Research paper
6th PLATE 2025 Conference Research
Aalborg, Denmark, 2-4 July 2025

Exploring Consumer Behavior on Product Longevity as a Pathway to Product-Service System Adaptation.

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Keywords: Product longevity; Product-service systems; Consumer electronics; Circular economy; electronic waste

Abstract: The growing environmental challenge of consumer electronic waste has become increasingly urgent and is projected to reach 82 million tons by 2030. This paper examines product-service systems (PSS) as a potential approach to minimize e-waste and extend overall product longevity and circularity. The relationships with electronic devices and perceptions of product longevity and ownership versus leasing were explored among 20 participants aged 21 to 65, all from Denmark. Insights gained provided a basis for identifying key technological (e.g., software obsolescence) and psychological (e.g., endowment effect, mistrust of leasing) barriers to PSS adoption. A six-step user-centric PSS model is proposed, advocating product-oriented services where consumers maintain ownership but receive company maintenance and repair. The Ownership PSS model underlines consumer trust via transparent pricing, flexible solutions, and alignment with EU right-to-repair policies. This research highlights the need for further quantitative assessment (e.g., life cycle analysis) and broader cultural sampling to strengthen adoption pathways in the electronics sector.

Introduction

The rapid growth of consumer electronics has significantly intensified the global challenge of electronic waste (e-waste). In 2022, the world produced 62 million tons of e-waste, which is projected to rise to 82 million tons by 2030 (Baldé et al., 2024). Electronic devices also face digital obsolescence—even when hardware remains functional, software support can lapse, prompting consumers to upgrade prematurely. These trends highlight an unsustainable consumption of electronics and the urgent need for circular practices in the sector.

While various approaches could address this problem, Product-Service Systems (PSS) offer a promising solution. In recent years, academics and businesses have increasingly examined how subscription-based PSS can shift from traditional ownership to service-based models, delivering tangible products alongside intangible services (Mont et al., 2006; Tukker, 2004). Such models may extend product lifecycles, reduce waste, and help fulfil circular economy principles (European Parliament, 2023).

However, the adoption of PSS in consumer electronics remains limited, partly due to social and psychological barriers, including strong emotional attachments to ownership and scepticism toward leasing costs (Hobson et al., 2018). Behavioural economics concepts such as the Endowment Effect and loss aversion (Kahneman et al., 1991) suggest consumers value items they own more highly and fear losses (e.g., relinquishing ownership). On the technological side, digital obsolescence and modular hardware design also influence product longevity and repair feasibility (Fischer et al., 2017; Framework, n.d.).

Given these dynamics, this study addresses two key questions:

How do consumer perceptions of ownership and product longevity influence PSS adoption in consumer electronics?

What are the main barriers and opportunities for implementing PSS models to reduce e-waste, and how can we adapt them to overcome economic, psychological, and technological hurdles?

Literature review

In recent years, subscription-based PSS has emerged as a transformative approach in various industries, sparking interest in its potential to drive sustainability and circularity. As it has gained momentum in the last decade, academic research has increasingly centred on understanding the different types of PSS and establishing a valid conceptual framework. According to Tukker (2004), there are generally three distinct types, each with unique characteristics and economic and environmental benefits, as illustrated in Figure 1.

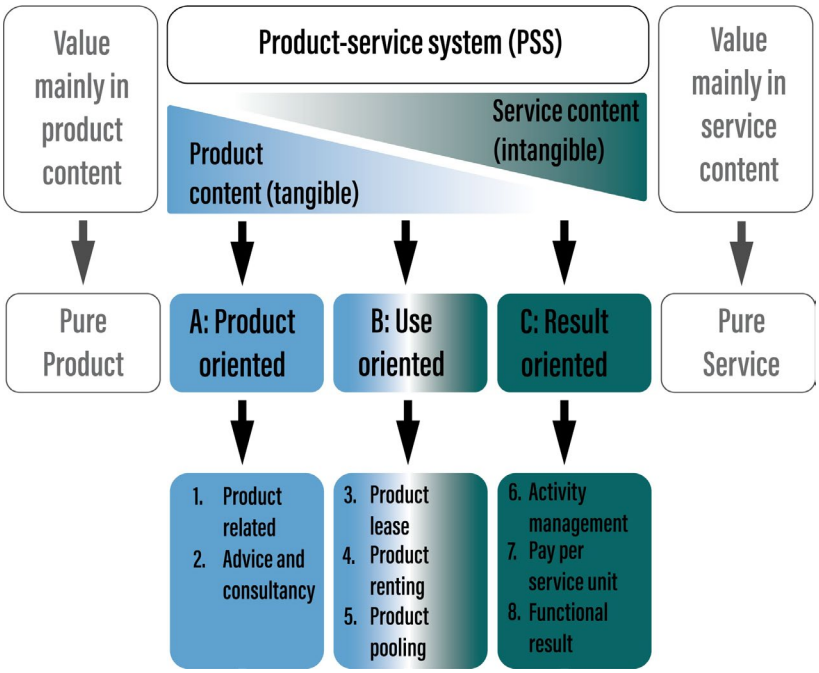

Figure 1. Tukkers three types of PSS

Product-Oriented:

The first type is Product-Oriented, which emphasizes delivering a product and offering additional services such as maintenance, repair, and upgrades. The consumer maintains full ownership of the product but benefits from the extended service and support from the company.

