is also due to general perception of high repair costs.[95]

[86] Watson, 2008

[87] Fernandez, 2001

[88] Wang & Hazen, 2016

[89] Wang & Hazen, 2016

[90] European Environment Agency, 2017

[91] Deloitte, 2017

[92] McCullough, 2009

[93] McCullough, 2009

[94] McCullough, 2009, p. 622

[95] Deloitte, 2017

4.1.3. Trade-offs

The literature provides even less evidence about trade-offs and whether consumers are willing to give up something in order to benefit from something else.

A first finding comes from a European Commission Market Study mentioned in section 3, **Consumers were willing to pay more (i.e. give up on a lower price), when durability/reparability information were present.**[96] Durability information, presented in terms of years or usage units, increases consumer willingness to pay more for a more durable product. Providing information on reparability also encourages consumers to purchase more repairable products. However, the type of reparability information matters. Presenting the availability of spare parts substantially increases consumer willingness to pay. On the contrary, providing information on the cost of spare parts has a negative effect.[97]

Another trade-off mentioned in a 2011 article by Céline Michaud and Daniel Llerena involves giving up low price for more quality and environmental friendliness. This article quotes a 2009 Eurobarometer that states only **a minority of consumers' rate environmental impact as more important than a product's quality or price** (7% and 19%, respectively). So, only a minority of consumers is willing to make the trade-off where they give up on products with a lower price or products with a higher quality in order to buy products that are more environmentally friendly. As far as remanufacturing is concerned, consumers seem to face important trade-offs between the various attributes of the product. Based on the participants' written feedback during the debriefing, the authors concluded that consumers show concern for the lower quality of remanufactured products. A potential solution for this would be for companies to provide consumers with better quality warranties.[98]

What is more, **recycling and reuse are sometimes perceived as methods to lessen guilt** associated with excess consumption. In other words, consumers sometimes choose the recycling and reuse for certain products, because they have, in their eyes, given into excess consumption when buying other goods earlier.[99]

Another argument regarding consumer trade-offs comes from classic game theory: consumers can choose between **'defaulting' behaviour that minimises personal costs** (inappropriate sorting, burning waste, littering, etc.) and **cooperative behaviour that will maximise the social pay-off**, but they will only do the latter if the majority of the population cooperates as well. Mere consideration of self-interest would always dictate the 'defaulting' choice. The social marketing task of promoting cooperation in the recycling dilemma is made even more difficult as the social pay-off (a cleaner environment, a better world, etc.) typically does not accrue to the recycling individuals, but to subsequent generations. Two strategic routes to encourage cooperation are available to social marketers: an "attitudinal route", which induces individuals to cooperate for the sake of cooperation, and a "structural route", which seeks to change the properties of the decision situation such that it is no longer a social dilemma. Structural solutions change the payoff structure such that cooperation is the alternative with the lowest personal cost.[100]

Regarding the situation in the Scandinavian countries, research finds that many Swedes are positive to very positive about making sacrifices in order to buy more durable products. As mentioned in section 3, in Norway the willingness to make sacrifices is fairly

[96] European Commission 2017 European Commission, DG JUST/GfK (2017) 'Consumer Market Study to support the Fitness Check of Consumer Rules'.

[97] Knight, King, Herren, & Cox, 2013

[98] Michaud, 2011

[99] Armstrong, 2014, p. 32

[100] Smeesters, 2003, p. 452

high when talking about more traditional circular behaviours, like buying or selling second hand products and recycling. However, **this willingness drops significantly when talking about engaging in the collaborative economy and sharing things and therefore interacting with other people.** Especially if it entails letting other people use one's own things. Danes are generally more willing to make sacrifices to be circular when it concerns the areas that they are more familiar with. Examples of this are particularly recycling and buying goods on the second hand market (73% of the respondents were positive about recycling). When it comes to sharing and renting, Danes are not very interested in making major sacrifices to change their current behaviour (31% of the respondents were positive about renting and borrowing and 15% about co-ownership). Especially if sharing entails letting other people use their own belongings. The willingness to make more sacrifices to increase circular behaviour is fairly high among Finns when it comes to the areas they are used to, such as recycling and buying second hand goods. However, only a small percentage of Finns are willing to make sacrifices to co-own or rent out/lend more goods to others, especially when it entails more personal commitment (only 22% of the respondents were positive about renting out and 14% positive about co-ownership) (SB Insight, 2017). For more information on consumers' willingness to engage in more sustainable purchasing and collaborative practices, see section 3.

There is also a potential **trade-off that could be made between durability and energy savings,** if we consider that more durable products may delay sales of newer, more energy-efficient products. Such a trade-off can be avoided by introducing durability requirements together with stringent energy efficiency requirements. This would also give the industry time to redesign their products to comply with these requirements.[101]

4.1.4. Variations across products/product categories

It seems, however, that the impact of all the drivers, barriers, and trade-offs mentioned in this section **do not affect all products in the same way.**

According to a study on lifespan labelling, suitcases and printers were more impacted by such labels, while smartphones were the least affected by this.[102] When a label was present, 24% more suitcases were sold than without labels, printers 20% and 11% for smartphones. As suitcases are mainly for travel, their robustness is a crucial factor accounting for their purchase especially if they are used on an occasional basis. As for printers, they are technological objects that are perceived to have a short lifespan. This perception may have contributed to the degree of influence awarded to the label.[103] The weakest impact of lifespan labelling concerned smartphones, which may be attributed to the fast development of smartphone technology.

Clothes and smartphones were reported as the product category for which consumers face the **most difficulties to assess the durability/reparability potential.[104]**

Due to the **fast-moving technology of smartphones, consumers may have trouble using them in a sustainable way**. One of the issues relates to the gap between the pace of software updates and the upgradable potential of the smartphones. For instance, the Dutch *Consumentenbond* reported that 84% of all Android-smartphones that the consumer organisation had tested within the last two years could already not rely on the latest software anymore. Moreover, consumers experience frequent problems related to failures of devices and components.[105] In addition, the way smartphones are engineered

[101] European Commission, 2013, p. 36

[102] European Economic and Social Committee, 2016

[103] European Economic and Social Committee, 2016, p. 84

[104] European Economic and Social Committee, 2016

[105] BEUC, 2015

may limit the possibility to physically access some components, such as the battery, and therefore hinders the ease with which to dismantle and repair them.[106]

Also, consumers are reported to **lack knowledge about the durability potential of clothes.** There is large room for improvement in driving consumers towards more durable practices in the clothes sector. A WRAP (2012) research has reported that 'nearly four in ten consumers think there is currently too little environmental information available about the clothes they buy'. A slight increase in the lifespan of clothes would have a significant impact on the environmental footprint. The WRAP report indicates that 'extending the life of clothing by an extra nine-month period of active use would reduce carbon, waste, and water footprints by around 20-30% each and cut resource costs by 20% (€5.5 billion)'. Besides the ecological impact, it seems that even by providing basic information to consumers on how to treat their clothes, could have a profound influence on their expected durability. Simply informing people on the way they should wash their clothes, how they can preserve the characteristics of its fibres and fabric and, as a result, increase its durability, could already be enough in this regard. Most often, clothes are unused because they no longer fit.[107] Therefore, one option with a high potential regarding durability would be to provide more information on how to remake and repair clothes (WRAP, 2012).

4.2. Evidence from the stakeholder interviews

4.2.1. Drivers

The results from the stakeholder interviews are **largely compatible** with those from the literature review and data collection. The three main drivers were distinguished during the literature review: to provide more and better information about the durability potential of the product, the design of the product itself, and a greater offer of repair services from manufacturers. These results were mirrored during the stage of the stakeholder interviews.

First of all, a representative from a Czech consumer association stated that many consumers in the Czech Republic are **willing to pay more for more durable products as long as they have objective information** on which they can rely. At present they have little faith in producers and manufacturers and according to them this information should be provided for free to consumers. This underlines what has been found in the literature: consumers are willing to pay extra for more durable products, but they need better and more reliable information in order to actually do so in practice. For an in-depth discussion of which information should be provided to consumers, see section 5.

Next, the design of the product itself attracted less focus from the interviewees as a driver for consumer participation in CE practices. A representative from a social enterprise active in the area of the Circular Economy in the Netherlands, pointed to the **lack of knowledge of clothing materials and construction** among consumers. Difficulties exist when it comes to establishing norms for clothes and what to measure for clothes labelling. The design of clothes and consumer knowledge about this could thus enhance their knowledge and could facilitate their choice for more durable products.

Lastly, some interviewees discussed the poor quality and low availability of repair services as a reason for consumers not using repair services. A German academic talked about a series of consumer studies performed by *Stiftung Warentest*, a German consumer organisation, where they tested repair services on the costs that are involved with repairing, spare part availability, the quality of the service, how fast the repair service is, whether consumers get a replacement product during the period of the repair, and how good this is. They found that there were many problems with the repair services of most big companies; consumers were especially bothered by the **high price of repair and the rather low availability of these repair services**. The same interviewee stated that consumers do want to consider using repair services, but that it is not really a

[106] SPF Santé publique, 2014

[107] WRAP, 2017

realistic option for them right now because of the above reasons. More and better repair services could thus act as an important driver for consumers to engage in CE practices. An additional driver was named by a representative from a company active in the German repair market, who stated that the key to more use of repair services would be to force producers to **guarantee the affordable availability of exchange parts for a longer period**. This would enable an infrastructure of repair services to stay alive and to develop. According to a technical expert in repair initiatives, availability of spare parts is the key driver for enhancing the consumers' use of repair services, as right now the producers have little interest in spare parts as the added value of repair is not with them.

The literature paid less attention to price, which interviewees named as the most important driver. A representative from a UK-based NGO focusing on the Circular Economy and sustainable consumption mentioned that consumers are more likely to say that **product lifetime was a key factor when they bought higher priced products than when they bought lower priced products of the same type**. Especially in Romania this is the case, where all interviewees representing the non-profit and consumers interests have pointed to the fact that durability concerns are more visible with the richer middle-classes than with other groups such as elderly and young people.

Other drivers that were mentioned briefly, but not explained in detail, are: **extended warranties,** mentioned by a Romanian NGO representative; social pressure; marketing and advertising; cultural and generational drivers; social norms about (resource) efficiency; and the underlying psychological driver, where people feel emotionally attached to their products and want to engage with them, according to a representative of an Austrian consumer association; as well as better education about the topic, as highlighted by representatives from NGOs and national consumer associations' representatives. With respect to marketing and advertising practices, a representative from a famous electronic appliances manufacturer added further details. For instance, offering a label about the length of reparability for their products is clearly part of a strategy which aims to influence consumers in their purchasing decisions.

4.2.2. Barriers

The results from the stakeholder interviews are **largely compatible** with those from the literature review and data collection. To recall here, three main barriers were distinguished during the literature review: the lack of knowledge about durability/reparability features of a good and the lack of reliable information, the cost of repair services, and the lack of trust from the consumer in repair services.

Several interviewees confirmed the first barrier as the most important. A representative from a German public authority stated that **a lack of reliable information regarding durability and reparability** plays an important role, as there are no standards for durability information and there is a lack of good measurement procedures for durability. Notwithstanding, it is not easy to design tests for all products in such a way that durability information is available before the products are being sold, as was highlighted by the interviewee representing a German public authority. A representative from a Czech association of consumers underlined this by pointing to the fact that there is a lack of information about the quality of products, as many producers present their products as flawless, but the reality is often very different. Lastly, a representative from a social enterprise active in the area of the Circular Economy in the Netherlands, pointed to the lack of knowledge of consumers regarding the **materials and fabrics of clothes** as an important barrier for them to become more active in CE practices. If consumers cannot distinguish between good and durable fabrics, do not know how to treat the clothes they buy to make them last longer, and do not know how to self-repair them if they become damaged, it is impossible for them to make the right choices, even if they would normally be willing to do so.

Interviewees also discussed the **high costs of repair services**. A representative from a Czech association for social responsibility discussed the price of recyclable products, as these are usually more expensive than products that are not recyclable. Also, the availability of recyclable products is relatively scarce, as other not-recyclable products are still being produced. A representative from a company active in the German repair market, talked about the prices of spare parts specifically. He used the example of Miele

who provides electronics for their washing machines for EUR 400, while the real costs are only about EUR 20, making the repair of washing machines uneconomic.

The interviews also complemented what has been found in the literature by adding that there are also many **practical problems with repair**. A representative from a Dutch public authority discussed that products nowadays are designed in such a way that the whole product stops functioning when one small component breaks down. A representative from a German consumer organisation stated that manufacturers and producers have most of the know-how about products and that there is not much knowledge otherwise, which makes for an unbalanced relationship with consumers. Moreover, there is a trend of producing bigger and more complex machines, which are highly integrated and hard to repair.

Additionally, interviewees mentioned some other barriers that have been treated less in the literature. The first and foremost of these is the **availability of low-quality, but cheap products**, tempting consumers to replace goods rather than self-repair them. A representative from a European trade association discussed the availability of cheap clothing. The main conclusion from a 2006 clothing study was that the durability of cloths is decreasing because of a decrease in the quality of garment, causing in turn a drop-in the donation of clothes. A representative from a European industry association concluded from this that fast fashion stores therefore put pressure on the second hand industry. This was confirmed by a representative from a European trade association, who pointed to the availability of very cheap fashion, particularly in the United Kingdom, as an important barrier to consumer interest in durability.

Another barrier mentioned in the interviews is the **fashion aspect**, for example in the interview with a representative from an Austrian consumer association. This is especially the case for young people and especially for products like clothes and smartphones. **Style** plays an important role here and this refers to the **emotional durability of products**, rather than the physical durability, for more information on this, see section 5.1.1.

Other barriers that were mentioned briefly, but not explained in detail, are**: social pressure, marketing and advertising** mentioned by the same Austrian consumer association' representative, **conspicuous consumption**, where consumers do not consider the impacts of their user profile, both regarding time and money, as discussed by a German academic, and the **cultural problem**, where society does not reward consumers who do engage in CE practices, as highlighted by a representative of a Belgian NGO.

4.2.3. Trade-offs

As with the literature review, most interviewees had less to say about trade-offs and whether consumers are willing to give up something in order to benefit from something else. For instance, it is less clear whether consumers would be willing to pay more (i.e. forego on a lower price), as long as they know the products are more durable.

Some things were, however, still mentioned. First of all, most interviewees pointed at the fact that **price is still a very important**, if not the most important, factor accounting for consumer decisions. An ever-growing fraction of consumers are willing to consider CE characteristics and the reparability and durability of products, but they are only willing to pay more to a certain extent. **Price-sensitivity** still plays a huge role. There is also a certain difference visible across products, but this is discussed in detail in the next section, 4.2.4. A representative from a German consumer organisation stated that consumers are willing to pay a bit more for durable products and that price-sensitivity plays a role in accounting for differences in willingness across products. For vacuum cleaners, for example, consumers are very price-sensitive. The general rule is, **the higher the investment, the more people are willing to pay extra for repair**. The price of the durable product and the price difference with less durable products therefore forms the most important driver for consumers in whether they are prepared to trade off something in return for more durable products.

A representative from a charity and independent think tank from the United Kingdom, highlighted that the **rational choice of model based on costs and benefits alone does not explain Circular Economy behaviour**, because in reality there is a more

complex set of factors. This confirms the finding from the literature that referred to classic game theory: even though consumers might be inclined to buy more durable products and to self-repair rather than to replace, it only makes sense for them to actually do so when they know other consumers are doing the same. This is a classic example of the prisoner's dilemma in practice and the government could play an important role in making sure the prerequisites are such that it makes more sense for consumers to engage in CE practices.

4.2.4. Variations across products/product categories

From the literature review it has already become clear that the **impact of all the drivers, barriers, and trade-offs mentioned in this section do not affect all products in the same way**. This was largely confirmed by what interviewees discussed.

First of all, **every product requires its own approach**: CE practices that work well for one product, are less appropriate for others. For instance, a representative from a Dutch public authority discussed that while car-sharing services are working well already, sharing platforms for other household items (such as power drills or tents) are far less popular, as sharing platforms for cars provide much more comfort and ease than sharing platforms for household items. For smartphones, the same is true, but here durability and the speed of technological development play a role as well. Dishwashers are especially well suited for lease systems with repair contracts built in and there are some experiments with contracts where you pay per wash. For clothes, buying new clothes is often cheaper than having them repaired. There is a growing second hand market for clothes, but this is not yet common place in all layers of society.

A German academic highlighted that **for each price category, there are different drivers** deciding which products consumers will buy and durability plays a different role for each category of consumers. For more expensive products, consumers are willing to spend more time to make sure they buy a product that will last long enough for their investment to be worth it. In a way, thus, **a higher price can form a driver to consider buying more durable products**. Other products, on the other hand, are so cheap that it doesn't make sense for consumers to spend too much time or money on avoiding buying non-durable products. This was complemented by what a representative of a Hungarian NGO, stated when she said that for televisions and washing machines, consumers do consider durability but not so much for smartphones or clothes. Furthermore, she stated that the **guarantee and its terms and whether it can be extended** are important to consumers as well. A representative from a German consumer organisation stated that with vacuum cleaners, people tend to buy rather cheap and less durable machines, while with washing machines, consumers take durability much more into account during the purchase process.

A representative from a Portuguese NGO mentioned that for mobile telephones, televisions and tablets **technological advancement** acts as a barrier, as it is quite common to replace these products, because consumers want to have the latest model with the most up-to-date technology. Clothes are rather fashion dependent products as well and this forces many consumers to buy new clothes regularly, acting as a barrier to CE practices. The low prices of certain pieces of clothing act as an additional barrier, making consumers more prone to buy new clothes. For children's clothing there is a network of second hand stores and platforms, ensuring that buying second hand clothes is becoming more and more common. The economic crisis certainly helped clothes exchanges, but it is still a very niche market. Repairing clothes was much more common twenty years ago than it is today, but the younger generation seems more interested in learning to repair their own clothes again.

Regarding repairing, a representative from a company active in the German repair market, stated that **white goods have a lively repair service system** already, as people do not change big and expensive goods like these without serious consideration and many consumers would consider repair before replacement. What is more, many producers see an excellent repair service as part of their **brand message and as part of having a well-working customer service**. In the television sector, there is hardly any repair being done, due to a broad range of models and technologies, but for smartphones there is a substantial repair sector, due to independent companies performing the easy fixes, like cracks in the display.

Lastly, a German academic pointed to another distinction that needs to be taken into account. The interviewee stated that the classical categorisation of products is not enough. In her eyes, an **additional distinction needs to be made between "workhorse" products and investment products**, which would be a more useful category in the analysis. For workhorse products, durability and reparability is more important, as consumers want them to work most of the time. Functioning is more important here, and consumers are willing to pay a little more for durable and repairable products in this category. The need to have a constantly functioning product is an important driver here to buy more durable products. For investment products, on the other hand, reparability is more important as they tend to be expensive and consumers tend to prefer to have them repaired rather than replaced once they buy them and they reserve money for that during the purchase process already (write-off).

4.3. Evidence from the focus groups

4.3.1. Durability

According to the focus group participants, **factors that can encourage people to purchase products that are more durable** were:

- **Saving money**,
- **Saving time and effort** (for example by not having to go through the entire selection and purchasing process for a new product),
- Protecting the **environment**,
- Being able to purchase durable goods for **lower prices**, and
- **Having a way of knowing** how durable a product is.

Some of the main indicators of a product's durability were considered to be the brand (certain brands being known for manufacturing more durable products), online consumer reviews, as well as word-of-mouth.

When it comes to **barriers** (factors discouraging people from purchasing durable products), participants across the different countries brought up the following factors:

- **Difficulty of knowing** how durable products are, and which ones are more durable. The trustworthiness of costumer reviews, as well as brands' reputation were questioned. Many participants flagged the fact that there were no sources of information with regard to products' durability, and made various suggestions with regard to what type of information they would find useful, and how this should be presented (further details about this topic are provided in section 6.3.1).

  "Very difficult. You google it before you buy it and you look at reviews. Even then it's difficult to know. Do I trust that? You don't know who writes that, e.g. 'this product is fantastic" (Man, mixed group, Dublin)

- Some participants brought up **price** as a barrier, feeling that brands that have the reputation of designing durable products are more expensive.

  "[brand name] appliances – I say to myself, they might last longer, if I had the money. It is twice the price and I cannot afford it." (Man, vulnerable group, Prague)

- Others however felt that even brands that have a strong reputation do not produce durable products anymore. The concept of **planned obsolesce** was brought up during most group sessions.

  "You already envisage that something breaks down after a while. It is sad. We live in a disposable society and it is intended by the industry that things do not last." (Man, mixed group, Berlin)

- **Technological progress** was cited as another factor discouraging people from seeking more durable products (especially in the case of electronics).

  "When it comes to televisions, the progress is so fast, they (the televisions) are computers now really, after five years the technology can be old." (Man, mixed group, Prague)

"It is not only with the hardware of products that is not compatible. It is also the software. When your phone is too old, a certain software is not supported and you are forced to buy a new device even though it still works. That is the power of the industry. You depend on them." (Man, mixed group, Berlin)

- **Fashion trends** are another barrier, not only for clothing but also for other types of products.

"There is a hysteria in Sweden today, people love to renovate their homes and exchange everything – they throw away well-functioning machines. That is crazy." (Man, vulnerable group, Stockholm)

4.3.2. Reparability

The main **factors encouraging people to have products repaired** (instead of buying new ones) can be summarised as follows:

- Having the **possibility** to repair products (i.e. the product itself being repairable),
- Being able to repair products at a **lower price** than purchasing new ones,
- Knowing that manufacturers can produce and sell spare parts,
- In the case of electronics, being able to receive and use a courtesy replacement product (smartphone, computer) while having one's own product repaired, and
- Being able to have products repaired in a **short time** (particularly for products such as dishwashers and washing machines).

"I needed my washing machine to be repaired, you cannot be without it really. First they said they would do diagnostics and then they would call me. And then they have 30 days to repair it, so you worry about how to wash clothes. "(Woman, mixed group, Prague)

In terms of **barriers**, the main factors brought up were:

- Belief that certain types of products (smartphones) are **not made to be repairable**

"I think to encourage people to repair products they need to make the production process more transparent and should not put obstacles in your way, which prevent repairing a smartphone for example." (Woman, vulnerable group, Berlin)

"It is possible to think more about the circular economy – if you are interested you can do some things yourself, change batteries on the smartphone. But for [smartphone brand] you can't." (Man, Vulnerable group, Stockholm)

- Difficulties in finding **spare parts**
- Having products repaired requires **time** and **effort**
  - High repair **costs**

"Today, appliances have such electronics that they change whole big parts and the repair costs 50% and more of the cost of a new one. So it is not worth it." (Man, vulnerable group, Prague)

- Previous **negative experiences** when trying to have products repaired

"My daughter chose [smartphone brand] and we have already claimed it four times during the warranty period. In the Prague shop where we bought it they told us they had to send it to Germany, it took 3 months, it worked for 2 months and then a claim again. Then it happened for the third time and it was the same thing. They don't want to give us money back, because they claim to have replaced the motherboard and therefore they see it as a new phone and the warranty extends, I don't know what to do with it." (Woman, 37, vulnerable group, Prague)

- **Lack of services** (for example for products purchased from foreign shops or from foreign brands, or from brands that no longer exist)

"I bought kitchen appliances from one British brand – cooktop, microwave and dishwasher, they used to have a store in the centre of Prague then. They finished after a year and a half and they disappeared from the CR even though they are still in Britain, but that is too bad for me. The display stopped working on the

microwave and I don't know what to do, the company does not even have any representation here. So I will keep using it without a display while it still works.", (Woman, mixed group, Prague)

- The fact that **stores or manufacturers sometimes automatically replace products** rather than have them repaired, without giving customers a choice

"I bought a wood grinder and the key screw was made of plastic so they counted on it breaking. I went into the shop with it within the warranty period and they replaced it with a new piece automatically, instead of repairing it. It is such waste then." (Man, vulnerable group, Prague)

4.3.3. Recyclability

The main **reasons** behind recycling can be summarised as follows:

- Concerns for the **environment**

"I think it is really a good thing for the environment. We have so many things nowadays. I really do not want to think about what happens to the planet. It scares me." (Woman, vulnerable group, Berlin)

- The need to **dispose of products** that are no longer used
- The possibility of **saving or earning money** when returning products to a manufacturer (e.g. when purchasing a new washing machine or dishwasher)
- The possibility of **helping others** (e.g. by recycling clothes and bringing them to humanitarian associations or second hand shops)
- **Saving money** (for example by purchasing **second hand** products)
- **Fashion trends** (purchasing vintage furniture or clothing)

"It is trendy with vintage. Young people realise how much they get for their money when buying second hand. Even jeans, they probably have a better quality than new jeans." (Woman, vulnerable group, Stockholm)

Concerns for the environment were of high importance, especially in Sweden. In this country, willingness to recycle was high, especially for products with components that are dangerous for the environment. In the Czech Republic, on the other hand, concerns for the environment were mentioned by some participants, but other factors were perceived as equally important, such as the need to dispose of products and the possibility of saving money.

In some countries, participants brought up several **factors** that could **encourage** recycling:

- Having **transparent information** about how the recycling process works and being able to trust that products are actually being recycled (Germany, Sweden)
- The recycling process being more **straightforward**, taking less time and effort (Germany, Czech Republic)
- Strict **laws**, influencing companies to be transparent with regard to the materials they use as part of the production process, and whether these are recyclable, or whether they come from recycling (Germany)
- Having more **information** about recycling through labels similar to **energy efficiency labels** (Czech Republic)

When asked about possible **barriers** or factors that can discourage people from recycling, participants brought up the following main aspects:

- **Complexity** along with a **lack of awareness** (not knowing where to recycle products or who to contact)

"I feel it is complicated. I do not know where to bring old devices. I also do not find it credible as I do not know if things really get recycled or if companies just say that. It is all a hassle." (Woman, mixed group, Berlin)

- Lack of **time**

"You have to devote time to it, take it somewhere, for example to recycling centre", (Man, mixed group, Prague)

- **Lack of trust** and **lack of transparency** (not knowing what is done with the products and whether they are actually being recycled)

  "It is so hard with recycling. So much to think about. Who is collecting it? Where does it end up?" (Male, vulnerable group, Stockholm)

- For **smartphones**: lack of awareness with regard to what happens to the data stored on the phone. Smartphones include a lot of personal data and photos, making some participants sceptical about recycling possibilities.

  "But for my phone I don't do that for data protection issues". (Man, vulnerable group, Dublin)

4.4. Evidence from the consumer survey

Drivers

As indicated previously in Table 13 in section 3.4, a majority of participants indicated that they search for durability and reparability information on products. Subsequently, the survey asked whether respondents felt that the information provided on durability/reparability was sufficient. Table 15 shows the results.

In total, 86% of participants agreed that they **would like to receive better information** on how long a product will last (including 25% even strongly agreeing to the statement). Similarly, strong was agreement on wishing to receive better information on how easy it is to repair a product (83% including 23% strongly agreeing).

Table 15: Agreement to preferring better durability and reparability information (in %)

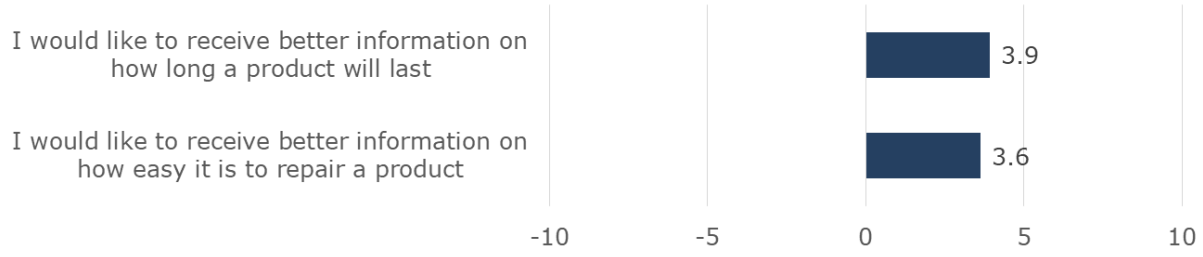
	Strongly disagree	Tend to disagree	Tend to agree	Strongly agree
I would like to receive better information on how long a product will last	2.0	11.8	61.3	24.9
I would like to receive better information on how easy it is to repair a product	2.3	13.9	60.7	23.0

Note: The question was Q5.1: "To what extent do you agree or disagree with the following statements?"; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Figure 22 displays the results when calculating average agreement rates for the above statements. It can be found that survey participants on average agreed to prefer better durability and reparability information.

Figure 22: Agreement to preferring better durability and reparability information (average)



Note: The question was Q5.1: "To what extent do you agree or disagree with the following statements?"; Answer categories were labelled with "Strongly agree" corresponding to a value of +10, "Tend to agree" corresponding to a value of +3 1/3, "Tend to disagree" corresponding to a value of – 3 1/3 and "Strongly disagree" corresponding to a value of -10. Average values above 0 correspond to (rather) agreeing to the statement while values below 0 correspond to (rather) disagreeing. Hence, an average value of 0 corresponds to neither agreeing nor disagreeing; N=12,064.

Source: ConPolicy analysis of consumer survey data.

In addition, the results were analysed by country as well as socio-demographic factors. Detailed results are displayed in detail in Section 7 in the Annex document and summarised here below.

On average participants in all twelve Member States indicated preferring **better durability information**. Highest agreement rates were observed in Romania, Sweden and Portugal. Participants from Austria, Latvia and especially the Netherlands showed the lowest rates of agreement. Averages for the different age and education groups were slightly increasing, i.e. older and more educated participants had a higher preference for receiving better durability information. With respect to respondents' financial situation no systematic differences emerged.

A very similar pattern was observed for preferences by country with respect to **better reparability information**. The individual averages were positive, indicating that in all countries participants said they preferred receiving better reparability information. The highest averages were observed in Spain, Portugal and Romania and the lowest in Austria, Latvia and the Netherlands. Again, a small positive trend was observed with respect to age and education. Respondents' financial situation was again less influential.

Barriers

The consumer survey also contained two questions regarding potential barriers to finding information on durability and reparability. Overall, 82% of the participants agreed that it is **difficult to find information on how long a product will last** with 27% even indicating strong agreement with the statement. Again 82% also stated the same for **reparability information** with 25% indicating strong agreement.

Table 16 summarizes the results for these two questions.

Overall, 82% of the participants agreed that it is **difficult to find information on how long a product will last** with 27% even indicating strong agreement with the statement. Again 82% also stated the same for **reparability information** with 25% indicating strong agreement.

Table 16: Agreement to having difficulties in finding durability and reparability information (in %)

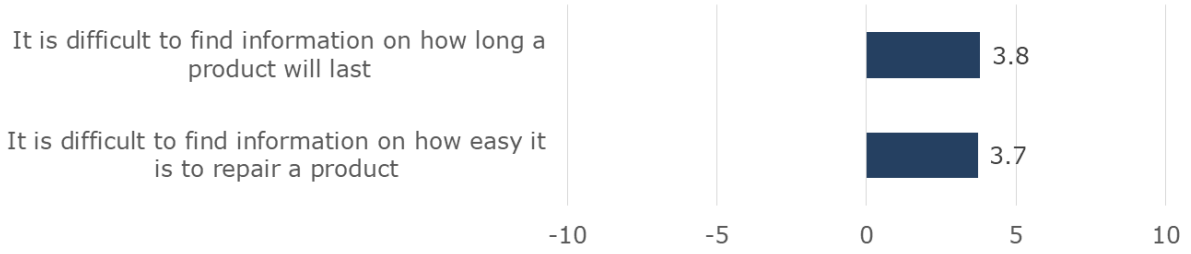
	Strongly disagree	Tend to disagree	Tend to agree	Strongly agree
It is difficult to find information on how long a product will last	1.4	16.9	54.9	26.8
It is difficult to find information on how easy it is to repair a product	1.3	16.8	56.6	25.3

Note: The survey question was Q5.1: "To what extent do you agree or disagree with the following statements?"; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Results on average agreement for the above statements were calculated as well and are depicted in Figure 23. Again, the averages being above 0 reveal that survey participants indicated that they on average agree on having difficulties to find both durability as well as reparability information.

Figure 23: Agreement to having difficulties in finding durability and reparability information (average)



Note: The survey question was Q5.1: "To what extent do you agree or disagree with the following statements?"; Answer categories were labelled with "Strongly agree" corresponding to a value of +10, "Tend to agree" corresponding to a value of +3 1/3, "Tend to disagree" corresponding to a value of – 3 1/3 and "Strongly disagree" corresponding to a value of -10. Average values above 0 correspond to (rather) agreeing to the statement while values below 0 correspond to (rather) disagreeing. Hence, an average value of 0 corresponds to neither agreeing nor disagreeing; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Section 7 in the Annex document displays the detailed results on difficulties in finding durability and reparability information by country, age, education and financial situation are displayed. A summary is provided here below.

Across all Member States a majority agreed that **finding both durability and reparability information was difficult**. The top three countries with respect to average agreement rates were Sweden, Germany and Austria. Agreement rates were lowest for the Netherlands, Latvia and Romania. Again, a slight positive trend for the different age groups was found, i.e. older participants, found it more difficult to find durability information. With respect to education and respondents' financial situation no clear pattern emerged.

Taking the findings from this section together with the fact that consumers seem to be looking for durability and/or reparability information, it appears that the current (poor state of information provision regarding durability/reparability is a potential barrier to consumer engagement in the CE. It seems to emerge from the survey that better information provision could drive further CE engagement. The behavioural experiment in section 6.5 looks at information provision and its effect on purchasing decisions in further detail.

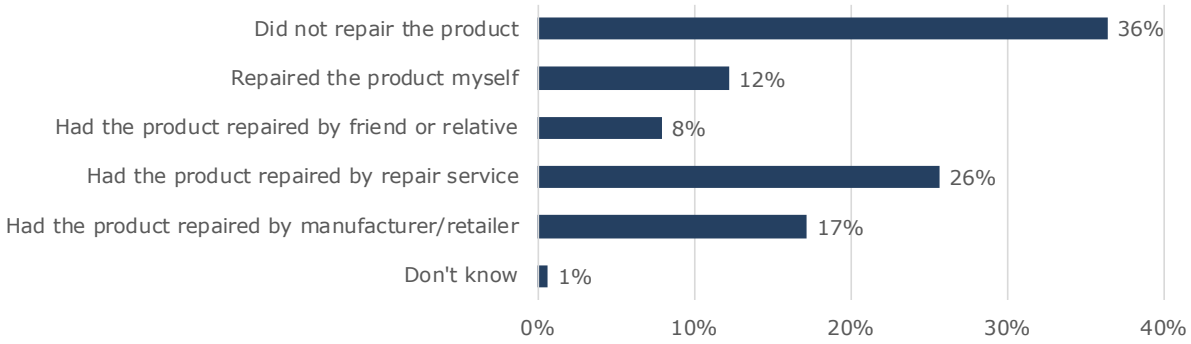
4.4.1. Experience with repairing products

As a next step, actual CE behaviours are analysed in more detail. To this end, consumers' experience with repairing products as well as reasons for repairing are discussed. The first section describes actual behaviour, followed by reasons for not repairing a product. Subsequently, reasons for self-repair are presented. As a last step, the reasons for having a product repaired by another person are discussed including the use of professional repair services as well as consumers' satisfaction with repair services.

Figure 24 displays participants' actual repair behaviour pooled over the different product categories with corresponding shares indicating that they (i) **did not repair a product**, (ii) **repaired a product themselves** or (iii) **had a product repaired for them**, i.e. by a friend or relative, a professional repair service, or the manufacturer.

36% indicated that they did not repair followed by having the product repaired by a repair service (26%). Another 17% had the product repaired by the manufacturer / retailer and another 12% indicated that they chose self-repair. The lowest share pooled over all product categories was revealed with respect to having a product repaired by a friend or relative (8%).

Figure 24: Experience with repair pooled over product categories (in %)



Note: Participants were asked Q3.2a: "Thinking about the last time these products broke down or became faulty, did you repair these products yourself, or have these products repaired for you? Please select one answer for each product."; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Table 17 shows participants' actual repair behaviour for the five different product categories. Depending on the product category either having a product repaired or not repairing a product was the most common behaviour. In the following behaviour is reported separately for the different product categories.

For **vacuum cleaners** participants decided either to not repair the product (41%) or having it repaired (40%), whereas a lower share of 19% reported to have repaired their faulty vacuum cleaner by themselves. In the case of **dishwashers**, the vast majority (61%) indicated to have the product repaired for them while only 25% did not repair their faulty machine and 13% repaired it by themselves. In the product category of **televisions**, a similarly large share (58%) reported that a third person repaired their faulty item for them. 37% indicated that they did not repair their faulty television and only 4% reported that they repaired their television by themselves. This pattern is similar for **mobile phones**. Here, 56% decided to have their faulty product repaired for them, 37% did not repair it and 6% repaired it by themselves. For **clothing** items, i.e. coats or jackets, a different picture emerged. The most frequently observed behaviour (39%) was not repairing the product, closely followed by having the product repaired (35%). Additionally, the share of participants who indicated that they repaired the clothing item by themselves was larger compared to other products, 24%.

Table 17: Experience with repair by product category (in %)

	Vacuum cleaner	Dish-washer	TV	Mobile phone	Coat or jacket
No. I did not repair it or have it repaired	41.0	25.2	37.4	36.9	38.9
Repaired the product myself	18.8	13.4	3.8	6.3	24.4
Had the product repaired for me by a friend or relative	9.8	9.1	6.3	4.3	14.5
Had the product repaired for me by a professional repair service	17.0	39.4	36.1	25.9	16.8
Had the product repaired for me by the manufacturer (including via a retailer)	12.7	12.1	15.8	25.9	4.0
Don't know	0.6	0.7	0.6	0.6	1.5
No. of observations	2,350	2,008	2,045	3,053	1,503

Note: Participants were asked Q3.2a: "Thinking about the last time these products broke down or became faulty, did you repair these products yourself, or have these products repaired for you? Please select one answer for each product."

Source: ConPolicy analysis of consumer survey data.

Furthermore, repair behaviour was analysed for the different countries and by socio-demographic factors. A summary is written here below, detailed results are shown in Section 7 in the Annex document.

Repair behaviour by country revealed some interesting patterns. In the Netherlands the majority of participants (56%) indicated that they did not repair. For other countries the non-repair-rates were at least above 30% while in Romania not repairing a product was only an option for 25% of the participants. Together with this low non-repair rate emerged high rates of having the product repaired by a repair service (40%) among Romanian participants. Further individual country differences can be found in the Annex. When analysing repair behaviour by age, education and income no specific patterns were observed.

Reasons for not repairing

The above presented results on repair behaviour showed that participants chose quite frequently not to repair a product. The percentage for individual product categories ranged from 25% to 41%. In the following, the reasons for this behaviour are analysed more closely.

On average, the most important reason for not repairing a product was the **price of repair**. Between 50% (dishwashers) and 25% (clothing) of participants reported that repair would have been too expensive. The second most important reason for not repairing or having a product repaired is not as clear-cut. In some cases, participants indicated that they simply **preferred to get a new product**, while others indicated that the item was **obsolete or out of fashion**. In addition, approximately 20% of participants reported that the product **could not be repaired**.

The following patterns by product category emerged: For **vacuum cleaners** both costs (36%) and preferring to get a new vacuum cleaner (33%) were indicated to be important. Additionally, 21% of participants indicated that the product could not have

been repaired. Obsolescence or fashion (20%) played a role as well. For **dishwashers** the difference between the most and second most important reason was larger. 50% of participants indicated that it was too expensive to repair their dishwasher or having it repaired. A lower share, approximately 20% each, indicated they preferred a new product, inability to repair, obsolescence or fashion. In the case of faulty **televisions,** reasons for not repairing were mixed. 34% of participants reported high costs as the main factor, followed by 31% indicating to prefer a new television to a repaired one. Similarly, important (30%) were obsolescence or fashion, and another 25% indicated that their faulty television could not have been repaired. For **mobile phones**, 40% of participants reported that repair would have been too expensive, followed by 33% indicating that the reason for not repairing or having their faulty mobile phone repaired was obsolescence or fashion. Lastly, for **clothing** items, i.e. coats or jackets, 47% of participants said they preferred to get a new item instead of repairing it. Compared to the other product categories, fewer participants named price (25%), and obsolescence or fashion (25%) as reasons for not repairing or having a clothing item repaired.

Table 18: Reasons not to repair by product category (in %)

	Vacuum cleaner	Dish-washer	TV	Mobile phone	Coat or jacket
I preferred to get a new one	33.2	20.4	30.8	33.4	46.5
It would have been too expensive	36.0	49.6	34.3	39.8	24.7
The product could not be repaired	21.3	19.2	25.1	16.8	16.7
The product was obsolete or out of fashion	19.7	19.9	29.5	27.9	24.5
I did not know how to repair it/where to get it repaired	6.9	10.3	4.8	6.0	8.8
It would have been too much effort	10.4	13.0	7.4	9.9	13.9
The parts/materials required weren't available	7.1	3.9	5.4	2.8	0.9
Other	4.5	7.0	5.2	5.5	3.8
Don't know	0.8	0.8	0.4	0.5	1.5
No. of observations	964	507	765	1,128	584

Note: The question was Q3.2d: "You said that when the following product(s) broke down or became faulty you did not repair them yourself or have them repaired for you. Why was this? For each product please select the two most important reasons."

