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Too good to go? Consumers' replacement behaviour and potential strategies for stimulating product retention

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Many products are disposed of before they have reached the end of their functional life. New technological developments and trends in fashion seem to accelerate consumers' replacement of products. From an environmental perspective, such early replacement is undesirable. In this paper, we emphasize that product replacement is not only based on rational decision making. Emotional, functional, social, epistemic and conditional values can influence the value trade-offs that consumers make during the decision to either retain an owned product or replace it with a new one. Several strategies are discussed that can increase the owned product's values and stimulate retention via product attachment, sustaining aesthetic value, stimulating product care and maintenance, and enabling upgradeability.

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Introduction

It is common for people to replace products even though they are functioning well [1]. Research shows that 31% of washing machines, 66% of vacuum cleaners, 56% of TVs and 69% of smartphones [2–4] are replaced for other reasons than being broken 'beyond' repair. Also in the fashion industry, many clothes are worn for a shorter amount of time than they actually could [5]. Furthermore, when a product is malfunctioning, many consumers do not consider repair as a valuable option [6].

Early product replacement results in increased waste, use of scarce resources and CO2 emissions, which have strong negative impacts on the environment [7]. So far, there has been an increased interest in recycling of products, but more can actually be gained by prolonging the product's first life [8]. Consumers have a strong intention to purchase reliable and long-lasting products, but do not seem to behave accordingly [9]. While industry creates a demand for new products by introducing these on the market regularly, it is eventually the consumer determining whether or not to replace his/her product [10]. This stresses the importance of the consumers' role in early product replacement [11].

This paper provides scholars, industry, and policy, a state-of-the-art overview of the current knowledge on consumers' replacement behaviour. We first explain the psychological process of product replacement. On the basis of this process, we then present different strategies to stimulate product retention. We conclude with possible avenues for future research.

Psychological process of product replacement

Product replacement is often not only based on rational decision-making, in which consumers compare the costs of the replacement and the relative utility of the old versus the new product [12]. New technological developments of products and evolutions in fashion and designs have demonstrated accelerating effects on replacement intervals [13]. Besides utilitarian motives, fashionable designs, changing customer needs and new technologies significantly influence product replacement [14]. Furthermore, firms' strategies to frequently introduce next generation products tend to shorten replacement intervals [15].

When considering consumers' relationships with products, different values come into play. Sheth *et al.* [16] defined five different types of values influencing consumer choice. These values are important to understand consumers' decision to retain or to replace a product. The first is functional value, referring to the product's functional, utilitarian and physical product performance. Emotional value relates to the extent to which the product arouses feelings and affective states. Epistemic value refers to the product arousing curiosity, providing novelty or the need for a change of pace. Social value refers to associations and belonging to a group. Finally, conditional value relates to how specific situations or circumstances influence consumer decisions [16].

During the replacement decision, trade-offs are made between the values of the currently owned product and of a potential new product [17,18]. On the one hand, the owned product offers specific values to the owner,

such as functional value due to its performance and features. The product may also provide emotional value, for example, because it was a gift from a loved one. On the other hand, new products can provide improved performance (i.e. functional value) and arouse curiosity with new features (i.e. epistemic value), but require a financial investment. Marketing strategies (e.g. advertisements) can heighten the new products' values. During these trade-offs, some values are more salient than others, depending on the type of product, context, and specific consumer needs and desires [18,19]. While making the trade-offs, the consumer can either decide that the relative value of the new product in comparison to the owned product is worth the financial investment, resulting in replacement, or (s)he can decide that the relative value of the owned product is still high enough, resulting in retention [12].

Product values are not static and can change over time. The functional value of the owned product can decrease if the product (partly) malfunctions [20••]. Traces of usage (i.e. wear and tear) can decrease the product's aesthetics and thus its emotional value [21]. Furthermore, repeated product usage triggers feelings of satiation [20••], which lowers the perceived value of the owned product. This negatively affects the 'mental book value' of the owned product, even without actual performance or aesthetics losses [22,23]. Products and their values are mentally written off by the consumer during ownership. On the basis of the initial purchase price, consumers have expectations about how long a product should last. They incorporate this in their trade-offs, resulting in a greater tendency to replace 'older' products as they have made their money worth. Consumers may also adjust their product value preferences over time, as a result of the introduction of new product features. The greater the dissimilarity of the features and appearance of the owned product compared to the new product, the more likely consumers will replace it [24,25]. Finally, trade-in promotions have an effect on the likeliness to replace a still-functioning product [14], and therefore can provide the final push in the decision to replace.