Use-oriented:

Use-oriented refers to when the product transitions from ownership to a leasing-based approach. The supplier retains ownership of the product and its life cycle, while the consumer pays a monthly fee for its usage. The supplier is responsible for maintenance and ensuring the product's functionality.

Result-oriented:

Result-oriented is when the consumer and supplier agree on a desired outcome rather than a specific product. While most PSS types lead to more minor environmental improvements, the Result-Oriented PSS has the highest sustainable impact (Tukker, 2004). This is due to the supplier being fully responsible for achieving the agreed-upon outcome, which often involves optimizing the service's efficiency, performance, lifespan, repairability, and sustainability of the product.

While research suggests that PSS can benefit the environment (Mont & Tukker, 2006), several challenges remain before it can be effectively implemented. A study by Hobson et al. (2018) highlights some of these challenges, presenting a hypothetical service system for mobile phones. The system allowed users to refurbish, repair, and upgrade phones, paying a monthly subscription fee. However, the limited awareness of the environmental impact of phone production and consumers' stronger emotional attachment to their devices than anticipated made it challenging to persuade them away from traditional ownership models (Hobson et al., 2018). This cognitive bias, known as the Endowment Effect, leads people to value something they own more than identical items they do not own (Kahneman et al., 1991).
A similar concept was presented by The European Circular Economy Stakeholder Platform alongside Fairphone, which produces modular phones. This PSS model focuses on extending product life cycles through modularity (Fischer et al., 2017). It highlights how modular product designs can be integrated into PSS models with companies like Fairphone to extend product lifetime. Another company could be Framework, which designs sustainable, modular laptops focusing on repairability and upgradability (Framework, n.d.). These PSS revealed similar patterns, with participants acknowledging potential benefits but remaining sceptical, particularly about the higher leasing costs compared to ownership.
A more positive response was observed for a PSS involving baby prams (Mont et al., 2006). Leasing baby prams was seen as a practical and cost-effective option for short-term use. It is also a valuable example of how a subscription-based service can extend the lifespan of products (Mont et al., 2006). Prams are made of durable components, such as the chassis, which can last through multiple users. Certain parts, such as the textile components, can be refurbished or replaced, including the interior lining, wind stopper, hood, and pockets. Looking at PSS from a larger perspective, companies such as Rolls-Royce also currently employ PSS as part of their business model, offering the "Power by the hour" program: the airlines lease engines and pay based on their specific usage (Liu et al., 2019). While significant research has been conducted on different PSS, a notable gap exists in applying these models within the consumer electronics sector.

This article seeks to fill the research gap by exploring consumers' relationship with their current electronic products and uncovering the underlying factors influencing this connection. This will be achieved through interviews and compiled thoroughly by thematic analysis. These insights will be used to investigate the opportunities and challenges of implementing PSS in consumer electronics.

Method

The study employed a qualitative approach, using thematic analysis to examine consumer attitudes toward product longevity and PSS adoption. This method was chosen for its ability to identify and interpret patterns in qualitative data (Braun & Clarke, 2006). The analysis followed Braun and Clarke's six-step framework, refining insights iteratively. The data were transcribed and analyzed using the steps in Figure 2, allowing the identification of recurring patterns in consumer behaviour. Initial codes, such as "ownership attachment" and "repair barriers," were organized into categories later to be condensed into themes for further analysis.