Source: ConPolicy analysis of consumer survey data.

Reasons for self-repair

As shown above, self-repair was a rather uncommon practice compared to not repairing an item, or having it repaired by a third party. To understand what motivates self-repair, participants were asked to indicate the two most important reasons for repairing a product themselves. The results are presented in Table 19.

The most frequently cited reason for self-repairing a product was that it was **cheaper to repair** than buying a new product. The percentage of participants indicating this aspect among the most important ranged from 61% for dishwashers to 33% for televisions. In

addition, participants reported that **being good at repairing** things by themselves was an important reason for self-repair. 41% indicated this reason for dishwashers and 31% for televisions. Another important reason for self-repair was that repairing a product was **easier than buying a new product**. Between 31% and 16% indicated this to be one of the most important aspects. The fourth most important reason participants indicated was that self-repair is **better for the environment**.

When looking at individual product categories, there exist differences in the motives for self-repair. The above reported ranking of reasons seems to hold for vacuum cleaners, dishwashers and coats or jackets. For these products, price was the most important driver. The reported motives for televisions and mobile phones were less clear-cut: price (33%), convenience (31%), and repair skills (31%) were ranked equally important for televisions. In contrast, environmental reasons were reported with a lower frequency (17%). For mobile phones a different picture emerged. While the most important reason was price (53%), self-repair skills were ranked second (40%), and environmental reasons occupied a more important position (21%) than convenience (16%).

Table 19: Reasons for self-repair by product category (in %)

	Vacuum cleaner	Dish-washer	TV	Mobile phone	Coat or jacket
It was cheaper than buying a new one	47.9	61.1	33.1	52.9	50.6
I am good at repairing things myself	33.5	40.9	30.6	39.5	40.2
It was easier than buying a new one	26.4	23.2	31.3	16.2	20.1
It is better for the environment than buying a new one	23.6	21.6	17.1	21.0	18.0
I was particularly fond of my current product	9.5	3.2	11.1	13.7	29.8
My preferred product was no longer in production	2.3	2.1	9.6	9.5	2.2
Other	3.8	3.7	6.6	5.9	3.6
Don't know	0.1	0	0	0	0
No. of observations	422	269	78	191	366

Note: The question was Q3.2b: "You said you repaired the following product(s) yourself when these broke down or became faulty. Why did you decide to do this? For each product please select the two most important reasons."

Source: ConPolicy analysis of consumer survey data.

Reasons for having a product repaired

Another way to cope with faulty products was to have a third party repair the product. Compared to self-repair this behaviour was indicated more frequently. Between 35% and 61% of participants had previous experience with having different products repaired for them. As before, the survey asked respondents to indicate the most important reasons for having products repaired.

On average the most important reason was again **price**, i.e. having a product repaired was cheaper than buying a new product. The share of respondents indicating this reason

ranged from 55% for dishwashers to 35% for mobile phones. The second most important reason was that the product was **still under guarantee**[108]**,** ranging from 45% for mobile phones to 11% for clothing.

The wide ranges reported above show that there exist important differences between product categories. While for **vacuum cleaners**, **dishwashers** and **televisions** price and guarantees were most important, this was not the case for **mobile phones**. Instead an existing guarantee (45%) was ranked more important than price (35%). For **clothing** items another aspect, namely being particularly fond of their current possession was relevant (39%) in addition to price (51%). Guarantees, on the other hand, did not play an important role (11%) for clothing.

Table 20: Reasons for having a product repaired by product category (in %)

	Vacuum cleaner	Dish-washer	TV	Mobile phone	Coat or jacket
It was cheaper than buying a new one	49.0	55.2	42.0	35.1	50.9
The product was still under guarantee	26.2	24.2	34.2	45.0	10.7
It was easier than buying a new one	18.1	17.0	16.3	14.2	18.9
I am not good at repairing things myself	16.1	15.4	14.2	12.2	22.7
I was particularly fond of my current product	13.3	7.3	13.4	17.6	38.7
My preferred product was no longer in production	4.3	2.1	2.9	4.3	3.2
It is better for the environment than buying a new one	17.1	20.1	14.6	13.4	11.6
Other	2.1	4.6	3.5	3.0	4.1
Don't know	0.4	0.4	0.7	0.2	1.1
No. of observations	929	1217	1190	1715	531

Note: The question was Q3.2c: "You said you had the following product(s) repaired for you when these broke down or became faulty. Why did you decide to do this? For each product please select the two most important reasons."

Source: ConPolicy analysis of consumer survey data.

Experience with repair services

The previous section reported experiences with having a person repair the product, including repair by friends, relatives, manufacturers as well as professional repair services. Table 21 displays the shares of participants who have used a repair service for each of the different product categories.

[108] This study did not address whether consumers' attitudes were different for situations in which products were still covered by the 2 year legal guarantee covering all goods sold in the EU, or covered by additional (extended or commercial) warranties. See Glossary at the end of the report for definitions of (legal) guarantees and warranties.

Overall, 20-24% of participants indicated that they had used a professional repair service for a faulty mobile phone, television, or dishwasher. Much fewer participants had used such services for vacuum cleaners (9%) and clothing items (7%).

Table 21: Experience with repair services by product category (in %)

	Vacuum cleaner	Dish-washer	TV	Mobile phone	Coat or jacket
Share of respondents with experience with repair services	9.2	19.5	22.3	24.4	7.3

Note: The question was Q6.2a: "Have you used a professional repair service to repair any of the following products in the past? Please select all that apply."; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Next to these product categories it was also asked whether participants had additional experience with a repair service, i.e. for other products. Overall, 46% of the participants reported that they had experience with repair services for products except the five pre-defined categories.

Satisfaction with professional repair services

Participants who indicated having used a professional repair service for their faulty product were asked to indicate their satisfaction with convenience, speed, consumer friendliness, and quality of the repair service.[109] Table 22 displays aggregate results for all product categories.

Overall, consumers appeared to be rather satisfied with repair services. On average, 83% rated **convenience** of using a repair service at least fairly good including 20% that rated it even very good. **Speed of repair** was rated similarly satisfactory with a total of 81% rating the received service at least as fairly good including 20% indicating to have used a very good service. **Consumer friendliness** received an even higher rating with 88% stating the service as at least fairly good with 27% agreeing on it being very good. Lastly, **quality of repair** was also rated as satisfactory. Here, 88% indicated having received at least a fairly good service with 34% stating the service to have been very good.

Table 22: Satisfaction with professional repair services (in %)

	Very poor	Fairly poor	Fairly good	Very good
Convenience	2.4	14.1	63.3	20.1
Speed of repair	3.5	15.7	61.0	19.8
Consumer friendliness	2.1	10.3	61.1	26.5
Quality of the repair	3.1	9.4	54.0	33.5

Note: The question was Q6.2b: "Thinking about the time you used a repair service for a [vacuum cleaner / dishwasher / mobile phone / coat or jacket], how would you rate this service in terms of the following factors? Please answer on a scale from 1 ("Very poor") to 4 ("Very good"). The respective product was chosen randomly for each participant given that he or she reported to have used a repair service for this product in the past; N=7,331.

Source: ConPolicy analysis of consumer survey data.

[109] The focus of the following survey questions was to assess consumers' expectations with regard to characteristics of repair service, rather than price. The preceding sections of the survey asked about the importance of prices in repair vs. replace decisions and highlighted that consumers judge prices as a main driver of their decisions.

Additionally, satisfaction with professional repair services was analysed individually for the five different product categories. Detailed results are displayed in Section 7 in the Annex document. Overall, satisfaction was positive for all products. While clothing items received the highest ratings for convenience, speed, consumer friendliness and quality of repair, smart phones received the lowest ratings. For all product categories it was observed that the highest average satisfaction rates were achieved for quality of repair while speed of repair received comparatively lower satisfaction ratings.

Table 23 displays findings on whether repair services met consumers' expectations.

Overall, consumers indicated that professional repair services rather met their expectations. 74% reported that the engaged service was at least above their expectations with respect to **convenience** of repair (including 4% stating that is was even well above their expectations). With respect to **speed of repair** a similar rating emerged. 72% stated that the service was at least above their expectations with 7% rating the service even better. **Consumer friendliness** received a slightly better rating. Here, 81% indicated that the repair service performed at least above their expectations including 9% stating that it performed even well above their expectations. Lastly, **quality of repair** was rated with a total of 80% indicating the services' results to have been at least above their expectations with 10% stating them to be even well above their expectations.

Table 23: Rating whether professional repair services met expectations (in %)

	Well below expectations	Below expectations	Above expectations	Well above expectations
Convenience	3.6	22.7	69.4	4.3
Speed of repair	5.0	23.3	65.0	6.6
Consumer friendliness	3.2	15.6	72.6	8.6
Quality of the repair	4.6	15.2	69.7	10.4

Note: The question was Q6.2c: "And to what extent did the repair service live up to your expectations in terms of these factors?"; follow up to previous Table 22; N=7,331.

Source: ConPolicy analysis of consumer survey data.

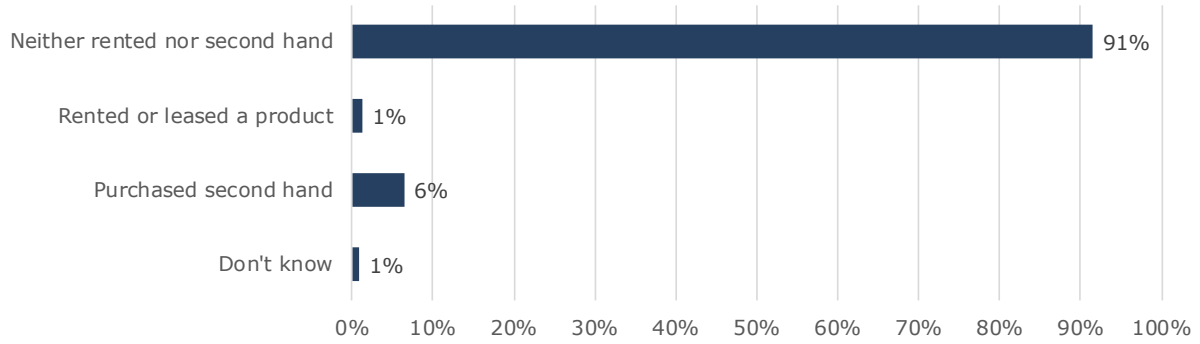
Again, results on consumers' expectations were analysed on the individual product level as well. Detailed results are depicted in Section 7 in the Annex document. For all product categories it was found that expectations were largely met. The highest average ratings were observed for clothing items while ratings were lowest for smart phones. Similarly, ratings were on average lower for repair services in the product category of televisions. When looking at the different rated categories, i.e. convenience, speed, consumer friendliness and quality, it was found that consumers' expectations more likely met for consumer friendliness and quality than for convenience and speed.

4.4.2. Experience with renting/leasing products or buying products second hand

The following section addresses consumers' actual experience with renting or leasing products as well as buying products second hand. Respondents were asked if they had experience with such practices in the last 5 years. The same product categories as before were covered (i.e. vacuum cleaners, dishwashers, TVs, mobile phones and coats/jackets). This section is thus distinct from the analysis presented in section 3.4.1 which showed hypothetical willingness to lease product as an indicator for willingness to engage in CE practices.

Figure 25 displays results on renting or leasing and buying second hand behaviour pooled over the product categories. A vast majority of 92% indicated that they neither rented nor bought second hand in the last 5 years. Purchasing second hand was more frequent than renting, i.e. 6% of the participants indicated to have bought second hand products whereas 1% indicated to have rented or leased a product.

Figure 25: Experience with renting / leasing or buying second hand pooled over product categories (in %)



Note: The question was Q3.3a: "For each of the products below, have you rented or leased such a product, or purchased a product second hand, in the last 5 years?"; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Table 24 shows behaviour for the individual product categories. Clothing items and mobile phones were bought almost twice as often second hand compared to other products. Apart from that, there were no substantial differences between product categories.

Table 24: Experience with renting / leasing or buying second hand by product category (in %)

	Vacuum cleaner	Dish-washer	TV	Mobile phone	Coat or jacket
Rented or leased a product	0.8	1.1	1.1	2.6	0.8
Purchased a second hand product	4.6	5.4	4.8	8.3	8.9
Neither of the above	93.7	92.8	93.4	88.2	89.4
Don't know	1.1	0.7	0.8	1.0	0.9
No. of observations	4907	4463	4908	4914	4917

Note: The question was Q3.3a: "For each of the products below, have you rented or leased such a product, or purchased a product second hand, in the last 5 years?"

Source: ConPolicy analysis of consumer survey data.

Behaviour was also analysed with respect to country and socio-demographic factors. The detailed results can be found in Section 7 in the Annex document with a summary here below.

The share of participants not renting or buying second hand ranged from 81% (Romania) to 93% (Portugal and Spain). 15% of the Romanian participants indicated to have bought second hand while this share was much lower among Portuguese participants (3%). Participants from Ireland and Hungary also revealed comparatively larger shares of buying second hand (10%). A small age trend was observed for buying second hand. While 10% of the youngest participants indicated to have bought second hand, only 4% indicated this behaviour in the oldest age group. Education did not seem to play a role while there was again a trend with respect to income. Participants indicating their financial situation to be very difficult revealed in 11% of the cases to have bought second hand while participants indicating their financial situation to be very easy bought second hand in only 5% of the cases.

Reasons for renting or leasing a product

As seen before, only few participants have rented or leased any of the products in the past. Table 25 depicts the reasons for renting or leasing specific products for this (small) group of participants. The importance of the reasons seemed to be product specific and no clear general patterns emerged.

The most popular reason for renting or leasing **vacuum cleaners** was that it was **easier to rent a vacuum cleaner than to buy one** (24%). The same was true for renting and leasing **coats or jackets** (31%). **Televisions** were rented or leased most frequently because people wanted to **test the product before buying it** (22%). The most important reason for renting a dishwasher was that people liked that the **product was also reused afterwards** (31%). The **price** was the most important reason for participants that rented or leased a **mobile phone**: 32% indicated that they rented or leased a mobile phone product because they **could not afford to buy it**.

Table 25: Reasons for renting or leasing a product by product category (in %)

	Vacuum cleaner	Dish-washer	TV	Mobile phone	Coat or jacket
It was easier than buying one	23.7	11.0	18.1	25.6	31.1
I wanted to test the product before buying it	18.7	25.6	21.9	12.9	22.6
I liked that the product would be re-used afterwards	9.3	31.2	15.9	15.9	9.7
I could not afford to buy the product	15.1	22.8	11.2	31.6	7.9
Maintenance was included	18.5	10.5	13.4	16.7	17.0
I only needed the product for a short time	17.2	17.6	10.5	11.5	14.1
I could get rid of the product more easily	14.8	8.0	12.1	5.7	13.3
Other	5.2	3.8	6.8	7.9	3.8
Don't know	2.3	0.5	9.3	3.6	13.7
No. of observations	55	71	69	130	52

Note: the question was Q3.3b: "You said that you have rented or leased the following product(s) in the last 5 years. Why did you decide to do this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for not renting or leasing a product

As indicated before, the vast majority of the participants had no experience with renting or leasing products. Table 26 illustrates the reasons why participants had not engaged with such practices in the past.

The two most important reasons for all product categories were that participants wanted to **own the products** they use (ranging from 44% to 49%), as well as wanting a **new, unused product** (ranging from 41 to 51%). **Preferring not to be bound by contracts, not knowing that renting a product was possible,** or **higher costs** of renting were all of moderate importance. Negligible reasons were the inability to find a product for rent (below 4% for all products) and lack of trust in rental/leasing firms (below 7% for all products).

Having a look at the differences between product groups, it becomes obvious that there were almost no noteworthy differences. Being bound by a contract was a less important reason not to rent a clothing item (10%) compared to other product categories (about 20%).

Table 26: Reasons for not renting or leasing a product by product category (in %)

	Vacuum cleaner	Dishwasher	Television	Mobile phone	Coat or jacket
I like to own the products I use	47.6	44.0	46.5	44.8	49.4
I wanted a new. unused product	41.0	41.5	42.8	42.9	50.5
I prefer not to be bound by contracts	19.5	19.8	21.0	21.3	10.0
I did not know it was possible	15.9	14.7	13.2	10.9	12.4
It was more expensive than buying the product	13.3	13.4	12.3	13.0	7.6
I could not find a product for rent	2.4	3.0	1.8	2.5	2.5
I do not trust rental/leasing firms	4.9	5.9	6.1	6.1	3.6
Other	2.0	2.8	1.7	2.3	1.5
Don't know	1.0	1.6	1.1	1.3	2.4
No. of observations	4.796	4.351	4.799	4.726	4.809

Note: The question was Q3.3c: "You said that you have not rented or leased the following product(s) in the last 5 years. Why is this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for buying a product second hand

Buying products second hand was overall more popular than renting or leasing. Table 27 depicts the reasons for buying products second hand. **Price** played an important role for all product categories (ranging from 41% to 65%), followed by the reason that participants thought second hand products to be **better value for money** (ranging from 31% to 39%). Moreover, between 13% and 31% of participants bought second hand due to **environmental reasons**. Simplicity of the buying process as well as availability were only important to a small fraction of participants that bought second hand.

Furthermore, a notable difference between the product categories exists regarding environmental motives for purchasing second hand. Only 13% to 20% of participants indicated that they bought a vacuum cleaner, dishwasher, television or mobile phone second hand for environmental reasons while this was true for 31% of participants buying second hand clothing items.

Table 27: Reasons for buying a product second hand by product category (in %)

	Vacuum cleaner	Dishwasher	Television	Mobile phone	Coat or jacket
It was cheaper than buying a new one	41.4	55.5	50.9	64.6	57.9
Second hand products are better value for money	30.9	31.3	35.0	33.2	39.3
Buying goods second hand is better for the environment	17.7	16.4	13.1	19.6	31.1
It was easier than buying a new one	15.1	17.9	16.7	16.1	6.6
The product I wanted is no longer in production	7.8	7.2	8.5	9.3	10.4
Second hand products are better quality	10.8	8.1	3.3	3.0	7.4
Other	3.8	3.9	5.2	1.6	1.5
Don't know	1.8	0.7	4.1	2.2	4.6
No. of observations	245	287	297	458	545

Note: The question was Q3.3d: "You said that you have purchased the following product(s) second hand in the last 5 years. Why did you decide to do this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for not buying a product second hand

According to Table 28, the most important reason for not buying second hand was that participants wanted to have **new products instead of old ones**. The shares of participants choosing this answer category ranged between 55% and 68%. **Lack of trust in second hand products** was on average the second most important reason followed by agreeing to new products being **better value for money**. Possible inferior quality of second hand products and difficulties in buying second hand were only important to a small share of the participants.

Furthermore, there exists an interesting difference regarding the **trust in second hand products** between different product categories: While trust in the products seemed to be an important driver for dishwashers (30%), televisions (31%), mobile phones (36%) and even clothing items (20%), it was a very negligible reason for vacuum cleaners (3%).

Table 28: Reasons for not buying a product second hand by product category (in %)

	Vacuum cleaner	Dishwasher	Television	Mobile phone	Coat or jacket
I prefer having brand new products	54.9	56.9	58.5	58.0	68.4
New products are better value for money	20.6	21.0	21.0	18.2	13.8
I do not trust second hand products	2.9	30.3	30.9	35.6	20.3
It is more difficult than buying a new one	11.0	10.8	9.2	6.8	8.5
Second hand products are of inferior quality	8.2	6.6	7.7	10.3	8.8
I don't know where to buy a second hand product	7.6	6.0	5.2	4.8	5.5
Second hand products cost more to maintain	5.3	7.3	6.4	4.6	2.2
Other	5.2	5.1	4.0	4.0	4.3
Don't know	2.9	2.6	3.0	2.9	5.0
No. of observations	4,606	4,135	4,571	4,398	4,316

Note: The question was Q3.3e: "You said that you have not purchased the following product(s) second hand in the last 5 years. Why is this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

4.5. Evidence from the behavioural experiment

This section reports findings from the repair experiment which was part of the behavioural experiment. A short description of the experimental tasks, outcome measures, treatments and monetary incentives can be found in section 2.7.1.

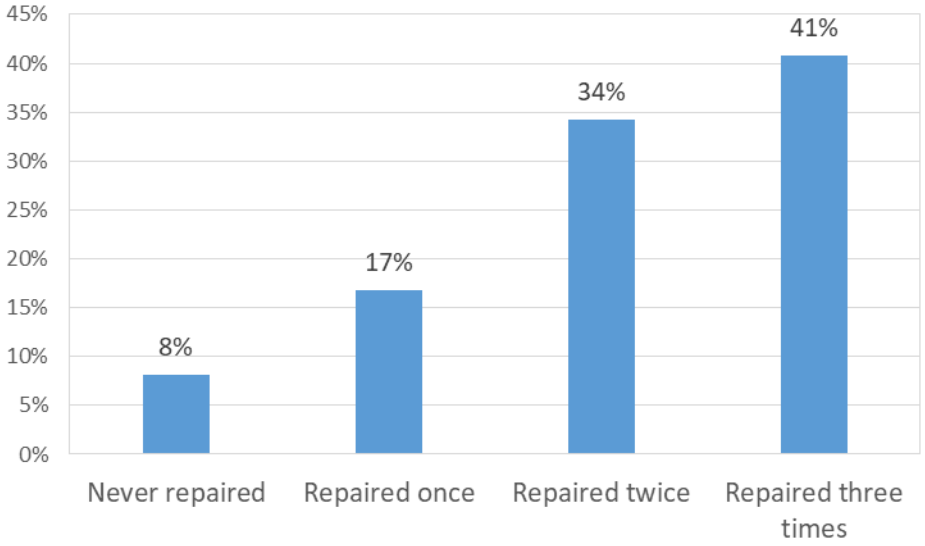
The repair experiment had two stages. First, respondents needed to decide whether they wished to repair, or replace a defective product which was beyond the 2-year legal guarantee.[110] In case they decided to replace their product, they were given a choice to replace it with either a brand new product, or a second hand product. We report findings for each of these stages in turn below.

4.5.1. Likelihood to repair

Experiment respondents had generally positive attitudes towards repairing defective products. A vast majority (92%) decided to repair at least one product over the course of the three rounds of the repair experiment task.

[110] To avoid confusion by respondents with regards to whether the defect was covered by a legal guarantee, the product age was indicated as being 2 years for coats and smartphone and 5 years for TVs, vacuum cleaners and dishwashers.

Figure 26: Frequency of choosing to repair across all respondents and rounds of the task.

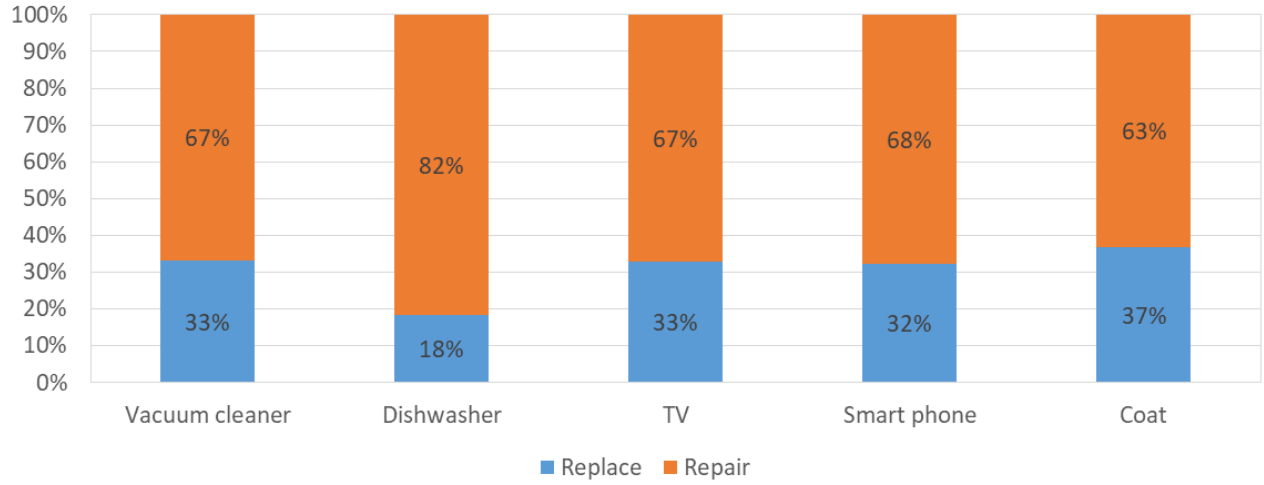


Note: The repair experiment was repeated three times by each respondent, each time making decisions about a different type of product. N=6,042.

Source: LE Europe analysis of behavioural experiment.

The likelihood of choosing to repair a product was roughly equivalent across the different products. Only for Dishwashers, the share of respondents choosing to repair was significantly larger than for all other products as shown in Figure 27 below.

Figure 27: Shares of respondents choosing to repair and replace, by product type



Note: Numbers of observations by product: VC=3,627; DW=3,638; TV=3,644; SM=3,612; CL=3,605.

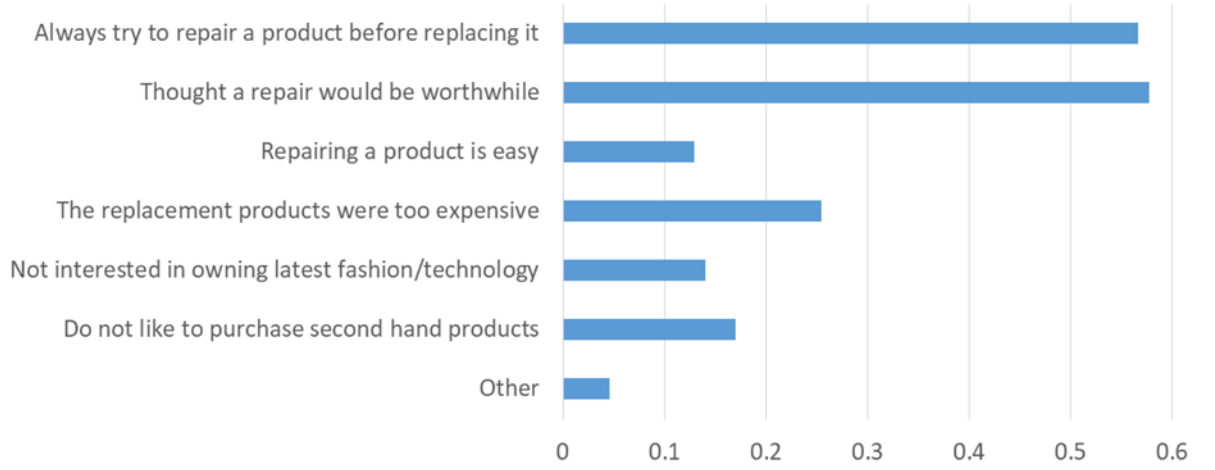
Source: LE Europe analysis of behavioural experiment.

The top two reasons for choosing to repair a product rather than replacing it in this experiment task were:

- Always trying to repair products before replacing them; and
- Thinking that a repair would be worthwhile.

Other reasons, including other monetary motives and fashion/technology preferences, were less important but still frequently mentioned as shown in Figure 28.

Figure 28: Reason for choosing to repair



Note: Answers to follow-up question FR2: *Why did you choose to repair the product instead of replacing it? Select all that apply. N=3,769.*

Source: LE Europe analysis of behavioural experiment.

Impact of socio-psychological attitudes on repair decisions

Socio-psychological attitudes seemed to play an important role in repair or replace decisions. The consumer survey elicited several self-declared personal attitudes towards different aspects of the CE. These survey questions were used to derive indicators for the following attitudes:

- Preferences for trends and fashion;
- Pro-environmental attitudes in general;
- Positive attitudes towards second hand products;
- Pro-CE attitudes of peers (e.g. family and friends);
- Self-rated awareness of durability and reparability; and
- Positive attitudes towards durability and reparability.

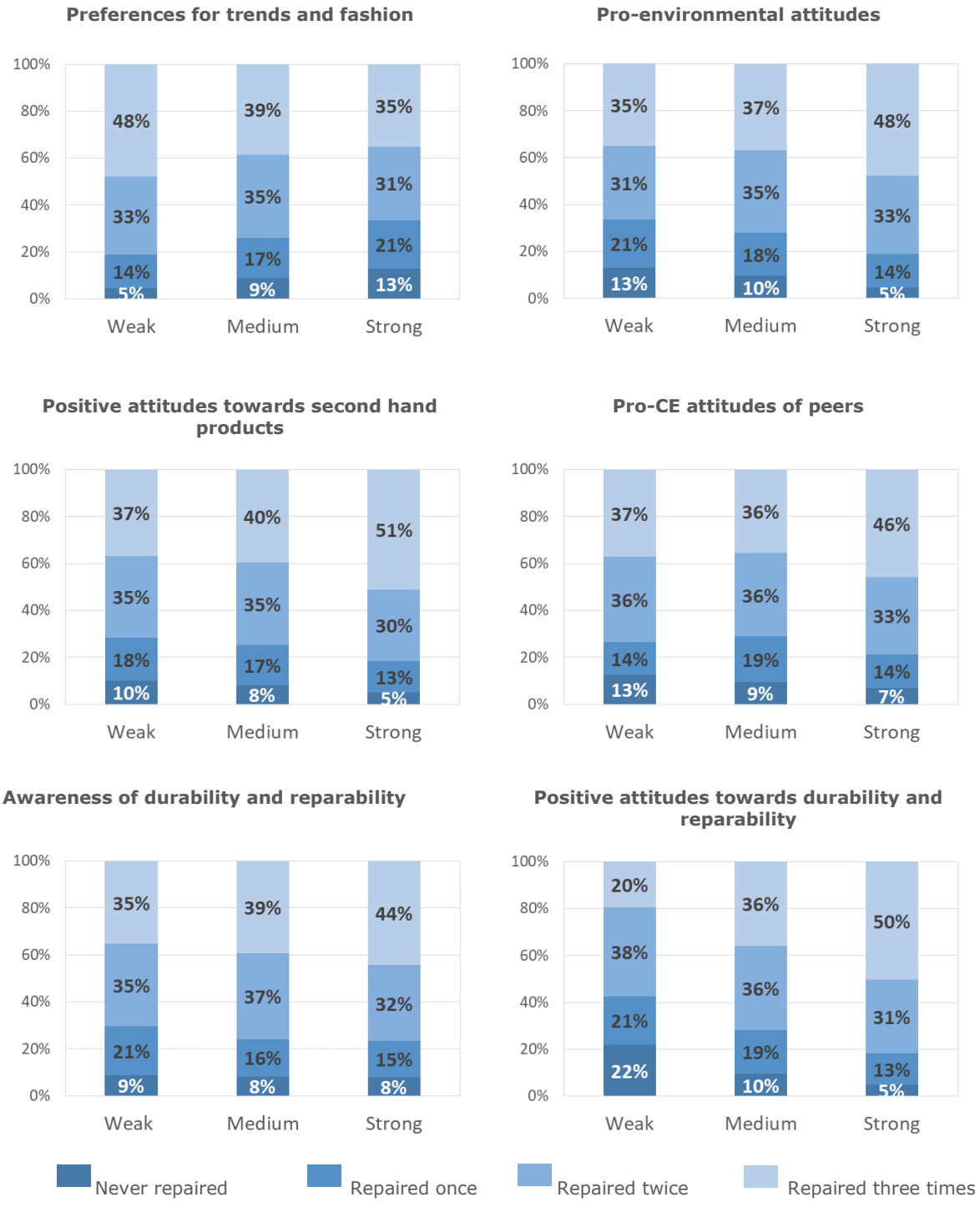
Shown in Figure 29, the different attitudes appear to be systematically related to the likelihood of choosing to repair, rather than to replace in the experimental task.

Individuals with strong preferences for trends and fashion chose less often to repair compared to those who had medium, or weak preferences for trends and fashion. In particular, the share of respondents who repaired once or twice over the course of the three repetitions of the experiment seems to be fairly constant across different attitudes (47%-52%). At the same time, those with weak preferences for fashion and trends were much less likely to never repair (5%) compared to those with strong preferences for trends and fashion (13%), and much more likely to choose to repair in every round (48% compared to 35%).

Similar patterns were observed for the other personal attitudes as well as for attitudes of peers.

Interestingly, also individuals with positive attitudes towards second hand products were more likely to repair, rather than replace. This was despite the fact that individuals could have chosen to purchase a second hand product as a replacement product.

Figure 29: Likelihood to repair for respondents with different socio-psychological attitudes relative to the CE



Source: LE Europe analysis of behavioural experiment.

The reported findings were verified using regression analyses (see the Annex for further detail). These analyses confirmed that socio-psychological factors, and particularly attitudes towards trends and fashion and attitudes towards durability and reparability, were strong drivers of the decision to repair or replace.

The effects of effort frictions in repair or replace decisions

The experiment systematically varied how the choice to repair was presented via experimental treatments.[111] In a first step, it was varied whether individuals needed to exert more effort in order to repair, or replace. This treatment thus simulated the fact that, in reality, it can be difficult to arrange for repair, similarly, it can be time consuming to search for a replacement product, either new or second hand. Figure 30 below shows how the likelihood to repair across the different experimental rounds varied under different treatment conditions.

Behaviour in the baseline condition where both repairing and replacing were effortless[112] resembled behaviour in the condition in which *replacement* required effort. 6-7% of respondents in these conditions never repaired, while 76%-80% decided to repair twice, or three times.

When instead *repairing* required effort, the share of respondents deciding to never repair doubled from 6% to 12%. At the same time the share of respondents who chose to always (three times) repair dropped from 42% to 35%. Both movements are highly statistically significant.

Regression analysis, reported in Table 29, similarly finds that effort in the experiment discouraged repair but it did not discourage replacement of a broken product with either a new or second hand product. This finding was robust to the inclusion of socio-psychological characteristics and demographics.

It thus seems that **frictions in the accessibility of repair services significantly lowered the attractiveness of repairing while the same type of frictions had virtually no effect on the decision to replace a product**. Overall, repairing was the most popular choice in this experiment. However, it seems that respondents at some occasions had a clear motivation behind their decision to replace rather than repair. For example, many respondents who replaced did not think a repair would have been worthwhile, or were interested in owning the latest fashion/technology (see next subsection for further details). It seems that when this was the case, respondents were not put off replacing even when it required them to go through an additional, tedious task.

A possible reason for this can be seen in the behavioural economics literature which finds that when the intrinsic motivation for a certain behaviour is strong it can outweigh nudges and other environmental factors which could otherwise influence behaviour.[113] This means that in the experiment, although the effort associated with repairing and replacing was identical, respondents may have still perceived that repairing would be more tedious by taking their real-world expectations about repair into the experiment environment. Indeed, it is regularly found in well-known economic experiments that respondent behaviour can differ due to framing or labelling effects.[114]

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[111] Allocations to the various treatments in the experimental tasks were done independently and randomly across the different allocations. This resulted in a full factorial design between products and treatments. This means that group sizes for different variants within each treatment category were roughly equal and each respondent had the same likelihood of being assigned to any specific treatment. This also ensures that, on average, there should not be any interactions between different types of experimental treatments.

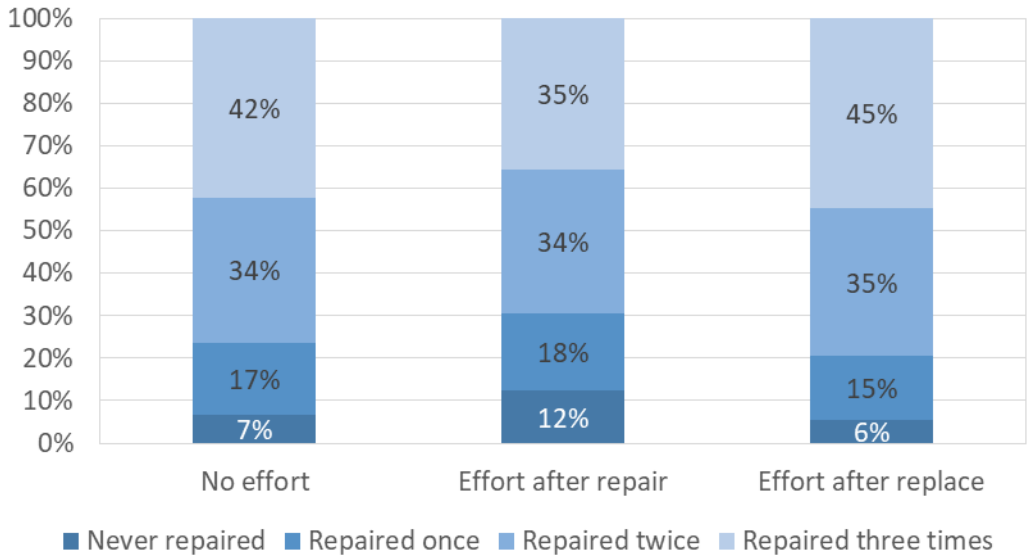
[112] Repairing required only clicking on a 'Repair' button, replacing required clicking on a 'Replace' button and then selecting a replacement product between a brand new or second hand product.

[113] Sunstein (2017), 'Nudges that fail', Behavioural Public Policy.

[114] For example, behaviour in a prisoners' dilemma game differs widely depending on whether it is labelled as a "Community Game" or a "Wall Street Game", similarly, contributions in public goods game are different depending on whether the experiment is labelled as a "Community Game" or simply as an "Experiment". See respectively: Ross, Ward, (1996), 'Naive realism in everyday life: Implications for social conflict and misunderstanding'. In Reed et al., (Eds.), Values and Knowledge; Liberman, Samuels, Ross (2004) 'The name of the game: predictive power of reputations vs. situational labels in determining Prisoner's Dilemma game moves', Personality and Social Psychology Bulletin 30; Dufwenberg, Gächter, Henning-Schmidt (2011), 'The framing of games and the psychology of play', Games and Economic Behavior.

Overall however, it should not be disregarded that a more than one in three experiment participants decided to repair in each of the three rounds and were never dissuaded from doing so because of the additional effort required.

Figure 30: Frequency of repair choices in different effort conditions



Note: Number of observations in different treatment conditions: No effort, N=2,020; Effort after repair, N=1,991; Effort after replace, N=2,022.

Source: LE Europe analysis of behavioural experiment.

Table 29: Results from ordered logit regression on number of repairs chosen and logit regression on proportion of second hand products chosen

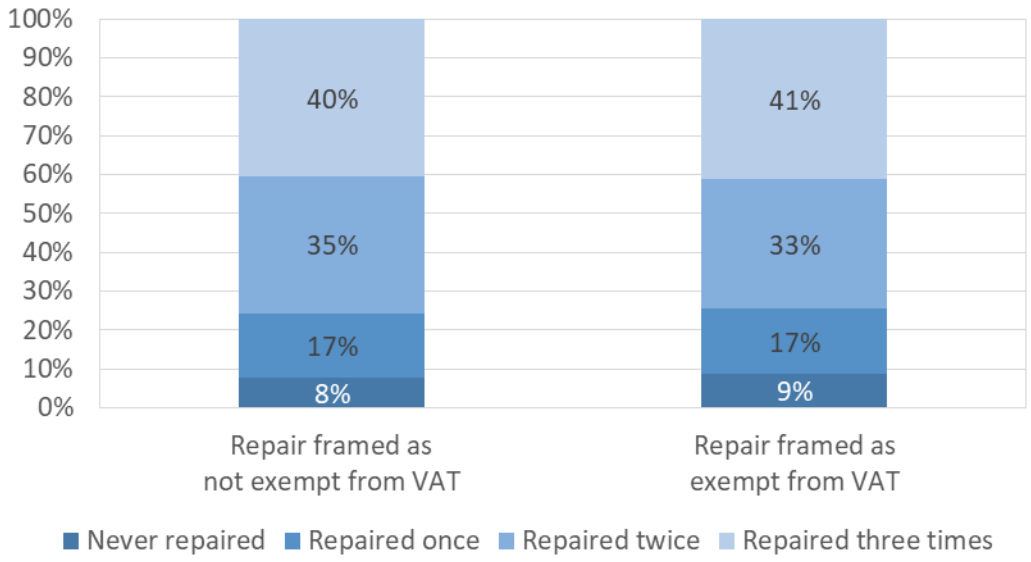
Outcome variable	Number of times repair was chosen across three rounds		Proportion of second hand products chosen if respondent replaced	
	(1)	(2)	(3)	(4)
Effort treatment *– Baseline: no effort*				
Effort after repair	0.710***	0.699***	1.130	1.114
	(-4.21)	(-4.34)	(0.86)	(0.73)
Effort after replace	1.143	1.138	0.942	0.930
	(1.68)	(1.59)	(-0.39)	(-0.45)
VAT treatment *– Baseline: Repair is not VAT exempt*				
VAT exempt	0.995	0.960	0.999	1.033
	(-0.07)	(-0.61)	(-0.01)	(0.26)
Source of repair treatment *– Baseline: Manufacturer repair with original parts only*				
Manufacturer repair with non-original parts	0.853	0.860	1.306	1.211
	(-1.74)	(-1.62)	(1.59)	(1.08)
Independent repair with original parts only	0.974	0.961	1.131	1.066
	(-0.29)	(-0.42)	(0.72)	(0.35)
Independent repair with non-original parts	0.847	0.843	1.060	1.058
	(-1.76)	(-1.77)	(0.34)	(0.31)
Country controls	×	✓	×	✓
Socio-demographics (age, gender etc.)	×	✓	×	✓
Personal attitudes (pro-CE, pro-trends, etc.)	×	✓	×	✓
Model	Ordered logit	Ordered logit	Logit	Logit
N	6,042	6,042	3,711	3,711

Note: Odds ratios (exponent coefficients) reported, t statistics in parentheses, * p < 0.05, ** p< 0.01, *** p < 0.001

The effects of framing repair prices as VAT exempt

Another experimental condition varied the **display of the repair prices** by labelling repair prices as including VAT, or as VAT exempt. It is important to note that this experimental treatment did not vary the prices for repair as such (e.g. prices which were labelled as VAT exempt were not cheaper than VAT inclusive prices).[115] This is because it was not the objective of this study to assess the price elasticity in demand for repair services, but rather to assess whether non-price related measures might make the option to repair product more or less attractive. Indeed, the behavioural economics literature often finds that the way in which prices are presented (i.e. framed) has important effects on choice behaviour.[116] This experimental condition alluded that repair may have been a 'good deal' (since it was labelled as VAT exempt) and at the same time it made the decision to repair more salient (via a red label "VAT EXEMPT", see section 2.7.1 for screenshots of the experiment environment). Both these characteristics of the experiment had been hypothesized to make repairing more attractive. In the present experiment, however, choices were virtually unaffected by the framing, see Figure 31 and Table 29.