While consumers often replace products before the end of their functional life, research also shows that consumers paradoxically have an aversion to waste products and to not make full use of their utility [26]. Unnecessary wasting of products can even negatively affect brand attitudes [27]. Replacing a product that still functions can be accompanied with a feeling of guilt because consumers generally feel the need to justify their replacement behaviour [2]. To justify a possible replacement, consumers may even show careless behaviour towards the owned product, such as product neglect and risky behaviours. By acting carelessly, the value of the owned product is likely to decrease [28•].

Strategies to stimulate retention by supporting the owned product's values

Research has distinguished several strategies to stimulate product retention. These strategies trigger the different values [16] that impact product replacement, and strive to keep the values of the owned product as high as possible. The different strategies can address different values concomitantly. In this section, the strategies are ordered based on the value they contribute to most.

Supporting emotional value

Supporting product attachment

The first strategy to stimulate product retention is by supporting the emotional value of the owned product via product attachment. Product attachment can be defined as 'the strength of the emotional bond a consumer experiences with a product' [29,30]. Literature has underlined the role of strengthening the person-product relationship to prevent premature replacement of products [31,32]. Individuals become attached to products that have a special meaning to them, which gives these products an extra emotional value [33]. When individuals are attached to their products, they tend to maintain them and to have a higher willingness to repair them, resulting in longer lifetimes [34,35].

Several determinants of product attachment exist, such as memories, self-expression, group affiliation and pleasure [29,36]. Memories and self-expression are recognized as most influential for product retention because these may bring about irreplaceable possessions [37], which suggests that the special meaning is not present in other products [29,33,37]. Memories suggest that products can serve as a reminder of a person or past event. The narratives that such products provide can trigger deep emotional bonds, and products can even obtain an heirloom status [32,38]. Consequently, individuals tend to keep products that are associated with memories for a longer period of time [29,39]. Even though memories often develop automatically, products can also actively invite individuals to form associations by offering a context or activity to reflect, thereby stimulating emotional value [40]. Furthermore, research demonstrated that it is possible to bring emotional value to products by using life stories for embodying significant aspects of a person's identity in the design [41]. People can also develop irreplaceable attachments to products that express their identity. Such self-expression can be triggered via product personalisation [43]. By personalising products via DIY-activities or mass customisation, individuals attach self-expressive value to the product, which in turn strengthens their emotional bond [38,42–44].

Recent literature pinpointed specific cases where emotional attachment to products can negatively influence the environment. People may choose to keep an object of attachment in ownership although it has been functionally replaced by

another [45]. Such product hibernation [7] can have negative environmental consequences because it prevents usable goods to have a useful second life or be recycled. Additionally, unemotional design has recently been advocated as a strategy to remove the emotional aspects linked to conspicuous consumption [46]. By doing so, consumers would acquire emotional detachment to products and in turn more sustainable consumption patterns.

Sustaining aesthetic value

Products can also offer emotional value via their aesthetics [16]. Everyday aesthetic experiences play an important role in consumption [47]. Over time, signs of usage or changes in fashion may decrease the owned product's aesthetic value, which can lead to premature replacement. There is a need for products' aesthetics to be resilient towards both wear and emerging trends [48]. Several strategies have been proposed to sustain the aesthetic value and thereby encourage product retention. The first is implementing a design that is less susceptible to fashion changes, such as a classic or timeless design [49–51]. Classic or timeless designs are visually simplistic, ordered and harmonious. Because this design style adheres to people's evolutionary desire for symmetric and simple appearances, it is generally preferred across social groups and endures throughout time [52,53]. Aesthetic value can also be sustained via the use of specific materials in the design. In most situations, signs of wear and tear decrease aesthetic value because people perceive scratches and usage signs as unattractive and less desirable [36,54]. Past research has explored possibilities to prevent this decrease in aesthetic value, for example, by embodying products in materials that tend to wear gracefully over time, such as leather or wood [33,55,56••].