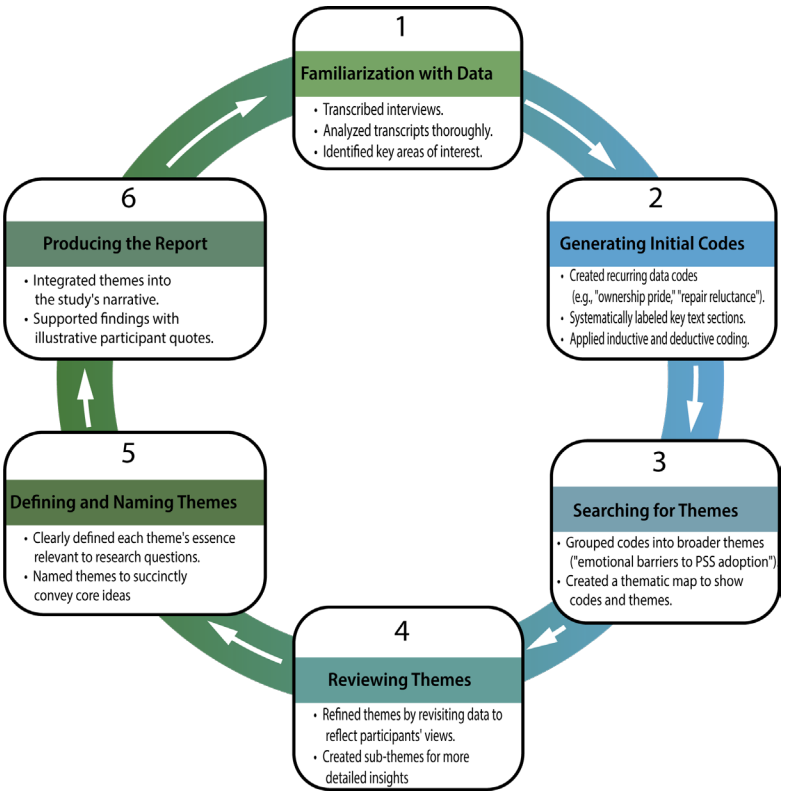

Figure 2. Tukker's three types of PSS (adapted from Tukker, 2004)

The data included 20 semi-structured interviews, a method Kallio et al. (2016) recommended for its flexibility and depth. The interviewees, aged between 21 and 65, were from Denmark and included both men and women. Each interview took around 30 minutes and was recorded and transcribed using AI tools, primarily Sonix and Microsoft Teams Speech-to-Text, to facilitate transcription. The transcripts were reviewed and cross-verified with recordings for accuracy. They were then analyzed to build familiarity with the data, laying the foundation for coding and theme development. Figure 3 shows an abbreviated example of the data-to-theme process. Initial codes were created from participant quotes, revealing common themes. As codes were identified, patterns emerged through clustering, resulting in six overarching themes.

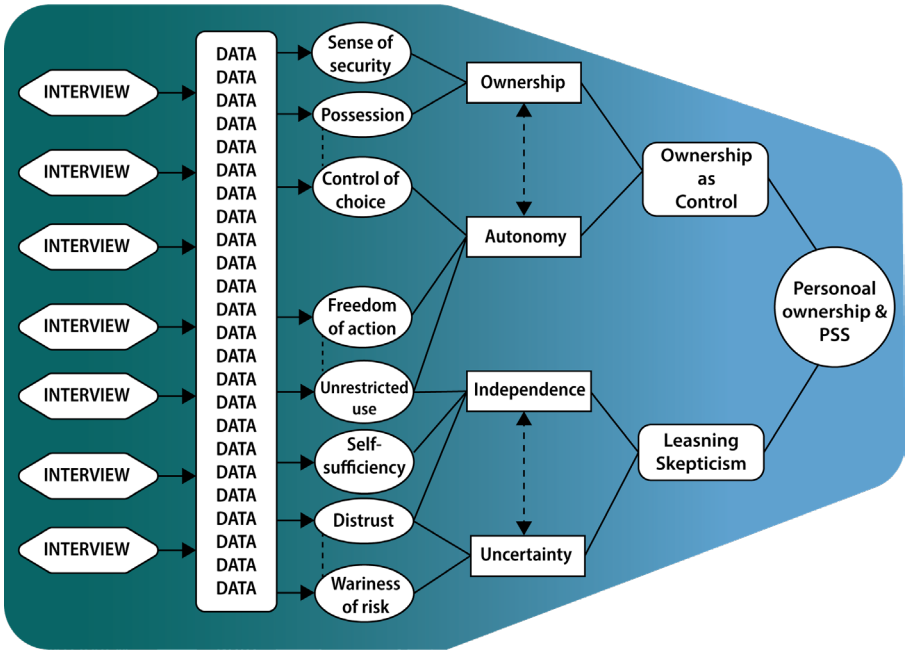

Figure 3. Coding, clustering and categorizing a theme

Analysis

This section presents the findings from research, interviews, and thematic analysis (see Table 1). These themes shed light on consumer attitudes toward product longevity and provided insights into potential barriers and opportunities for PSS adaptation.