Figure 31: Frequency of repair choices in VAT framing treatment



Note: Number of observations in different treatment conditions: VAT not exempt, N=2,997; VAT exempt, N=3,045. The treatment tested framing only. This means that prices were identical in both experimental conditions.

Source: LE Europe analysis of behavioural experiment.

The finding is in line with what classical economic theory would predict. Classical economic theory would not expect a shift in the demand for repair, unless prices were different. Thus, further efforts to expand VAT exemption of repair services should take into account consumers' price sensitivity for repair services. It would need to be verified whether demand for repair services is elastic such that price reductions due to VAT exemption would actually increase the use of repair services. According to the behavioural experiment, preferential VAT treatment purely in a marketing sense might remain without an effect.

[115] For example, the price to repair a dishwasher would have been €79 incl. VAT in one condition and €79 excl. VAT in another. Prices were calibrated in this way to disentangle price effects from VAT framing effects.

[116] See for example: UK Office for Fair Trading (2010) 'The impact of price frames on consumer decision making', a report prepared by London Economics; Tversky and Kahneman (1981) 'The framing of decisions and the psychology of choice', Science; Levin et al. (1998) 'All frames are not creaed equal: A typology and critical analysis of framing effects', Organizational Behavior and Human Decision Processes.

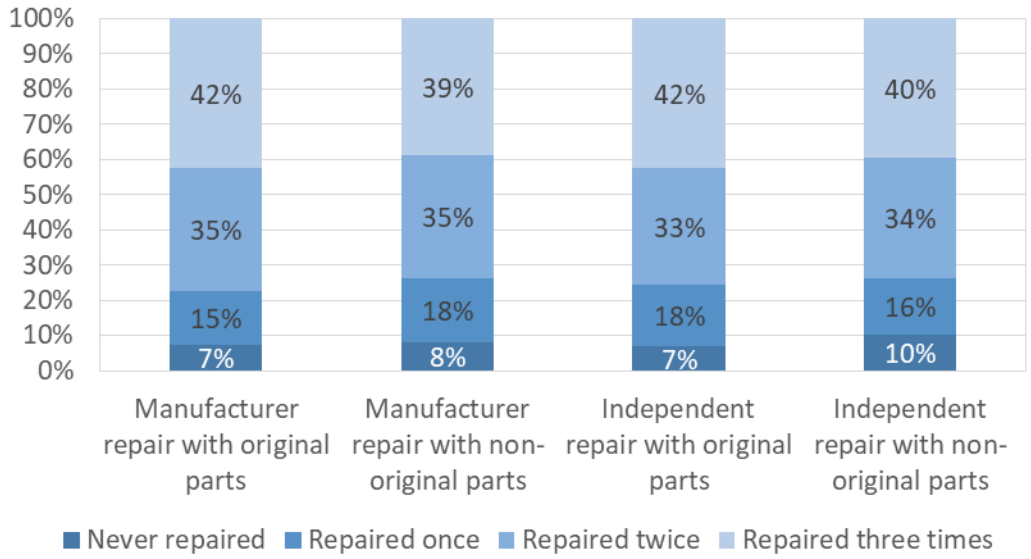
At the same time, it is important to consider that other assessments of the effects of preferential VAT taxation (or VAT exemption) of specific goods and services are inconclusive. Most theoretical studies and pre-assessments argue that demand for the concerned goods and services would increase due to the price reductions, which would in turn increase supply and employment in the affected sectors. However, these effects are not (consistently) confirmed by post-implementation evaluations. One problem in the chain of the above arguments is that VAT reductions are often not passed on to the consumers thus resulting in stable prices and demand.[117]

The importance of characteristics of the repair service

Lastly, the experiment tested whether repair decisions were driven by certain (non-price) characteristics of the repair services. It was varied whether repair services were more attractive when offered by the manufacturer, compared to by an independent repair service. And secondly, it was varied whether the repair was done using original parts only, or original as well as non-original parts. Prices across these different conditions were held constant. So, this treatment can again be seen as a 'framing' treatment. Shown in Figure 32, this experimental condition also left choices mostly unaffected.

Yet, further regression analysis suggested that the impact of labelling might have been different for certain groups of consumers. For example, the VAT exempt label seems to have attracted individuals who give low importance to fashion and trends towards repair, while those who attribute high importance to trends and fashion and those who had negative attitudes towards second hand products were significantly less likely to choose repair when it was labelled as VAT exempt. The framing of repair prices as VAT exempt has also led some respondents in more difficult financial situations to repair more.

Figure 32: Frequency of repair choices by (non-price) repair characteristics



Note: Number of observations in different treatment conditions: Manufacturer with original parts, N=1,475; Manufacturer with non-original parts, N=1,544; Independent repair with original parts, N=1,524; Independent with non-original parts, N=1,499. The treatment tested framing only. This means that prices were identical in all four experimental conditions.

Source: LE Europe analysis of behavioural experiment.

[117] For some overviews of the effects of VAT and VAT changes see, for example: European Commission (2013) Reduced rates of VAT: frequently asked questions, MEMO/03/149; European Commission, COM(2003) 397 final; Abramovski et al.(2017) 'Redistribution, efficiency and the design of VAT: a review of the theory and literature', Institute for Fiscal Studies; Experian (2014) An estimate of the effects of a reduction in the rate of VAT on housing renovation and repair work: 2015 to 2020.

It appears that, if at all, repair decisions were affected by the use of non-original parts. When aggregating data from the table above, it seems that repair was **slightly less attractive when the repair service used original and non-original parts,** compared to the conditions in which original parts were used exclusively. At the same time, **whether the repair service was offered by the manufacturer or an independent repair shop was indifferent for respondents.**

Regression analysis suggested that the repair characteristics mattered to some extent to different age groups. However, no clear patterns arose. For example, younger respondents (aged 18-34) were less likely to repair when repair would have been done using original parts only. Instead, older respondents (55+) were more likely to choose to repair when an independent repair shop provided the service rather than the manufacturer.

These findings thus suggest that there are no strong inherent differences in consumer attitudes towards manufacturer or independent repairs. Such differences could arise, for example, due to differences in trust.

The present experiment however did not test whether preferences would shift, for example, if repairs by the manufacturer were more expensive than repairs offered by an independent repair shop. It is likely that a difference in price would also shift consumer preferences.

As mentioned above, a majority of respondents in this experiment felt a repair would be worthwhile. Interestingly, more respondents indicated this reason for repairing when repair was offered by the manufacturer with original parts only, or when offered by an independent repair shop using both original and non-original parts. Instead when the manufacturer would have used also non-original parts, or an independent shop only original parts, respondents seemed to have the impression that this made repair less worthwhile.

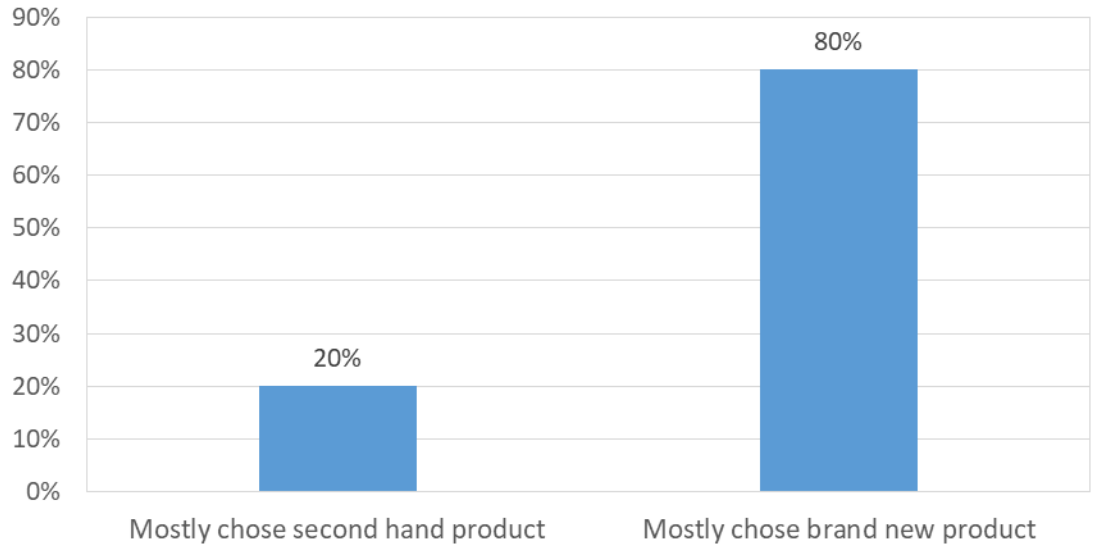
4.5.2. Likelihood to purchase second hand

As mentioned above, following the decision to repair or replace a product, respondents who chose to replace were asked whether they wished to purchase a brand new or second hand replacement product. All results presented in this section thus only show choices for respondents who initially chose to replace, and not repair, their products in the first stage.

Second hand products were calibrated to be equivalent to the state of technology/fashion of the already owned, defective product, whereas brand new products would have represented an upgrade. Second hand products were roughly 40% cheaper compared to brand new replacement products.

Visible from Figure 33, respondents who wished to replace their products rather than repair them had an overwhelming preference for brand new products. Only 20% of respondents had a tendency to choose the second hand option over the option of purchasing brand new at this decision stage.

Figure 33: Choices between brand new and second hand products, results pooled across all respondents, repetitions of the task and experimental treatments



Note: This figure presents data aggregated across the three repetitions of the experiment. The left-hand bar indicates respondents who have chosen the second hand product at least once when they reached the replace stage once, or twice and respondents who chose the second hand product at least twice if they reached the replace stage three times. The right-hand bar shows the residual individuals, who were thus more likely, overall, to have chosen the brand new over the second hand product.

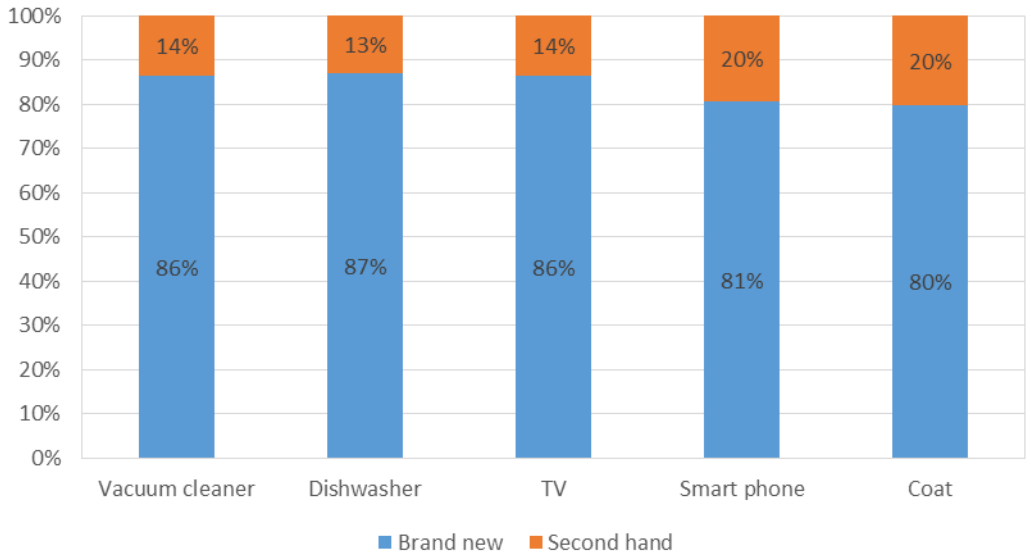
Number of respondents included in the chart N=3,711. Total number of respondents in the experiment was 6,042, of which 3,711 (61%) have chosen to replace at least once.

Source: LE Europe analysis of behavioural experiment.

The strong preferences for brand new products were equivalent for vacuum cleaners, dishwashers and televisions, with 86-87% of respondents choosing brand new over 13-14% choosing second hand products (Figure 34). Yet, for smartphones and clothes (coats) respondents were more likely to purchase the second hand product, 20%, compared to the other product categories. At least for coats, this was likely due to the fact that it was less fashion-driven respondents who were most likely to purchase second hand. For smartphones instead, no particular respondent group drove the result.

The other strands of research (literature review, focus groups and stakeholder consultations) suggested that different attitudes could drive behaviour differently for different product categories in the sense that fashion and technology might influence some product decisions more than others.

Figure 34: Choices between brand new and second hand products, results pooled across all respondents, repetitions of the task and experimental treatments



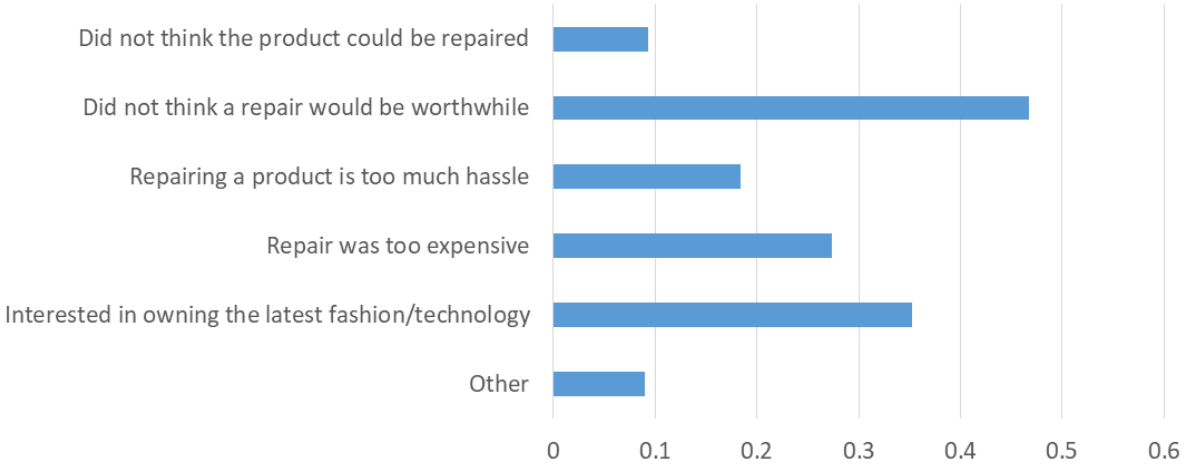
Note: VC=1,324; DW=782; TV=1,283; SM=1,260; CL=1,345

Source: LE Europe analysis of behavioural experiment.

Reasons for replacing rather than repairing were quite mixed. The most important reasons seemed to relate to scepticism around the quality of repair. 47% of respondents indicated that they did not think that repair would be worthwhile, that it would be too expensive (27%), and that it would be too much hassle (18%). These reasons prevailed although only a minority of respondents thought that the product could not be repaired (9%).

At the same time, a considerable proportion of respondents, 35%, indicated being interested in owning the latest fashion and/or technology which naturally made the options to repair, or purchase a second hand product less attractive.

Figure 35: Reasons for replacing rather than repairing products



Note: Answers to follow-up question FR3: *Why did you choose to replace the product instead of repairing it? Select all that apply.* N=2,273.

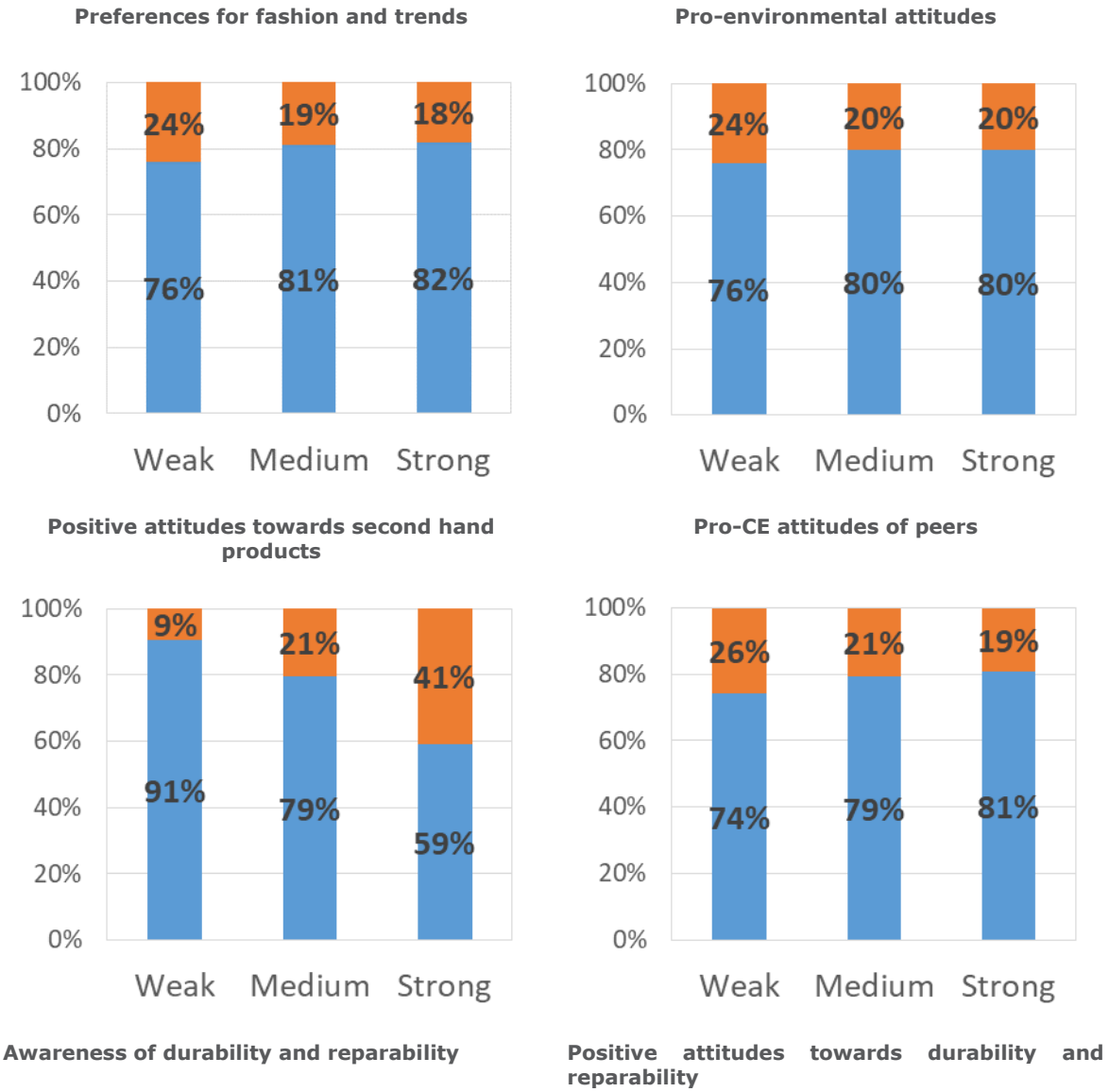
Source: LE Europe analysis of behavioural experiment.

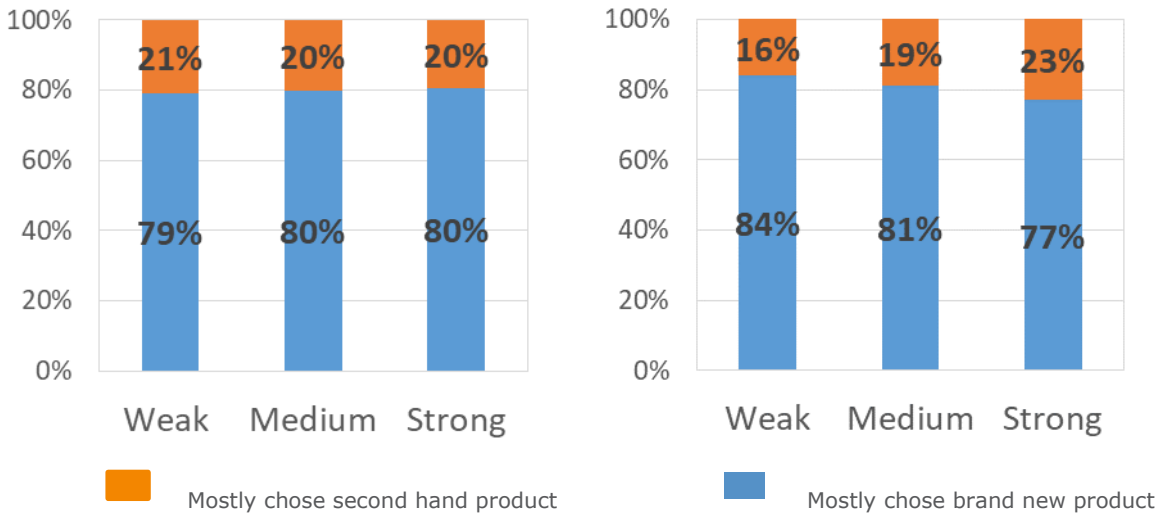
Impact of socio-psychological attitudes on replacement decisions

Compared to the importance of socio-psychological attitudes on repair decisions these factors seemed to play a less important role in replacement decisions. Visible from Figure 36, the decision to purchase a second hand product was again slightly increased by more pro-CE attitudes but the patterns were less distinct than in the preceding stage.

The most notable difference in behaviour was observed for respondents with positive attitudes for second hand products. These individuals were more than four times more likely to purchase a second hand product compared to individuals with negative attitudes towards used products, 41% compared to 9%. Similarly, the regression analyses confirmed that the attitude towards second hand products was the main driver of the decision to purchase second hand.

Figure 36: Likelihood to repair for respondents with different socio-psychological attitudes relative to the CE





Source: LE Europe analysis of behavioural experiment.

Impact of experimental treatments on the replacement decisions

The experiment did not introduce systematic changes at this decision stage. None of the experimental treatments that were applied at the first, repair vs. replace, stage had knock-on effects on the decision whether to replace the product with a brand new or second hand product.

5. Consumers' awareness, understanding, and expectations on durability and reparability

The present study did not use a precise definition of what constitutes a 'durable' or 'repairable' product. Instead, it was one of the main scopes of the study to **uncover what consumers associate with the concepts of 'durability' and 'reparability'**. The study thus potentially takes a different point of view on these CE concepts compared to studies that are focussed on industry standards. Naturally, industry standards require clear definitions of what can be considered a 'durable' or 'repairable' product to be enforceable. This study instead covers the **views and perceptions around durability and reparability of the general population across different EU Member States**.

Based on findings from the literature, stakeholder interviews, focus group discussions and the consumer survey, this section presents findings on consumers' awareness of durability and reparability characteristics, and what they understand by durability and reparability, as well as their expectations about such product characteristics. Differences by product category and differences in behaviour of different consumer groups in terms of CE attitudes, or socio-demographics are highlighted throughout. Secondly, a focus is put on consumers' after-sales expectations. For example, when do consumers expect a free repair or replacement of a broken product and how do such expectations vary depending on the product information received at the point of sale.

Key findings

- According to stakeholders, focus group participants and survey respondents, **consumers most associate products lasting for a long time with 'durability'.** Secondly **consumers tend to collapse the concepts of durability, quality** and price in the sense that they expect longer life spans for more expensive products.
- More specifically, in the consumer survey properties most associated with a "durable" product were **being able to use a product for a long time** and the **product staying in perfect working order for a long time**.
- As highlighted in previous sections, these consumer associations are heavily influenced by a substantial lack of awareness and missing product information regarding CE product characteristics.
- Stakeholders reported that consumer expectations about durability decreased with time after purchase and that consumers' after-sales expectations about reparability were low.
- Various strands of research pointed out that older consumers expected products to last longer.
- A stakeholder mentioned that consumers from former communist countries of Eastern Europe tend to exhibit higher durability expectations. At the same time, as reported already in section 4, consumers from Eastern Europe also display a higher willingness to repair.
- Focus group participants felt that products produced in the past were more durable compared to modern products.
- In the consumer survey the **properties most associated with a "repairable" product** were **spare parts being available** for the product and the **possibility to have the product repaired by a repair firm**.
- Several stakeholders, for example from trade associations and industry, highlighted how reparability and durability should be seen in conjunction in the sense that **easy reparability can enhance durability**. Instead, it appears that consumers' mostly view durability as a substitute for reparability because a long-lasting product would not require repairs (see also findings from the behavioural experiment reported in section 6 which highlight that durability plays a more important role for consumers compared to reparability).
- What consumers associate with 'durability' and 'reparability' seems to be consistent across different types of products. At the same time, **consumers have different expectations regarding how long different products should last.** Focus group participants and survey respondents have reported wide ranges of life-time expectations for the different products of the study such as:

  - For vacuum cleaners 27% of survey participants expected a lifespan between 4 and 7 years with another 27% that indicated an expectation of 7 to 10 years.
  - For dishwashers the lifespan expectations were higher with 29% indicating that they expected a lifespan between 7 and 10 years and another 29% with an expectation of 10 to 15 years.
  - Similarly, 31% indicated they expected a television to last for 7 to 10 years and another 28% stated their expectation to lie within the range of 10 to 15 years.
  - For mobile phones and clothing items lifespan expectations were lower. 38% expected a lifespan between 2 and 4 years for mobile phones and 35% indicated a lifespan of 4 to 7 years.
  - For clothing items lifespan expectations were indicated to lie within 2 to 4 years by 25% and within 4 to 7 years by 26% of the participants.
- For all five product categories, a substantial majority of survey respondents – ranging from 77% for coats/jackets to 90% for dishwashers – thought it would be **possible for these products to be repaired**, either by themselves or by someone else on their behalf. This high overall percentage was largely due to an expectation that it would be possible to have the products repaired by a third party (i.e. friends and family, professional repair services).
- Most survey respondents who said they would be able to repair the products themselves believed it would be "rather" or "very" **easy to repair a vacuum cleaner** (55%) **or coat/jacket** (58%), whereas the shares who gave this answer were much lower for dishwashers, televisions, and mobile phones (35%, 23% and 29% respectively).
- Across all product categories, most consumers expected it would be "rather" or "very" **easy to have a product repaired** for them (ranging from 51% to 69%).
- In terms of **after-sales expectations, there were contrasting views uncovered by the different strands of research**: Stakeholders reported low after-sales expectations of consumers for the reparability of products. These **low expectations were grounded in negative experiences** in terms of support from the retailers. These reported negative experiences seem however to contrast with findings from the consumer survey. Across the representative samples across 12 Member States **most consumers would expect a good service from repair services**; a substantial majority would expect the service to be "fairly" or "very" good in terms of convenience (85%), speed (82%), friendliness (89%) and quality of the repair (92%). And as reported in the previous section, experiences with repair services were mostly positive and repair services regularly exceeded expectations. There thus seems to be **a mismatch between consumers' expectations and actual experiences** that might be **driven by exemplary negative experiences of a minority of consumers.**
- Generally, guarantees seem to affect consumers' expectations according to stakeholder and consumer views from the survey and focus groups. The longer a product is under guarantee, the longer consumers expect the product to last and the higher are their expectations also regarding the reparability of a product. Moreover, if a product breaks down during the guarantee period, consumers are more likely to return it to the retailer or manufacturer to receive a replacement or free repair.
- The survey revealed mixed views regarding what should happen if a product were to become faulty. For example, 34% of consumers would expect to have to **repair the product at their own expense**, while 32% would expect **repair free of charge**.
- **Repair free of charge** was often expected when consumers held **extended commercial guarantees or insurance from retailers** (41%), the retailer claimed that the product would **"last at least 10 years"** (32%), or the product carried an **EU label** indicating that it has a high durability rating (22%).
- A joint analysis of the behavioural experiment and the consumer survey has revealed that **consumers who have received durability information** via manufacturer warranties, or durability promises at the point of sale in a purchasing exercise in the experiment **were significantly more likely to expect free replacement or free repairs of faulty products**. Instead, those who had not seen any information on CE product characteristics, or only information on the reparability of a product were

significantly less likely to expect free rectification of the fault in any way and instead more likely to expect needing to pay for either repair or replacement.

5.1. Evidence from the literature and data collection

5.1.1. Consumers' awareness, understanding and expectations about durability

Consumers understanding of durability

Braithwaite et al. (2015) have studied the impact of durability information on consumers' purchasing decisions. They have reviewed the part of the literature on consumers' durability understanding. They have found that the meaning of durability varies among consumers. It can be linked to products that have lifetime guarantees or that have parts that can be updated or modified'. Durability is also linked to the product's performance over time.

The other sections of this report have indicated that **consumers mainly link durability to a longer lifespan** (see especially section 6.1.1). The importance of lifespan information on labels in consumers' purchasing decisions confirms this statement. Moreover, according to a WRAP study, for a consumer, the durability of a product is measured by how long the product provides a useful service to them.[118]

Consumers' awareness of durability

Sections 6.1.2 and 6.1.4 present the importance of information about durability on consumers' purchasing decisions. The reviewed literature showed that this positive impact is explained by the consumers' initial lack of knowledge on durability characteristics. The study carried out on behalf of the European Economic and Social Committee indicated that on average a product was chosen 4.6% more often when the lifespan of the product was indicated.[119] From this, it can be concluded that consumers are not aware of the durability of products unless they are informed about it.

As an example of a white good and according to a European Commission report about household dishwashers, consumers do not feel knowledgeable about how long washing machines last and are not aware of the information available.[120] Some consumers also have doubts about whether the lifetime of products can be accurately measured**.**

As the degree of consumers' awareness varies according to the information provided, it may be assumed that having a legally required indication may enhance consumers' awareness of a product's durability. The Annex illustrates some specific cases where such durability information is mandatory (see Section 3 'Overview of existing policy initiatives and potential improvements suggested by stakeholders' in the Annex document). For instance, under the European Ecodesign Directive, traders shall indicate a minimum information about the expected lifespan of vacuum cleaners and light bulbs.[121]

Consumers' expectations about durability

The reviewed literature has indicated that **consumers' expectation about durability varies across products**.

In 2013, a WRAP study on consumers' purchasing behaviour towards electronic appliances stated that the **expected durability for washing machines, vacuum cleaners, and laptops were lower than for TVs and fridges**. However, no detailed figures or explanation were provided in this study.

[118] WRAP, 2017

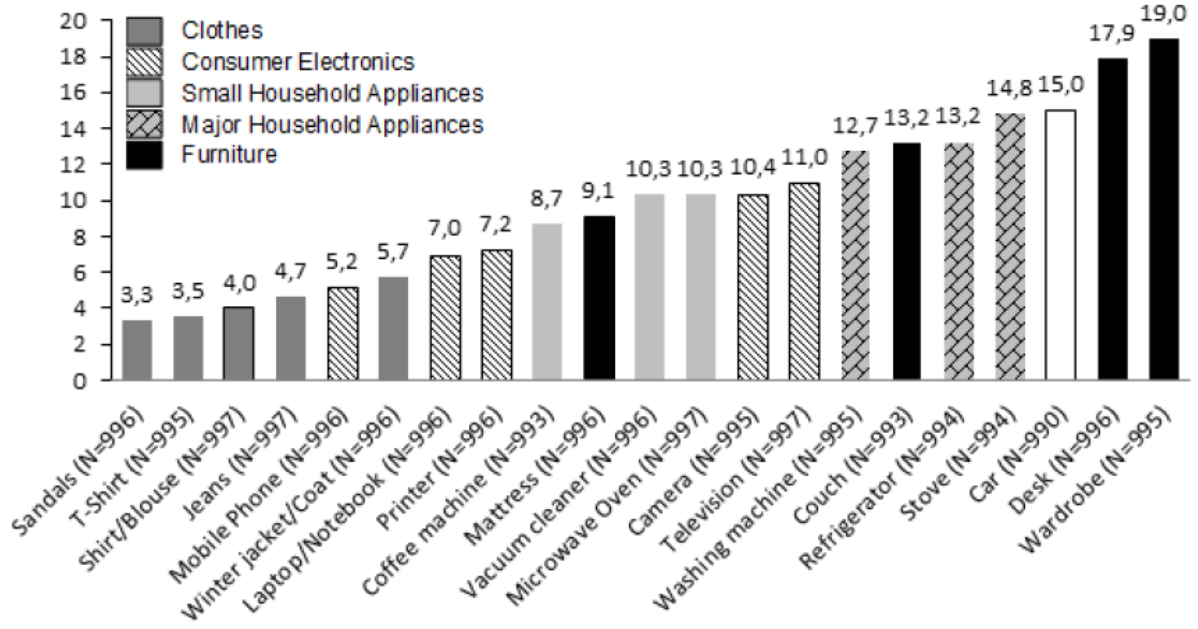
[119] European Economic and Social Committee, 2016

[120] European Commission (2017) European Commission, DG JUST/GfK (2017) 'Consumer Market Study to support the Fitness Check of Consumer Rules'.

[121] BEUC, 2015

Figure 37 below illustrates the desired lifespan of consumer goods, according to an online study carried out on behalf of the Chamber of Labour in Vienna in 2017 with 1,009 respondents. It seems that expectations regarding lifespan are higher for major **household appliances and furniture than for clothes and electronic items.**

Figure 37: Desired lifespan of consumer goods (in years)



Source: AK Wien, 2017, p. 8

5.1.2. Consumers' awareness, understanding, and expectations about reparability

Consumers' understanding of reparability

The reviewed literature provided information about the positive impact of the information on reparability and the best way to frame this information (see section 6.1.4). However, no relevant information about consumers' understanding of reparability were retrieved.

Consumers' awareness of reparability

As for consumers' understanding of reparability, no information was found in the literature.

Consumers' expectations about reparability

Two main points emerged from the literature review: **consumers' preference to use either a professional or an independent repair service** and the question of what **consumers expect when using a repair service**.

The first category of products for which we retrieved information is **clothes**. According to a WRAP study carried out in 2012, 50% of survey respondents declared that they repaired their clothes by themselves, while 25% said they gave them to a friend or to a family member to have them repaired. Only 25% of the remaining respondents reported using a professional repair service. This willingness to use non-professional repair services may be partly explained by the fact that 40% of the consumers surveyed expressed their confidence in repairing their clothes by themselves, while 15% of the other respondents were eager to learn how to do it.[122]

[122] WRAP, 2012, pp. 63, 65

Preliminary findings of a study being conducted by a German consumer association illustrate that 34% of consumers get their products repaired by the seller from which they purchased it.[123]

The next important findings deal with **consumers' general expectations about repair services and the variation of those expectations across different product (categories)**.

In 1978, L. Adler and J. Hlavcek conducted a field study on the importance of certain repair services characteristics for consumers. Following their study, the five most important repair service characteristics mentioned by consumers were **cost, speed, reputation, quality, and location**.

The importance of those characteristics varies across products. Quality of the repair work is the most important consideration for automobiles, televisions, refrigerators, stoves, and stereos. For electric can openers, toasters, and pocket calculators, cost is the most critical repair consideration. In the case of typewriters and vacuum cleaners, cost is somewhat more important than quality. All categories have in common that location is the least impactful characteristic.[124]

Finally, H.Wieser and N.Tröger (2012) also pointed out that consumers have higher expectations of repair services for more expensive and bigger household products.

5.1.3. After-sales expectations

The literature review did not find evidence on after-sales expectations because most studies were focussed on the purchasing process.

5.2. Evidence from the stakeholder interviews

5.2.1. Consumers' awareness, understanding and expectations about durability

Consumers' understanding of durability

Interviewees underlined the conclusions from the literature review regarding consumers' understanding of durability. Indeed, the main input from interviewees is that **durability is interlinked with quality**. According to a representative from a European consumer association, the first consideration from consumers in their purchasing decision is about quality. According to him, for consumers, durability is the principal component of a quality assessment. A Romanian academic confirmed this association between durability and quality.

Another finding of our interview with a representative from a European trade association: the **definition of the durability should be broader than the expected lifespan.** It should also integrate the possibility to repair the product. Indeed, the easier it is to repair the product, the longer the lifespan will be. Furthermore, the durability definition should also better integrate the concrete usage of the product. Indeed, there may be some gaps between the metrics of a legal definition and the concrete use by the consumer. This need to broaden the definition of durability was confirmed by the interviewee from a renowned manufacturer of household appliances. The definition of durability should also encompass the notion of reparability as the latter extends the lifetime of a product.

Consumers' awareness of durability

Overall, all interviews showed consistently the fact that consumers' lack of information negatively impacts their awareness of durability.

The representative from a European trade association highlighted that consumers **are not aware of the durability of products because they lack crucial information.**

[123] Verbraucherzentrale Bundesverband, 2017

[124] Adler & Hlavcek, 1978

However, as mentioned in the literature review part, legal requirements of EU regulations could fill this gap by making the information about durability mandatory.

Consumers' expectations of durability

A representative from a Dutch public authority mentioned that more expensive products have better durability in general. Another circular economy expert interviewed for this study stated that **consumers expect a longer life span for more expensive pieces of clothing**, for example suits and coats. We have found that both literature reviews and interviews conducted agree on this.

Moreover, according to a European consumer association representative, **gender and age also play a key role in consumer expectations**. For instance, older people expect products to last longer.

There are also **differences visible among countries**. Two representatives from NGOs highlighted that in former communist countries of Eastern Europe, consumer expectations regarding durability are higher, because during the communist era, products were produced in a more durable way.

According to an Austrian consumer association, another important point to highlight is that consumers have rather low expectations because of past problems. A representative from a European trade association who was mentioned in the two previous sections confirmed this point. It was underlined that past **negative experiences impacted consumers' expectations**.

5.2.2. Consumers' awareness, understanding, and expectations about reparability

Consumers' understanding of reparability

Similar to the literature review, we could not gather information on what consumers understand by reparability.

Consumers' awareness of reparability

A representative from a Hungarian NGO indicated that consumer associations are well informed and that they understand product durability and reparability. However, consumers do not understand those characteristics, neither are they aware of them. A representative from a European trade association highlighted that this **low degree of awareness is consistent across all product categories**.

Consumers' expectations about reparability

Some of our interviewees agreed with the fact that **expectations about reparability vary across products and have changed over time**. It used to be more common to get items like televisions and vacuum cleaners repaired. Nowadays, most consumers replace them because it is easier and faster and somewhat cheaper. Clothes will only be repaired if the item has sentimental value, was very expensive, or is a unique item.

According to other interviewees, **when dealing with expensive household goods, consumers expect that they will not break down at all during the minimum lifespan**. They also expect that small defects will be easily repairable. Thus, consumers have higher expectations about the reparability of these products. This statement was confirmed by a representative of a well-known electric appliances manufacturer who also added that these expectations were the same for products manufactured by reputable brands.

With regards to the use of independent or professional repair services, representatives of different national consumer associations and NGOs have pointed out the fact that **for cheaper products, consumers prefer independent repairers while for more expensive products, consumers prefer official repair centres from the retailers**. For the latter, independent centres will only be used if they have certification from manufacturers. An interviewee from an important company producing electric appliances stressed that in general, consumers' preferences go towards official repair centres or at least repair points directly working with the manufacturer.

5.2.3. After-sales expectations

More information about after-sales expectations were retrieved from the interviews than in the literature review.

After-sales expectations about durability

A German academic stated that **consumers' expectations about durability decrease after purchase**. At the time of the purchase, consumers have high expectations about product lifespan. As time passes, consumers are more willing to change that product for a new one.

After-sales expectations about reparability

According to a representative from a European consumer association, **consumers' after-sales expectations about reparability are low**. The main reason is that a lot of consumers have negative experience in terms of support from the retailers. For instance, according to the same stakeholder, several retailers have refused to repair/replace certain components that failed (e.g. batteries in cell phones) while the product was still under guarantee.