Supporting functional value

Stimulating product care and maintenance

To prevent a potential loss in the functional value of the owned product, it is important that the consumer takes good care of the product. Product care is defined as all activities initiated by the consumer that lead to the extension of a product's lifetime [57•]. Product care thus includes maintenance and repair activities. Whereas maintenance can prevent the product's functional value to drop, repair can solve a defect and thereby return the reduced functional value to the original performance state. People only take care of products when they are motivated, have the ability to take care (in terms of time, expertise, and money) and experience a trigger to do so [8,57•,58]. Unfortunately, this is not the case for many products, often resulting in a premature loss of functional value. Several strategies have been proposed to encourage people to take better care of their products, for example, by making care activities more enjoyable (enhancing motivation), easy and timesaving (enhancing ability), and by reminding users of required care activities at the right moment in time (providing a trigger) [57•,59]. In addition, extended product warranties can stimulate repair activities [60,61].

Enabling upgradeability

Upgradeable products involve physical products that provide options to improve them in the future [62]. Upgradeability is also referred to as evolvability [63••] and entails designing products that can have different phases of use and adjust to developing needs and/or technology with more advanced parts and additional functionalities. By doing so, upgradeability enables to sustain the product's functional value and can persuade consumers to retain the owned product. While past research proposed upgradeability as a valuable strategy and consumers express positive attitudes to upgradeable products [58,61], product upgradeability remains rather underdeveloped in the market. Product-Service Systems and modular design (i.e. products consisting of various interchangeable modules) could provide possibilities to facilitate upgradeability [64•,65].

Supporting multiple values simultaneously

While the aforementioned strategies aim to support the emotional or functional values of products, these strategies can also contribute to other values of the owned product. Values can be intertwined and together encourage the retention of this product over its replacement.

For example, self-expression and group affiliation, both social values, may stimulate the emotional bond consumers have towards a product [8,29,66], thereby providing emotional value as well.

In supporting the functional value of a product, upgradeability can address desires of novelty and increase the epistemic value by breathing new life in the owned product. It may also enhance social value by enabling the consumer to keep up with a group, or have conditional value by enabling him/her to adapt the product to specific circumstances.

Product care activities may initially focus on sustaining the functional value of a product. However, these activities may also result in product attachment because of the executed conscious and meaningful person–product interactions [53,62], and therefore can be deeply intertwined with the emotional value individuals attach to a product. This may be especially true for specific care activities and materials (e.g. oil for wood and polish for leather) [67]. While cherished products are more likely to be well taken care of [43], executing repair activities may also enhance emotional value that resides in this product [57•] if these repair activities evoke positive emotions [68].