Theme and Sub-Themes	Description	Illustrative Quotes
1. Personal ownership & PSS - Ownership as Control - Emotional Comfort	Ownership provides control and emotional security, while leasing raises concerns.	*"I prefer owning because I can control and repair my items."* *"Knowing it's mine gives me peace of mind."*
2. Cost, Quality & Economic Considerations - Cost vs. Quality - Economic Trade-Offs	Higher prices are associated with quality, but affordability can drive shorter product lifespans.	*"If I pay more, I expect the product to last longer."* *"Cheaper items don't last as long."*
3. Reparation & Knowledge Gaps - Lack of Resources - Repair Complexity	Costs, knowledge gaps, and complex designs hinder repairs.	*"There are no resources for repairing large appliances."* *"It's cheaper to buy a new one than repair it."*
4. Product Longevity & Consumer Expectations - Lifespan Expectations - Market Pressure	Product lifespans depend on the type, with trends and obsolescence forcing upgrades.	*"I expect washing machines to last longer than phones."* *"Products don't last like they used to in the 70s."*
5. Sustainability & Ethics in Consumption - Circular Economy - Consumer Responsibility	Sustainability is seen as critical, but manufacturers are perceived as disinterested.	*"Framework promotes reuse."* *"I think I should recycle more, but my items are often worn out."*
6. Product Functionality - Practical Use - Simplistic Products	Practicality and durability are prioritized over aesthetics or trends.	*"I choose products for functionality rather than appearance."*

Table 1. Themes, sub-themes and illustrative quotes

1. *Personal Ownership and Its Role in Product-Service Systems*

The first theme identified from the interviews was Personal Ownership and Its Role in PSS. The qualitative analysis and data gathering revealed a strong preference among participants for ownership over leasing products. Nearly all participants interviewed preferred to manage their products independently, and leasing was perceived as a loss of control. As one participant shared, *"Knowing it's mine gives me peace of mind."* and another *"I prefer owning because I can control and repair my items."* This sentiment reflects the emotional comfort and security derived from ownership. The cost was another significant concern, with them expressing difficulty estimating the long-term leasing expenses. This indicates a psychological barrier to adopting leasing models: for these consumers, possession itself carries significant value. A few participants did acknowledge that leasing might be acceptable in very specific situations – for example, to fulfil a short-term need (like borrowing a speciality gadget for a project) – but none saw it as a desirable long-term arrangement for everyday electronics.

2. *Cost, quality, and financial factors*

The second theme is consumers' general attitudes toward electronic devices' price, quality, and economic factors. The interviews revealed a complex relationship between product lifespan, cost, and quality expectations. A common expectation was that higher prices correlate with longer product lifespans. One participant noted, "*If I pay more, I expect the product to last longer.*" However, not all participants agreed; some mentioned that they did not always see a clear correlation between price and longevity. However, most participants agree that expensive products last longer than cheap electronics. Several participants indicated a willingness to pay more for products designed to endure, and one participant remarked, "*I don't mind paying more for a product that lasts longer.*" Participants would only consider leasing: "If leasing were cheaper than buying and included repairs, I could consider it".

3. *Repairability and Knowledge Gaps*

Most participants expressed frustration with the lack of resources and accessibility for repair. Professional repair services were often described as inconvenient, time-consuming, or expensive, discouraging interviewees from choosing repair over replacement. One participant noted, "*Professional repairs take too long and are often difficult to access.*" Cost was a key factor in repair decisions, with participants choosing replacement if repairs neared the price of a new unit. For example: "*I don't repair things if the price is close to that of a new device.*" Another participant added, "The biggest factor is probably the price; if it's cheaper to repair, I will do it." Environmental considerations played a secondary role in this decision, with participants acknowledging that repairs are often more sustainable. As one participant explained: "*I should think more about the environment, but the availability of repairs often makes it hard.*" Some participants extended product lifespans, such as those who repaired their washing machines, replacing parts to make it last 17 years instead of the expected 10.

4. *Product Longevity and Consumer Expectations*

Interviewees generally expected expensive products to be more durable. For instance, one individual shared, "*If I pay 1,350 € for a laptop, I expect at least 4-5 years of lifespan*." Similarly, expectations for product longevity varied by category, with phones and computers anticipated to last 3-4 years and larger appliances expected to last 8-12 years. Many noted that phones and computers were often changed not because of physical degradation but due to a lack of software updates or an inability to support modern features. This is also known as digital obsolescence, which refers to situations where the hardware technically functions as intended, but the software does not due to technological advancements. Some also expressed frustration with the lifespan of electronics, observing that devices with more integrated electronics tend to have shorter lifespans.

5. *Sustainability and ethics in consumption*

Some interviewees expressed enthusiasm for initiatives like Fairphone and Framework, prioritizing product modularity, recyclability, and longevity. One participant noted that "*Framework and Fairphone support the idea of reuse and extended product lifetimes*." Some favourably viewed refurbished products, with participants reporting positive experiences regarding durability: *"I often buy refurbished products, and they hold up well."* Many participants felt companies prioritize marketing over genuine sustainability, with one stating, "*Manufacturers don't seem genuinely interested in sustainable products*." The importance of design for disassembly was another recurring theme. Several participants noted that making products easy to disassemble would improve the recycling of valuable materials. Others acknowledged that environmental factors rarely influenced their decisions "*I don't think about the environment when deciding to repair or replace something*."