Moreover, a representative from a Hungarian NGO mentioned that consumers tend to often choose replacement and refund over repair. When the guarantee period is still effective, replacement is the most frequent remedy chosen. This also gives an indication about the low level of expectations about reparability from consumers.

Lastly, an English NGO highlighted that **after-sales expectations from consumers also depends on the kind of additional guarantee they get with a product.** The longer the guarantee is, the higher the expectations consumers have about reparability.

5.3. Evidence from the focus groups

5.3.1. Consumers' awareness, understanding and expectations about durability

Across the different countries, durability was considered to be an important aspect. Participants' main **sources of information** with regard to products' durability were:

- Questions asked to the **sales staff**,
- Product **labels**,
- **Online costumer reviews**,
- **Price** (more expensive products are sometimes considered to be more durable),
- **Products' appearance and materials used** (e.g. for white goods and electronics, stability, metal vs. plastic etc.),
- **Brand reputation**,
- **Previous experience with certain brands**,
- **Word-of-mouth**, and
- **Duration of the guarantee** (the longer the guarantee, the longer the expectation regarding the products' lifetime).

As explained in more detail in section 4.2.1, many participants pointed out that nowadays it is **very difficult to estimate a product's durability**. Criteria such as brand reputation, price and costumer reviews are not always seen as accurate indicators.

There was a large variation with regard to participants' **expectations on how long products should actually last**. Views varied by product category, but also according to participants' personal opinions and experiences. Some participants pointed out that products made in the past were a lot more durable than those manufactured nowadays:

> *"I have a mixer made in the GDR. And it still works. So more than 27 years. A friend bought a new one and it broke down after 2 years. Crazy." (Woman, mixed group, Berlin)*

Participants generally had higher expectations with regard to the durability of **white goods** (washing machines, dishwashers, vacuum cleaners). These types of products were generally expected to last between five and ten years.

Views varied more when talking about the durability of other products. For **televisions,** some estimated durability should be between two and five years, while for others, a television should be made to last between 10 and 20 years. For **smartphones**, durability was generally expected to be between three and five years. Views also varied when discussing the durability of **clothing** items. Some estimated durability at three years, while for others, clothing should last between five and fifteen years.

Views on this topic also varied by type of participants. In Germany, participants from the vulnerable group had higher expectations with regard to products' durability than those from the "mixed" group. For white goods (dishwashers, washing machines, vacuum cleaners), as well as televisions, participants from the vulnerable group expected these to last twice as long as those from the "mixed" group.

When talking about products' durability, participants also showed a certain level of **distrust towards manufacturers**. Many suggested that products made nowadays are deliberately not "built to last", while products made years ago were designed to be more resistant. Some participants felt that this applied to most types of products (whether electronics or clothing) and stated that, regardless of price or brand, products are designed to last only for as long as their warranty is valid.

> *"Washing machine. I would have always bought the biggest and top brands for washing machines but I have discovered that they didn't last as long as I was counting on them to last. If it's cheap and it works and when it's gone it's gone. I bought one and spend out 550 euros on it and it didn't last, and then the warranty was out after a year so the next one I got was 250 euro in [store name] and it did last as long as the other one". (Woman, vulnerable group, Dublin).*

5.3.2. Consumers' awareness, understanding, and expectations about reparability

Experiences, attitudes and awareness with regard to reparability varied by country, by participants' situation ("mixed" vs. vulnerable group), as well as by type of product.

Participants in Sweden were generally less aware of the possibility of having products repaired than those in other countries. Participants in Sweden had little knowledge with regard to how to go about having products repaired and how to find a repair centre.

> *"I would like to find the classic old man across the street, repairing all sorts of things and if I have used mine for fifteen years he can fix it and it works for fifteen more years."* (Female, 58, mixed group, Stockholm)

In Germany and Ireland, awareness was higher, particularly among participants from the vulnerable groups. When having to repair products that were out of warranty, participants had a preference towards small independent local repair centres.

In the Czech Republic, participants mentioned looking up information online about where they can have a product repaired that is out of warranty.

For products that break down while still covered by the warranty, participants usually brought these back to the manufacturer or shop where they were purchased.

Some participants were mainly willing to repair products that were more expensive such as white goods (dishwashers and washing machines), as well as smartphones and televisions. They explained that having them repaired was more advantageous than purchasing new ones.

> *"Washing machines because (they are) very expensive so we try to fix it before we get another one. Mine could be fixed, it was positive but because it was old and really good. Our TV as well, it was expensive so we fixed it". (Woman, vulnerable group, Dublin)*

Others felt that it was easier to have smaller items repaired, such as small electronics (e.g. vacuum cleaner) or clothing items (shoes or coats).

When talking about products' reparability, one of the things participants pointed out was that today's technology was so complex that people can no longer envisage repairing products themselves.

> *"You know nowadays it just is not possible anymore to repair something. In the past it was easy, but now with all the technology it all got too complicated and even the mechanics find it hard." (Man, 56, vulnerable group, Berlin)*

When talking about repairing products that are no longer under warranty, participants' **expectations** can be summarised as follows:

- The **price** of repairing is "significantly lower" than the price of purchasing a new product,
- The **availability of services** (being able to easily find a repair centre),
- **Not having to wait for too long for a product to be repaired**, and
- Being able to find **spare parts**.

For products still under warranty, people expect to be able to have these repaired for free.

5.3.3. Consumers' awareness, understanding, and expectations about recyclability

Awareness with regard to **how to recycle** products was highest in Ireland, Germany and Sweden. Participants in these countries mentioned having already recycled products by bringing them to shops or manufacturers, waste collection centres or charity associations.

In the Czech Republic, participants mentioned the financial benefits of recycling. In this country, some of the participants were motivated by the financial reward they got from selling products that they no longer used on eBay.

Awareness with regard to products' **recyclability** was however low. Participants knew little about aspects such as whether or not products they purchase are made of recycled materials, which parts of the products can be recycled, and, more generally, what happens to products once they are brought in for recycling (whether or not these are actually being recycled, which components are recycled and for which purposes etc.). The fact of not having this type of information was sometimes felt as discouraging for participants.

> *"Recycling here. Recycling there. What does that even mean? I feel that term is used far too much and one cannot trust it anymore. In Germany, we recycle the waste and then it gets burned. That is annoying."* (Man, 46, mixed group, Berlin)

Participants' **expectations** with regard to recyclability can be summarised as follows:

- Having more **information** with regard to products' **recyclability** (how products are recycled, which parts are recycled, whether products they purchase are made from recycled materials) – more information on this can be found in section 6.3.3
- Having more **information** with regard to **how to recycle products** (where to bring these, or who to contact)
- Being able to recycle **easily**. Some participants mentioned that recycling can be complex and time-consuming, particularly in the case of having to dispose of large electronics, which requires effort, as well as having a car. They felt that **manufacturers and shops** should be the ones in charge of undertaking some of these tasks, making it easier for consumers.

"It is very hard to recycle. You need a car or ask someone for help. Why can´t the producers/retailers have this service? So that I can leave it with them?" (Female 35, vulnerable group, Stockholm)

5.4. Evidence from the consumer survey

5.4.1. General associations with durability/reparability

The following section analyses consumers' general associations with durability and reparability.

Table 30 shows that the participants mostly associated two properties with a 'durable product', namely: 57% indicated that they associate the term with **being able to use the product for a long time**, while 56% reported that they associate the term with **products staying in perfect working order for a long time**. Around one out of four

participants also stated that durable means that a user is able to use the product very frequently or that the product will not break under severe stresses.

Table 30: Properties most associated with a "durable" product (in %)

Answer	Percentage
Being able to use the product for a long time	56.7
The product will stay in perfect working order for a long time	56.4
The product will not break under severe stresses	27.6
Being able to use the product very frequently	25.6
Other	1.6
None of the above	0.6
Don't know	1.1

Note: Participants were asked (Q2.1): "Please select the two properties you most associate with a "durable" product."; Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%. There were no correct or incorrect answers, the question purely asked about respondents' associations; N=12,064

Source: ConPolicy analysis of consumer survey data.

There is a more heterogeneous pattern with respect to respondents' associations with 'repairable products'. Table 31 present the results.

46% of the participants reported that they associated repairable products with **spare parts being available** for the products, followed by 44% that indicated that a repairable product **could be repaired by a repair firm**. 33% of the participants stated that they associate reparability with the **manufacturer/retailer repairing the products if it breaks**. For around one out of four participants reparability refers to the possibility to **repair a product by themselves**. The last two associations, i.e. that all components of the product (e.g. battery) are easily accessible to the end-user and instructions manuals are available to help with repair, received lower agreement from participants (18% and 7%).

Table 31: Properties most associated with a "repairable" product (in %)

Answer	Percentage
Spare parts are available for the product	46.2
I could have the product repaired by a repair firm	44.3
The manufacturer/retailer will repair the product for me	32.7
I could repair the product myself	25.7
All components of the product (e.g. battery) are easily accessible to the end-user	18.4
Instruction manuals are available to help with repair	7.0
Other	0.3
None of the above	0.4
Don't know	1.6

Note: The corresponding question (Q2.2) was: "Please select the two properties you most associate with a "repairable" product." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%. There were no correct or incorrect answers, the question purely asked about respondents' associations; N=12,064.

Source: ConPolicy analysis of consumer survey data.

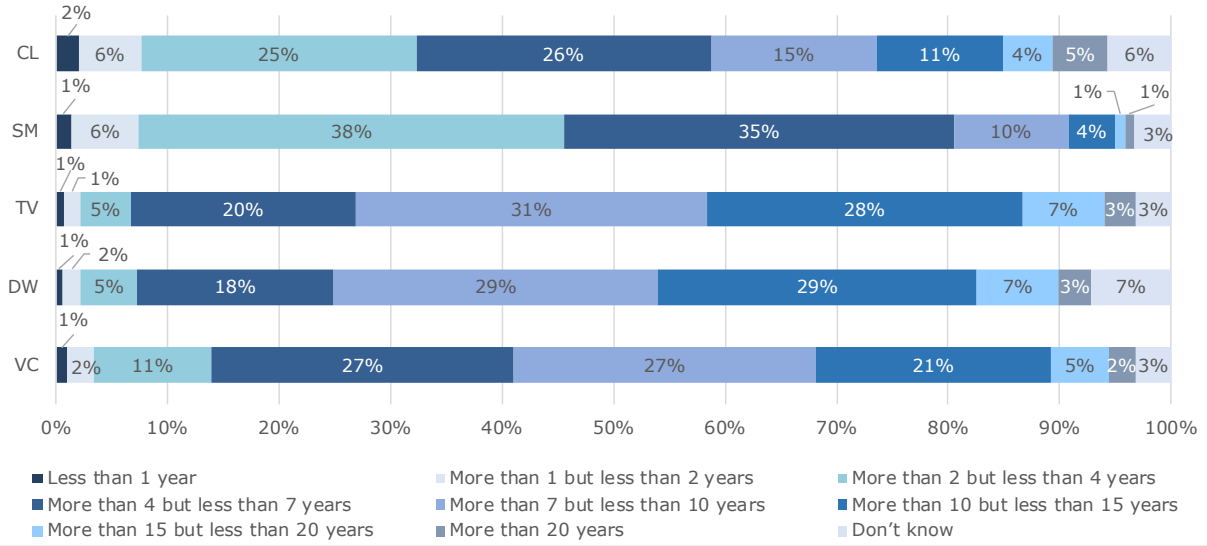
As seen in Table 30 the top two associations with the term durable both include a time dimension, i.e. using and working for a long time. Hence, participants were asked to indicate their expectations regarding how long a specific product would last.

For **vacuum cleaners** the largest share of participants (27%) indicated an expected lifespan of 4 to 7 years, followed by another 27% that indicated that they expected their vacuum cleaner to last between 7 to 10 years. For **dishwashers** 29% of the survey participants indicated an expected lifespan of 7 to 10 years with another 29% that indicated an expected lifespan of 10 to 15 years. The expectations for **televisions** were very similar. The largest share of participants (31%) indicated a lifespan expectation of 7 to 10 years and 28% indicated a lifespan expectation of 10 to 15 years. For **mobile phones** and **clothing** items expectations were lower. In the case of mobile phones, 38% of the participants indicated an expected lifespan of 2 to 4 years and another 35% indicated an expected lifespan of 4 to 7 years. Lastly, for clothing items the largest share of participants (26%) indicated an expected lifespan of 4 to 7 years while another 25% indicated their expectation to lie within the range of 2 to 4 years.

Figure 38 displays differences for the individual product categories. The individual values for the different product types and answer categories can be found in the Annex.

For **vacuum cleaners** the largest share of participants (27%) indicated an expected lifespan of 4 to 7 years, followed by another 27% that indicated that they expect their vacuum cleaner to last between 7 to 10 years. For **dishwashers** 29% of the survey participants indicated an expected lifespan of 7 to 10 years with another 29% that indicated an expected lifespan of 10 to 15 years. The expectations for **televisions** were very similar. The largest share of participants (31%) indicated a lifespan expectation of 7 to 10 years and 28% indicated a lifespan expectation of 10 to 15 years. For **mobile phones and clothing** items expectations were lower. In the case of mobile phones 38% of the participants indicated an expected lifespan of 2 to 4 years and another 35% indicated an expected lifespan of 4 to 7 years. Lastly, for clothing items the largest share of participants (26%) indicated an expected lifespan of 4 to years while another 25% indicated their expectation to lie within the range of 2 to 4 years.

Figure 38: Expectations on durability by product category (in %)



Note: The question was Q6.3: "For how long would you expect the following products to last on average under normal use conditions, in terms of the number of years before they need to be replaced? By 'normal use conditions' we mean normal frequency of use and taking into account usual maintenance, servicing and small repairs of the product. Don't worry if you do not know exactly – please provide your best estimate for each product."; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Furthermore, the results from the consumer survey can be compared with existing data on product lifetimes. With respect to **televisions** the average lifecycle is 7 years.[125] When comparing this value to the results from the consumer survey it can be found that 27% of the participants had a lower expectation than the average lifecycle while the majority of 70% indicated to have a higher expectation.

Additionally, there exists data on the average lifecycle of **smartphones** which is estimated to be approximately 2 years[126]. When comparing this lifecycle/lifetime with the expectations of participants in the consumer survey it can be found that 7% indicated their expectation to be lower than the average lifecycle time while the majority of 89% reported a higher expectation.

Furthermore, country differences were analysed with respect to lifespan expectations. Results for all product categories and the twelve countries are displayed in the Annex. Exemplary, specific results for two product categories are described in the following, namely for mobile phones and dishwashers.[127]

125 European Commission, Joint Research Centre (2018)a Assessment of the reparability and upgradability of TVs. (Draft) retrieved from http://susproc.jrc.ec.europa.eu/E4C/docs/JRC_report_TV_repair_v2-2_CLEAN.pdf. It has to be kept in mind that the reported data on the average lifecycle, i.e. the replacement cycle, does not refer to the actual technical lifetime of the product. While the actual technical lifetime refers to products being replaced due to breakage or malfunctioning, the replacement lifecycle also includes products that are replaced due to a preference for a newer version, i.e. still functioning. Hence, the actual technical lifetime of televisions can differ from the reported average lifecycle / replacement cycle.

126 European Commission, Joint Research Centre (2018)b Guide for the Assessment of Material Efficiency: application to smartphones. (Draft) retrieved from http://susproc.jrc.ec.europa.eu/E4C/docs/JRC_report_smartph_v2.3_CLEAN.pdf. Similarly to the data on televisions it has to be kept in mind that the data on average lifecycle includes both cases where a product is replaced due to breakage or malfunctioning (technical lifetime) as well as due to a preference for a newer version, i.e. still functioning. Hence, the actual technical lifetime of smartphones can differ from the reported average lifecycle / replacement cycle.

127 The reason for selecting those two product categories are the following: Mobile phones can be characterised by shorter innovation cycles and are considered to be an electronic gadget, i.e. consumers replace their phone

For mobile phones around 45 - 47% of the respondents in Romania, Ireland, Sweden, the Netherlands and Latvia indicated an expected lifespan between 2 and 4 years. In contrast, 43% of German participants indicated a higher lifespan expectancy of 4 to 7 years.

When looking at dishwashers, further interesting country differences were found. German and Swedish participants had a rather strong expectation for their dishwasher to last between 7 and 15 years (i.e. 65% and 69%). In contrast, 59% of the Irish, 55% of the French and 50% of the Romanian participants indicated a shorter expected lifespan between 4 and 10 years. Furthermore, a comparatively large share of 29% among the Latvian participants indicated not to know the expected lifespan.[128]

5.4.2. Expectations regarding repair services

The following section considers consumer expectations regarding repair services. Firstly, general expectations on repair are presented. Secondly, results of consumers' expectations regarding the ease of self-repair are shown, followed by expectations on ease of repair by a repair service. Lastly, consumers' expectations about the likelihood that they would be satisfied with a repair service are presented.

Table 32 shows the participants' expectations regarding the repair possibilities of the five product categories. The most common answer across all five categories was that the participants would expect to be able to **have the product repaired for them**, e.g. by the manufacturer, a professional service provider or friends and family. The percentage of participants indicating this expectation ranged from 64% to 32%.

Also, important was the answer that they **both expect to be able to repair the product themselves and have it repaired for them** (ranging from 23% to 15%) followed by the expectancy to be able to **repair the product themselves** (ranging from 21% to 6%). A smaller share of participants indicated that they expected neither of the above (ranging from 18% to 6%).

The following differences in expectations between the individual product categories can be seen from the results:

For **mobile phones** and **televisions**, the majority (59% and 64%) expected to be able to have the product repaired for them compared to a smaller share of participants expecting to both be able to repair the products themselves and have it repaired (17% and 15%). Interestingly, a larger fraction of participants indicated that they expect to not have their product repaired at all (11% and 11%) compared to being able to repair the product by themselves (7% and 6%).

Similar to mobile phones and televisions, for **vacuum cleaners** and **dishwashers** the majority of participants expected to be able to have the product repaired for them (50% and 56%). Less participants expected to both be able to repair it themselves and have it repaired (23% and 22%) and to be able to repair the product themselves (16% and 13%). The smallest share of participants indicated that they do not expect the product to be repaired at all (8% and 6%).

For **clothing items**, i.e. coats and jackets, a different picture emerges. 32% of the participants expected to be able to have their product repaired for them, 23% expected to both be able to repair their item themselves and have it repaired and 21% expected to be able to repair it themselves. With 18%, the share of participants indicating to not expect to have their product repaired at all is considerably higher in the clothing category compared to the other categories.

more frequently as newer models also contain improved technical features. In contrast, dishwashers are characterised by longer innovation cycles and not replaced because of trends.

[128] As mentioned before, results on the other product categories are displayed in Section 7 the Annex document. In general, it was found that expectations regarding vacuum cleaners and television were between those of dishwashers and mobile phones. With respect to clothing expectations regarding durability were on average also rather low but also country dependent.

Table 32: Expectations regarding repair services by product category (in %)

	Vacuum Cleaner	Dishwasher	Television	Mobile Phone	Coat or Jacket
I would expect to be able to have this repaired for me	49.8	55.7	64.1	59.2	31.9
I would expect to be able to repair this myself and have it repaired for me	22.5	21.7	14.6	16.8	23.3
I would expect to be able to repair this myself	15.9	12.5	6.3	7.3	21.3
None of the above	7.9	6.4	10.5	11.4	17.5
Don't know	3.9	3.7	4.5	5.3	6.1
No. of observations	4,907	4,463	4,908	4,914	4,917

Note: The question (Q6.1a) was as follows: "Thinking about the following types of products, do you expect that it would be possible for you to repair these products yourself, or to have these products repaired for you (e.g. by a repair firm)?"

Source: ConPolicy analysis of consumer survey data.

Ease of self-repair

Participants that indicated that they expected to be able to repair a certain product by themselves were then asked to rate the ease of self-repair, i.e. how much time and effort it would be for them. Table 33 summarises the results for the different product categories.

The expected ease of self-repair varies substantially between categories. For **vacuum cleaners** (55%) and **coats or jackets** (68%) the majority of participants reported that self-repair would be **rather or very easy**, whereas for **other products** most participants indicated that repairing their product themselves would be **rather or very difficult** (65% for dishwashers, 77% for televisions, and 71% for mobile phones). The proportion of participants who found self-repair very easy was largest in the clothing category (9%). The share of participants who found self-repair very difficult was largest in the category of televisions (20%) and mobile phones (18%).

Table 33: Ease of self-repair by product category (in %)

	Vacuum Cleaner	Dishwasher	Television	Mobile Phone	Coat or Jacket
Very easy	3.4	2.1	1.1	2.8	8.9
Rather easy	51.1	33.1	22.2	26.3	59.0
Rather difficult	41.3	54.8	56.8	52.5	28.9
Very difficult	4.2	10.1	19.9	18.4	3.3
No. of observations	1,738	1,386	929	1,031	2,141

Note: Depending on participants' reply to the previous question, they were asked (Q6.1b): "You said you would expect to be able to repair the following products yourself. How difficult do you think this would be (i.e. how much time and effort for you)? Please answer on a scale from 1 ("Very easy") to 4 ("Very difficult")."

Source: ConPolicy analysis of consumer survey data.

Ease of repair service

Table 34 shows the results of a question that asked participants to rate the ease with which they could have a product repaired by a repair service. The rating referred to the personal costs, i.e. time and effort for the participants themselves.

Across all product categories, the majority of participants expected it to be **rather or very easy** to have a product repaired for them (69% to 51%). Having a product repaired was perceived to be easiest for coats or jackets (69%), followed by mobile phones (60%), vacuum cleaners (57%), televisions (53%), and dishwashers (51%).

Table 34: Ease of repair service by product category (in %)

	Vacuum Cleaner	Dishwasher	Television	Mobile Phone	Coat or Jacket
Very easy	5.3	5.7	5.5	8.0	10.6
Rather easy	51.8	45.7	47.7	51.5	58.8
Rather difficult	37.7	38.7	35.6	31.3	26.1
Very difficult	5.2	9.9	11.2	9.3	4.5
No. of observations	2,558	2,619	3,255	3,075	1,735

Note: If participants indicated that they would expect to be able to have a product repaired, they were asked the following question (Q6.1c): "You said you would expect to be able to have the following products repaired for you. How difficult do you think this would be (i.e. how much time and effort for you)? Please answer on a scale from 1 ("Very easy") to 4 ("Very difficult")."

Source: ConPolicy analysis of consumer survey data.

Expectations regarding the satisfaction with repair services

As a next step, participants were asked to indicate their expectations regarding how satisfied they think they would be if they used a repair service. Table 35 presents the results.

Overall, expectations were positive. With respect to **convenience**, 85% indicated that they expect a repair service to be at least fairly good, including 21% indicating expecting a very good performance. Similarly, expectations on the **speed of repair** were high, with 82% reporting they would expect at least a fairly good service in this respect (including 25% expecting a very good service). **Consumer friendliness** was expected to be at least fairly good by 89% of participants, including 31% who expected a very good service in this regard.

Expectations with respect to the **quality of repair** were even higher. A total of 92% of the participants stated that they expected at least a fairly good quality of repair, with a high share of 42% even stating that they expected the quality of repair to be very good.

Table 35: Expectations regarding the satisfaction with repair services (in %)

	Very Poor	Fairly Poor	Fairly Good	Very Good
Convenience	1.4	13.9	64.0	20.7
Speed of repair	1.4	16.3	57.6	24.7
Consumer friendliness	0.6	10.3	58.6	30.5
Quality of the repair	0.7	7.4	49.7	42.2

Note: The question (Q6.2d) was: "Supposing you wished to have a product repaired by a repair service, how good do you expect such a service would be in terms of the following factors? Please answer on a scale from 1 ("Very poor") to 4 ("Very good")."; N=4,733.

Source: ConPolicy analysis of consumer survey data.

5.4.3. After-sales expectations

The following section addresses consumers' after-sales expectations. The survey questions regarded consumers' expectations in general and were not linked to specific past experiences with products they owned. Survey participants were asked to indicate what they would expect to happen in case a product became faulty.

The question scenario varied the product in question as well as the product's age when it became faulty in the following way:

> *Suppose you purchased a new [INSERT: dishwasher / vacuum cleaner / television / smartphone / coat] and it developed a fault that made it unusable after [INSERT: period]. Which of the following remedies would you expect to be available to you, if any? Please select all that apply.*

The periods were varied to capture whether expectations vary depending on whether products have been shortly or for a long time been beyond the legal guarantee of 2 years.

- Vacuum cleaners: 2 or 4 years
- Dishwasher: 4 or 6 years
- Television: 4 or 5 years
- Smartphone: 12 or 24 months
- Coat: 2 or 5 years

Results are presented in the table below.

While 32% would expect their broken product to be repaired for free, 34% said that they would have to pay for the repair. One quarter stated that they would be entitled to a free replacement, while 24% indicated they would have to purchase a replacement on own expense. Moreover, 11% said that they would be entitled to a refund.

Table 36: After-sales expectations for faulty products (in %)

Answer Category	Percentage agreement over all variants
I would need to pay to have the product repaired	34.0
I would be entitled have the product repaired for free	32.3
I would be entitled to a free replacement	24.5
I would need to purchase a replacement	23.7
I would be entitled to a refund	10.6
Other	1.3
Don't know	6.8

Note: The question (Q8.1) was: "Suppose you purchased a new dishwasher / a new vacuum cleaner / a new television / a new smartphone / a new coat and it developed a fault that made it unusable after [period]. Which of the following remedies would you expect to be available to you, if any? Please select all that apply." Overall, the following ten variants were used: 1. vacuum cleaner/2 years; 2. vacuum cleaner/4 years; 3. dishwasher/4 years; 4. dishwasher/6 years; 5. television/4 years; 6. television/5 years; 7. smartphone/12 months; 8. smartphone/24 months; 9. coat/2 years; 10. coat/5 years. Results are aggregated for the ten variants; N=12,064

Source: ConPolicy analysis of consumer survey data.

Interestingly, the experimental conditions of the behavioural experiment had some knock-on effects on responses to this survey question. **Respondents who were shown manufacturer warranties, or durability promises as part of an EU label were significantly more likely to expect free replacement or free repairs of faulty products**. Instead, those who had not seen any information on CE product characteristics, or only information on the reparability of a product were significantly less likely to expect free rectification of the fault in any way and instead more likely to expect needing to pay for either repair or replacement.

Subsequently, consumers' after-sales expectations regarding entitlement to a repair free of charge were explored in more detail. Participants were asked to indicate whether they expected repair free of charge for different scenarios.

Overall, 41% of the participants expect repair free of charge in case the product breaks if they purchased an **extended commercial guarantee or insurance from the retailer**. Free repair in case of defects are also expected by 32% of the respondents if the **retailer claimed that the product should last at least 10 years.** In case the product carried an **EU label indicating that it has a high durability rating** 22% of the participants indicated that they expected a repair free of charge. One fifth stated this expectation in a scenario where the **fault developed during everyday use of the product.**

Respondents were less likely to expect free repair in other scenarios, such as the product carrying an EU label indicating that it is repairable, the retailer claiming that "This product can be easily repaired", purchasing the product directly from the manufacturer or a large retail chain, the product being more expensive than other products of the same type, and purchasing the product from a small independent retailer.

Table 37: After-sales expectations regarding entitlement to a repair free of charge (in %)

Answer Category	Percentage Agreement over all variants
I purchased an extended commercial guarantee or insurance from the retailer	40.8
The retailer claimed that "This product should last at least 10 years"	31.6
The product carried an EU label indicating that it has a high durability rating	22.0
The fault developed during everyday use of the product	20.1
The product carried an EU label indicating that it is repairable	14.4
The retailer claimed that "This product can be easily repaired"	10.4
I had purchased the product directly from the manufacturer	10.3
I had purchased the product from a large retail chain	9.6
The product was more expensive than other products of the same type	9.0
I had purchased the product from a small independent retailer	5.7
None of the above	10.0
Don't know	10.0

Note: The question was (Q8.2 following on from the question presented in Table 36: "And in this scenario where your new dishwasher / your new vacuum cleaner / your new television / your new smartphone / your new coat developed a fault after [period], would you expect repair free of charge in the following circumstances?". N=12,064

Source: ConPolicy analysis of consumer survey data

6. Durability and reparability information and its potential role in consumers' decision-making

Previous chapters have reported repeatedly that consumers seem to lack information about the durability and reparability when purchasing products. This chapter therefore dives deeper into the effects of providing such information and how it could be delivered most effectively.

Key findings

- As reported before (see especially sections 3 and 4), consumers value Circular Economy product credentials. The literature and stakeholders support the views that providing information about product durability and reparability would encourage consumers to purchase products with higher Circular Economy credentials. At the same time price remains of key importance.
- Consequently, according to the literature, stakeholder views and the consumer survey durability was more important for large and expensive products (including expensive clothing) and less so for fashion items.
- In fact, in the consumer survey, **clothing was often an outlier category** in the sense that respondents most often **ranked durability and reparability as not important** for this product category. The reasons behind this finding seemed to relate to the fact that respondents would not expect to use clothing items for a long time, and that they would not expect to repair clothes if they broke.
- In terms of other socio-demographic differences, survey respondents from Romania and Hungary attributed a higher relevance to durability and reparability in the purchasing process. Respondents from the Netherlands, Germany, Austria and France, on the other hand, indicated lower rates for durability and reparability relevance.
- Previous studies (including experimental evidence), focus group discussants and stakeholder views pointed out that **labels and brand reputation could carry effective durability information**. More specifically, presenting lifetime information through the number of usage years was slightly more efficient than showing the number of usage units (e.g. per wash). Following the findings from the literature review, for white goods, brand name was very important while consumers would highly value an indicator on durability for clothes.
- The consumer survey supported these findings but revealed also that the **most important self-declared factors influencing purchasing decisions were quality, price and how long products would last**.
- A majority of survey respondents attached high importance to product durability. Among these respondents, the top reason was that **durable products would save them money in the long run**. Yet, difficulty of knowing how long a product would last could be seen as a main barrier for giving durability high importance. This was found among survey respondents who did not rate product durability as important.
- Across all strands of research **reparability was relatively less important** for purchasing decisions **compared to durability.**
- A previous experimental study found that **presenting information about the availability of spare parts was more influential on consumers' decisions than cost-related information**. The interviewed stakeholders stated that **most consumers looked for the availability of repair points.**
- Guarantees were also considered as a potential source of information on reparability. Moreover, as for durability, brand names seem to be important as well. Consumers seem to take brand reputation as a promise to repair according to stakeholders.
- Focus group discussants found different types of reparability information useful such as **how difficult it would be to repair** a product and **how much time would be required to repair.**
- In the survey, the possibility to save money with easily repairable products seemed to motivate individuals to engage with reparability. The desire to keep products for a long time had the same effect. Reparability was often not given high importance in purchasing decisions because respondents trusted manufacturers' warranties, or would not expect a product to break. Finally, feelings that repair would be expensive also let reparability rank low in importance.

- All strands of research suggest that **durability and reparability information would be best provided at the point of sale.**
- Survey respondents mostly expected to receive information **via product descriptions** or by virtue of including durability information in **guarantees, or warranties**[129]
- Labels were generally found to be effective at providing CE product information. Indeed, focus group participants reacted positively to the possibility of having information provided on **labels** such as an augmented EU Energy Label.
- These views are supported by strong evidence from the behavioural experiment. In the behavioural experiment **durability information was best provided via manufacturer warranties, or as an expected lifetime.** Showing durability information via **EU labels**, such as for example an augmented Energy, or Ecolabel, was **similarly effective**.
- The effect sizes in the experiment were large: When, respectively, durability or reparability information was provided in the experiment **consumers were almost three times more likely to choose products with the highest durability** on offer, and **more than two times more likely to choose products with the highest reparability ratings**. These shifts resulted from consumers turning away from low durability/reparability products in favour of those with better CE credentials. As usual with experimental findings, these effects need to be seen in conjunction with the experimental setup which consisted of a simplified purchasing process with streamlined and standardised product information compared to real-world shopping experiences. It is thus possible that the effectiveness of durability/reparability in reality might be increased, or dampened.
- **General CE preferences were strongest when durability and reparability information was presented together.** That is, when durability and reparability information was shown together, individuals were most likely to purchase products which rated high in both dimensions – durability and reparability. Durability was clearly the more influential factor of these preferences. In the experiment durability information provoked the strongest shifts in preferences while reparability only marginally led participants to choose products with overall better CE credentials.
- These trends in purchasing decisions were confirmed also by analyses of **willingness to pay for durability and reparability**. Showing information on these CE characteristics on product descriptions at the point of sale resulted in meaningful willingness to pay: Depending on how durability/reparability information was presented, **willingness-to-pay for an additional year of durability** ranged between €20-36 for vacuum cleaners and dishwashers, €92-148 for TVs, €148-217 for smartphones, and €14-27 for coats. **Willingness-to-pay for an improved reparability rating** was around €29-54 for vacuum cleaners, €83-105 for dishwashers, €77-171 for TVs, €48-98 for smartphones and €10-30 for coats.[130]
- Showing **expected lifetimes or manufacturer warranties produced highest willingness to pay**, closely followed by the information provided on **EU labels via icons**. As before, the differences between the effectiveness of the EU label and manufacturer-provided information were small and it is likely that the effectiveness of the EU label would increase over time as the icons used to indicate durability/reparability become better known among consumers. Further consumer testing of different icons could be further explored.
- Lastly, **behaviourally informed 'nudges'** in the form of claims popping up on respondents' screens prior to making purchasing decisions significantly **increased respondents' preferences for more durable products**. Two claims were tested, i) telling people that they could save money by purchasing products which last longer

[129] This study did not address whether consumers' attitudes were different for situations in which products were still covered by the 2 year legal guarantee covering all goods sold in the EU, or covered by additional (extended or commercial) warranties. See Glossary at the end of the report for definitions of (legal) guarantees and warranties.

[130] The willingness-to-pay was measured per year for durability and per two-step increase on the A-G scale for reparability. See Section 2.7.2 and Section 8 in the Annex document for a detailed methodology.

and which are easy to repair, ii) telling people that a majority of people chose products which last longer and which are easy to repair. Both claims were similarly effective.

6.1. Evidence from the literature and data collection

6.1.1. Relevance of durability characteristics in purchasing decisions

The perception of the durability of goods may vary from one consumer to another as was seen in section 5. From literature dealing with durability considerations during the purchasing process, it seems that **most consumers relate durability to longer timespans without a fault** (i.e. time until it breaks and not time until it cannot be repaired anymore).

Overall, the reviewed literature has provided little concrete, quantitative data on how much consumers' value durability when purchasing a good. However, according to a WRAP study carried out in 2013, consumers consider product lifetimes to be important when they acquire a new good.[131] In 2016, a study was commissioned by the European Economic and Social Committee aiming to analyse whether lifespan labelling on products might influence consumers' purchasing decisions. This study also provides information on the importance for consumers of a longer lifetime. Indeed, out of 2,917 respondents, 90% stated that they would be willing to pay an additional €102 for a similar product with a two year longer lifespan.[132] This point was confirmed by a study from the European Commission (2017): more than eight out of 10 consumers would be willing to pay extra for products that are advertised to last longer. Therefore, the future uptake of longer life products can be maximised if these are accompanied by longer commercial guarantee or warranties.

For instance, the above-mentioned WRAP (2013) study reports that older consumers and lower income groups, as well as consumers with a less consumption-driven mind-set, appear to place particular importance on product lifetimes during the purchasing process regardless of the products (goods tested in the study were washing machines, fridges, vacuum cleaners). An empirical study conducted on 1,009 Austrian on behalf of the Chamber of Labour in Vienna, confirms that older people use products longer than younger consumers.[133] No detailed figures were provided and the qualitative analysis carried out by the project does not answer whether it is more a matter of age or generation. In addition, this result may be driven by a number of factors such as household income and educational level.

Consideration of durability characteristics per specific products

Based on the literature review, the importance of durability in consumer purchasing decisions varies depending on the product category.

According to Cox et al., (2013) it seems that overall, consumers attach less importance to the lifetimes of products that are governed by fashion. However, even for clothes, traditionally the most fashion-influenced product, consumers tend to attach importance to durability to some extent.

A WRAP (2012) study on the use and disposal of clothes in the UK provides **an overview of durability considerations in the clothing industry**. The report was based on a survey with 7,950 UK consumers. It appears that when buying clothes, consumers rank value for money as their top purchase criterion. Extending the lifetime of clothing is also something that consumers want. According to the survey, consumers said that one of the top criteria they use when buying clothes is finding items that are 'made to last and look good for longer'. Different factors account for consumers' decision to purchase more durable clothes: higher income, associating particular brands with longer-lasting

[131] WRAP, 2013

[132] European Economic and Social Committee, 2016

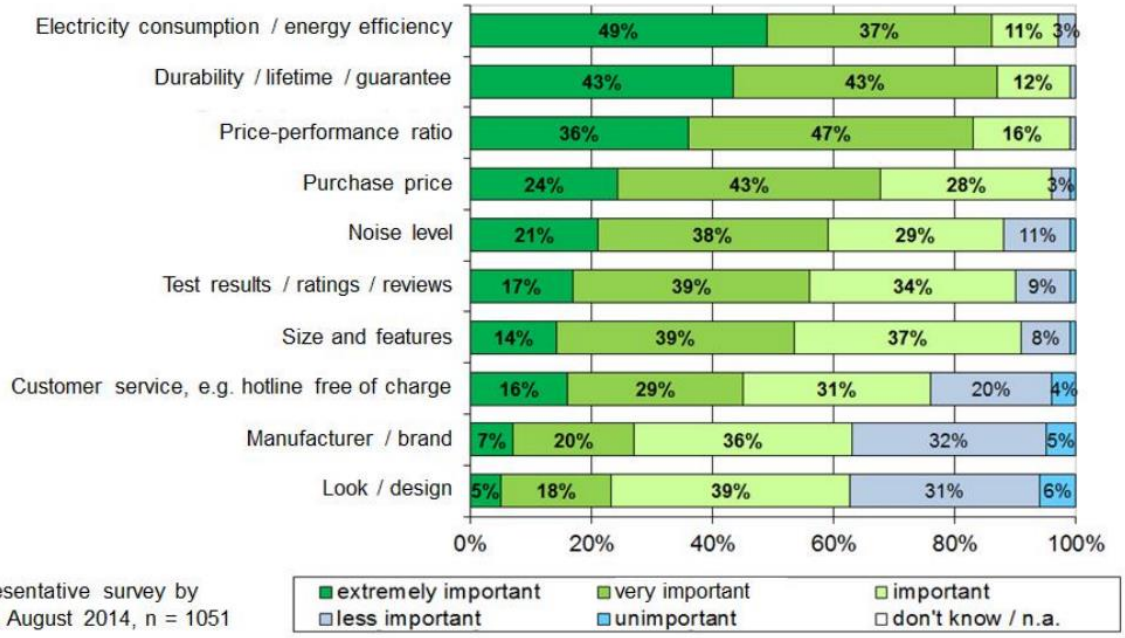
[133] AK Wien, 2017

products, a lengthy guarantee against faults, or a "durability index" on the garment label.[134]

Another study provided **information about the importance of durability in purchasing decisions for electronic items**. A technical report by the Joint Research Centre of the European Commission, dated from 2017, revealed the importance of durability during the purchase of electrical or electronic appliances.[135] This report presents the outcomes of a survey with 1,050 German consumers.[136] Respondents were asked to rank the importance of a number of factors (including energy efficiency, durability, price etc.) in their last purchase or next planned purchase.

The results are provided in Figure 39. Although the most important criteria for consumers when choosing electrical or electronic appliances are the electricity consumption and energy efficiency (49%), durability is ranked second (43%), before the price-performance ratio (36%).

Figure 39: Consumers consideration when purchasing electrical and electronic appliances



Source: Verbraucherzentrale Bundesverband, 2014.

However, consumers' durability considerations when purchasing new electronic appliances might differ depending on the type of electronic appliance. According to a WRAP survey with 1,104 UK respondents, some participants indicated that they might give greater thought to product lifetimes when buying goods, depending on how likely they thought the product was to break down. To illustrate, washing machines, vacuum cleaners, and laptops were thought to be more likely to break down than televisions and fridges.

6.1.2. Information on durability and its role in the purchasing decision

This section analyses in which way the type and quality of information on durability can influence purchasing decisions.

At the moment of purchase, consumers do not feel knowledgeable enough about how long their products will last. Some of them also have doubts about

[134] Although each factor was cited by around one-third of respondents they were not ranked in terms of preference by the UK respondents.

[135] European Commission Joint Research Centre, 2017b

[136] Verbraucherzentrale Bundesverband, 2014

whether the lifetime of products can be accurately measured.[137] Consumers use a combination of general knowledge and proxies[138] to make assessments about lifetimes of comparable products.[139] Different factors are used by consumers to estimate product durability including: design, technological change, the cost of repair, the availability of spare parts, household affluence, aesthetics, functional quality, and fashion.