Conclusion and avenues for future research

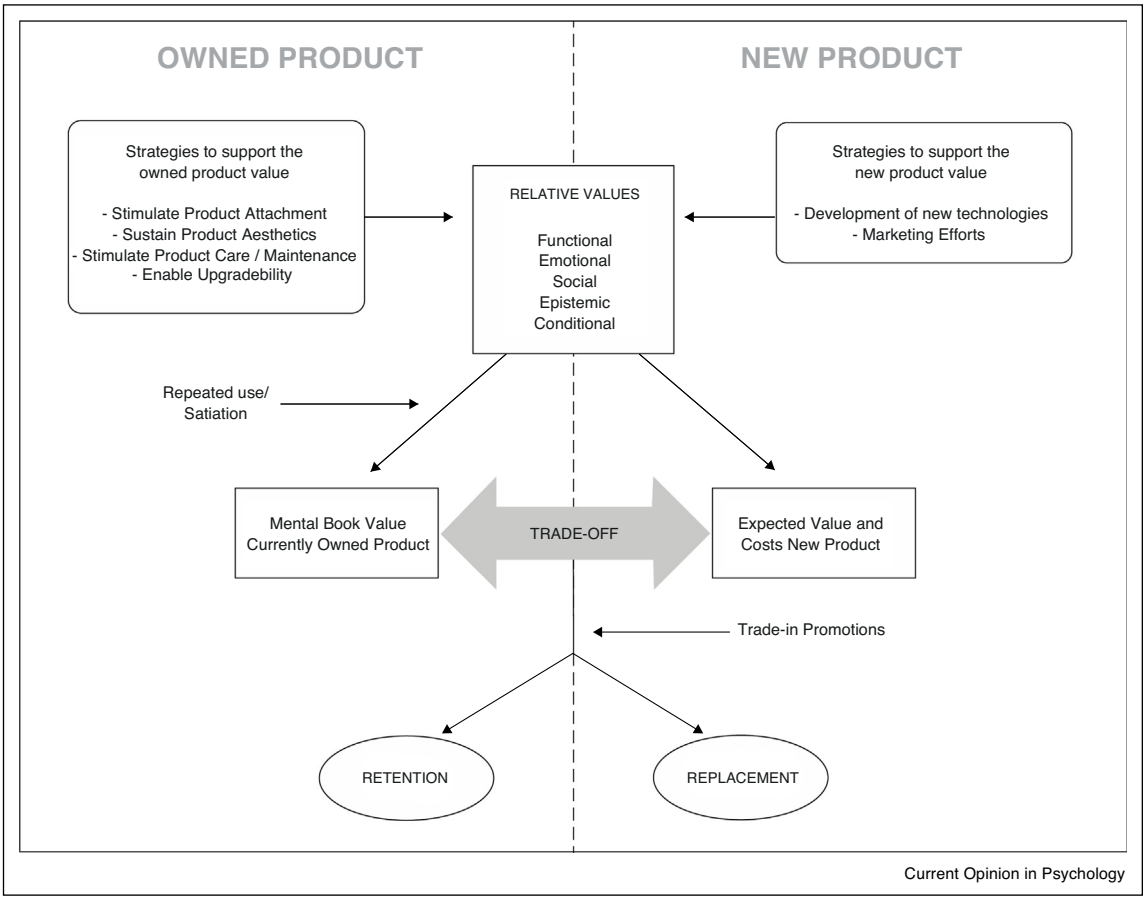
This paper summarizes the current literature on replacement behaviour, and highlights the value trade-offs consumers make in the decision to replace. Figure 1 presents an overview of this process and potential strategies that can support the values of the owned product. An important remark is that the replacement decision involves different values, depending on the product, consumer, and context.

An important limitation of the literature on strategies to support the owned product's value is that most are only theoretically discussed and empirical research (e.g. longitudinal studies, surveys, experimental and/or scenario studies) is lacking. Empirical research is needed to test their effectiveness on consumers' replacement intentions and behaviours, and their potential for lowering the environmental impact of products. Besides, further research is needed to uncover how each strategy should be implemented (e.g. types of upgrades) to reach the best effect for a specific product and context.

Furthermore, research has distinguished strategies that mostly focus on sustaining functional and emotional values. Less attention has been paid on sustaining social, epistemic and conditional values. Focusing on the social value of products could be effective as social norms can have a powerful and persuasive influence on sustainable consumer behaviour and decision making [69]. Regarding epistemic value, novelty and new features arousing curiosity of the consumer are features often found in new products. However, knowledge on the value of upgradeability for enhancing epistemic value is lacking. Regarding conditional value, research could focus on what conditions could stimulate the consumer to retain products. In addition to product/service design interventions, policy may play a role in establishing such conditions. For example, it would be interesting to investigate if product lifetime labels informing consumers about the expected lifetime of the product can increase the lifetime expectation, and consequently, result in a slower decrease of a product's mental book value.

Concluding, studying strategies that make it preferable for consumers to postpone product replacement, and

Figure 1



Psychological process of product replacement.

under what conditions this is most likely to happen, represent interesting avenues for future research. The necessity to reduce the environmental impact of consumption has become irrefutable. Studying ways to encourage consumers to move away from a throw-away society is therefore of great relevance.

Conflict of interest statement

Nothing declared.

CRediT authorship contribution statement

Renske van den Berge: Conceptualization, Investigation, Writing - original draft, Writing - review & editing. **Lise Magnier:** Conceptualization, Investigation, Writing - review & editing. **Ruth Mugge:** Conceptualization, Investigation, Writing - review & editing.

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