6. *Product functionality*

Many interviewees value functionality over trends or social status regarding product use and replacement. Several participants emphasized their preference for holding on to older products as long as they still meet their needs, with one participant noting, "*I keep products that still work, even if they are old.*" Similarly, others highlighted that they prioritize function over aesthetics or social status when making purchasing decisions: "*I buy products for their function, not social status.*"
Participants also noted that they only replace products when they become inoperable. For example, one participant shared, "*My phone is customized to my needs, so I will only replace it when it breaks.*" However, the desire for improved features was also acknowledged, with some expressing excitement: "*It's exciting when new products can do more.*"

Discussion

Our findings illuminate why typical consumers have been reluctant to give up product ownership, even when a service model could offer sustainability benefits. Participants in this study were generally unwilling to relinquish ownership of their electronics, a phenomenon explained by the Endowment Effect, which states that people place a higher value on items they own than on equivalent items they do not own (Kahneman et al., 1991). The idea of not owning an item, especially a personal device like a smartphone that holds one's data and daily utility, evoked clear discomfort. These products are seen as integral to one's identity, reflecting a deep emotional attachment. Losing ownership was repeatedly described as the most difficult challenge when considering a subscription-based PSS for electronics. This resistance is underpinned by loss aversion: the perceived "loss" of giving up one's device (or the right to call it one's own) looms larger than the potential gains of a service model. A general mistrust of leasing models also exacerbates the issue – several participants voiced concerns that service providers might impose hidden costs or leave them without a working device at a critical moment.

Another major theme was frustration over the limited options for repairs, highlighting structural and technological obstacles. Consumers desire more chances to fix their electronics, and this wish aligns with recent policy efforts like the European Union's Right-to-Repair legislation. These new regulations aim to simplify repairs and make them more attractive by improving access to spare parts and mandating that products be designed for repairability (Yakimova, 2024). Such policies reinforce the notion that future devices – particularly under PSS models – should be modular and more serviceable.
Indeed, companies like Fairphone and Framework (mentioned by several interviewees) already enable customers to replace or upgrade components easily (Fischer et al., 2017; Framework, n.d.). These examples highlight the importance of modular product architecture in extending product lifespans. However, our study found that even when repairability is built into the model, it does not fully change consumer perceptions. Many participants admitted that if a repair (whether within a PSS or outside it) became too expensive or cumbersome, they would still rather buy a new product than deal with the hassle. This aligns with Hobson et al.'s (2018) observation that consumers often have limited knowledge of their products' actual environmental impact, making it hard to convince them to opt for a service-based solution purely for sustainability reasons.

Economic considerations also strongly influenced attitudes. Most interviewees indicated they would only shift to a PSS if the financial benefits were obvious. This finding resonates with Zeithaml's (1988) notion of perceived value as a trade-off between benefits and cost. In practice, our participants prioritized immediate *tangible benefits* (like cost savings or superior service) over *abstract benefits* such as sustainability. This explains why, despite Tukker's (2004) vision that result-oriented PSS could yield the most significant sustainability outcomes (by having consumers lease products or buy performance outcomes), such models face headwinds: people are simply reluctant to relinquish ownership unless they see a clear personal advantage.

Our qualitative data strongly suggest that a pure use-oriented or result-oriented model where the company owns the product and the consumer merely accesses it is currently not the most appealing approach for mainstream electronics consumers. The psychological and trust barriers are too high. Instead, a product-oriented PSS (where the consumer retains ownership and the company provides supplemental services) appears to be a more pragmatic path forward. This approach aligns with participants' comfort zone by not forcing them to give up their devices, thereby easing the behavioural transition while still introducing service elements to extend longevity. It acts as a transitional strategy toward more sustainable consumption patterns. In a product-oriented service, a company could sell a device but then offer a service package for maintenance, repairs, upgrades, and eventual take-back or recycling. The consumer enjoys the security of ownership alongside the convenience of professional support, and the company gains opportunities for recurring revenue and deeper customer engagement. Such a model can gradually build consumer confidence in service-based solutions without breaching the psychological attachment to ownership.

Based on the study results, we developed a six-step Ownership PSS Model to address the identified barriers and guide businesses in implementing this kind of hybrid approach. The model focuses on key areas that need to be addressed to make PSS attractive and viable for consumer electronics. In essence, it outlines a *hybrid ownership-service strategy*: rather than requiring customers to rent or lease devices outright, it encourages companies to leverage ownership (which consumers prefer) as a foundation and layer on services that enhance product longevity and value. By doing so, it seeks to gradually build trust and comfort with PSS. Below, we present the six steps of the model, each targeting a specific barrier or opportunity highlighted by our research.