Recent research has also found, that in absence of reliable information on durability, consumers use intrinsic and extrinsic cues to judge the lifespan of products. For consumers, expectations of lifespans can be subjective and influenced by brand name, perceived quality, past experience, age, and income of the consumer, as well as their current needs.[140] Cox et al. (2013) confirm this statement: when the lifetime of products is not included on the product label, it is inferred by consumers through other indicators such as the perceived reliability based on the general knowledge of consumers.

Overall, the studies reviewed agree on the fact that providing consumers with information on a product's lifespan would have a positive impact on their decision to purchase more durable goods[141]. According to R. Tansey, with more information, consumers would make more rational decisions, while also considering social and environmental impact in their purchases, which would in the end redirect demand to more environmentally or socially respectful products.[142] The consumer market study carried out in 2017 by GFK to support the European Commission Fitness Check of Consumer and Marketing Law, provides details about the effectiveness of information on durability.[143] An experiment was realised to test whether consumers take durability and reparability information into consideration when they purchase goods. A sample of 7,234 consumers coming from eight European countries had to choose between different washing machines, televisions, and smartphones with different degrees of information about durability and reparability provided. One of the main outcomes of this study is **the positive impact of the presence of durability information on consumers' purchasing decisions**. When no information was provided, the items in question were selected by 27% of the respondents, while 47% of the respondents chose the same products when such information was present.[144] As shown in Figure 40, when durability information is present, respondents are on average willing to pay 5% (EUR 16) more, relative to the baseline, for products with high durability. In a Eurobarometer survey from December 2012, 92% out of the 25,568 respondents across the EU27 indicated that the lifespan of products should be indicated (92%).[145]

To date, there are no requirements at European level for manufacturers to inform consumers about, for example, the average/expected/minimal lifetime of goods, except the Ecodesign set of regulations on light bulbs. In practice, this kind of information about the durability of goods is rarely present.[146]

[137] European Commission, 2017

[138] As defined by the authors, general knowledge refers to the participants experience in using those products or to the experience of their relatives. The proxies used by the consumers are brands, prices or guarantees.

[139] Cox, Herren, King, & Knight, 2013; European Commission, 2017

[140] Braithwaite, Densley-Tingley, & Moreno, 2015, pp. 11-17

[141] See for instance: Tansey. R, 2015. "Reducción de residuos: el reciclaje no es suficiente para alcanzar una economía circular"; European Commission, 2017. "Consumer market study to support the fitness check of Consumer Rules"; European Economic and Social Committee, 2016. "The influence of lifespan labelling on consumer".

[142] Tansey, 2015

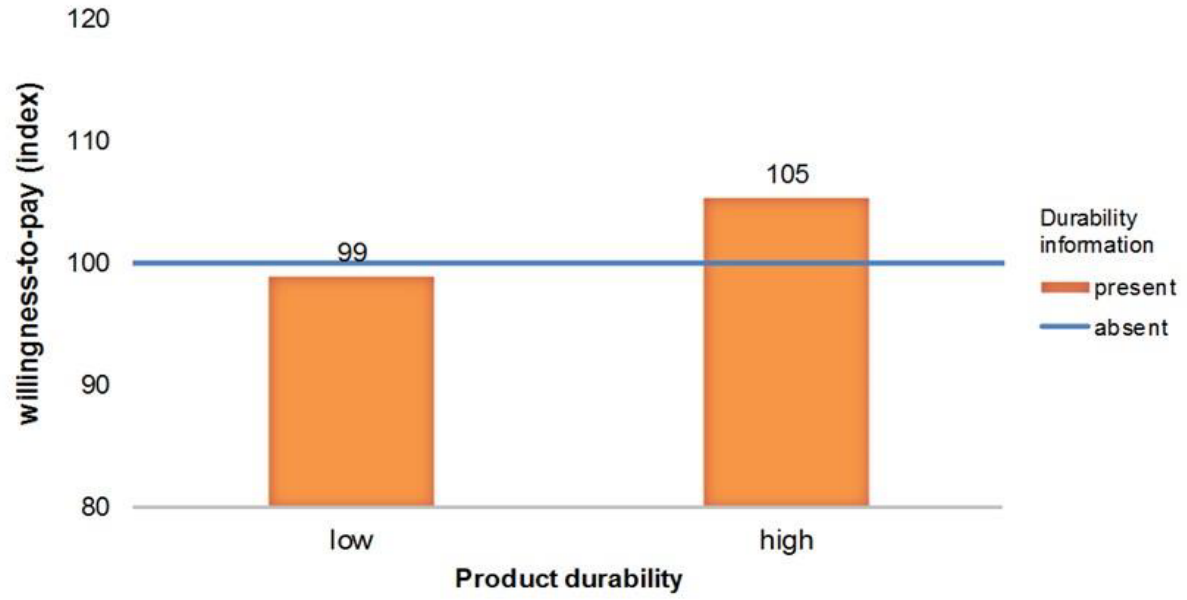
[143] European Commission, 2017

[144] European Commission, 2017, p. 429

[145] European Commission, 2017, p. 416

[146] European Commission, 2017

Figure 40 Impact of durability information on the consumers' purchasing decision.



Source: (European Commission, 2017, Consumer Market Study to support the Fitness Check of Consumer Rules'. p. 437).

How durability information is provided

People use a range of online and/or in-store information sources during the purchasing process.[147] Consumers believe that the main source of information they can access during the decision-making process to compare the expected lifetime of different products is to be found on online reviews from other consumers.[148]

The presentation of durability information through labels would allow more informed purchasing decisions from consumers. The study commissioned by the European Economic and Social Committee (EESC) in 2016, mentioned in section 6.1.1, revealed that, on average, a product is chosen 4.6% more often when lifespan is indicated on the product label.[149] In a report from 2015 about the influence of energy labels for washing machines, Braithwaite et al. (2015) confirmed the importance of durability information on the product label for consumers. According to this study, a specific lifespan label would increase the consumption of more durable products even more.

The Consumer Market Study realised by GFK found that **presenting durability-related information in terms of years has a slightly more powerful impact (48.5%) than in units (46.1%).**[150]In this instance units were presented as specific usage units. For example, the number of wash cycles for a washing machine.

Manufacturer guarantees or warranties act as another source of information for consumers in their purchasing decisions. According to a study carried out by Cox, Herren, King & Knight (2013), they are perceived as a show of faith by manufacturers in the lifespan of their products. The provision of longer warranties can prompt consumers' purchases towards products with longer lifetimes. Indeed, as evidenced in the same study, consumers value highly the reassurance provided by longer guarantees or warranties and are even willing to pay a higher price when warrantees or guarantees are

[147] Cox, Herren, King, & Knight, 2013

[148] Cox, Herren, King, & Knight, 2013

[149] European Economic and Social Committee 2016

[150] European Commission, 2017, p. 437

provided.[151] They tend to believe that products covered will be quickly repaired or replaced if they break down. Therefore, the future uptake of longer life products can be maximised if these are accompanied by longer warranties.

The role of the durability information per specific product

The importance of durability-related information as well as the way it should be provided when consumers purchase goods varies across product categories.

For example, preliminary findings of a study being conducted by a German consumer association illustrate that for 81% of consumers, durability information of **electrical equipment** is (rather) important.[152]

With regards to white goods, the brand name is very important. Often, the implicit assumption is that traditional white goods' manufacturers produce longer-lasting products, accompanied with consumer-oriented repair services. Consumers tend to buy white goods from traditional and popular brands so they have access to good repair services.[153] As consumer expectations about lifetimes are often implicit, providing a clear indication of durability through a labelling system would substantiate those expectations. According to Braithwaite et al., (2015) for washing machines, labels presenting the lifespan in terms of expected years of life have a bigger impact on consumers' purchasing decisions than the ones presenting lifespan in terms of units.

When purchasing **clothes, consumers look for information about durability and quality**. Indeed, one-third of customers covered by the WRAP (2012) survey mentioned in section 6.1.1, would value a durability indicator of some sort during the purchase process. WRAP (2017) has also developed a sustainable clothing guide aiming, partly, to provide information on how to make clothes last longer. According to WRAP, given a little direction, consumers would be able to gauge the quality and potential durability of garments before they buy them. Information could include: advice on evaluating seams, looking for loose threads and broken stitches, and making consumers aware of the fact that a higher density of stitches per inch is generally better. Simply improving care information on labels and packaging at the point of purchase would promote more durable behaviour. Moreover, consumers attach less importance to the lifetime of products that are subject to fashion.[154]

6.1.3. Relevance of reparability characteristics in purchasing decisions

Section 3 has provided factual information about the growing consumer willingness to engage with repair services. In comparison with the durability characteristics, the literature review has found little information about the importance of reparability in consumers' purchasing decisions.

6.1.4. Information on reparability and its role in the purchasing decision

This section offers an analysis on the way available information on reparability can influence purchasing decisions.

Preliminary findings of a study being conducted by a German consumer association illustrate that for 82% of consumers information about the reparability of products is (rather) important.[155]

The main information retrieved about the role of reparability information on consumers' purchasing decisions comes from the Consumer Market Study (2017) undertaken by GFK. According to the experiment mentioned in section 6.1.2 on Information on durability and its role in the purchasing decision, it appears that **providing information**

[151] European Commission, 2017

[152] Verbraucherzentrale Bundesverband, 2017, p. 6

[153] Vangerow, 2017

[154] Cox, Herren, King, & Knight, 2013

[155] Verbraucherzentrale Bundesverband, 2017, p. 6

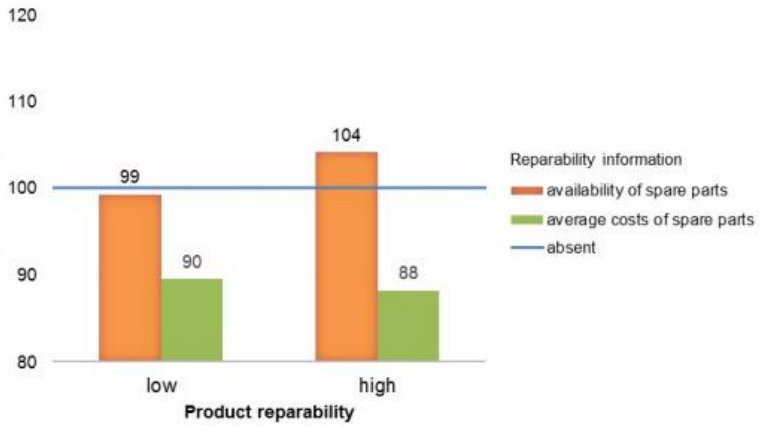
on reparability (on the cost/availability of spare parts) has a positive effect on consumers' purchasing decisions. On average, when reparability information was present on the products tested (televisions, washing machines and smartphones), those products were selected by 43% of the consumers, regardless of the type of reparability information. In comparison, when there was no information provided on reparability, the same products were chosen by only 30% of the respondents.

How reparability information is provided

Important findings about the most influential ways to present reparability-related information were retrieved from the European Commission Consumer Market Study (2017) mentioned above. Information about reparability was framed in two different ways: a first option provided an **indication of the cost of spare parts and the second of the availability of those spare parts.**

Information presented in terms of the availability of spare parts was more efficient than the financial information. Indeed, 7,234 respondents were on average willing to pay an extra €14 for products with a longer availability of spare parts while they were on average willing to pay €7 less for products where the costs of repair were indicated. This variation of willingness can be explained by the fact that cost is the main variable taken into account by consumers during their purchasing decisions. Thus, the indication of the costs of repair is considered by the consumers as potential additional costs.

Figure 41 Role of reparability-related information on the consumers' purchasing decision.



Source: European Commission, 2017, p. 437.

Information about reparability does not affect all consumers in the same way. The impact of reparability information among consumers with a **pro-environmental position** was greater than for consumers who **are better financially positioned**. The effect of reparability information also differs according to the consumer's nationality. Overall, all eight countries studied reported a positive impact for the presence of reparability information. However, the effect of reparability information was greater in Portugal and the Netherlands while the weakest impact was found in France and Poland. No explanatory factors for this variation were provided by this study.

As seen in section 6.1.2 on Information on durability and its role in the purchasing decision, labels have a key role in informing consumers about the durability characteristics of products. No similar influence of labels for reparability characteristics was indicated in the literature. However, an **indicator rating the reparability potential of an item can play a key role in consumers' purchasing decision**. The iFixit index is an example of such an indicator. The reparability index ranks electronic devices by ease of repair. A reparability score between zero and 10 is calculated for each new model of tablet, laptop, and smartphone of the main brands on the market. A device with a perfect score will be relatively inexpensive to repair and easy to disassemble. The difficulty of opening the device, the types of fasteners found inside, and the complexity involved in replacing major components are also considered. This makes this indicator useful for policymakers, product designers, and users looking to buy devices with a better reparability potential (European Environment Agency, 2017).

Role of the reparability information per specific product

Information about reparability could play a key role in consumers' decision to purchase clothes. According to the WRAP study dated from 2012 mentioned in section 6.1.1, a quarter of the UK respondents would wear unworn clothes if they had the ability to repair them. The WRAP study further indicates that businesses could play a key role by raising consumer awareness about how and where to use repair services.

The European Commission Consumer Market Study completed by GFK in 2017 indicates that the positive impact of reparability information on consumers' purchasing decision was **slightly weaker for smartphones than for TVs and washing machines**. We have not found explanatory factors for such phenomenon in the literature review. However, the focus groups suggested that some consumers may not prioritise reparability for smartphones, because technological progress (i.e. software updates) would make their smartphones obsolete and they may wish to purchase newer models (see section 3.3).

According to a study conducted by Cox, Herren, King & Knight (2013) for WRAP, if products were more durable, reparability would become less important as a consideration. In the case of **household appliances** (in this study: fridges, washing machines, vacuum cleaners)**,** the importance of lifetime is underpinned by a desire to avoid the expense and inconvenience of repair or replacement if they break down.

6.2. Evidence from the stakeholder interviews

6.2.1. Relevance of durability characteristics in purchasing decision

Overall interviewees indicated that **durability characteristics matter for consumers' purchases but that it is not the main factor of decision-making.**

According to a representative of a European consumer association, the first factor for consumers when deciding to buy a new product is the quality. As part of this quality assessment, durability is the principal component, followed by the cost factor and usually an association between quality and durability can be found. According to a Romanian academic, quality represents the extent to which a product can satisfy consumer needs, so durability is part of quality as a factor.

However, the interviewed Romanian academic is the only one ranking durability and quality as the first criteria of consumers' purchasing decision. Other interviewees either mentioned the quality aspect in its relation to the price of the product or indicated that the **price is the main consideration in consumers' purchasing decisions.**

According to a representative from a Spanish consumer organisation, the most important criterion when purchasing a new product is the ratio between quality and price. Usually, consumers tend to consider that the higher is the price, the longer the lifespan will be, as underlined by a representative of a UK NGO.

The consideration for durability in purchasing decisions varies by age and income. Overall, people with a higher income are more aware of CE practices and so pay greater attention to durability. In comparison, findings from the reviewed literature indicated that consumers with a lower income pay less attention to durability (see section 6.1.1).

In general, the older the consumer is, the more important durability is. Young people tend to buy less durable products. However, as highlighted by the Romanian academic, there is also a category of young people who are aware of the durability of products. This is comprised of young people working in corporations and who have higher income and greater concerns regarding the Circular Economy. Interviewees confirmed the findings of the reviewed literature – young consumers tend to place less importance on durability than older consumers (see section 6.1.1).

Consideration of durability characteristics in purchasing decisions per specific product

Consideration of durability in purchasing decisions varies depending on the product category.

For large purchases, such as large appliances and cars, durability and reparability characteristics are considered more in purchasing decisions. According to a representative of a Dutch public authority, the smaller the purchase, the less important durability and reparability become.

A Belgian national trade association representative **indicated that the durability consideration from consumers varies according to the expected use of the product**. Consumers will consider the durability of goods depending on how often they will use the product, as highlighted by representatives from a European trade association and a national consumer association. If the product will be used less often, consumers may buy products of a lesser quality and so less durable products.

Regarding smartphones, consumers **pay less attention to durability**. The first factor explaining this is linked to technological progress. According to the already mentioned representative of a Belgian national trade association, if new functionalities appear, consumers will be interested in the newest smartphones with these latest functionalities. A parallel can be drawn with the findings from the literature review, which states that consumers attach less importance to durability when purchasing products more related to fashion. The second factor deals with obsolescence. As highlighted by an expert in the field of Ecodesign, smartphones may be victims of what could be labelled as technical obsolescence, because of software updates, as products become slower and impossible to maintain.

6.2.2. Information on reparability and its role in purchasing decision

The following section analyses the way available information on durability influences purchasing decisions.

An interviewee from a Romanian consumer organisation highlighted that **overall consumers lack the information needed to assess durability and reparability of a product**. They have to find that information by themselves. The main sources for this are formed by shops, online forums or friends as mentioned by an interviewee from a Romanian consumer association. This tends to confirm the lack of information for consumers identified from the literature.

Moreover, an interviewee from a European consumers association mentioned that consumers would prefer to **find this information in a standardised way**. In that sense, a label indicating the average lifespan would be welcomed. This confirms findings from the literature review which stated that a standardised lifespan label would be a key tool to inform consumers about durability (see section 6.1.2).

Other sources of information for consumers were mentioned by interviewees from a Romanian consumer organisation. For washing machines and televisions, the durability characteristics of an item are highly related to the brand. This was confirmed by an interviewee from a household appliances manufacturer: the reputation of a renowned brand acts as a guarantee of a greater quality and so of a longer expected lifetime for the product. Another common measure of expected durability used by consumers is often expressed in the guarantee period offered by the manufacturer, as highlighted by a representative of a UK trade association.

6.2.3. Relevance of reparability characteristics in purchasing decision.

Overall, interviewees provided more information about durability characteristics than about reparability characteristics.

It appears that reparability is not a major consideration for consumers. According to a representative from a UK consumer organisation, reparability is not taken into account by consumers. Another interviewee from a European trade association confirmed this statement. Consumers do not consider reparability when purchasing a new product, because in their mind-set products should be more durable but not necessarily more repairable as highlighted by a representative from a Belgian trade association.

This lack of information coming from interviews echoes the little information gathered from the literature review.

Consideration of reparability characteristics in purchasing decision per specific products.

According to a representative of a Dutch public authority**, for large purchases, such as large appliances (e.g. washing machines, refrigerators, and cars), reparability definitely plays a role**. This input was confirmed by a consumer law expert from a Romanian consumer organisation. For washing machines, reparability characteristics are important.

When purchasing clothes, consumers pay less attention to the durability and reparability characteristics. However**, reparability is more important than durability in the fashion sector,** as highlighted by the above-mentioned representative of a Dutch public authority. This greater consideration for reparability in clothes purchases confirms findings from the literature review.

6.2.4. Information on reparability and its role in the purchasing decision

This section describes the findings from the interviews on how available information on reparability can influence purchasing decisions.

It seems again, that **consumers suffered from a lack of information to motivate their purchasing decisions.** According to an interviewee from a German public authority, with no durability and reparability information, consumers always choose the cheapest product.

During an interview with a representative from a UK consumer organisation it was stressed that retailers and manufacturers do not provide, and sometimes may even hide, the available information about reparability. The interviewee did not mention how or why manufacturers might hide reparability information.

According to a representative of a Hungarian NGO, when consumers need information on the degree of reparability of a product they look for it in the guarantee letter. This interviewee also indicated that the **information that consumers look mostly is the availability of repair points**. This partly mirrors the findings of the Consumer Market Study conducted by GFK. These state that the most impactful reparability-related information on consumers' purchasing decisions are about the availability of spare parts rather than the information on costs of those spare parts. According to an interview with a German expert, another implicit source of reparability information for consumers is the brand of the products. They expect that the manufacturer of certain brands will repair the product. The same stakeholder added that as reparability has many dimensions, it would be hard to imagine a simple indicator, which could be put on a durability label. Guarantees could play an informative key role as they are easier to compare (e.g. one company offers a longer period of repairing services under the guarantee conditions compared to another company).

6.3. Evidence from the focus groups

6.3.1. Durability information

Participants **welcomed the idea of being provided with information about the durability of products**, and agreed that this should be presented on product labels or in the shop at the time of purchase (or on the website, if a product is purchased online). Some suggested that sales staff should also be able to inform customers about a product's durability.

Attitudes towards the suggestion of having the information presented **on the EU Energy Efficiency Label (or as a similar label) were very positive**. Participants felt that this would enable displaying products' durability in a simple, straightforward manner, and would enable consumers to easily compare products.

Participants also made suggestions on how durability should be defined for each of the different products:

- **Washing machine/dishwasher** – **estimated number of washes** (rather than number of years): participants across the different countries agreed that for these products, expressing durability in number of years would not be accurate, because some households use these more often than others.

- **Television** – estimated number of **years** (Germany) or estimated number of **hours of use** (Ireland), once again, because the frequency of use for this type of product varies by household. Another suggestion was to combine information on number of **years** with the **average** number of **hours of use** per day:

  > *"Average hours of use per year. So if it says: 'this TV will last 3 years for 6 hours use per day' for example. A vacuum cleaner is expected to be on for half an hour a day. So we would need a list on what they consider the average usage a day per product type, so for example a TV 6 hours a day, laptop 6 hours, vacuum 0.30h etc. You know that if you put your TV on 12h a day, it's not going to last that long as indicated. (Man, mixed group, Dublin).*

- **Vacuum cleaners** – estimated number of **hours of use** (Germany, Ireland).
- **Smartphones** – some participants suggested number of **years**, others also suggested number of **battery charges** (Ireland). In Germany, some mentioned that it would be helpful to have an indication of the **battery's durability** in number hours (and the equivalent in number of years) because this is often the part that breaks down first.
- **Clothing** – number of **years**, or, as some German participants suggested, through an indication of the quality **of the fabrics** used (low, medium or high). Displaying durability for clothing was seen as somewhat less important than for electrical appliances, although some participants welcomed the idea.

6.3.2. Reparability information

Participants were generally favourable to the idea of being provided with information on reparability. Discussions on this topic were, however, more complex in Sweden – where participants, although positive to the idea of having products repaired, had less experience with reparability.

> *"I must spend a lot of time and there is almost no information to be found about where to repair things. What rights do I have? Where can I fix it? These are my questions. Why should I have to spend so much time and look, look, look, for information while the producers just send me advertising and promotions – that must cost them much."* Female 35, vulnerable group, Stockholm)

Some participants in Ireland and Sweden flagged the fact that presenting information on a product's reparability might discourage people from buying it because it may suggest that the product is likely to break down.

Some of the types of information participants considered useful to have with regard to products' reparability were:

- Whether repair would be **possible**
- Whether the product is repairable through **DIY** (and instructions on how to repair it)
- Availability of **spare parts**
- Availability of **repair services**, and possibly a list of repair services
- An indication of the **timeframe** during which **spare parts would be available**
- An indication of the **timeframe** during which a **manufacturer** can ensure the **product's repair**
- An indication of the **level of difficulty** of the repair (low, medium, high) – participants in Germany suggested indicating this with small icons – e.g. hammers, one for easy, two for medium, three for difficult).

As with durability, participants felt that information on products' reparability should be provided **at the moment of purchase/at the point of sale (on the product, or on the product's label).** They were generally favourable towards the idea of having an indication included on the **EU Energy Efficiency label, or on a similar label.** Many also felt that information should be included in the products' **instructions manual**, as well as should be available **online**. Some of the German participants suggested that it would be useful to have tutorials on how to repair products, for example on a **YouTube channel**.

Information on reparability was mainly considered useful for electronic goods, and to a slightly lesser extent for clothing. Information provision for clothing was considered less

necessary because some participants already have repaired clothing themselves or had them repaired at a tailor shop or repair centre (mainly in the case of shoes).

6.3.3. Recyclability information

Some participants (particularly in Germany) found it useful to have information on products' recyclability on the **EU Energy Efficiency Label** (or on a similar label). They would also welcome more information on how to recycle products. Other participants, particularly in Ireland and Sweden, were a lot more informed about how to recycle products (clothes and electrical appliances):

> *"It's common sense these days, it's everywhere. Batteries, phones; clothing collection etc. so easy to recycle, it's everywhere. It's in the supermarket. So why would you throw them away if they can make something out of it? It's easy and cheap and accessible." (Woman, vulnerable group, Dublin).*

The main types of **information** participants thought would be useful with regard to **recycling and products' recyclability**, are as follows:

- Percentage of **recycled material** used when producing the product
- Percentage of **material that can be recycled** and that will be recycled at the end of the product's lifecycle
- An indication on which **parts** of the product will be recycled and what they will be used for
- More **information on the recycling process** (what happens to a product once it is brought for recycling)
- *"I want to be a responsible consumer. But I also would like to know – what do you do with my smartphone? I would like a guarantee for the recycling so I know where things end up." (Woman, vulnerable group, Stockholm)*
- Information on **recycling centres**, and on how these recycle large appliances.

German participants suggested that it would be useful to have a QR-code on the label giving further information about the recycling process.

6.3.4. Views on displaying information on reparability, durability and recycling on a label

Participants generally welcomed the idea of displaying information on product durability, reparability and recyclability on the EU Energy Label, or on a similar label. The idea was seen as most useful in the case of durability, although many participants felt the same way about reparability and recyclability.

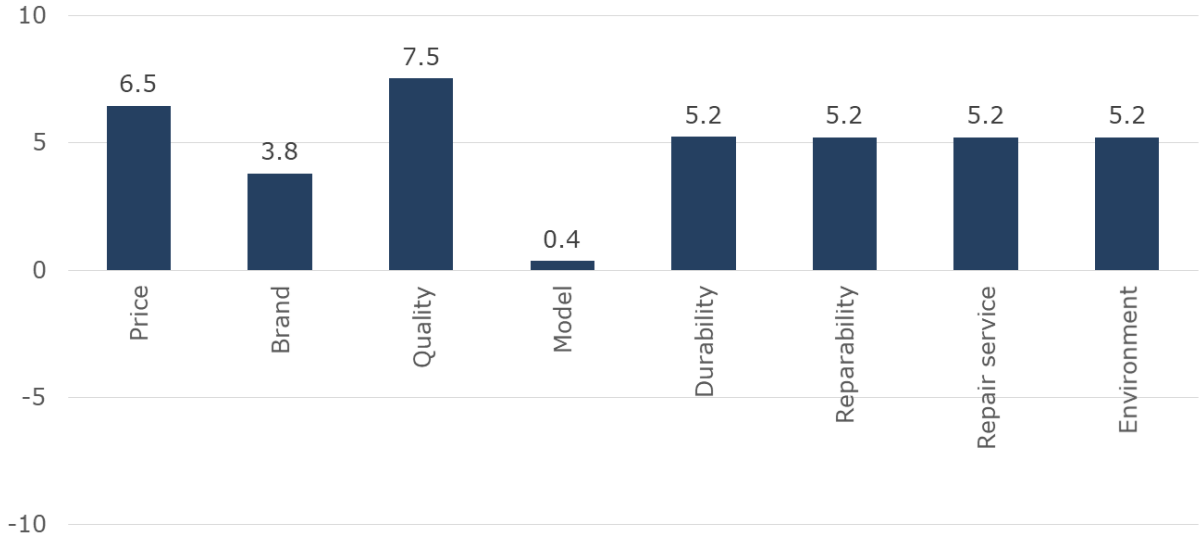
German participants were the most enthusiastic towards this, and felt that all three aspects (durability, reparability and recyclability) should be displayed on the EU Energy Label (with categories for each aspect underneath).

6.4. Evidence from the consumer survey

6.4.1. Importance of durability and reparability in purchasing decisions

Results from the consumer survey on the importance of durability and reparability in purchasing decisions are presented. To understand the relative importance of these factors in purchasing decisions, further dimensions such as costs, quality or fashion were evaluated in addition to looking at durability and reparability. Hence, these other factors can be compared to durability as well as reparability. Additionally, the reasons for why survey respondents rated durability, reparability and the availability of repair services as important were analysed in more detail.

Figure 42: Importance of certain factors in purchasing decisions (average)



Notes: The question was Q3.4a: "Thinking of the last time you bought a [dishwasher / vacuum cleaner / television / smartphone / coat], to what extent did the following influence your choice of product? Please answer on a scale from 1 (meaning "None at all") to 4 (meaning "A lot")." In order to calculate averages answer categories where re-labelled with "a lot" corresponding to a value of +10, and "not at all" corresponding to a value of -10. As a result, a positive average means the factor is important, a negative average means the factor is unimportant, 0 means neither important nor unimportant; N=12,064.

Source: ConPolicy analysis of consumer survey data.

Figure 42 summarizes the results on the average importance of different factors that might be relevant during purchasing processes. For eight factors (across all five product categories), participants were asked how much influence each factor had on their purchasing decisions.

Overall, the **quality of the product** was rated most influential followed by **price**. How long the product was expected to last **(durability), reparability**, the **existence of a repair service** and **environmental credentials** were also important to participants. The **manufacturer or brand** was ranked as less important, and overall participants rated the product being the **latest model or trend** as even less influential.

As a next step, the influence of these eight factors are reported individually across product categories. Figure 43 displays the results on the average importance ratings.[156]

The price of the product

For all product categories price mattered a lot as its importance was consistently rated as high. As can be seen in the detailed Table 5 in Section 7 in the Annex document, between 50% and 60% indicated price as relevant in the survey. In contrast, only a very small fraction, i.e. below 3% for all product categories, reported price to not matter at all.

The manufacturer or brand of the product

A more diverse picture emerged with respect to the importance of the manufacturer or brand of the product. When looking at the average ratings of this attribute in Figure 43, brand was most relevant for mobile phones followed by televisions, vacuum cleaners and dishwashers. For mobile phones this factor was very important for 50% of the participants. For televisions the share was lower, 43%, while 40% and 34% indicated its high relevance for vacuum cleaners and dishwashers. In contrast, the average rating as well as the share of participants indicating clothing brands to be important was much lower. Overall, only 20% of participants indicated the manufacturer or brand to matter

[156] Additionally, see the additional survey results in the Annex document for a table showing detailed results on consumer ratings of the importance for all categories and products in percent.

very much. Interestingly, the share of participants reporting the manufacturer or brand to not matter at all was also 20% for clothing, while these shares were below 6% for the other product categories. (See additional survey results in Table 5 in Section 7 of the Annex document for detailed importance ratings by product.)

The general quality of the product

Across all five product categories, the majority of participants indicated that the general quality of the product had a lot of influence on their purchasing decisions. Overall, there exists no sizable difference between the individual product categories. Quality was most important for participants in the category of vacuum cleaners (70%), followed by televisions and mobile phones (69%), dishwashers (63%) and coats or jackets (63%). Again, the shares of participants attributing no importance to this factor were low, i.e. less than 3% for all products. See again the Annex for further detail.

Whether the product was the latest model or trend

As indicated before, trends were less relevant for purchasing decisions compared to, for example, price. Nevertheless, there exist product categories for which trends were more important compared to others. As displayed in Figure 43, for televisions, smartphones and clothing items the average importance rating was positive, implying that participants thought trends to be influential. When looking at the shares of respondents rating trends to be of highest importance the following results emerged: The largest share was found among mobile phones (23%) followed by televisions (22%) and clothing items (19%) (see Table 5 in Section 7 in the Annex document). For vacuum cleaners and dishwashers, the average importance rating was lower and even below 0, indicating that respondents rated that trends rather did not matter. The shares of participants attributing a high importance to trends were fairly sizable with 13 to 15%. When looking at the other extreme, i.e. shares of respondents attributing no importance to trends at all, no sizable difference between product categories was found. For vacuum cleaners, dishwashers and clothing items shares were around 20%, while for electronic items, i.e. mobile phones (16%) and televisions (14%), they were slightly lower.

How long the product could be expected to last

The expected lifespan of a product had a lot of influence on consumers' purchasing decisions. Overall, the average rating as shown in Figure 43 was high across all products. Though for dishwashers, vacuum cleaners, televisions and mobile phones the average importance rating was higher than for clothing items. As can be seen in the Annex the share of participants indicating that the expected lifespan of a product had a lot of influence on their purchasing decision was similar for dishwashers, vacuum cleaners, televisions and mobile phones (46% to 53%) and smaller but still sizable for coats or jackets (33%). Again, looking at the shares of participants indicating no importance at all, for most product categories the shares amounted to below 4%. Interestingly, for clothing items this share was much higher, 10%, which may capture a group of consumers with a particular interest in the latest trends and 'fast fashion'.

Whether the product could be repaired if broken

The reparability was on average rated as less important compared to durability but it was still rated as important for most product categories. As displayed in Figure 43 the average rating of importance was positive for dishwashers, vacuum cleaners, televisions and smartphones indicating that on average respondents stated that reparability was important. In more detail (see Table 5 in Section 7 in the Annex document), the share of respondents attributing a lot of influence to reparability was 30-34% in the mentioned product categories. Clothing items again represented an outlier. The average rating was below 0 indicating that respondents rated reparability rather as unimportant. Only about 11% indicated reparability as important for coats and jackets. The same pattern emerged for participants indicating that reparability played no role at all. Less than 10% reported this rating for most product categories. Only for clothing items this share was larger with 36%.

Whether repair services exist for the product

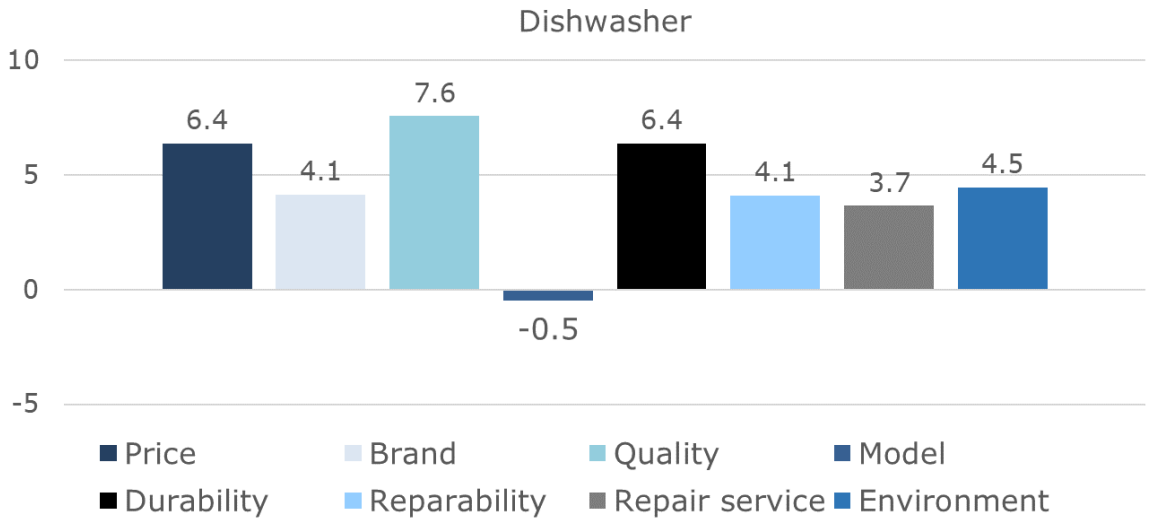
A similar picture emerged for the existence of repair services. On average, the rating of importance was above 0 for dishwashers, vacuum cleaners, televisions and smartphones

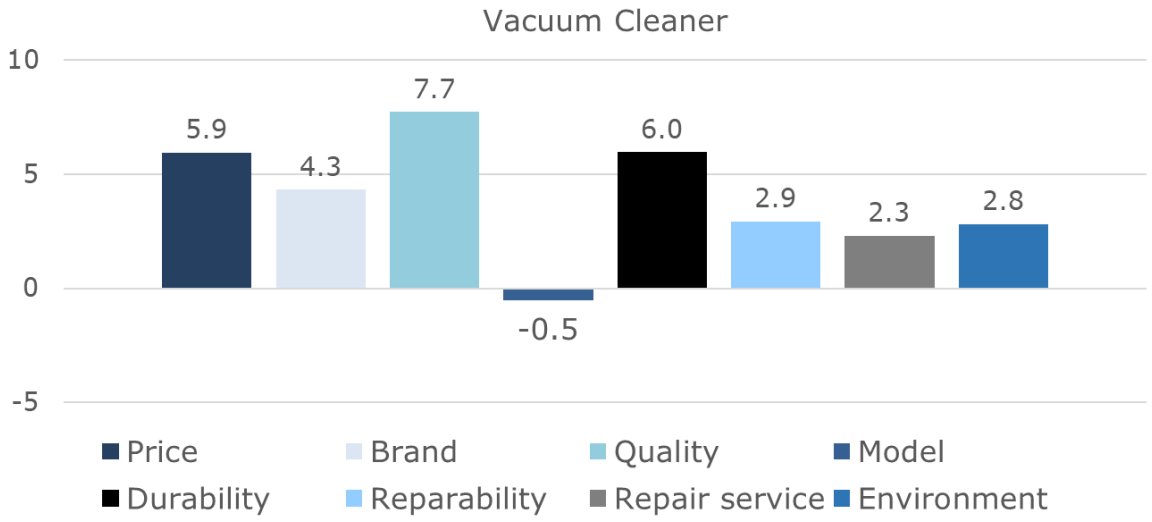
showing that respondents found repair services to be rather influential in their purchasing decision. The share of respondents rating the availability of repair services as having a lot of influence were around 30%. Again, clothing items were an outlier. The average rating of importance in this category was below 0 indicating no importance of this attribute. Accordingly, the share of respondents attributing a lot of influence to this factor was only 7%. When looking at the other extreme, where participants indicated repair services to have no importance at all, a similar difference between product categories was detected. Between 8% and 13% of participants reported no importance of the factor at all for most categories, while 48% reported this for clothing.

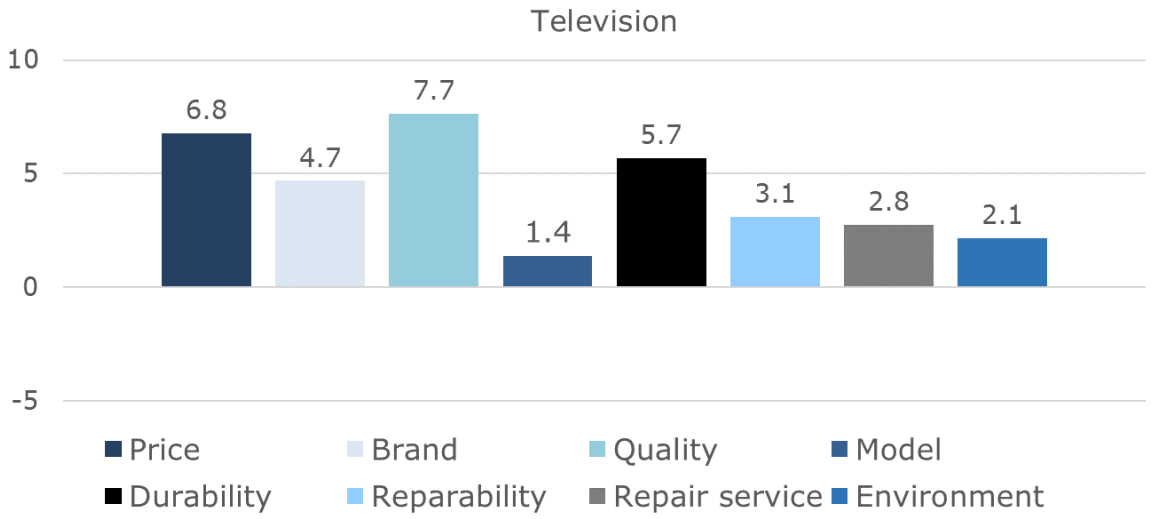
The environmental credentials of the product

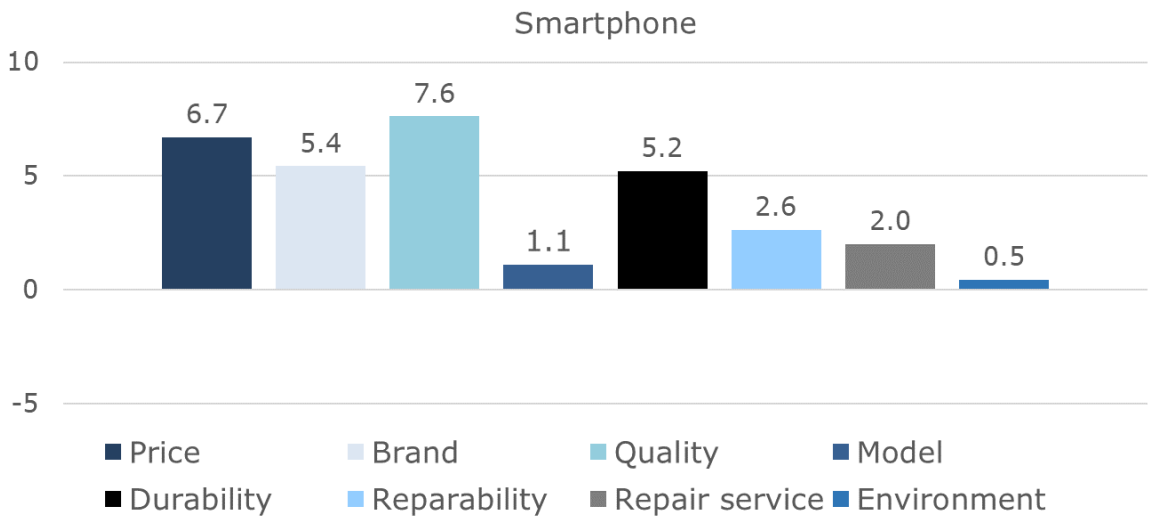
Finally, the share of participants who indicated that environmental credentials had a lot of influence on their purchasing decisions was rather heterogeneous across the five product categories. The average rating as displayed in Figure 43 was positive for dishwashers, vacuum cleaners and televisions indicating that on average environmental credentials played a role for respondents. For smartphones it was close to 0 whereas it was below 0 for clothing items. When looking at the shares of respondents either attributing a lot or no relevance for this factor (see Table 5 in Section 7 of the Annex) the following results emerged: For dishwashers, 37% found environmental credentials to be important, followed by vacuum cleaners (28%) and televisions (25%). The importance of environmental credentials was smaller for mobile phones (18%) and coats or jackets (14%). Again, these results were mirrored at the other extreme: For vacuum cleaners, dishwashers and televisions the shares of participants stating that environmental credentials had no importance at all were between 5% and 11%. For mobile phones the fraction was higher with 17% and even higher with 24% for coats and jackets.

