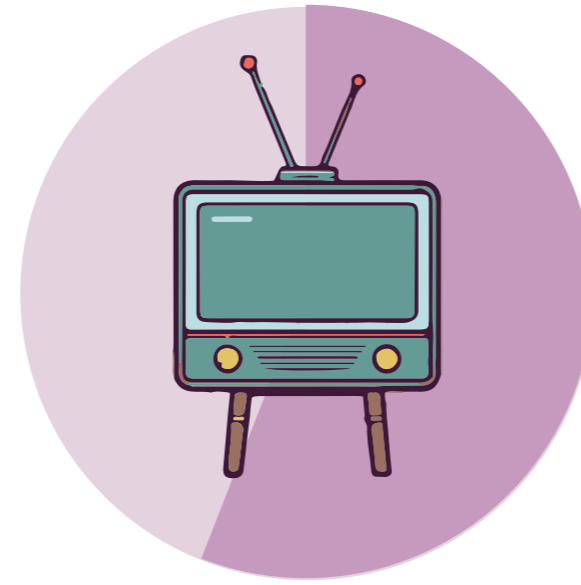


FIGHTING PREMATURE OBSOLESCENCE

Design guidelines to increase (expected) product lifetimes



Scientists have been warning for years about the consequences of the current take-make-waste system, and incremental change is needed to enable the environment to regenerate and move towards a sustainable society. Especially electronic waste (e-waste), which currently increases three times faster than regular waste and is hard to collect and recycle (The World Bank, 2021), is an increasing concern and an opportunity for improvement.

In this project, the problem of premature obsolescence is addressed. The project investigates how to increase the lifetime of electronic consumer durables. By fully understanding how the consumers make replacement decisions, the decisions people make can be influenced. It turns out that as a product moves towards the expected lifetime, the perceived value of the product goes down, and the consumer is less likely to take care of the product or repair it when it breaks.

Consequently, this project investigates how to increase the expected lifetime of products. This contributes to the Premature Obsolescence Multi-stakeholder Product Testing Program (PROMPT). PROMPT is working on a test program to assess the lifetime of products from a technical, user, and market perspective.

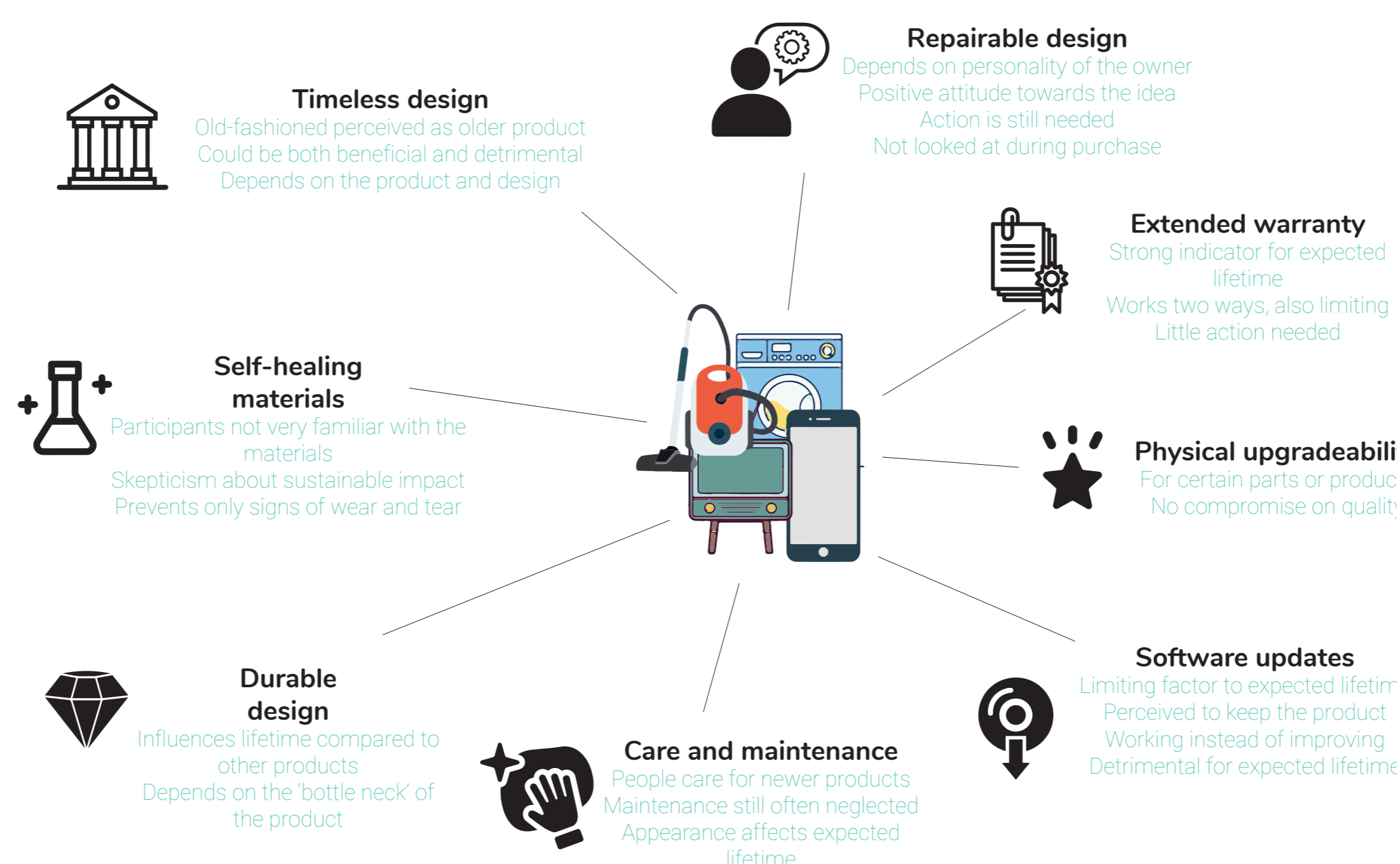
The formulated assignment is to generate design guidelines that help to improve the expected product lifetime and illustrate this on a case example. The products that will be investigated are washing machines, televisions, vacuum cleaners, and smartphones. Two studies were performed. One qualitative study to get more insights

in an explorative way, and a quantitative study to measure the most effective way to increase the expected lifetime.

From the first study, it was concluded that people determine the expected lifetime at several moments throughout the lifetime of the product. Also, past experiences with the product, the average lifetime, the amount of warranty and expected change in demographics are factors that were considered by the participants while determining the expected lifetime of their products. Also, it was concluded that many people are not aware of their expectations of the (expected) lifetime of products, and therefore creating more awareness could lead to increased lifetime of products.

In the quantitative study, only vacuum cleaners were studied. It turned out that warranty and the availability of spare parts are the most effective strategies to increase the expected lifetime of vacuum cleaners. However, the strategies build upon each other while increasing the expected lifetime. Therefore, to address all consumers, more strategies should be integrated in a product for the optimal result.

The findings from this study can be used by PROMPT as a starting point for testing criteria. For example, criteria about the attempts of companies to increase the expected lifetime of products could be integrating in the testing program. However, before doing this, more research is needed about the influencing factors of the expected lifetime of products.



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