Ownership PSS Model

To synthesize the gathered data and insights, a proposed model is a hybrid ownership-service approach that retains what consumers value about owning products while introducing service elements to prolong product life. It provides actionable guidance for companies transitioning from a pure sales model to a more circular, service-enhanced model. Each step of the model corresponds to a critical design consideration identified in our findings. The model is shown in Figure 4.

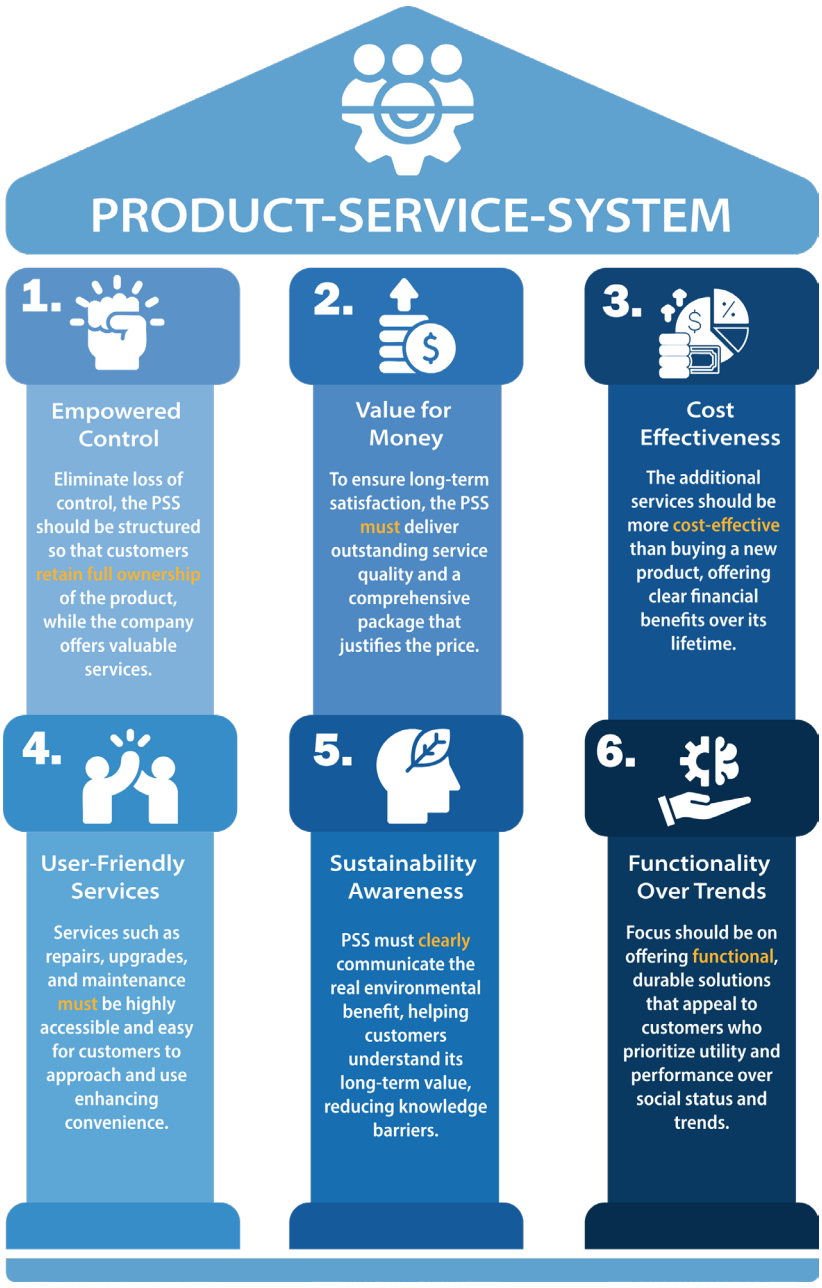

Figure 4. Ownership PSS Model

Example of Ownership PSS Model

The model was applied to a washing machine as a real-world example, supporting Europe's right-to-repair initiative, See Figure 5. Starting July 31, 2026, manufacturers must offer affordable repairs for household appliances like washing machines, dishwashers, fridges, and ovens (Repair.eu, 2024).