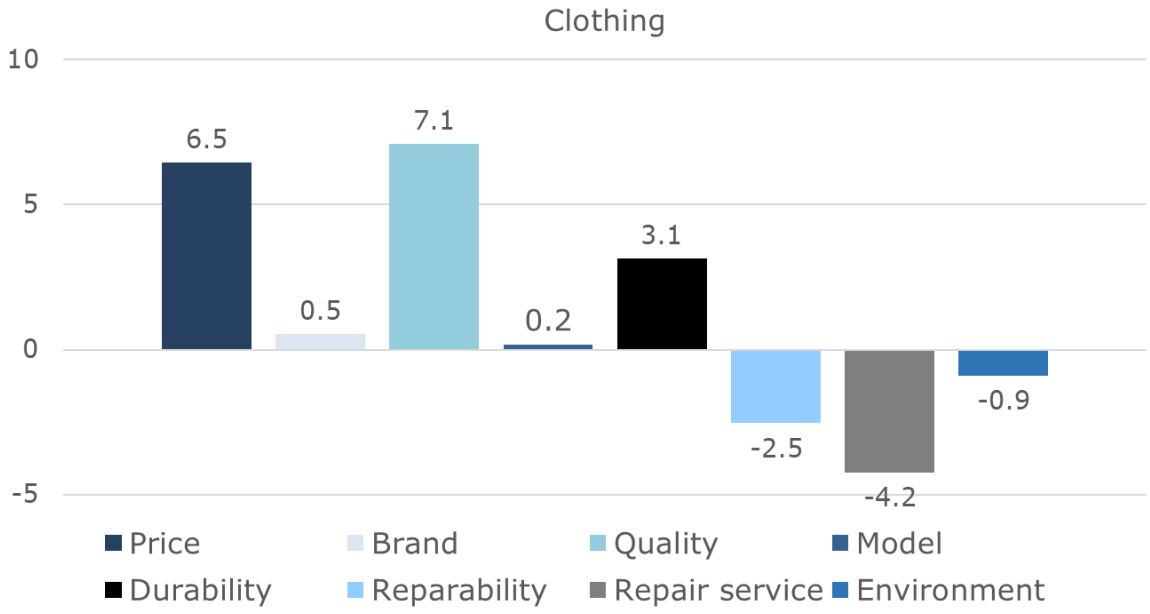
Figure 43 : Importance of certain factors in purchasing decisions by product category (average)




Vacuum Cleaner
10
5
0
-5
5.9
4.3
7.7
-0.5
6.0
2.9
2.3
2.8
Price
Brand
Quality
Model
Durability
Reparability
Repair service
Environment


Television
10
5
0
-5
6.8
4.7
7.7
1.4
5.7
3.1
2.8
2.1
Price
Brand
Quality
Model
Durability
Reparability
Repair service
Environment


Smartphone
10
5
0
-5
6.7
5.4
7.6
1.1
5.2
2.6
2.0
0.5
Price
Brand
Quality
Model
Durability
Reparability
Repair service
Environment



Notes: The question was Q3.4a: "Thinking of the last time you bought a [dishwasher / vacuum cleaner / television / smartphone / coat], to what extent did the following influence your choice of product? Please answer on a scale from 1 (meaning "None at all") to 4 (meaning "A lot")." In order to calculate averages answer categories where re-labelled with "a lot" corresponding to a value of +10, and "not at all" corresponding to a value of -10. As a result, a positive average means the factor is important, a negative average means the factor is unimportant, 0 means neither important nor unimportant; Dishwasher N=4,848, Vacuum Cleaner N=4,096, Television N=4,855, Smartphone / Mobile Phone N=4,893, Clothing (Coat or Jacket) N=4,883.

Source: ConPolicy analysis of consumer survey data.

Furthermore, the importance of different factors influencing the purchasing decision were analysed by country and socio-demographic factors. These results are summarised here below and displayed in detail in Section 7 in the Annex document.

The average **importance of price** was high among all 12 examined countries. In particular, Spain stuck out indicating a very large relevance of price followed by Romania and Portugal. The lowest importance ratings were observed in Austria, the Netherland and France. When looking at age and education no noteworthy patterns emerged. Not surprisingly, it was found that respondents who found it more difficult to make ends meet at the end of the month gave more importance to price compared to those financially better off.

With respect to the **importance of the manufacturer or brand** two countries, Romania and Spain, stuck out. In these two Member States participants on average revealed a larger relevance compared to the other countries. Age did not seem to play a role, while the highest educational category rated the influence of brand more important than the lower educational categories. Furthermore, participants indicating a very difficult financial situation also revealed lower influence of brand compared to wealthier income categories.

As indicated above, the **quality of the product** was overall the most important factor and this was also true for the individual country ratings. Compared to other countries, the French participants on average attributed a lower importance to quality. With respect to other socio-demographics no striking differences were observed.

With respect to the **product being the latest model or trend** interesting country differences emerged. On the positive side, i.e. countries attributing importance to trends, in particular Romania and Spain stuck out with relatively higher rates. In contrast, Austria, France and the Netherlands revealed negative average importance ratings indicating that being the latest model or trend was not important. Participants indicating their financial situation to be very difficult attributed less importance to trends. With respect to other socio-demographic factors no particular patterns were visible.

Durability, overall, was on overage also influential. While Romanian and Hungarian participants were among the top two with respect to durability ratings, lower rates were observed for the Netherlands, Germany, Austria and France. With respect to other socio-demographics factors no striking differences were found.

These results on country effects as well as age, education and income differences were mirrored for the **importance of reparability** and **availability of repair services**. Lastly, a very similar pattern on country level and for the other socio-demographics factors was observed for the importance of the environmental credentials of a product.

Reasons for high importance of durability

Participants that indicated that durability had at least a little importance for their purchasing decision were asked about the reasons for this rating as depicted in Table 38.

The most prominent reason across all product categories was the perception that long-lasting products would **save money in the long run** (45% to 55%). Other important reasons were the perceived **higher quality** of long lasting products (36% to 43%), the perception that durable products would be **better for the environment** (23% to 30%), the **convenience of not having to shop for a replacement soon** (23% to 28%) and that long lasting products typically are **better value for money** (22% to 26%). Among the different product categories no distinctive patterns emerged.

Table 38: Reasons for high importance of durability by product category (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
Long lasting products will save me money in the long run	54.7	54.8	50.9	50.7	45.3
Long lasting products are typically better quality	36.0	36.5	36.0	34.5	43.0
Buying a long-lasting product is better for the environment	30.0	29.1	27.2	27.4	22.6
To avoid the effort of shopping for a replacement soon	22.7	22.9	26.9	27.8	25.6
Long lasting products are typically better value for money	22.6	25.8	24.5	22.0	25.2
Other	0.1	0.3	0.2	0.4	0.2
Don't know	1.5	0.7	1.8	2.1	2.4
No. of observations	3,554	3,556	4,144	4,085	3,742

Note: Following up on answers presented in Figure 42 and Figure 43, participants were asked (Q3.4b): "You said that when you last bought the following product(s) "how long the product could be expected to last" had a lot of influence on your choice of product? Why was this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for low importance of durability

The reasons for participants indicating that durability had no or only very little importance for their purchasing decisions are presented in Table 39.

For all product categories the most prominent reason was that participants found it **hard to tell how long a product will last** (62% to 70%). For vacuum cleaners, dishwashers, televisions as well as mobile phones, the second most important reason was that longer lasting products were **hard to find** (20% to 26%). For clothing items another aspect was ranked second though; within this category, 19% of participants indicated that durability did not play a role for purchasing decisions because they did **not expect to use the product for a long time**. Overall, fashion, value, and maintenance effort were relatively less important.

Table 39: Reasons for low importance of durability by product category (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
It's hard to tell how long a product will last	60.3	70.2	68.3	64.1	61.8
Long lasting products are harder to find	23.0	25.8	19.7	21.4	13.2
I am interested in owning the latest fashion/technology	13.0	8.7	14.8	15.2	14.2
I did not expect to use the product for a long time	12.0	12.4	9.5	16.0	19.1
How long a product will last is not important to me	10.4	5.1	6.7	9.3	12.6
Long lasting products are worse value for money	7.6	4.8	7.1	6.0	5.4
Long lasting products need a lot of maintenance	4.1	3.5	2.6	4.1	4.7
Other	6.7	4.5	7.5	6.7	4.9
Don't know	5.4	7.5	5.5	3.9	6.0
No. of observations	*346*	*396*	*541*	*611*	*1,001*

Note: Following up on answers presented in Figure 42 and Figure 43, participants were asked (Q3.4c): "You said that when you last bought the following product(s) "how long the product could be expected to last" had little influence on your choice of product? Why was this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for high importance of reparability

Table 40 presents the reasons for which participants rated reparability as important for their purchasing decisions.

Overall, the top reason was once again **saving money** (31% to 37%), followed by the preference of keeping a product for as long as possible (28% to 35%). **Environmental factors** (22% to 26%), using reparability as a **signal for high quality** (22% to 26%), the **convenience of not having to shop for a replacement** (21% to 25%) as well as using reparability as a **signal of the manufacturer caring for the customer** (17% to 24%) were all of equivalent importance. Compared to these aspects, it is quite interesting to see that the joy of repairing items was seen as much less important for reparability (below 7% in all product categories).

Table 40: Reasons for high importance of reparability by product category (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
Repairing the product will save me money	34.4	36.7	31.4	32.5	30.5
I wanted to keep the product for as long as possible	30.3	28.0	30.3	34.1	34.6
Repairing the product is better for the environment	25.2	25.7	23.0	24.0	21.5
It's a sign that the product is of high quality	23.0	25.3	24.1	22.3	26.1
Repairing avoids the effort of shopping for a new one	25.0	24.0	24.3	23.6	20.6
It shows the manufacturer cares about its customers	21.3	23.5	24.3	22.1	16.7
I enjoy repairing things	7.2	5.3	4.3	4.7	6.6
Other	0.2	0.3	0.3	0.3	0.02
Don't know	1.4	1.1	2.5	2.2	4.4
No. of observations	3,127	2,822	3,438	3,360	1,909

Note: Following up on answers presented in Figure 42 and Figure 43, participants were asked (Q3.4d): "You said that when you last bought the following product(s) "whether the product could be repaired if it broke" had a lot of influence on your choice of product? Why was this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for low importance of reparability

Table 41 displays the reasons for why participants attributed a low importance to reparability in the purchasing process.

On average, four answer categories were rated more important than others, namely: **Trusting the manufacturer's warranty** (14% to 45%), followed by the **expectation that the product will not break** (26% to 35%), the **cost of repair** (18% to 34%) and the reason that participants **will replace it if it breaks** (15% to 24%). Not considering repair, the difficulty of repair, the lower quality after repair and the reason that if a product can be repaired easily it must be of low quality were less important.

There were some interesting differences in ratings across product categories, especially for clothing. For this category, 23% of participants stated that they simply do not consider repairing a clothing item, whereas trust in the manufacturer's warranty was ranked comparatively low (14%).

Table 41: Reasons for low importance of reparability by product category (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
I trust the manufacturer's warranty	32.6	44.6	34.0	32.9	13.8
I don't expect this product to break	28.9	33.9	29.2	25.9	35.1
Repairing the product would be too expensive	29.6	24.4	32.9	34.2	18.1
If something breaks I replace it	22.3	17.5	17.0	14.8	23.8
Repairing this product just isn't something I'd consider	12.9	8.0	9.8	14.5	22.9
Repairing the product would be too difficult	11.0	10.9	16.7	16.8	12.6
Products are not as good after they've been repaired	4.4	6.6	5.0	8.9	10.0
If it can be repaired easily it must be of low quality	3.7	2.5	3.7	1.4	2.6
Other	2.3	2.9	1.6	3.5	4.2
Don't know	5.1	5.2	5.2	4.6	6.8
No. of observations	775	1,111	1,208	1,311	2,752

Note: Following up on answers presented in Figure 42 and Figure 43, participants were asked (Q3.4e): "You said that when you last bought the following product(s) "whether the product could be repaired if it broke" had little influence on your choice of product? Why was this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for high importance of availability of repair services

The reasons for participants attributing importance to the availability of repair services are displayed in Table 42.

As for reparability in general, none of the presented answer categories stuck out as a top reason for attaching high importance to the availability of repair services either. Many participants indicated that **repairing the product could save money** (33 % to 40%) and that they wanted to **keep the product for as long as possible** (28% to 34%). Similarly, other important reasons were that **repairing avoids the effort of shopping for a new one**" (24% to 28%), **repairing the product is better for the environment** (23% to 28%), **not being able to self-repair the product** (18% to 25%) and the belief that **repair services will do a good job** (15% to 20%). There were no striking patterns across the different products categories.

Table 42: Reasons for high importance of availability of repair services by product category (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
Repairing the product could save me money	39.3	39.9	37.1	35.2	32.9
I wanted to keep the product for as long as possible	29.3	28.0	29.0	32.6	34.1
Repairing avoids the effort of shopping for a new one	27.9	26.7	26.9	24.3	23.8
Repairing the product is better for the environment	26.8	28.4	24.7	25.2	22.9
I don't think I could repair this product myself	19.0	19.8	22.4	25.1	17.8
I believe repair services will do a good job	19.7	21.3	18.5	18.2	15.1
Other	0.3	0.3	0.5	0.3	0.4
Don't know	1.9	2.0	3.0	2.1	5.6
No. of observations	3,034	2,767	3,331	3,201	1,415

Note: Following up on answers presented in Figure 42 and Figure 43, participants were asked (Q3.4f): "You said that when you last bought the following product(s) "whether repair services exist for the product" had a lot of influence on your choice of product? Why was this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

Reasons for low importance of availability of repair services

Participants attributing little or no importance to repair services on average indicated several reasons for their statements (Table 43). Overall, **trust in manufacturer's warranty**, **costs**, the expectation that the **product will not break**, as well as the statement that **faulty items would be simply replaced** were reported.

There were interesting differences between product categories: Trust in manufacturers' warranties and expected high costs of repair services were named rather frequently for vacuum cleaners, dishwashers, televisions and mobile phones. However, this was not true for clothing items where only about 16% (warranty) and 17% (costs) stated this to be a reason for attributing little importance to repair services. Not considering repairing a faulty product was stated more frequently for clothing items (26%) compared to other product categories (ranging from 7 to 13%).

Table 43: Reasons for low importance of availability of repair services by product category (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
I trust the manufacturer's warranty	36.4	44.5	37.1	34.6	16.1
Repair services are too expensive	28.3	31.7	31.7	32.7	16.6
I don't expect this product to break	28.1	32.2	27.5	27.1	36.2
If something breaks I just replace it	18.3	16.2	15.0	16.5	22.1
Repairing this product just isn't something I'd consider	12.8	7.1	12.2	13.4	26.1
I wouldn't know how to find a repair service	10.5	7.5	7.6	8.1	9.4
Products are not as good after they've been repaired	5.0	5.3	7.4	10.3	8.6
If repair services exist, the product must be low quality	2.3	1.7	3.1	1.9	3.4
Other	3.9	5.4	2.8	4.1	5.9
Don't know	6.9	4.7	6.9	6.1	7.3
No. of observations	850	1,164	1,342	1,461	3,209

Note: Following up on answers presented in Figure 42 and Figure 43, participants were asked (Q3.4g): You said that when you last bought the following product(s) "whether repair services exist for the product" had little influence on your choice of product? Why was this? For each product please select the two most important reasons." Since participants indicated the two most appropriate reasons, the totals do not sum up to 100%.

Source: ConPolicy analysis of consumer survey data.

6.4.2. Expectations on durability and reparability information

In the following section consumers' expectations regarding durability and reparability information are presented. Firstly, it is presented **when** respondents would like to receive durability information during the purchasing process, followed by ways **how** they would like to receive this information. Similar steps are followed also for reparability information.

When respondents would like to receive durability information

Visible from Table 44, across all product categories the majority of participants reported that they expected durability information to be displayed **at the point of purchase**. Similarly, a large percentage indicated that they expected this information **when comparing alternative products** (between 38% and 50%). Presenting this information when products are advertised, on the other hand, was ranked less important and only a very small share of participants reported that they expected durability information after their purchase. The overall rankings were fairly homogenous across the different product categories.

Table 44: Expectations regarding when to receive durability information (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
When products are advertised (e.g. on TV. in store. online)	19.5	18.9	20.0	22.1	12.5
When comparing alternative products (in store. online)	48.6	49.6	47.4	49.9	37.9
At the point of purchase (at the online check-out or shop counter)	52.0	54.4	52.5	52.8	51.8
After a purchase has been made	5.2	4.6	6.1	6.8	7.8
Other	1.3	1.4	1.3	0.7	1.5
Don't know	5.7	5.2	6.3	5.6	13.4
No. of observations	4,848	4,096	4,855	4,893	4,883

Note: The question was Q5.2: "For each of the following products, when would you expect to obtain information on how long the product will last that you are considering buying?"

Source: ConPolicy analysis of consumer survey data.

How respondents would like to receive durability information

In addition to the timing of durability information, participants were also asked to indicate how they preferred to receive information on products' durability.

Table 45 displays the results by product category.

Overall, participants reported most frequently that they expected durability information via **product descriptions**, (40% to 45%) as well as via **guarantees or warranties** (23% to 44%). About 30% of respondents each expected to receive information via retailers, operating manuals or instructions, or the manufacturer's website. These were followed by the expectation of receiving information via an EU official label (18 - 23%), and an official label from a national authority (14 - 19%). Websites of third parties as well as social media sites were ranked as less important.

For the individual product categories, a difference in importance of guarantees and warranties was found for clothing items. Considerably fewer respondents wished to receive information via guarantees for this product. A similar difference was found for the

relevance of operating manuals and instructions. Again, clothing items received a lower rating (16%) compared to the other products (above 30%).

Table 45: Expectations regarding how to receive durability information (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
Via product descriptions	44.5	44.5	42.8	44.6	39.9
Via guarantees or warranties	43.1	43.9	41.3	43.1	22.7
Via the retailer	33.4	34.6	35.2	34.5	36.0
Via operating manuals or instructions	33.3	31.8	30.9	31.3	16.2
Via a manufacturer's website	29.1	29.3	29.5	31.8	18.5
Via an EU official label	21.6	23.2	21.2	20.8	18.2
Via an official label from your national authority	17.6	18.6	16.0	17.1	13.5
Via the website of a third party (e.g. consumer association)	15.0	15.6	15.2	17.4	9.5
Via social media	10.7	11.0	11.3	14.8	8.5
Other	0.3	0.3	0.3	0.2	0.8
Don't know	4.1	3.6	4.5	3.9	11.2
No. of observations	4,848	4,096	4,855	4,893	4,883

Note: The question was Q5.3: "And for each of the following products, how would you expect to obtain information on how long the product will last that you are considering to purchase? Select all that apply."

Source: ConPolicy analysis of consumer survey data.

When respondents would like to receive reparability information

Table 46 presents participants' expectations on receiving reparability information.

Respondent preferences for the timing of reparability information followed a similar pattern to those for durability information discussed above. Again, the majority of participants reported that they would expect to obtain reparability information **at the point of purchase** for all product categories. Here, approval rates ranged from 56% to 59%. Many respondents would also expect to receive reparability information **when comparing the product to others** (ranging from 32% to 45%). During advertisement of products, between 13% and 20% of the respondents would expect to be informed. Finally, between 8% and 11% would expect to receive information after they bought the product.

Table 46: Expectations regarding when to receive reparability information (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
When products are advertised (e.g. on TV. in store. online)	18.6	18.0	18.0	20.2	12.6
When comparing alternative products (in store. online)	44.5	44.0	41.3	44.0	31.9

At the point of purchase (at the online check-out or shop counter)	56.7	59.1	57.2	58.2	55.5
After a purchase has been made	8.3	7.8	9.6	9.6	11.1
Other	1.0	1.3	1.2	0.9	1.3
Don't know	6.7	5.6	7.1	7.1	13.6
No. of observations	4,848	4,096	4,855	4,893	4,883

Notes: The question was as follows Q5.4: "Still thinking about the same products, when would you expect to obtain information on how easy it is to repair the products that you are considering buying?"

Source: ConPolicy analysis of consumer survey data.

How to receive reparability information

Table 47 presents the results on participants' preferences on how to receive reparability information.

Overall, the responses were similar to the one regarding durability information.

Most participants reported that they would expect to receive reparability information via **product descriptions** (ranging from 34% to 40%) and via **guarantees or warranties** (ranging from 21% to 38%). Similarly, large shares reported their preference for receiving information via the **retailer** (34% to 37%) and **manuals or instructions** (18% to 37%). Expectations to receive information via the manufacture's website and an EU official label were lower. Even fewer respondents expected to receive information via a label from a national authority, the website of a third party and/or social media.

For most product categories answers were rather homogenous. Although, in the case of coats or jackets, participants indicated a lower expectation for receiving information via guarantees or warranties (21%) as well as operating manuals or instructions (18%) compared to the other product categories.

Table 47: Expectations regarding how to receive reparability information (in %)

	Vacuum Cleaner	Dish-washer	TV	Mobile Phone	Coat or Jacket
Via product descriptions	39.4	39.7	36.0	39.0	33.6
Via guarantees or warranties	36.5	36.7	36.0	38.0	20.9
Via the retailer	35.3	35.3	37.0	34.4	35.6
Via operating manuals or instructions	37.2	35.9	33.6	34.5	18.2
Via a manufacturer's website	27.5	28.3	27.4	30.7	18.3
Via an EU official label	17.6	18.0	16.6	17.1	14.1
Via an official label from your national authority	13.7	14.5	12.6	13.3	10.3
Via the website of a third party (e.g. consumer association)	12.1	13.1	13.2	15.9	9.1
Via social media	9.0	9.1	9.5	11.5	7.6
Other	0.2	0.2	0.1	0.3	0.8
Don't know	4.9	4.2	6.0	5.4	13.6
No. of observations	4,848	4,096	4,855	4,893	4,883

Notes: Participants were asked Q5.5: "And, how would you expect to obtain information on how easy it is to repair the products that you are considering to purchase?"

Source: ConPolicy analysis of consumer survey data.

6.5. Evidence from the behavioural experiment

This section reports findings from the purchasing experiment. This experiment was conducted to understand the drivers of CE behaviour in purchasing decisions.

As described in further detail in Section 2.7.2, respondents were asked to purchase a product on a simulated e-commerce website. Six different product options were shown to respondents. These product options varied systematically in their price, level of durability[157] and level of reparability[158] in addition to also varying fictitious product pictures, brand and model names. The experimental task was repeated by each respondent for three different products.

The sections below analyse the impact of durability by looking at the durability preferences of respondents, the average durability of products chosen in the experiment, and their willingness to pay for longer lasting products.

Reparability is analysed by looking at the reparability preferences of respondents and their willingness to pay for more easily repairable products.

[157] Defined in the experiment as 'the period in which a manufacturer promises to replace or repair the product for free in case of repair'.

[158] Defined in the experiment as an 'ease-of-repair rating based on availability of repair manuals, spare parts and repair services'. The rating ran on a scale from A to G.

6.5.1. Effectiveness of providing durability or reparability information

One of the experimental conditions[159] systematically varied whether and how durability and/or reparability information was shown in the product descriptions. As explained in more detail in section 2.7.2 (incl. screenshots of the information used), durability and/or reparability information were either shown via icons within the EU Energy/Ecolabel shown as a manufacturer warranty or shown as an expected lifetime.

The following definitions of durability and reparability were used on the EU labels. Respondents could reveal these definitions by clicking on the labels.

- **Durability**: The period in which the manufacturer promises to replace or repair the product free of charge.
- **Reparability**: Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.

The 'Manufacturer warranty' and 'Expected lifetimes' were not explained further as it is common market practice for manufacturers and retailers to display such promises in this way at the point of sale.

Durability information

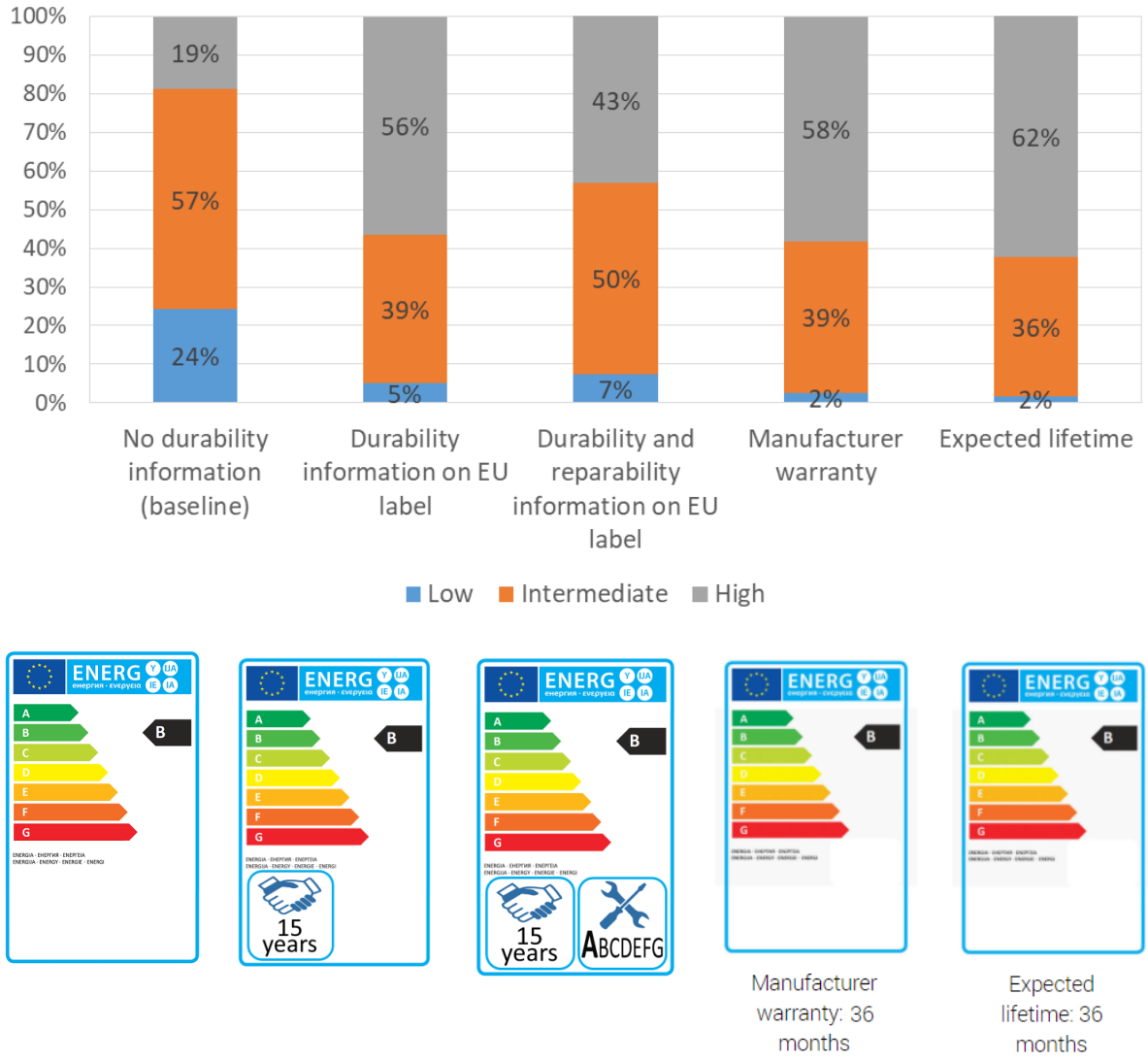
Figure 44 shows the distribution of 'durability preferences' for different ways of disclosing durability information to respondents. The definition of durability preferences used in the analysis is explained in detail in section 2.7.2, but in summary:

- Respondents who mostly chose products with high durability in the experiment were classed as having 'High' durability preferences;
- Those who mostly chose products with low durability 'Low' durability preferences.
- All others were classed as having 'Intermediate' durability preferences.

Visible from the very left-hand bar in the figure, as would be expected respondents that did not see any durability information were unable to make durability a meaningful criterion for their product choice. For this group the distribution of durability preferences was close to a random allocation (around 20% of respondents having chosen each low and high durability products, and almost 60% choosing intermediate durability levels), as would be expected in this case. This group of respondents forms the group of comparison (baseline) for further analysis.

[159] Allocations to the various treatments in the experimental tasks were done independently and randomly across the different allocations. This resulted in a full factorial design between products and treatments. This means that group sizes for different variants within each treatment category were roughly equal and each respondent had the same likelihood of being assigned to any specific treatment. This also ensures that, on average, there should not be any interactions between different types of experimental treatments.

Figure 44: Durability preferences for different forms of durability information



Notes: 1,988 respondents were shown no durability information, 985 respondents were shown durability information on an EU label, 1,000 respondents were shown both durability and reparability information on an EU label, 1,027 respondents were shown a manufacturer warranty and 1,042 respondents were shown an expected lifetime indication.

The labels below the results show the respective durability information shown in the experiment. Durability in the Energy (likewise in the Ecolabel for clothes) was shown using a 'handshake' icon and durability in years (months for smartphones). Reparability was shown using a 'spanner and screwdriver' icon with a reparability rating from A-G. Clicking on the label (used by 31% of respondents) revealed additional information and definitions of durability/reparability. Durability on EU labels was defined as: The period in which the manufacturer promises to replace or repair the product free of charge.

Reparability on EU labels was defined as: Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.

The handshake icon shown in this figure is different from the one seen by respondents in the experiment for copyright reasons.

Source: LE Europe analysis of behavioural experiment.

When durability information was shown, respondents were significantly more likely to choose more durable products. On average across the four information remedies (see the four right-hand bars in the figure above), the proportion of respondents with a preference for high durability **nearly tripled by virtue of providing durability**

information, a change which was highly statistically significant.[160] Respondent preferences shifted from both intermediate and low durability preferences towards high durability preferences. And at the same time, the share of respondents with intermediate and low durability preferences also decreased significantly.

Looking in detail at how durability information in the experiment was best provided, it emerges that on this measure of durability preferences durability information either as a **manufacturer warranty** or **expected lifetime** was most effective in the experiment. Showing durability information as part of an **EU label[161] was slightly less effective**. This finding can be seen from the figure above. The shares of respondents with high durability preferences were highest in the conditions showing a manufacturer warranty or expected lifetime indication, and the shares of respondents with low durability preferences were lowest in these conditions.

However, the difference in effectiveness of showing durability information (alone) on an EU label compared to the information outside of the label was minor and not always statistically significant. More specifically, the distribution of respondent preferences for high and intermediate durability were equivalent across the three conditions. But the share of respondents choosing low durability products was significantly larger when durability was shown on the EU label.

It can be conjectured that the EU label was marginally less effective because it used only icons while the manufacturer information contained descriptive language. The icon used on the EU labels (i.e. a handshake symbol) was novel and may not have been immediately understood. Respondents needed to click on the label to get additional explanation about the meaning of the icon. Overall 31% clicked on at least one label throughout the three rounds of the experiment to enlarge it and see the definitions for icons. At the same time, expected lifetimes and manufacturer warranties can already be found in the market and are more self-explanatory compared to the icon. Thus, the effectiveness of the durability information on the EU labels can be interpreted as a lower bound and is likely to further increase as time passes after it was introduced as consumers learn about the meaning of the icon and become more familiar with it.

This finding is further underlined by the table below, which shows the average durability chosen by respondents for the different product categories. For each product category, the average durability chosen was highest when durability information was shown either using a manufacturer warranty or expected lifetime (see the last two rows). Providing durability information on an EU label was similarly effective when it was shown on its own (see third row).

When durability information on an EU label was shown in conjunction with reparability information, it was however significantly less effective compared to the other ways of providing durability information (see fourth row). The group of respondents who saw durability information together with reparability information chose on average – statistically significantly – less durable products compared to respondents who saw durability information on its own. But, respondents who saw durability and reparability information together still chose product with higher average durability than the respondents who did not see any durability information.

[160] Statistical significance verified using two-sided pairwise z-test of proportions.

[161] Mock EU Energy Labels which reproduced key features of the actual EU Energy Label were used for vacuum cleaners, dishwashers, TVs and smartphones. The EU Ecolabel was adapted for clothes. In both types of labels, durability and reparability information was presented using the same format and icons. See section 2.7.2 for further detail and screenshots of the labels.

Table 48 : Average durability chosen by respondents in purchasing experiment, in months (smartphone) or years (all other products)

Type of information	Vacuum cleaners	Dish-washers	TVs	Smart-phones	Coats
No durability information	5.6	7.7	4.4	32.9	5.7
Durability information on EU label	8.2	12.2	5.8	36.5	7.2
Durability and reparability on EU label	7.3	11.1	5.3	35.5	6.9
Manufacturer warranty	8.3	12.3	5.9	37.1	7.5
Expected lifetime	8.5	12.7	6.1	37.8	7.5

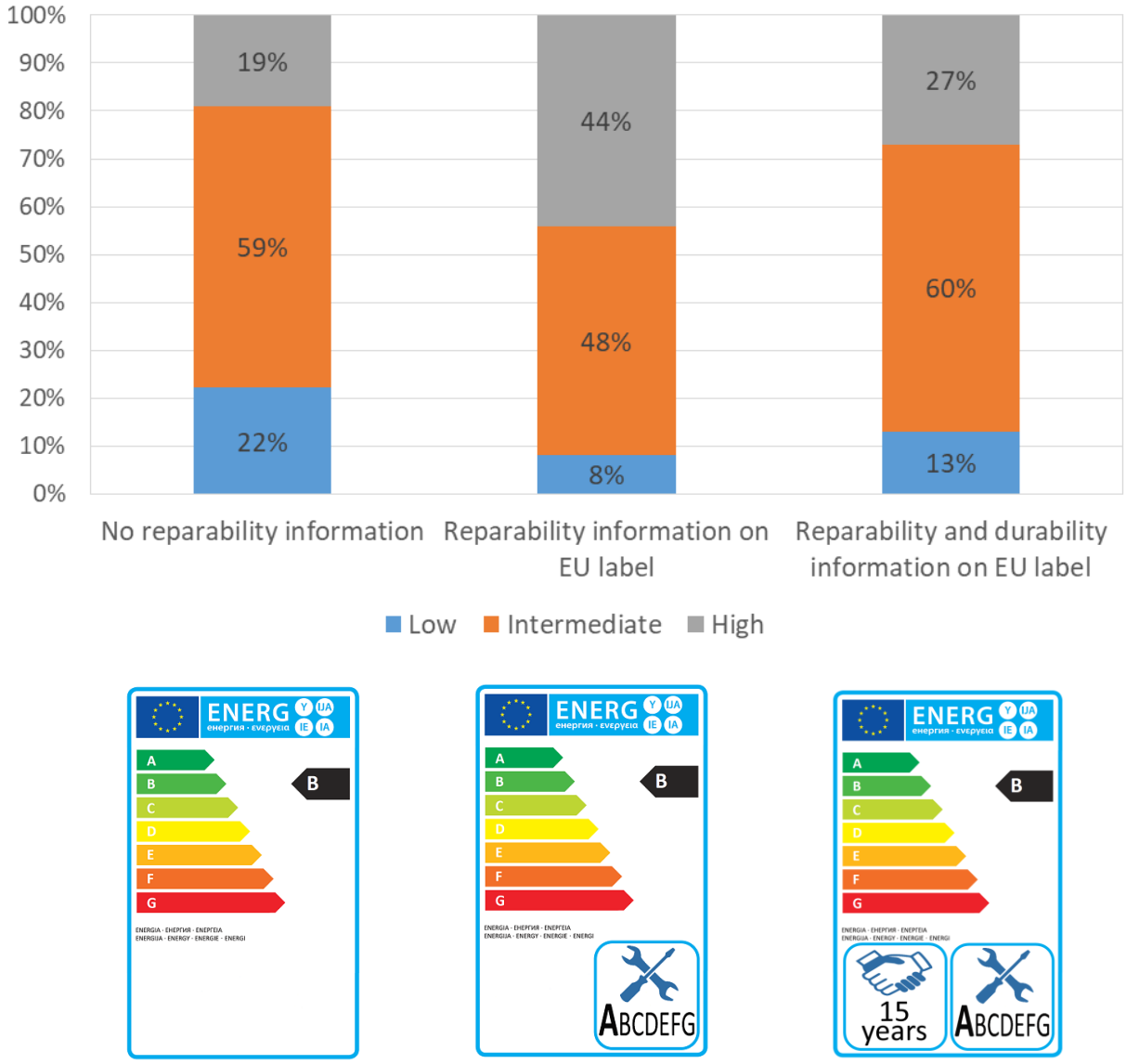
Source: LE Europe analysis of behavioural experiment.

Reparability information

Figure 45 shows the distribution of reparability preferences for different experimental conditions which varied whether and how reparability information was disclosed. Reparability preferences are defined analogously to durability preferences. Section 2.7.2 provides a more detailed explanation, but in summary the preferences are defined as follows:

- Respondents who mostly chose products with high reparability in the experiment were classed as having 'High' reparability preferences;
- Those who mostly chose products with low reparability were classed as having 'Low' reparability preferences.
- All others were classed as having 'Intermediate' reparability preferences.

Figure 45: Reparability preferences for different forms of reparability information



Note: 4,029 respondents were shown no reparability information, 1,013 were shown reparability on an EU label and 1,000 were shown reparability and durability on an EU label.

The labels below the results show the respective reparability information shown in the experiment. Reparability in the Energy (likewise in the Ecolabel for clothes) was shown using a 'spanner and screwdriver' icon with a reparability rating from A-G. Reparability was shown using a 'handshake' icon and durability in years (months for smartphones). Clicking on the label revealed additional information and definitions of durability/reparability.

Reparability on EU labels was defined as: Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.

Durability on EU labels was defined as: The period in which the manufacturer promises to replace or repair the product free of charge.

The handshake icon shown in this figure is different from the one seen by respondents in the experiment for copyright reasons.

Source: LE Europe analysis of behavioural experiment.

Similar to the effectiveness of durability information, providing **reparability information induced respondents to choose more repairable products**. A higher proportion of respondents had high reparability preferences, and a lower proportion had low or intermediate reparability preferences when reparability information was shown. The differences in these proportions were highly statistically significant in tests of proportions.

The effects are, however, smaller in magnitude compared to the findings for durability. The proportion of respondents with a high reparability preference 'only' doubled when reparability information was shown while high durability preferences tripled for a similar intervention. The proportion of respondents with a low or intermediate reparability preference decreased by respectively 11 and 5 percentage points.

Results for reparability might have been less strong because it appears that the information on reparability as provided in the experiment was less "attention grabbing" for respondents. Around 42% of respondents who saw information on reparability correctly recalled this after the experiment.[162] In contrast, 71% of respondents who saw durability information recalled this correctly. Furthermore, it seems that reparability information (as provided in the experiment) was more difficult to understand and use than information on durability.[163]

Interaction between durability and reparability information

Combining the information provided in Figure 44, Table 49 and Figure 45 above sheds light on the interaction between durability and reparability information. Comparing product choices when durability and reparability were provided as stand-alone information to when they were provided together is telling for how respondents dealt with the different amount of information.

In the previous analyses, providing durability and reparability information at the same time seemed to decrease the importance of each of these individual pieces of information. The proportion of respondents who chose high durability products was significantly higher when durability information was shown on its own rather than with reparability information. Similarly, the average chosen durability was higher – often statistically significantly so – when durability information was shown on its own (instead of with reparability).

Similarly, the proportion of respondents who selected products with high reparability was larger when reparability information was shown without additional durability information.

This suggested that showing both durability and reparability information on EU labels might create a dilemma for CE behaviours of competing interest. When only a single piece of information was given, respondents could adjust their behaviour with respect to that piece of information. However, this was not possible, or at least more difficult, when information about durability and reparability were given concurrently.

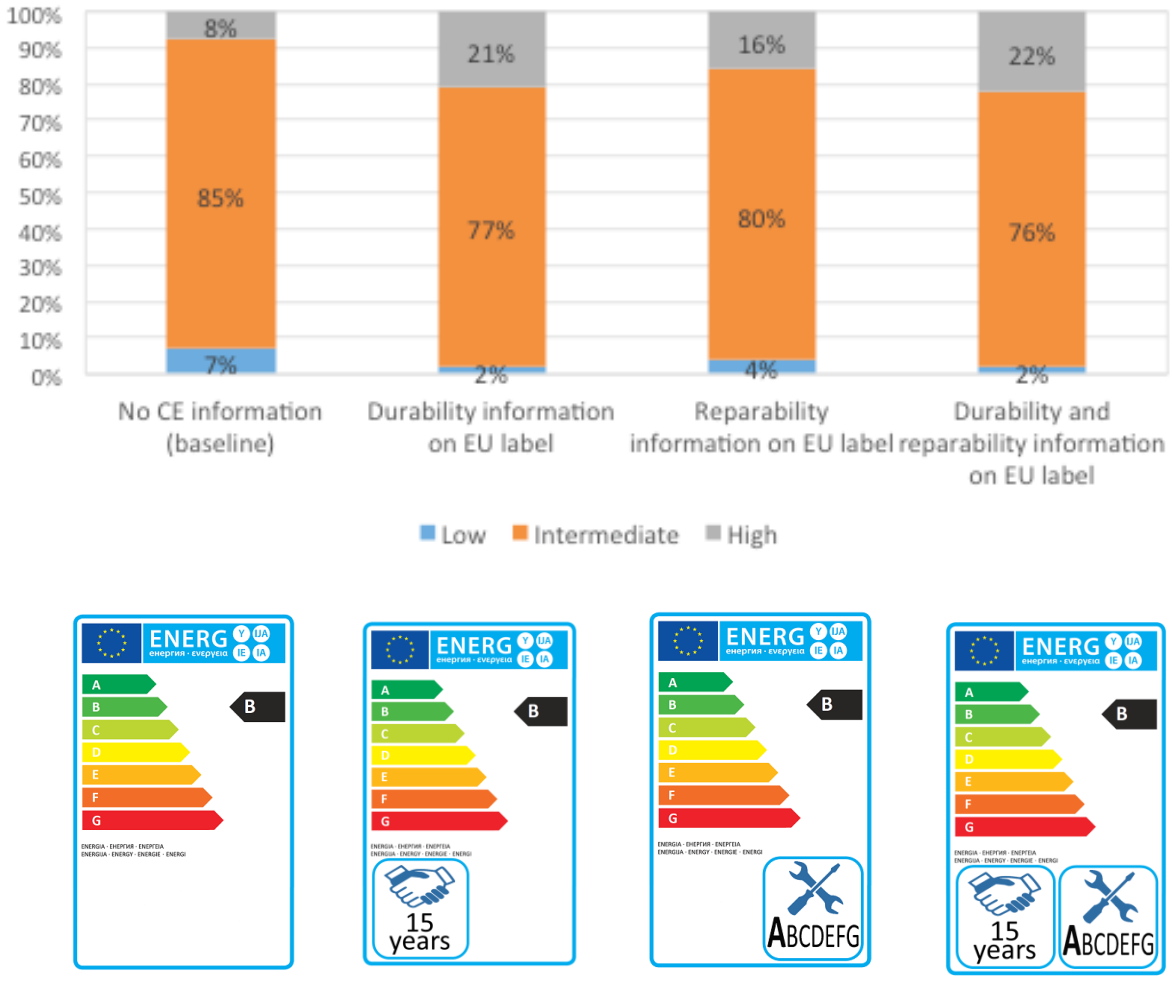
It must be noted that the above analyses did not **consider the effect of information on durability and reparability jointly**. This was because a joint analysis required a measure that combines preferences for durability and reparability. The figure below presents such a measure for general CE preferences. These general CE preferences were calculated by combining the previously presented measures for durability preferences and reparability preferences. Both durability and reparability received equal weighting in this measure. The figure below presents only the information treatments that were presented as part of EU labels, because only the EU labels presented both, durability and reparability information.

[162] Following the purchasing experiment, respondents were asked the following question: "*Thinking about the last purchasing decision you just made, what information did you get about the selection of products you saw? Please select all that apply.*" Answer options included: *"An indication of how long the products will last"* and *"How easy it is to repair the products or get them repaired".*

The answers to this question were compared with the information shown in the experiment to respondents. This allows for an assessment whether participants who saw information on durability and/or reparability recalled seeing this information correctly.

[163] This was found by comparing answers to follow up questions which asked respondents how easy they found, respectively, the durability and reparability information shown to them.

Figure 46: General CE preferences for different forms of information



Note: 975 respondents were shown no information, 985 were shown durability on an EU label, 1,013 were shown reparability on an EU label and 1,000 were shown reparability and durability on an EU label.

The labels below the results show the respective CE information shown in the experiment. Durability in the Energy (likewise in the Ecolabel for clothes) was shown using a 'handshake' icon and durability in years (months for smartphones). Reparability was shown using a 'spanner and screwdriver' icon with a reparability rating from A-G. Clicking on the label revealed additional information and definitions of durability/reparability. Durability on EU labels was defined as: The period in which the manufacturer promises to replace or repair the product free of charge.

Reparability on EU labels was defined as: Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.

The handshake icon shown in this figure is different from the one seen by respondents in the experiment for copyright reasons.

Source: LE Europe analysis of behavioural experiment.

This analysis shows that **overall respondents chose products with the best mix of durability and reparability when durability and reparability information was shown together**. In fact, providing both types of information was associated with the largest proportion of respondents with high CE preferences and the joint lowest proportion of respondents with low CE preferences.

The figure above confirms the finding that **providing information is important to induce more environmentally friendly choices**. Respondents who saw either durability or reparability information, or both durability and reparability information together, were significantly more likely to display a high CE preferences and significantly less likely to display a low CE preferences.

Durability information seemed to be the main driver of CE decisions. The impact of durability information on its own was statistically significantly larger than the impact of reparability information alone. Furthermore, durability information provided some additional impact beyond the impact of reparability information. The reverse, however, was not the case. The proportions of high and low preferences were not statistically different when durability was provided by itself or together with reparability information.

Taking these findings together with findings from the literature, stakeholder consultations and focus groups seems to suggest that durability is perceived as a substitute for reparability. This is because a durable product could be seen as a high-quality product which would not require repair, thus making the ease of repair of the product irrelevant. Instead, reparability on its own does not substitute for the need of product durability.

Results from regression analysis

As a robustness check of the above results, regression analyses were used to analyse the preferences for durability and reparability, and the general CE preferences further, including controlling for socio-demographics, country specific effects and personal attitudes. See below for results.

Table 49: Results from ordered logit regression on durability, reparability and general CE preferences

Outcome variable:	Durability preferences		Reparability preferences		General CE preferences	
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment *- Baseline: No information given*						
Durability info only in EU label	5.047***	5.282***	0.770*	0.780*	3.345***	3.521***
	(12.00)	(12.32)	(-2.11)	(-1.99)	(7.05)	(7.31)
Reparability info only in EU label	0.677**	0.671**	2.883***	2.975***	2.255***	2.308***
	(-2.97)	(-3.03)	(8.71)	(8.91)	(4.56)	(4.67)
Durability and reparability info in EU label	2.983***	3.014***	1.433**	1.422**	3.501***	3.501***
	(8.31)	(8.36)	(3.02)	(2.94)	(7.35)	(7.33)
Manufacturer's guarantee	5.637***	5.986***	0.847	0.857	3.541***	3.721***
	(13.27)	(13.60)	(-1.36)	(-1.25)	(7.59)	(7.80)
Expected Lifetime	6.714***	6.882***	0.780*	0.775*	3.525***	3.530***
	(14.46)	(14.70)	(-2.01)	(-2.05)	(7.42)	(7.45)
Label type treatment *- Baseline: Mini label*						
Full label	0.976	0.970	0.915	0.912	0.907	0.907
	(-0.33)	(-0.42)	(-1.24)	(-1.29)	(-1.10)	(-1.09)
Behavioural nudges treatment *– Baseline: No claim*						
Savings claim	1.223*	1.215*	0.954	0.942	1.120	1.105
	(2.29)	(2.19)	(-0.54)	(-0.69)	(1.05)	(0.92)
Social claim	1.105	1.096	1.144	1.132	1.216	1.208
	(1.12)	(1.01)	(1.57)	(1.43)	(1.80)	(1.71)
Country controls	×	✓	×	✓	×	✓
Socio-demographics (age, gender, etc.)	×	✓	×	✓	×	✓
Personal attitudes (pro-CE, pro trends etc.)	×	✓	×	✓	×	✓

Notes: Odds ratio (exponentiated coefficients) reported; t statistics in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. *N = 6,042 for all regressions.*

Source: LE Europe analysis of behavioural experiment.

The regression analyses confirmed the results reported above. When looking at the information treatment, clearly respondents reacted to the treatment. Providing information about durability increased the likelihood that a respondent showed a high durability or general CE preference. Similarly, showing reparability information increased the likelihood that a respondent showed a high reparability or CE preference. Furthermore, these results were robust to including other control variables, namely, country effects, socio-demographics and personal attitudes.

Additional analyses of interaction terms between different treatment types and between treatments and personal characteristics (socio-demographics and personal attitudes) did not show any systematic patterns. Thus, it can be concluded that the treatments were entirely responsible for the shifts in CE preferences and that the effectiveness of the different treatments was equivalent across the Member States analysed here, as well as for different types of consumers (i.e. the treatments worked equally well for richer and poorer respondents, as well as for respondents with more or less pronounced pro-CE attitudes). This is an important finding for policy interventions since EU-wide activities would be expected to be effective across the different cultural and socio-economic contexts of the various Member States.

Summary of findings

In summary, it can be concluded from the behavioural experiment that the provision of durability and reparability information is vital for encouraging decision-making which takes into account CE product characteristics. The consumer survey indicated (see section 3.4) that individuals look for information regarding how long their products are likely to last as well as how easy they are to repair. However, often individuals find this information difficult to find. The behavioural experiment has delivered powerful evidence that actual purchasing decisions might be strongly driven towards more CE-friendly products when information, especially on durability but also on reparability information is provided in concise and comparable ways.

Showing information on CE characteristics was effective for different types of respondents as well as for different Member States, regardless of differences in demographic profiles, personal CE attitudes and economic situations. This indicates that policy interventions would likely be similarly effective across various EU Member States.

6.5.2. Willingness to pay for durability and reparability

An alternative way of looking at respondents' decision-making is to consider willingness to pay (WTP). Willingness to pay shows the monetary amount that respondents were willing to spend on additional durability or reparability. The WTP amounts were derived through a choice modelling approach (see the Annex for further methodological detail). This approach takes advantage of choice data collected across all participants who saw different choice sets.

Table 50 shows the willingness to pay for an additional year or month of durability. The first row shows overall willingness to pay, whereas the subsequent rows show willingness to pay depending on the type of durability information. It should be noted that the yearly WTP figure for smartphones is derived from the monthly figure, which was the estimate derived directly from the data (since for smartphones durability was presented in months rather than years in the choice task). While this is a reasonable extrapolation, it does imply an assumption, namely that the relationship between WTP and length of durability is linear (i.e. each extra month has the same value), which may or may not be a reasonable assumption.

Table 50 : Willingness to pay for durability (in € per year/month of additional durability)

	Vacuum cleaners	Dish-washers	TVs	Smartphones		Coats
	Year	Year	Year	Month	Year	Year
Overall willingness to pay (WTP) in the experiment	19.11	20.53	72.88	10.33	123.94	13.54
Willingness to pay in different information treatment conditions						
WTP when no CE information was shown[1]	*Not statistically significant*[2]					
WTP when durability information was shown on EU label	33.15	30.05	126.28	14.78	177.31	17.78
WTP when durability and reparability information were shown on EU label	20.28	31.12	91.79	12.32	147.88	13.96
WTP when manufacturer warranty was shown	32.88	32.71	127.83	17.50	210.04	23.79
WTP when expected lifetime was shown	**35.76**	**35.91**	**148.30**	**18.12**	**217.39**	**27.27**

Notes: Willingness to pay for an additional month or year of product durability. Respondents making decisions on smartphones originally saw durability in months. Willingness to pay was multiplied by 12 to arrive at a willingness to pay for an additional year of durability, this assumes linearity in willingness to pay.

3,612 respondents made decisions on vacuum cleaners, 3,605 on dishwashers, 3,627 on TVs, 3,638 on smartphones and 3,644 on coats.

[1] No CE information shown means no durability *and* no reparability information shown.

[2] Respondents had no significant willingness to pay for durability when they were not shown any durability information. This result might seem trivial, yet it is an important sense check of the overall setup of the experiment which thus seems valid.

Source: LE Europe analysis of behavioural experiment.

Overall **willingness to pay across all respondents ranged from €13.54 for an additional year of durability for coats, to €72.88 for an additional year of durability for TVs, and €14.78 per month, or €123.94 per year** (derived from the monthly figure) for smartphones.

This comparison across products, however, should not be given too much importance. This is because the estimates of willingness to pay are not only determined by the

importance of durability in decision-making but also by other factors, especially the price ranges presented in the choice experiment. These were calibrated based on actual market prices, and varied significantly across the products. Willingness to pay is inflated by a larger variation in prices or a smaller variation in durability. This explains why the willingness to pay for smartphones is relatively large (large variation in price, small variation in durability) whereas the willingness to pay for vacuum cleaners is relatively small (small variation in price, large variation in durability). Even if consumers attached the same importance to durability in decision-making across products, the willingness to pay is expected to be different across products if market conditions differ.

Comparing **willingness to pay across different ways of presenting CE information**, but within each product category, is more informative. This comparison **corroborates many of the previous findings**. Firstly, respondents required information on product durability to be willing to pay for it.[164] **Durability information provided via manufacturer warranties or as an expected lifetime was most effective**. Willingness to pay for additional durability was highest for all products when expected lifetime was shown (respectively, €35.76 (vacuum cleaner), €35.91 (dishwasher), €148.30 (TV), €217.39 (smartphone) and €27.27 (coat) for an additional year of durability). For all products except vacuum cleaners, the manufacturer warranty was associated with the second highest willingness to pay. For vacuum cleaners, showing durability information on its own on an EU label proved second most effective, with a willingness to pay equal to €33.15.

As before, it must be noted that the differences between the manufacturer warranty and expected lifetime on the one hand, and durability information on its own on an EU label on the other were minor. For example, the willingness to pay for durability for dishwashers was €30.05 when durability information was shown on an EU label. It was only €2.66 higher when information was shown as a manufacturer warranty.

The effectiveness of information provided on an EU label was again similar to providing information outside the EU labels. In general, WTP for additional durability was often lower in the EU label conditions compared to showing durability outside of the EU label. For all products except dishwashers, the willingness to pay for durability was lowest when reparability was shown in addition to showing durability information. This again suggests that showing both pieces of information triggers difficulty for respondents when they need to consider and trade-off information on different CE characteristics.

Willingness to pay was also estimated for reparability. Section 2.7.2 shows how reparability was ranked on an A to G scale, with 'A' being the most easily repaired product. More precisely, products could be assigned the following rankings: A, C, E or G. Therefore, willingness to pay shows the monetary amount that respondents were willing to pay for increasing the reparability of a product by two levels, e.g. increasing reparability from C to A, or from G to E. Table 51 provides the results.

[164] It is important to note that respondents had no significant willingness to pay for durability when they were not shown any durability information. This result might seem trivial, yet it is an important sense check of the overall setup of the experiment which thus seems valid.

Table 51: Willingness to pay for reparability (in € per two-level improvement on A-G scale)

	Vacuum cleaners	Dish-washers	TVs	Smart-phones	Coats
Overall willingness to pay (WTP)	10.61	20.75	33.60	20.33	6.73
Willingness to pay in different information treatment conditions					
WTP when no information was shown[1]	*Not statistically significant*[2]				
WTP when reparability information was shown on EU label	**54.24**	**104.94**	**170.58**	**97.70**	**29.87**
WTP when reparability and durability information were shown on EU label	28.56	82.56	76.48	47.39	10.42

Notes: Willingness to pay for an increase of the products' reparability score (A-G) by two levels, e.g. an increase from C to A.

3,612 respondents made decisions on vacuum cleaners, 3,605 on dishwashers, 3,627 on TVs, 3,638 on smartphones and 3,644 on coats.

[1] No information shown means no durability *and* no reparability information shown.

2] Respondents had no significant willingness to pay for reparability when they were not shown any reparability information. This result might seem trivial, yet it is an important sense check of the overall setup of the experiment which thus seems valid.

Source: LE Europe analysis of behavioural experiment.

The first row in Table 51 shows the overall willingness to pay for reparability. It presents an average of the willingness to pay presented in the last three rows and thus willingness to pay pooled across all information designs. According to these figures, respondents were **willing to pay between €6.73 and €33.60 for an increase in reparability score by two levels**. This figure, however, is influenced by the fact that most respondents did *not* see any type of reparability information in the experiment. As argued in more detail below, respondents who did not see reparability information were (logically) not willing to pay for it. This lowered the overall willingness to pay.

Looking at specific ways of presenting relevant information, again, it appears to be **most important to provide information on product reparability at all**.[165] When relevant information was provided respondents were willing to pay for ease of repair. Furthermore, the willingness to pay for reparability was highest when reparability information was provided on its own (respectively, €54.24 (vacuum cleaner), €104.94 (dishwasher), €170.58 (TV), €97.70 (smartphone) and €29.87 (coat) for an increase of two levels in reparability score), and not together with durability information.

Willingness to pay also provides an opportunity to look at the relative importance of durability and reparability in respondents' decisions. Table 52 shows the willingness to pay for durability and reparability, for respondents that were shown both types of

[165] The experiment did not test different ways of presenting reparability information. It only tested whether the inclusion of reparability information using a screwdriver and spanner icon combined with an A-G scale had an impact on respondents' decision-making behaviour.

information on an EU label. These were the only respondents that were given both types of information.

Table 52: Willingness to pay for durability (in € per year/month additional durability) and reparability (€ per two-level improvement on A-G scale) when both types of information are shown

	Vacuum cleaners	Dish-washers	TVs	Smartphones		Coats
	Year	Year	Year	Month	Year	Year
Willingness to pay for more durability	20.28	31.12	91.79	12.32	147.88	13.96
Willingness to pay for better reparability	28.56	82.56	76.48	47.39		10.42

Notes: Willingness to pay for additional month or year of product durability, and willingness to pay for an increase of reparability score of two levels. Respondents making decisions on smartphones originally saw durability in months. Willingness to pay was multiplied by 12 to arrive at a willingness to pay for an additional year of durability.

Willingness to pay for respondents that were shown durability and reparability concurrently on an EU label.

595 respondents made decisions on vacuum cleaners, 607 on dishwashers, 605 on TVs, 600 on smartphones and 593 on coats. Results have been weighted to be EU-wide representative.

The table shows that the relative importance of durability and reparability varies between products. For vacuum cleaners and coats, the willingness to pay for both CE characteristics (i.e. one year or month of durability, and a two-level improvement on the A-G reparability scale) was the same order of magnitude. For dishwashers and smartphones[166], reparability was the more important characteristic in terms of willingness to pay. For TVs, willingness to pay was higher for durability than for reparability.

6.5.3. Effectiveness of behavioural nudges

The experiment also tested the effectiveness of small behavioural 'nudges'. These were introduced as claims shown on pop-up screens prior to each experimental round for participants in the respective treatments. See section 2.7.2 for further details and screenshots of the experimental environment. Some respondents were shown the claim that longer lasting products might save money in the long-run (Savings claim).[167] Other respondents were shown the claim that a majority of people chose longer lasting and more easily repairable products (Social claim).[168] These two groups are compared with the group of respondents that did not see any claim.

Claims can be seen as an extension of information provided to respondents. Information in the previous section dealt with product characteristics. The claims analysed in this section relate more to information about the context in which a decision was made. Social nudges have been shown to work as small and cost-effective interventions which in similar interventions increased, for example, timely tax collection rates, energy conservation or even high-stakes enrolment into job training.[169] For the savings claim,

[166] For smartphones, the comparison between willingness to pay for durability and reparability is most appropriate using willingness to pay for an additional month of durability. This is the framing that respondents saw in the experiment.

[167] The exact claim was: *"Products that last longer may save you money over time."*

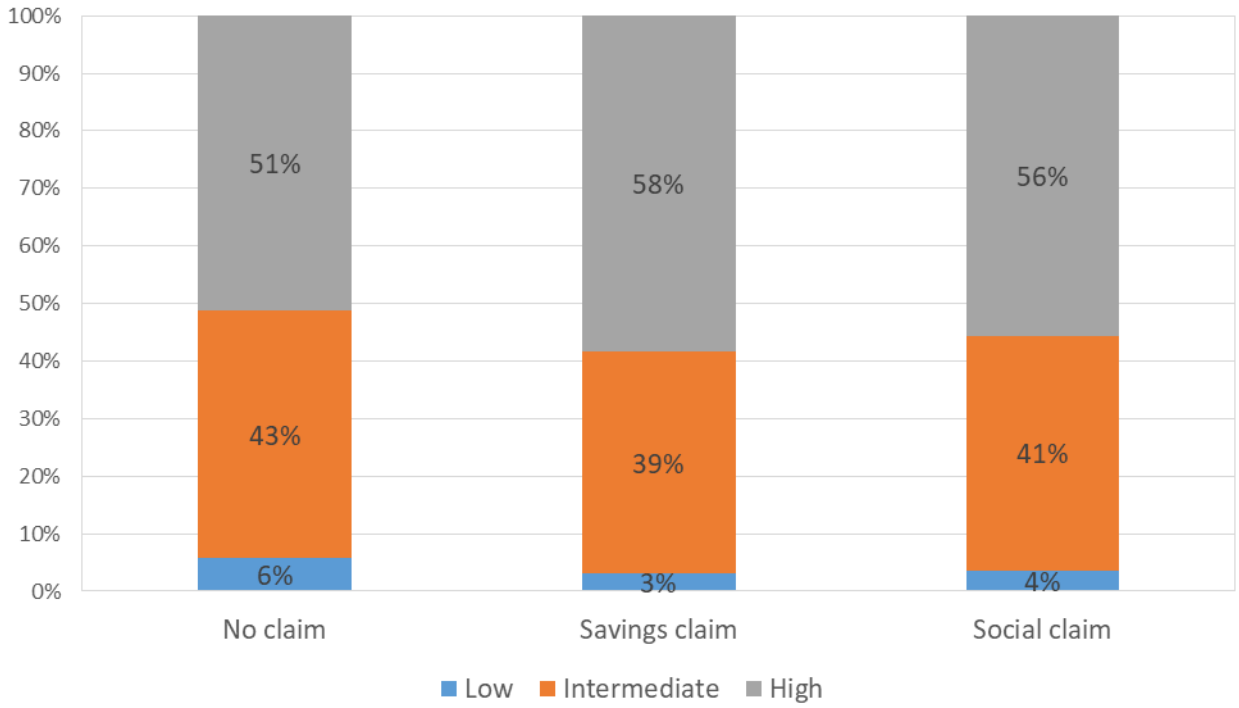
[168] The exact claim was: *"A majority of people choose products that last longer and are easier to repair."*

[169] See The Behavioural Insights Team (2015) EAST Four simple ways to apply behavioural insights, available at: http://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf;

the qualitative work for this study found that the decision to purchase products was to a large extent driven by money-saving motives and the following tests verified whether this could be used to enhance CE purchasing decisions.

Figure 47 shows the distribution of durability preferences for the different groups of respondents who saw different claims. Note that only respondents who saw some form of durability information are included. Respondents who did not see durability information would not be able to adjust behaviour based on the claim they saw.

Figure 47: Durability preferences for different claims shown to respondents



Notes: includes only respondents that saw some form of durability information.

1,376 respondents saw no claims, 1,325 respondents saw claims about long-term savings and 1,353 saw social claims.

Both types of claims led respondents to purchase more durable products compared to when the respondents saw no claims. There was a statistically significant decrease in the proportion of respondents with a low durability preference when either a savings or social claim was shown. Furthermore, the proportion of respondents with a high durability preference was statistically significantly higher for respondents having seen a savings claim compared to respondents having seen no claim. The proportions of respondents with intermediate preferences were not statistically different for different claims. Regression analysis showed, however, that these results were not robust once other factors were taken into account (see regression results in previous sub-section). Therefore, the effectiveness of claims was rather limited compared to other treatments.

In general, the claim about savings was – slightly – more effective than the social claim. However, the distribution of durability preferences did not differ significantly between the two types of claims.

Claims seemed to only have negligible effects on the preferences for reparability and general CE preferences. There were no statistically significant

Allcott (2011) 'Social norms and energy conservation', Journal of Public Economics; Coffmann et al. (2017) 'Can Social Information Affect What Job You Choose and Keep?', American Economic Journal: Applied Economics.

effects detected on reparability or general CE preferences in the conditions with claims compared to the baseline without a claim.

Overall, these experimental tests seem to suggest that communication which underlines the importance of CE characteristics in the purchasing process may increase consumers' interest in the CE. In particular, considering the shift in purchases of products with low to those with high durability, it seems that once individuals become interested in durability, they seek to purchase the most durable products instead of products with very low durability. At the same time, looking at the large and stable share of respondents who purchased products with intermediate durability, it appears that there are parts of the population, who do not engage as much with the CE and do not change their purchasing decisions in meaningful way.

Although the experiment shows that nudges have an immediate, if small, effect on durability, it is silent on long-term effects. If claims were shown to consumers, e.g. only for specific project which consumers purchase infrequently, we would expect the effects in real markets to align with the effects in our experiment. If on the other hand, claims would be shown more frequently (e.g. on product descriptions for many types of products) it is likely that the effect of claims decreases over time as people become used to the claims made. Alternatively, repeated exposure might also reinforce the message and its effectiveness. The experiment cannot provide an answer to this question because it was only set within a 15-minute timeframe.

6.5.4. Other factors that influenced CE behaviours in purchasing decisions

Besides information on CE characteristics and claims, the experiment also tested whether the look and feel of the tested EU labels made a difference in respondents' CE behaviour. As noted before (screenshots of this treatment are shown in section 2.7.2), some respondents saw a 'mini label' of the EU Energy Label[170]. This was a reduced version of the standard EU Energy Label, but still included the most relevant information. Others saw a 'full label' which showed all the relevant information in the common EU Energy Label format. Both the 'full' and the 'mini' label were simplified versions of the real EU Energy Label. The 'full' label did not display information which is currently displayed on the Energy Label, such as energy consumption in kilowatt hour or noise levels in decibel.

Choices for durability and reparability did not differ[171] between respondents being shown a full or mini label. One potential explanation for this might be that the mini label contained all the information that was relevant for decision-making. At the same time, it appears that additional information presented in the full label did not deter respondents from acting on relevant information. This is an encouraging finding since the EU Energy Label, for example, carries a wealth of other, non-CE related information. The experiment seems to suggest that individuals can to some extent abstract from other information and still act on the CE characteristics.

Another reason why the different ways of presenting the label had no impact might relate to the fact that very few participants engaged with the labels further by clicking on them. Unless the labels were clicked on, respondents would not have seen further explanation about the label content. Similar shares of respondents clicked on either the 'full' or the 'mini' label. For any given product, only around 13% of respondents clicked a label[172]. Across all products this resulted in 31% of respondents clicking on at least one label. Therefore, 69% of respondents did not show interest in obtaining more information about

[170] Note that this is not relevant for decisions made on coats. As noted in Section 2.7.2, the EU Ecolabel was used for coats, and no distinction between 'full' labels and 'mini' labels was made.

[171] Two-sided pairwise z-tests of proportions showed no statistically significant differences between proportions for high, intermediate or low preferences for durability, reparability or overall CE. This result was shown to be robust in ordered logit regression analysis.

[172] The exception is coats. 17% of respondents making decisions on coats clicked a label. Coats where the only product employing the EU Ecolabel rather than the EU Energy Label. Arguably, the former label is not as well-known, explaining why respondents searched for additional information more often when making decisions on coats.

the labels. These engagement rates with additional information are in line with previous behavioural studies in other markets[173] and further underline that **information presented must be relevant, intuitive and salient** at all stages to be impactful.

The fact that different types of labels did not generate different CE behaviour is comforting since the mini label and full label tend to be employed in different contexts. Mini labels are often used in online environments whereas full labels tend to be adopted in brick-and-mortar shops. The results of the experiment show that these different market practices should not create different outcomes.

Lastly, a number of personal characteristics were tested for their effect on CE behaviour in purchasing decisions. These included standard demographic characteristics – such as gender, age and educational attainment – but also characteristics directly relevant to the CE – such as attitudes towards recycling, second hand products, and durability and reparability. These **personal characteristics did not play a major rule in driving purchasing decisions.** For most personal characteristics, no robust links to preferences for CE-friendly products were found.

An exception were attitudes towards fashion and trends in relation to the preference for durability. Respondents with a low preference for fashion and trends were significantly, and robustly, more likely to have a higher durability preference.

[173] European Commission (2017) 'Study on consumers' decision-making in insurance services: A behavioural economics perspective', a report prepared by LE Europe, VVA Europe and Ipsos.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE POLICY ACTION

7. Overall conclusions

The transition to a more Circular Economy in the European Union is picking up pace. The number of initiatives to stimulate this transition are increasing, both *top-down* from public authorities through policy actions as well as *bottom-up* led by industry initiatives at company or cross-sectoral level. At EU level, the *EU Action Plan for the Circular Economy*, adopted in December 2015, has led to concerted policy and regulatory efforts in various sectors and areas in order to stimulate a more Circular Economy. Due to key principles in (EU) environmental policy such as *the polluter pays* and *producer responsibility* as well as the premise that the Circular Economy can save businesses money, many of the Circular Economy actions (to date) have had a production or supply side focus. Yet for Circular Economy activities to be successful, the consumption / demand side needs to be equally well understood. To date, the consumer perspective on the Circular Economy has not received as much research attention.

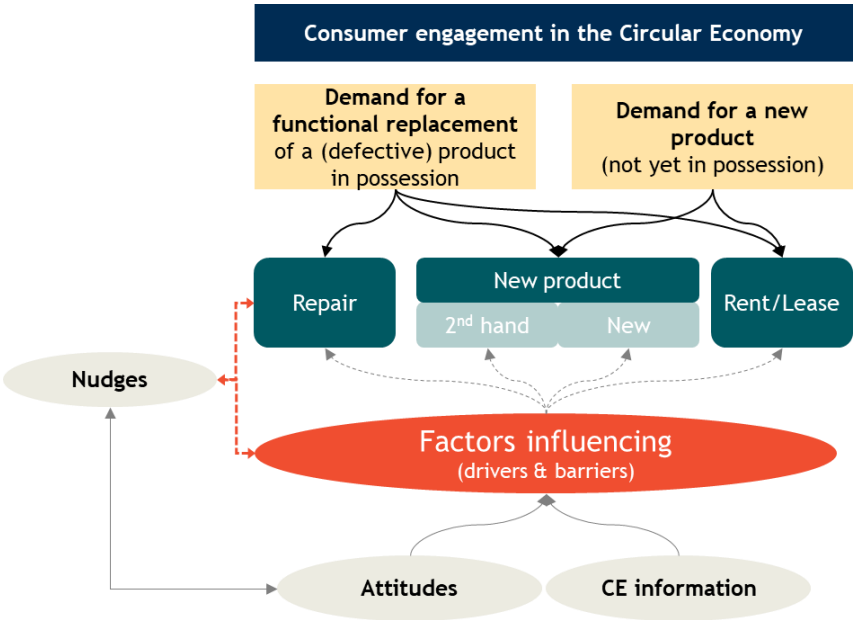
This study aimed to fill this gap in the Circular Economy literature, by investigating to what extent consumers currently already engage in Circular Economy practices and what determines their engagement with a focus on product durability and reparability. Making products more durable and easier to repair can extend their useful lives and increase their utilisation. As a result, fewer products are needed to satisfy a similar level of demand, which results in lower use of resources and less waste generation.

From a consumer perspective, actions that extend the lifetime of products include purchasing more durable products, repairing products when broken and giving products a second life by selling them in the second hand market. Increasing the utilisation rate of products can also be achieved through renting/leasing models. Renting or leasing is especially useful for products that people only use occasionally. These options are presented in Figure 48 for two types of consumer demand:

- Type 1: Demand for a functional replacement, or equivalent, for a product the consumer already owns (but is defective); and
- Type 2: Demand for a new product that they do not yet possess.

The options for the first type are repair or replacement with a new or second hand product. The second type can only be satisfied by a new or used product (in ownership) or through rental/leasing.

Figure 48 : Consumer choices in the Circular Economy and factors that influence their decision-making process



To understand what influences consumer behaviour, the study explored **self-declared attitudes towards the Circular Economy**. Additionally, the study tested the effectiveness of providing **information on product reparability and durability** and **what drives the decision to repair a defective product**. Furthermore, it assessed the

effects of nudging and the **framing of information** on purchasing and repair decisions. The study focused mainly on five products - vacuum cleaners, dishwashers, televisions, smartphones and clothing.

The study used a comprehensive set of research methods (see section 2 for more details):

- A **systematic literature review** was undertaken spanning academic, policy and grey literature across the EU 28, Norway, Iceland and four other non-European countries (i.e. Canada, Switzerland, Japan, and the United States);
- **Consumer focus groups** were conducted in Ireland, Germany, Sweden and the Czech Republic to explore consumers' awareness, understanding and expectations with regard to Circular Economy practices, including views from potentially vulnerable consumers.[174]
- **Stakeholder consultations** with 50 experts from e.g. business and consumer associations, NGOs, public authorities and academia were used to close gaps in the literature and collect additional evidence.
- An **online consumer survey was undertaken in 12 Member States**, namely in: Austria, the Czech Republic, France, Germany, Hungary, Ireland, Latvia, the Netherlands, Portugal, Romania, Spain and Sweden with approximately 1,000 respondents in each country who were representative of the general population in terms of age, gender and geographic region. The survey collected information on consumers' experiences with CE practices such as repairing, renting, leasing and purchasing second hand products, their reasons behind engaging in the CE (or not), as well as general socio-demographic characteristics and self-declared attitudes towards the CE.
- The survey was complemented with **two behavioural experiments** in 6 of the 12 Member States (i.e. the Czech Republic, Germany, Ireland, Romania and Sweden). The respondents conducted exercises relating to their **purchasing behaviour** of new products, and their **decisions whether to repair or replace a defective product** they already owned.

The study conclusions are set out in the following way:

- Section 7.1 concludes on understanding consumer engagement in the Circular Economy; and
- Section 7.2 on factors influencing consumer decision-making in the Circular Economy.

7.1. Understanding consumer engagement in the Circular Economy

One objective of the study was to collect information on what consumers across the EU most associate with 'durable' and 'repairable' products. The study therefore addresses an important gap in the Circular Economy literature. This is because durability and reparability are terms that can easily be given multiple interpretations if not defined accurately.

Most respondents reported being able to '*use a product for a long time*' (57%) and '*the product staying in perfect working order for a long time*' (56%) as the most relevant durability attributes. This was in line with the limited existing literature which states that consumers mainly link durability to a product's performance over time. Survey respondents' understanding of reparability was instead best described by '*spare parts being available for the product*' (46%) and the '*possibility to have the product repaired by a repair firm*' (44%).

Beyond these associations, the study uncovered that the current state of consumer engagement in the Circular Economy is characterised by a high willingness to act in line with the Circular Economy, but actual engagement is still rather low.

[174] Vulnerable consumers were defined as people who are in arrears with household bills, or who struggle from time to time with household bills and are in any of the following situations: unemployed, retired, long-term sick or disabled, or single parents.

Consumers claim to be willing to engage in Circular Economy activities

The consumer survey found that **most EU consumers claim to frequently engage with the Circular Economy**. The majority of survey respondents reported that they keep things they own for a long time (93%), recycle unwanted possessions (78%), and repair possessions if they break (64%) (see section 3.4). Respondents also reported that their peers display similar levels of engagement in the Circular Economy.

A lower yet **substantial proportion of respondents reported being willing to engage with novel Circular Economy practices such as leasing products or buying second hand products**. The share of consumers who reported they were interested in leasing varied across product groups: between10% for vacuum cleaners compared to 25% for mobile phones. Overall, around one in three consumers claim to buy second hand products (see Section 3.4).

Previous research has found that consumers' willingness to engage in Circular Economy activities differs with the nature of the product. That is, consumers are more likely to buy a durable product, repair or lease a product, for more expensive and less 'fashion-dependent' items. The focus groups and interviews confirmed these findings with participants reporting that they would be particularly **willing to buy durable, or to lease, white goods** (e.g. dishwashers). For more fashion-dependent items (smart phones and clothing), respondents reported they would however be more willing to purchase second hand compared to other products.

A majority of respondents also claimed to be aware of the durability of products they purchased (64%) as well as repair services (58%). Respondents reported that they frequently looked for durability/reparability information on products (62% for durability and 55% for reparability). Respondents, however, often felt that this **information was difficult to find**, and that they **would like better information** on these features.

These findings are in line with previous research which finds that consumers are generally willing to engage in sustainable consumption, and that this is particularly driven by their concerns about the environment.

However, consumers' actual engagement with repairing, renting or leasing was found to be low.

Contrasting the high levels of self-claimed willingness to engage in the Circular Economy, there are still many consumers who have in the past not behaved accordingly. The consumer survey and experiment both showed that **most consumers repair products when they break** (around 63%). Yet, **the share of consumers who have not repaired products after they broke was still substantial: 36%** on average across the analysed products. The highest non-repair rate was observed among Dutch survey participants (on average 56%) while the lowest was observed among Romanian participants (on average 25%). Age and other socio-demographic factors did not play an important role with respect to repair behaviour.

Those who had repaired a product, had generally used a professional repair service (e.g. 26% used a repair service, 17% had the product repaired by the manufacturer). Some respondents, especially for clothing items, reported that they had decided to self-repair: 24% for clothing, 18% for vacuum cleaners, 13% for dishwasher, 6% for mobile phones and 2% for televisions.

Similarly, despite a relatively high level of interest in novel Circular Economy practices (see section 3), the consumer survey found that only a limited proportion of respondents had ever leased products or purchased second hand. And only between, 5% and 9% of respondents had bought a second hand vacuum cleaner, dishwasher, TV, smartphone or clothing. Both the survey and experiment found that buying second hand is more likely for smart phones and clothes (20%) compared to the other products tested (13-14%). Even fewer, 1% to 3%, had rented or leased a product. Observations from the behavioural experiment support the self-reported survey findings. Only 10% to 20% of experiment participants decided to purchase a second hand product to replace a defective product within the experiment, all others preferred buying brand new replacements. These findings indicate that there is a **large potential in closing the gap between willingness to engage and actual engagement**.

Many consumers expect products, especially expensive products, to last a long time

What consumers associate most with 'durability' and 'reparability' was roughly consistent across different types of products. At the same time, **consumers have different expectations regarding how long different products should last.** Focus group participants and survey respondents reported a wide range of life-time expectations for the different products of the study such as:

- For vacuum cleaners 27% of survey participants expected a lifespan of between 4 and 7 years with another 27% who indicated an expectation of 7 to 10 years.
- For dishwashers the lifespan expectations were higher with 29% indicating that they expected a lifespan between 7 and 10 years and another 29% with an expectation of 10 to 15 years.
- Similarly, 31% indicated they expected a television to last for 7 to 10 years and another 28% stated their expectation lay within the range of 10 to 15 years.
- For mobile phones and clothing items lifespan expectations were lower. 38% expected a lifespan between 2 and 4 years for mobile phones and 35% indicated an expected lifespan of 4 to 7 years. For clothing, 25% expected a lifespan between 2 to 4 years and a similar share between 4 to 7 years.

Most consumers expect that repairing products is possible and easy to arrange

The survey found that there were two large groups of consumers: One group who has experience with repairing goods (63%), and one who does not (36%). The experienced group was also more likely to expect that repairing would be possible, and easy to arrange. The latter group, who lacked experience with repairs, seemed to have low expectations regarding whether repairing goods would be worthwhile, or even possible.

Specifically, for all five product categories, a substantial majority of survey respondents – ranging from 77% for coats/jackets to 90% for dishwashers – thought it would be **possible for these products to be repaired**, either by themselves or by someone else on their behalf. Most consumers expected it to be possible to have the products repaired by a third party (i.e. friends and family, professional repair services). However, **a non-negligible minority between 10-23% either did not feel or know whether repairing a product would be possible.**

Such inexperience coupled with low awareness of repair options likely obstructs the potential for further engagement with Circular Economy practices. Indeed, some interviewed stakeholders felt that consumers' negative experiences with, or expectations regarding, repair services acted as a barrier to the use of such services.