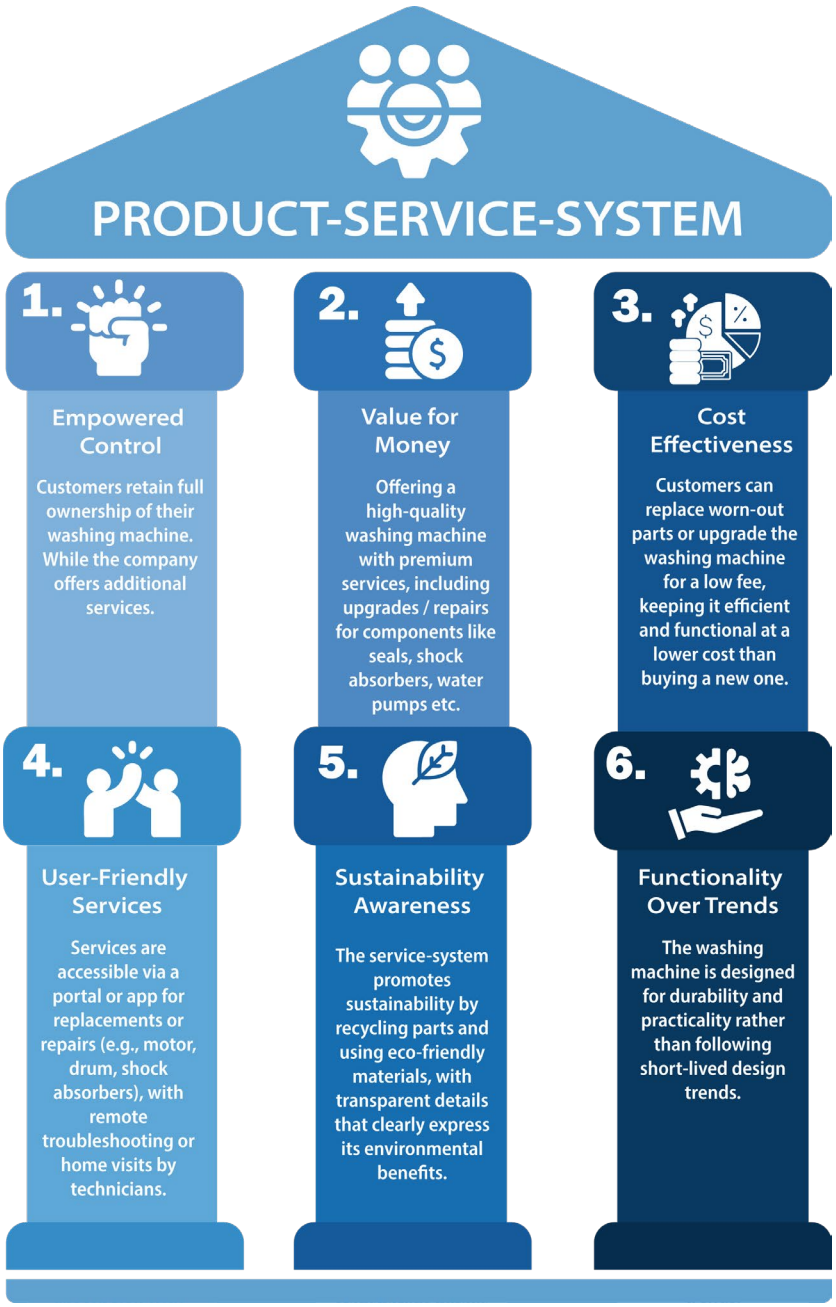

Figure 5. Washing machine example of the Ownership PSS Model

Limitations and Future Work

Like any exploratory study, this research has certain limitations that must be acknowledged, and it opens several avenues for future investigation:

Limited Sample & Cultural Context: Our interview sample was limited to 20 participants, all located in Denmark. This homogenous context (high-income, European, with a strong consumer-rights culture) may not represent the full spectrum of consumer attitudes globally. The findings and the proposed model should be tested with broader and more diverse samples. Future research should include participants from multiple geographic and cultural backgrounds to see if attitudes toward ownership and PSS differ in other contexts (e.g., countries with different levels of trust in service providers or varying cultural attitudes toward ownership). Expanding participant diversity will improve the generalizability of the results.

Qualitative Data & Generalizability: This study relied on qualitative insights and self-reported attitudes without quantitative measures of how widespread these attitudes are. While the themes identified are illuminating, we lack statistical evidence of their prevalence. Future work could employ surveys or experiments to quantify consumer willingness-to-adopt PSS under various conditions. For example, a survey could measure what percentage of consumers in different markets would prefer a hybrid ownership service model over leasing. Such data would complement our qualitative findings and help validate (or refine) the six-step model's assumptions. Additionally, longitudinal studies could track whether attitudes change after consumers gain experience with PSS offerings (e.g., through field trials).

Scope of Analysis – Environmental Impact: Our study did not include a detailed Life Cycle Assessment (LCA) or any quantitative analysis of the environmental benefits of the proposed PSS model versus traditional ownership. This was beyond our scope, but it is an important next step. Future research should incorporate LCA to objectively quantify how much e-waste reduction or carbon savings a product-oriented PSS could achieve. For instance, applying an LCA to our washing machine example could compare the environmental footprint of the service model (with longer use and recycling) against the footprint of the typical buy-and-dispose cycle. Such an analysis would provide hard evidence of the sustainability gains (or potential trade-offs) and could identify any rebound effects (e.g. if lower usage costs lead to more frequent machine use). Demonstrating clear environmental benefits will also be crucial for justifying PSS business models to policymakers and consumers alike.