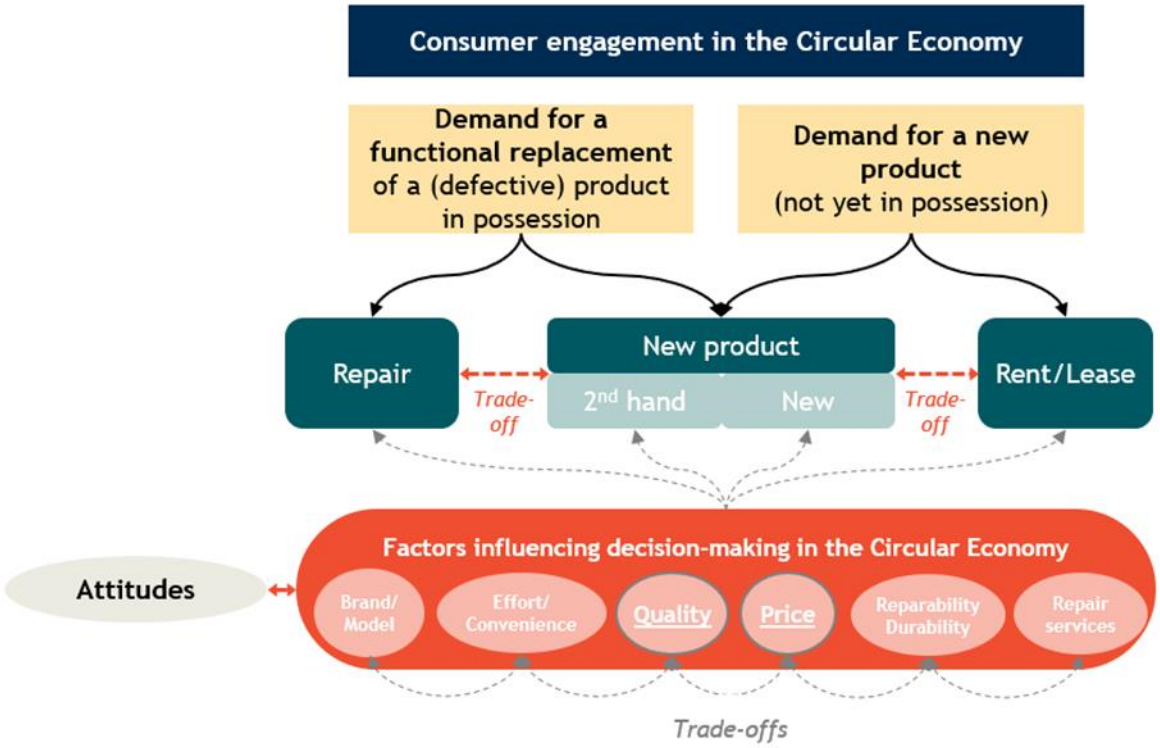
However, survey **respondents typically expected a good level of service from repair providers**[175]: a majority would expect the service to be "fairly" or "very" good in terms of convenience (85%), speed (82%), friendliness (89%) and quality of the repair (92%). Moreover, the survey also suggests that actual experiences with repair services were largely positive. In most cases respondents reported their **expectations were met when having a product repaired (over 70%) and in some cases even exceeded**. Therefore, it is likely that some, especially inexperienced, consumers might wrongly expect repair services to perform poorly which prevents them from using such services more often.

7.2. Factors influencing consumer decision-making in the Circular Economy

The previous section established what current consumer engagement in the Circular Economy is regarding how willing and likely they are to buy durable, repair, lease or purchase second hand products. Building upon this information, this section draws conclusions on what can enhance or inhibit such Circular Economy practices. The figure below provides an overview.

[175] No distinction was made here between independent repair services and manufacturer provided repairs.

Figure 49: Factors that influence consumers' choice to replace, repair or lease products

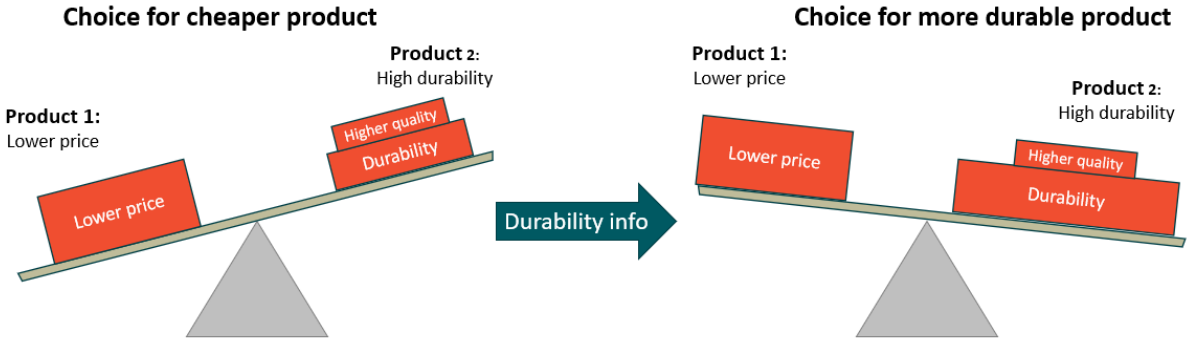


Price, quality and convenience are most important for consumer decisions

A range of behavioural factors influence consumer decisions. Survey respondents ranked **product quality and price** as the two most important factors influencing their product choice, followed by product durability and reparability, whether repair services exist and environmental aspects. Brands and trends (fashion or technological) were rated as less important by survey respondents though the literature and focus groups frequently pointed to these factors as being important. While the survey often found that there were differences between product categories, price and quality were very important for all products.

The provision of durability information at the point of sale, on for example a product label, and the use of behaviourally informed nudges have the potential to encourage the selection of more durable products. For example, better information on the durability of a product could increase the value/relative weight of the products' environmental characteristics on the purchasing decision (see Figure 50).

Figure 50: Providing durability information can influence the relative importance of price in purchasing decisions



Overall, all strands of research found that **consumers lack information on product durability and reparability**. Although survey respondents generally reported searching for information on products' durability and reparability, many, including consumers in the focus groups, indicated that such information was difficult to find and that they had a

desire for receiving better information. This pattern of searching for information but finding it difficult to find or understand was especially pronounced for older respondents. Consumers in the survey and focus groups reported that they were interested in seeing durability information on product labels or via extended product warranties. Some also reported using brand reputation as an indicator of product durability. Regarding reparability information, consumers would like to receive information on the availability of spare parts, repair services and the applicability of extended product warranties.

The **provision of durability and reparability information was found to be effective in encouraging the purchase of more durable and repairable products**. These findings indicate that the current state of information provision regarding product durability and reparability might be a potential barrier for engaging in the Circular Economy. Provision of information in a consistent and straightforward format could help in reducing this barrier.

Providing information on product durability and reparability shifts purchasing decisions towards products with better Circular Economy credentials

The behavioural experiment showed that giving respondents information on product durability can have a substantial impact on purchasing decisions. In a simulated purchasing task with streamlined product information, provision of **durability information increased the participants' preference for high durability products almost threefold. Provision of reparability information more than doubled the preference for products with a high level of reparability.** Both these effects were highly statistically significant. Durability information was most effective when provided as 'manufacturer warranties', or 'expected lifetimes'.[176] EU labels (i.e. an augmented EU Energy or Ecolabel with an added durability commitment icon, or reparability icon and rating A-G) were similarly effective.[177]

General Circular Economy preferences were strongest when durability and reparability information was presented together. That is, **when durability and reparability information was shown together, individuals were most likely to purchase products which rated high in both dimensions – durability and reparability**. Durability was however the more influential factor on consumer decisions. In the experiment durability information provoked the strongest shifts in preferences while reparability only marginally led participants to choose products with overall better CE credentials.

The findings were corroborated by showing **significant willingness-to-pay for better durability/reparability** for all product categories. Depending on how durability/reparability information was presented, willingness-to-pay for an additional year of durability ranged between €20-36 for vacuum cleaners and dishwashers, €92-148 for TVs, €148-217 for smartphones[178], and €14-27 for coats. Willingness-to-pay for an improved reparability[179] rating was around €29-54 for vacuum cleaners, €83-105 for dishwashers, €77-171 for TVs, €48-98 for smartphones and €10-30 for coats.

[176] 'Manufacturer warranty' and 'Expected lifetime' were not explained or defined further in the experiment. It is a common market practice for manufacturers and retailers to display durability claims beyond the legal guarantee of 2 years in this way. Manufacturer warranties and expected lifetimes may be seen as a service to consumers, or a possible signal for quality, but the experiment remained silent about the precise meaning.

[177] Durability on EU labels was defined as: The period in which the manufacturer promises to replace or repair the product free of charge.

Reparability on EU labels was defined as: Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.

Around 31% of participants have clicked on the labels to enlarge these to include these additional definitions.

[178] Willingness-to-pay for additional durability of smartphones was measured in months and subsequently extrapolated to years. A linear relationship between time and willingness-to-pay was assumed (i.e. each extra month has the same value).

[179] The willingness-to-pay was measured **per year** for durability and per **two-step** increase on the A-G scale for reparability(e.g. from G to E, C to A).

The finding that durability information had a larger impact on respondents' choices in the experiment than reparability information is in line with the findings from the survey, focus groups and literature. Based on the survey findings, this may be because consumers said they trusted manufacturers' warranties, did not expect (durable) products to break, or felt that repair would be expensive. As such, durability is seen by consumers as a substitute for reparability while the reverse is not the case. In this regard, there seems to be divergence between consumer expectations and industry perceptions because stakeholders representing the industry mentioned that reparability was seen as a building block of durability by extending useful lifetimes via repairs or upgrades. Thus, it might be beneficial to sensitise consumers further regarding the benefits of easily repairable products to achieve further consumer engagement in the Circular Economy. Informing consumers about the durability benefits of easily repairable products may help to achieve further consumer engagement in the Circular Economy.

Importantly, **information provision was equally effective in encouraging more CE behaviour across different types of consumers**. Its effectiveness was not restricted to consumers belonging to certain socio-demographic groups, or to those having pro-environmental preferences. This is interesting as the likelihood of choosing to repair a product rather than replacing it did differ across consumer types (see further below and in section 4.5).

The shifts in behaviour in the experiment resulted from **consumers turning away from low durability/reparability products in favour of those with better CE credentials**. As usual with experimental findings, these effects need to be seen in conjunction with the experimental setup which consisted of a simplified purchasing process with streamlined and standardised product information compared to real-world shopping experiences. It is therefore possible that the effectiveness of durability/reparability information in reality might be increased, or dampened.

Information provision at the point of sale likely affects after-sales expectations

In terms of after-sales expectations, there were contrasting views uncovered by the different strands of research. Stakeholders reported that consumers have low expectations regarding product reparability. Some focus group participants had the impression that newer generations of products were less durable than products that were produced some years ago. This discussion around lower durability of newer products sometimes led participants to mention the concept of **planned obsolescence of products**.

A joint analysis of the behavioural experiment and the consumer survey revealed that **consumers who have received durability information** via manufacturer warranties, or durability promises at the point of sale in the purchasing exercise in the experiment **were significantly more likely to expect free replacement or free repairs of faulty products**. Alternatively, those who had not seen any information on CE product characteristics, or only information on the reparability of a product were significantly less likely to expect free rectification of the fault in any way, and instead were more likely to expect to pay for either repair or replacement.

These findings further underline the important role product information regarding product durability and reparability could play in fostering consumer engagement in the Circular Economy.

Many customers try repairing before replacing products, but repair decisions are easily disrupted if arranging repair requires effort

As seen in the previous section, a majority of consumers (63%) have experience with repairing products.

Those who did not repair products in the past did not do so mainly because they **expected repair to be too expensive** (between e.g. 25% for clothes and 50% for dishwashers) and **preferred getting a new product** (17-25% across products), or felt the old product was obsolete or out of fashion (20% for vacuum cleaners and dishwashers, 25-30% for clothes, phones and TVs). Fewer (5-10% across products) said they did not know how/where to repair products, or felt it would be too much effort to repair (8-14% across products).

The behavioural experiment furthermore tested what enhances or inhibits the decision to repair. It revealed that **repairs must be easy to arrange** as any additional effort could discourage consumers from attempting repairs. In the behavioural experiment, the number of respondents who never chose to repair[180], in a repair versus replace choice, increased from 6% to 12% when the repair required minor additional effort compared to purchasing a replacement product. Similarly, additional effort led to a decrease in the proportion of participants choosing to repair from 42% to 35%. Even when the effort for repairing and replacing was identical, many respondents still chose to replace the defective products in the experiment. It therefore seems that **frictions in the accessibility of repair services significantly lowered the attractiveness of repairing while the same type of frictions had virtually no effect on the decision to replace a product**.

This illustrates that effort is seen as an important inconvenience, or 'cost' by the consumer. The balance between (perceived) cost and effort of repair can easily tip consumers to favour replacement. This was especially the case for consumers who placed high importance on trends or fashion.

Repairs which were framed as using 'original parts only' compared to 'original and non-original parts' were slightly more attractive, while **consumers were indifferent between whether the repair was provided by the manufacturer or an independent repair service**. Other behaviourally motivated mechanisms, which did not change the cost or difficulty of repairing or replacing, largely had no effect on choice. Merely framing repair prices as VAT exempt (while keeping prices constant) did not have meaningful effects on repair decisions overall. Such practices seemed to only strengthen the decisions of certain groups of respondents. For example, those with pro-environmental attitudes were even more likely to repair products when repair services were framed as VAT exempt, while those who attributed highest importance to trends and fashion were further deterred from repairing.

Drivers and barriers to renting, leasing products and buying second hand

As mentioned before, **experience with renting/leasing (1%) and buying second hand (6%) was rather low** in the surveyed population. The main reasons for not having engaged with such practices were that respondents **wished to own their products**, and generally that **they preferred new, unused products**. Similarly, market data from Scandinavian countries showed that consumers would in general be willing to make some sacrifices to improve Circular Economy outcomes, unless it required sharing goods or letting their own goods be used by other consumers.

Among the few respondents who have rented or leased products in the past, their motivations for doing so were mixed. Convenience, the possibility to test the product, the chance of reusing the product after use or budget considerations all seemed to play a role.

Uncertainty about the quality of second hand products may act as an important barrier to Circular Economy engagement by consumers. Lack of trust in quality of used products was seen as a barrier by survey respondents and focus group participants to purchasing second hand products. Respondents were more inclined to purchase second hand clothing and furniture than electronic goods, because of concern that used electronics may break down faster than a new product. 14-21% of respondents (across products) viewed purchasing a new product as better value for money, despite second hand products being available at a lower price.

Product durability and reparability are important for consumers, as these can save them money in the long run

[180] Respondents repeated the "repair experiment" in which they were given the choice to repair vs replace defective products three times for different products. Respondents could thus decide to repair products between 0 (i.e. never), and 3 times.

While quality and price were given the highest average importance in purchasing decisions, **durability and reparability were also important**. Respondents who ranked durability as an important factor, reported that the top reason for this ranking was that durable products would **save them money in the long run**. This finding motivated the experiment to test behavioural 'nudges' introduced via pop-up messages during the purchasing task. These nudges **had a positive impact on respondents' purchasing decisions**. Informing respondents that they could save money by purchasing products that last longer was effective in encouraging them to choose more durable products. Telling respondents that a majority of people chose products which last longer and which are easy to repair was equally effective. Nudges however did not influence respondents' preferences for choosing products with higher levels of reparability.

Even though reparability was relatively less important for purchasing decisions compared to durability, the possibility to save money with easily repairable products again motivated individuals to engage with reparability, so did the desire to keep products for a long time.

Personal attitudes towards the environment influences consumers' engagement in the Circular Economy

In the present study, **personal self-declared attitudes towards the Circular Economy were largely consistent with actual engagement** in the sense that consumers who self-rated themselves as having pro-environmental attitudes were also more likely to repair or purchase second hand products. Similarly, respondents who categorised themselves as attaching high importance to fashion and technology, were significantly less likely to repair products. These findings might seem trivial, but they are not. It is often claimed, including by some stakeholders in this study, that self-declared pro-environmental attitudes not necessarily translate into pro-environmental behaviours.

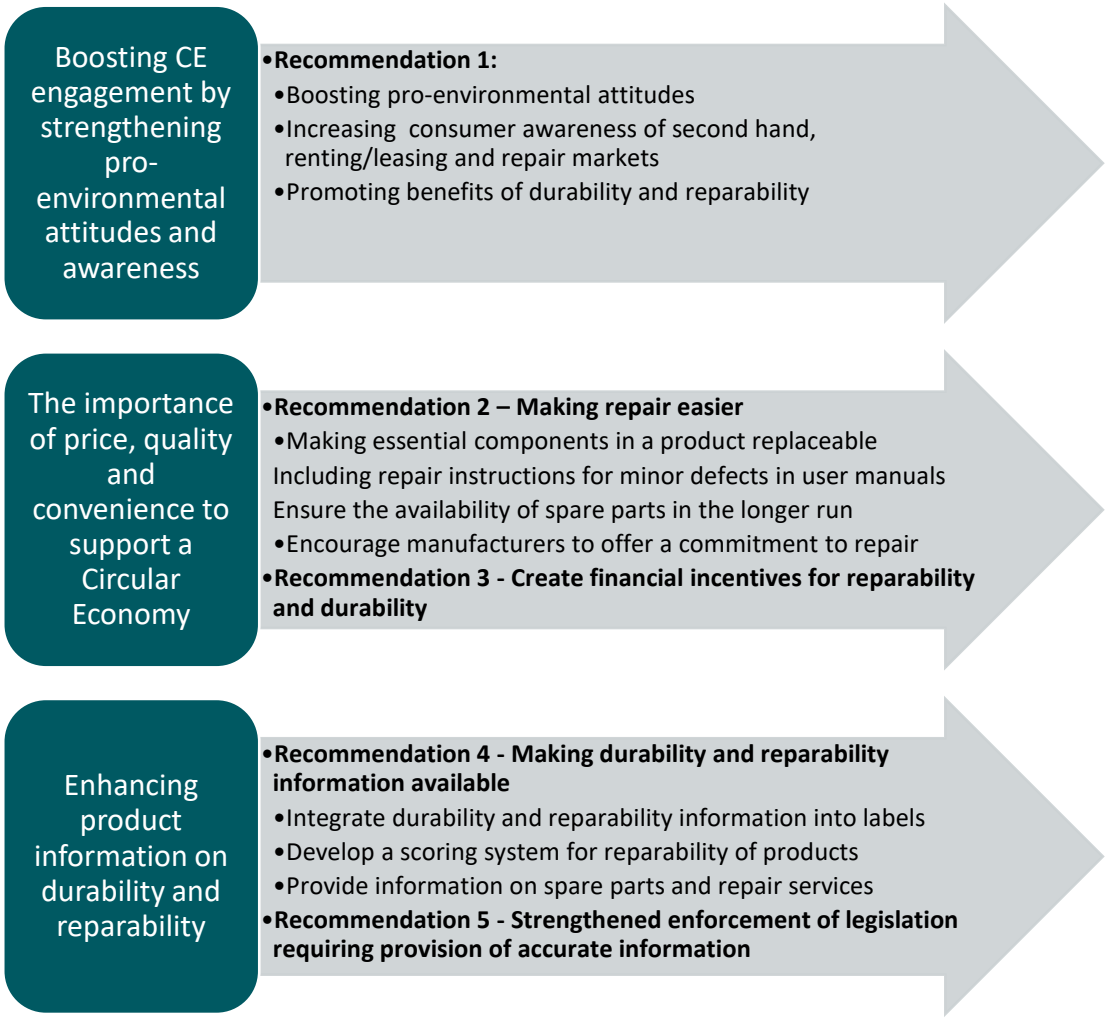
8. Suggestions for future policy action

There are a number of overarching findings that arose from this study:

1. EU consumers are willing to engage in the Circular Economy, but their actual engagement is relatively limited. This implies **there is room to boost Circular Economy practices further.** Consumers in the survey and experiment with positive self-declared attitudes towards the environment acted in line with these preferences in their actual behaviour. Therefore, by **changing consumer attitudes** and their awareness surrounding sustainable and environmental behaviours further engagement with Circular Economy practices could be achieved.
2. Key drivers influencing consumers' purchase and replacement decisions were found to be **price**, **quality** and **convenience**. Reducing the effort required to repair products, lowering prices and increasing quality of durable products could therefore lead to more pro-Circular Economy purchasing and repair decisions.
3. EU consumers **lack information on durability and reparability** when making purchase/replacement decisions and would like to take these aspects into account. **Providing this information has proven effective** in increasing purchases of products with higher durability and/or reparability in the incentivised behavioural experiment.

These findings lead to a number of policy suggestions for EU and, national local policy makers in order to accelerate the transition towards a Circular Economy. The policy implications guide the structure of this chapter and serve as a taxonomy for classifying subsequent policy recommendations. Each policy implication is followed by a number of policy recommendations (Figure 51). These recommendations include better implementation or adaptation of existing instruments, as well as suggestions for new policy instruments.

Figure 51 : Overview of key policy implications and recommendations



It needs to be stressed that the **recommendations** for (future) policy action made in this section are **directly derived from the findings** and have not been subject to a rigorous impact assessment that analyses their impacts, effectiveness and efficiency in reaching overall policy goals.[181] Before proceeding with concrete policy actions in these areas, it is clear that **impact assessments** would need to be conducted, in line with the European Commission's Better Regulation Agenda[182]. Suggestions for topics that should be subject to additional research are included in section 8.4.

8.1. Boosting CE engagement by strengthening pro-environmental attitudes and awareness

To reiterate the conclusion from the previous chapter, this study found that most EU consumers try to keep products for a long time and to repair possessions when they break. Most survey respondents also agreed that it was important to be environmentally friendly and wanted their friends to know that they cared about the environment. At the same time, a substantial share of consumers still does not engage in CE practices. 36% had not repaired products in the past, and only a limited share of respondents had *actually* purchased second hand products (5-9%) or rented/leased (1-3%) a product.

[181] Effectiveness = To what extent do the suggested recommendations contribute to reaching an overall policy objective / Efficiency = At what costs are the (projected) results (being) achieved.

[182] https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en

The study found that many consumers have a preference for new and fashionable products, or generally a preference for owning new, unused products. Such preferences can act as a barrier to second hand purchases, and product leasing.

As consumers are willing to engage in pro-CE behaviours, but their perceptions about repaired or second hand products are not very favourable, improving consumer awareness and providing information about the advantages of durable products and product repair may be effective in addressing this 'preference for the new and unused'.

Recommendation 1 – Boosting CE engagement by strengthening pro-environmental attitudes and awareness

Environmental awareness and consumer attitudes towards environmental practices are among the key determinants of sustainable consumer choices.

From the study follow at least three specific areas of action which could be taken by policy makers and industry:

1. **Boosting pro-environmental attitudes:** The survey and experiment have shown that pro-environmental attitudes can translate into pro-environmental behaviours. Consumers with stronger self-rated pro-environmental attitudes, were also more likely to make pro-environmental choices in the incentivised behavioural experiment, as well as in reality. Thus, strengthening such attitudes via awareness campaigns could boost further consumer engagement in the Circular Economy. Furthermore, strengthening pro-environmental attitudes could also **enhance the effectiveness of information campaigns and point-of-sale information** on product durability and reparability (see Recommendation 4).

   The stakeholder interviews pointed out that consumer education is indeed important and should be more widely employed. For example, when discussing clothing, a representative of a Dutch consultancy firm considered that educating consumers on the quality of garments would help them distinguish between more and less durable products.

   One way Member States could promote awareness is by focussing on **educating young people** by, for example, **including environmental awareness education within school curricula**.

2. **Increasing consumer awareness of second hand, renting/leasing and repair markets**: The study identified that consumers are generally willing to engage in Circular Economy practices but that their actual engagement might fall short because of an unawareness of how to purchase second hand, rent, lease or repair products.

   Recently there has been an increase in the number of Circular Economy initiatives and information awareness campaigns/ platforms at EU and Member State level. An example of this is the European Circular Economy Stakeholder Platform, and several Circular Economy initiatives at national level. Similar initiatives could target more consumer engagement in second hand products, renting/ leasing of products and repair markets.

   Repair cafes have been set-up in various cities. Self-repair by using, for example, modular phones such as the 'Fairphone', have come to consumers' attention. However, these types of initiatives are still niche rather than mainstream. Awareness raising about the benefits of second hand products, renting/ leasing and repair should continue to be promoted to reach wider consumer audiences.

   In addition to awareness raising programmes, additional information on product durability and reparability could be provided at the point of sale (see Recommendation 4). Product information could also be provided on how repair can be arranged and on the availability of spare parts (see Recommendation 2).

3. **Promoting benefits of durability and reparability**: Quality and price were found to be key factors for consumers when choosing to purchase a product. In the experiment, when consumers were informed that durable and more easily repairable products can save them money in the long-term, this information was effective in steering them towards products of higher durability and reparability.

Policy makers could **consider using marketing and behavioural science strategies (nudging) to improve consumer awareness about the benefits of durable and easily repairable products**. This could be done, for example, by linking durable and easily repairable products with 'high-quality' and 'cost-savings' in the long-term. Instilling such associations with durability and reparability could alter social norms towards the purchase of more durable and more easily repairable products. However, to make such claims, robust evidence supporting the truthfulness of the claims is required. Provision of this evidence may require additional research.

Another option would be to encourage other stakeholders, including manufacturers, to conduct these marketing and communication strategies. Also, the Circular Economy could be incorporated into the list of funding instrument priority topics for example within the LIFE Programme.[183]

8.2. The importance of price, quality and convenience in purchasing and repair decisions

Although consumers attach significant value to the durability and reparability of a product, the product's **price and quality** often remain key factors determining final consumer choices. From a consumer perspective the total cost of a product also includes the effort needed to acquire a product, repair, buy or to rent/lease it. As a result, anything that changes the price-quality ratio, via e.g. price or ease of accessing the options, in favour of product repairs, second hand purchases and renting/leasing products could be effective in increasing the uptake of these sustainable choices.

The following **two recommendations** could be explored:

Recommendation 2 - Making repair easier

The behavioural experiment has robustly shown how easily consumers shy away from repairs when repairing requires more effort compared to replacing products. Beyond promoting the awareness of repair services (recommendation 1), there are also several additional ways in which repairs could be stimulated across Europe. The following options could be explored:

1. **Making essential components in a product replaceable by consumers by adapting existing legislation:** Often a product needs to be replaced or sent for professional repair if an essential component such as, for example, the battery, a LED light, or a motor, becomes defective. However, the study found that there is a substantial interest in self-repairs: 12% of survey respondents have experience with self-repair, 37% consider themselves to be good at repairing, and 26% of respondents associate 'reparability' with being able to self-repair the product.

   As such **the possibility of making essential product components replaceable by consumers could be explored**. For example, Directive 2006/66/EC on Batteries and Accumulators already contains requirements on the removal of batteries for certain electrical and electronic equipment.[184] A similar requirement for batteries as well as other components could be applied to products more widely. This could potentially be done in the context of implementing existing legislation (for example the implementing regulations under the Ecodesign Directive).

   This would give consumers the option to replace, for example, a battery or another 'easy-to-replace' component, and create more incentives for consumers to repair. Moreover, it would likely also stimulate the demand for repairs by professionals (manufacturers and independent repair services). This is because

[183] The LIFE programme is the EU's funding instrument for the environment and climate action. For more information, see: http://ec.europa.eu/environment/life/about/

[184] Batteries should be readily removable by end-users, or have the possibility to have them removed by "qualified professionals".

consumers already have a high willingness to have products repaired by third parties, but some struggle to determine whether products can be repaired at all. Such uncertainty could be reduced by designing products such that they are more evidently built to be repaired.

2. **Regulation to include repair instructions for minor defects in user manuals:** Still regarding self-repairs: Manufacturers could include instructions on **how to self-repair minor product breakdowns in user manuals, or on the internet**. Industry-led guidance and best practice could encourage manufacturers to provide this information to consumers.

   The possibility to self-repair would have to take into account the safety of such an activity for a regular consumer, which implies restrictions on what products and issues can be repaired. Repair instructions should be considered only for minor repairs that do not require specific skills or qualifications.

   An alternative that could be considered, is the provision of such a requirement within existing regulations and legislation. This option would make it mandatory for manufacturers to provide self-repair guidance for certain products and breakdown issues. Existing legislation could be used such as the Ecodesign Directive.

3. **Ensure the availability of spare parts in the longer run:** The availability of spare parts is essential for products to be repaired. Spare parts for older products are often difficult to find, in particular when production of that product has ended. One option policy makers could investigate is the possibility of **requiring companies to provide spare parts for a certain period of time (and also even after the product has been discontinued)**. For example, a similar legal obligation has been introduced in France. Decree No 2014-1482 requires producers to provide information about the time period for which spare parts will be available.[185]

   Findings from all strands of research of this study support this recommendation. The availability of spare parts was, for example, the strongest association consumers had with a "repairable product". Moreover, the literature review and stakeholder consultations identified that manufacturers should be required to guarantee cheaply available spare parts for longer periods of time.

4. **Encouraging manufacturers to offer a commitment to repair throughout technical product lifetimes**: The study found that consumers are willing to pay significantly more for durable products, and that the provision of information on product durability can encourage consumers to purchase more durable products. The study also highlighted that consumers have high levels of trust in manufacturer guarantees and are more likely to attempt a repair if a product is still under guarantee. **Policy makers could explore the idea of encouraging manufacturers to offer a repair service to consumers throughout the technical lifetime of a product**. Offering such services might increase product sales prices. If this were the case, manufacturers who offer this extended repair service may find it useful to point this out prominently. This way and in line with the experiment findings, manufacturers who offer extended repair services might see consumers' willingness to pay for their products increase. Manufacturers who do not offer such services might benefit from offering lower prices and could be attractive for consumers who do not value reparability.. Such transparency could contribute to having a level playing field among manufacturers.

   The provision of easier access to repair across a product's technical lifespan, may reduce consumers' effort when it comes to product repair, as well as their uncertainty regarding whether repairing would be possible at all, thereby encouraging more repairs.

[185] BEUC, 2015

Recommendation 3 – Create financial incentives for reparability and durability

Potential cost savings were found to be a key determinant of consumer engagement in the Circular Economy. Therefore, financial incentives that encourage the production and consumption of durable products, product repair and the leasing or renting of products, have the potential to promote the uptake of these behaviours by both manufacturers and consumers. However, further research would be required to confirm that there is sufficient price sensitivity in consumers for such stimuli to be effective.

Possible financial incentives include (but are not limited to) **tax reductions or exemptions for durable goods, leasing/renting services, and repair services**. This could also include incentives for companies to provide spare parts for products for a set period time after production has been discontinued (recommendation 2). An example of a tax scheme was introduced in Sweden in 2017. This scheme introduced a lower VAT rate for repair services and is known as the "repair bonus".

8.3. Enhancing product information on durability and reparability

Another main conclusion from this study was that EU consumers currently lack information on durability and reparability and would appreciate receiving better information. Indeed, when this information was provided, participants in the behavioural experiment were significantly more likely to select durable products or products that could be more easily repaired. This implies that **providing more information to consumers about the durability and reparability of products is effective in shifting demand towards products with better environmental credentials**. Policy makers could consider exploring the following two recommendations.

Recommendation 4 - Making durability and reparability information available at the point of sale

Based on the study findings it is suggested that policy makers and manufacturers explore possibilities on how to **make durability and reparability information available at the point of sale**.

There are several points to consider:

- **Explore the possibility of integrating durability and reparability information into existing product labels:** The European Commission could explore integrating durability and reparability information into the EU Energy Label or the EU Ecolabel. For example, icons indicating expected lifetimes, or durability commitments, as tested in the experiment, could be embedded into the existing EU Energy Label. The EU Energy Label may be more appropriate than the EU Ecolabel. This is because the Ecolabel has only a PASS/ FAIL scale. The Energy Label instead shows an A to G scale and allows a number of other relevant pieces of information/icons to be included.
- **Explore the possibility to develop new EU consumer rules that would include the display of durability and reparability information on products:** Since the existing EU Energy Label and EU Ecolabel may have their limitations in terms of scope or effectiveness to introduce durability and reparability information for a wider range of products, there may be a need to develop new EU rules. . Including durability and reparability information into existing or new product information would possibly also **alleviate consumer concerns regarding planned or premature obsolescence practices.**
- **Examine the development of a scoring system for reparability of products:** In 2018, the European Commission launched a study to analyse and develop a potential scoring system to rate the ability to repair and - where relevant - upgrade products. The technical background resulting from the study

may be used to set the framework and grounds for the development of a graphical label for inclusion in product information as mentioned above.[186]

- **Provide product information to consumers on the availability of spare parts and repair services:** The study found that consumers were interested in repair information at the point of sale. Providing information on where spare parts can be obtained and where potential repair services can be found could make repair easier (see also Recommendation 2). Where feasible, the information should also provide the costs of parts and repair services.

  Industry guidance and best practice may be most appropriate for encouraging manufacturers and retailers to provide this information. Alternatively, policy makers, industry and consumer organisations (at EU and national level), could investigate if producers and retailers need to be required to inform consumers about reparability by integrating such provisions into existing EU legislation (e.g. within the implementing regulations under the Ecodesign Directive). The importance of producers informing consumers about the availability of spare parts was also highlighted by stakeholders in the interviews.

Recommendation 5 – Strengthened enforcement of consumer legislation requiring the provision of accurate information to consumers

The provision of product information at the point of sale was found to be effective at changing purchasing choices. The provision of information not only needs to be presented in a way that consumers can understand and effectively use it in their decision-making, but information also needs to be correct. For example, the Unfair Commercial Practices Directive (2005/29/EC) aims to boost consumer confidence and enable national enforcers to curb a broad range of unfair commercial practices. Examples of unfair commercial practices include providing untruthful information to consumers, aggressive marketing techniques, as well as specific issues such as misleading environmental claims and unfair planned obsolescence practices. To ensure the accurate provision of information to consumers at the point of sale, continued and strengthened enforcement of national consumer laws is of great importance to support consumers in their choices surrounding engagement in the Circular Economy.

8.4. Suggestions for further research

In this section proposed areas for further research to fill remaining evidence and information gaps are provided.

8.4.1. Remaining knowledge gaps on consumer behaviour in relation to Circular Economy engagement

This study has revealed many meaningful insights on consumer engagement within the Circular Economy. Product quality and price tend to drive consumer decisions over and above product durability and reparability. Therefore, in order to further investigate consumer engagement in the Circular Economy the following could be explored:

- Test with consumers how quality- and price-related characteristics can promote or hinder the purchase of more durable products.
- Study whether other important factors besides price and quality (e.g. the brand) can act as a driver for consumers to buy products with higher durability/reparability.
- Investigate further to what extent expected innovations and product improvements play a role in the importance that consumers attach to the durability and reparability of their products.
- Examine further the drivers of consumers' desire for new products. This study revealed that for a similar level of effort many consumers prefer a buying new

[186] For more information see: http://susproc.jrc.ec.europa.eu/ScoringSystemOnReparability/index.html

products over second hand, leased or repaired products, even when the price of second hand products or a repair were considerably lower than that of a new product. A question for further research is how to identify the reasons behind this preference and investigate whether there are ways to influence this preference.

8.4.2. Research gaps relevant to the development of policy instruments to stimulate engagement of the consumer in the Circular Economy

There are a range of ways that policy makers can promote the engagement of consumers in the Circular Economy. Several policy recommendations have been made above based on the findings of this study. To ensure the effective implementation of these recommendations further research is advised.

How to best provide durability and reparability information at the point of sale

The **provision of durability and reparability information** can improve consumer engagement in the Circular Economy. However, how information is presented is extremely important in terms of consumers' understanding and use of the information in their decisions. Therefore, further research on how to best present durability and reparability information would ideally be undertaken. For example:

- Which icons/symbols are best understood and used by consumers?
- How does consumer understanding of durability and reparability change with increasing complexity of the remaining product information? In other words, when do information overload and cognitive limitations come into play leading to a decline in consumer understanding and engagement?

Consumer price sensitivity for repairs

This study has identified important drivers and barriers of consumers' decisions to repair products. Consumers are less likely to repair when repairing requires more, or even a similar amount of effort compared to replacing. And consumers seem to be more inclined to repair when repairing is substantially cheaper than buying a replacement. However, there is limited information on consumers' price responsiveness to changes in the cost of repairing products. If price-based mechanisms were to be considered by policy makers to further incentivise repairs this information would be important.

Reducing other barriers to repair

Beyond assessing how sensitive consumers are to the price of repair, generally making it easier to repair products may go some way towards boosting repairs. According to this study some options to pursue could be to increase the availability of spare parts, and to provide consumers with the ability to self-repair more easily. However, these may not be the only barriers to repair. Other factors such as lack of trust in repaired products or the desire for new products may continue to prevent people from choosing to repair.

Further investigation into what drives consumer choice in this area and whether improving ease of access to repair will increase the number of consumers who choose to repair could be undertaken. For example, policy makers could consider running small-scale pilot projects to test the effect of increased ease of repair on the frequency at which consumers choose to repair products.

Impact assessments of new policy tools/amendments of existing policy instruments

As mentioned before, most of the recommendations developed in this study relate to policy initiatives that are new, which means experience with the impact of such policies is limited, or non-existent. Also, some of the suggested interventions can have far-reaching effects on consumers, manufacturers and retailers and it is therefore important to assess whether the intended policy instruments are proportional, effective and efficient. An ex-ante impact assessment should be conducted for all policy recommendations requiring a legislative change. Below we highlight some aspects to which particular attention should be paid.

To stimulate product repair, Recommendation 2 suggests increased availability of spare parts and repair services. This recommendation also suggests encouraging manufacturers to commit to repair during the entire technical lifetime of the product. However, such measures could have repercussions for the costs of manufacturers and

retailers and may have an impact on the final price for consumers. Therefore, it is important to carefully assess the **financial implications of such measures against the potential benefits achieved**.

Another essential element that needs to be assessed is **the environmental impact of promoting product repair or the purchasing of more durable products.** It is important that Circular Economy actions are a means to achieving lower environmental impacts and do not become a goal in itself. For some products, it might be very beneficial to use them for as long as possible as the environmental impact of the production phase is large, and the materials used in the product are hardly recycled. For other products, especially products that consume a lot of energy during their use phase, it might be more beneficial to replace them earlier in their lifetime. This is because the use phase has a larger effect on the overall environmental impact than the production phase and new products might be more energy efficient. In such cases, replacement could be preferable over repair. It is important that this kind of information is considered when designing policy instruments that promote durability and reparability. Therefore, the environmental impacts of promoting the durability and reparability of products should be tested for different product categories (for example using a life-cycle assessment), so that policies promoting durability and reparability are only applied to the cases where this leads to a reduction in the overall product environmental footprint.

Glossary and definitions

Country codes

AT	Austria	IT	Italy
BE	Belgium	LV	Latvia
BG	Bulgaria	LT	Lithuania
HR	Croatia	LU	Luxembourg
CY	Cyprus	MT	Malta
CZ	Czech Republic	NL	Netherlands
DK	Denmark	PL	Poland
EE	Estonia	PT	Portugal
FI	Finland	RO	Romania
FR	France	SK	Slovakia
DE	Germany	SI	Slovenia
EL	Greece	ES	Spain
HU	Hungary	SE	Sweden
IE	Ireland	UK	United Kingdom
		IS	Iceland
		NO	Norway

Abbreviations used

Chafea	Consumers, Health, Agriculture and Food Executive Agency
B2C	Business-to-consumer
CE	Circular Economy
DGs	Directorate Generals
EC	European Commission
IoT	Internet of Things
NGO	Non-governmental organization
OEF	Organisation Environmental Footprint
P2P	Peer-to-peer
PET	Product Environmental Footprint
PSS	Product-service-systems

Definitions

Circular Economy	In a Circular Economy the value of products and materials is maintained for as long as possible; waste and resource use are minimised, and resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value. (see https://ec.europa.eu/growth/industry/sustainability/circular-economy_en)
Durability	It was one of the study objectives to find out what consumers

	associate with the concept of 'durability'. In the behavioural experiment, the following definition was attached to the durability icon used on mock-EU Energy and EU Ecolabels: *The period in which the manufacturer promises to replace or repair the product free of charge.* For the stakeholder consultations the following working definition for "Durability information" was used: *Information about the average/expected or minimum lifespan of products before they defect or break.*
Reparability	It was one of the study objectives to find out what consumers associate with the concept of 'reparability'. In the behavioural experiment, the following definition was attached to the durability icon used on mock-EU Energy and EU Ecolabels: *Ease-of-repair rating based on availability of repair manuals, spare parts and repair services.* For the stakeholder consultations the following working definition for "Reparability information" was used: *All types of information that could be relevant to repair products in case of a defect.*
Legal guarantee	EU law (Directive 1999/44/EC) stipulates that sellers are liable to consumers for any lack of conformity (defect) that existed at the time of delivery and becomes apparent with a 2-year period (legal guarantee). In some countries national law provide for longer periods for seller's liability.
Commercial guarantee (warranty)	Manufacturers, retailers (or insurers) can offer consumers commercial guarantees (warranties) in addition to the legal guarantee of the seller of the goods. These can either be included in the price of the product or at an extra cost. Such warranties are without prejudice to the legal guarantee.

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