Cross-Sector Comparison: This research focused on consumer electronics; however, many of the identified barriers (emotional attachment, trust, repair issues) could play out differently in other product domains. Future studies could conduct cross-sector analyses comparing consumer behaviour across product categories – for example, how do attitudes toward a PSS for electronics compare with attitudes toward PSS in clothing, furniture, or automobiles? Some sectors might find consumers more amenable to service models (for instance, car leasing is already common, whereas phone leasing is not). Understanding these differences could help refine the user-centric model for different industries or identify sectors where fully use-oriented PSS might be feasible sooner.

In summary, while our study provides initial evidence and a conceptual model, further work is needed to test, quantify, and expand these ideas. Researchers and practitioners can build on this foundation by addressing the above points – broadening samples, adding quantitative analyses (including LCA), comparing across sectors, and piloting new service concepts. Such efforts will help ensure that PSS implementations are well-intentioned, empirically effective in different contexts, and truly beneficial from an environmental standpoint.

Conclusion

This research aimed to understand consumer's perceptions of product longevity and ownership to identify pathways for adopting Product-Service Systems (PSS) in consumer electronics. By analyzing interactions with electronic devices among 20 Danish participants of various ages, it was found that none were willing to lease their products due to strong psychological attachments, lack of awareness about PSS benefits, and perceived inconveniences of subscription services.

The study identified key barriers and opportunities and proposed a six-step model to enhance PSS accessibility. This model aims to ease the transition to a system where consumers retain ownership while companies provide services like maintenance and upgrades. While it offers a conceptual framework, its implementation is complex and requires further exploration of areas like product architecture, modularity, and integration of EU's right-to-repair policies.

Encouraging more companies to adopt product-oriented services can increase revenue and improve customer relationships and environmental benefits. To succeed, companies must build consumer trust, communicate environmental advantages clearly, and offer user-friendly service options that are not bound to a subscription model.

References

Baldé, C. P., Kuehr, R., Yamamoto, T., McDonald, R., D'Angelo, E., Althaf, S., Bel, G., Deubzer, O., Fernandez-Cubillo, E., Forti, V., Gray, V., Herat, S., Honda, S., Iattoni, G., Khetriwal, D. S., Luda di Cortemiglia, V., Lobuntsova, Y., Nnorom, I., Pralat, N., & Wagner, M. (2024). *The Global E-Waste Monitor 2024* (No. 2). International Telecommunication Union (ITU) and United Nations Institute for Training and Research (UNITAR).

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

European Parliament. (2023, May 24). *Circular economy: Definition, importance and benefits*. European Parliament. https://www.europarl.europa.eu/topics/en/article/20151201STO05603/circular-economy-definition-importance-and-benefits

Fischer, A., Achterberg, E., & Ballester, M. (2017). *The Circular Phone: Legal, Operational and Financial solutions to unlock the potential of the 'Fairphone-as-a-service' model* (p. 40). Circle Economy and Fairphone.

Framework. (n.d.). *About Framework*. Framework. Retrieved 9 April 2025, from https://frame.work/dk/en/about

Hobson, K., Lynch, N., Lilley, D., & Smalley, G. (2018). Systems of practice and the Circular Economy: Transforming mobile phone product service systems. *Environmental Innovation and Societal Transitions*, *26*, 147–157. https://doi.org/10.1016/j.eist.2017.04.002

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias. *Journal of Economic Perspectives*, *5*(1), 193–206. https://doi.org/10.1257/jep.5.1.193

Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, *72*(12), 2954–2965. https://doi.org/10.1111/jan.13031

Liu, J., Wan, M., Jiang, W., & Zhang, J. (2019). How Does Leasing Affect Green Product Design? *Mathematical Problems in Engineering*, *2019*(1), 5780342. https://doi.org/10.1155/2019/5780342

Mont, O., Dalhammar, C., & Jacobsson, N. (2006). A new business model for baby prams based on leasing and product remanufacturing. *Journal of Cleaner Production*, *14*(17), 1509–1518. https://doi.org/10.1016/j.jclepro.2006.01.024

Mont, O., & Tukker, A. (2006). Product-Service Systems: Reviewing achievements and refining the research agenda. *Journal of Cleaner Production*, *14*(17), 1451–1454. https://doi.org/10.1016/j.jclepro.2006.01.017

Tukker, A. (2004). Eight types of product–service system: Eight ways to sustainability? Experiences from SusProNet. *Business Strategy and the Environment*, *13*(4), 246–260. https://doi.org/10.1002/bse.414

Yakimova, Y. (2024, April 23). *Right to repair: Making repair easier and more appealing to consumers*.

https://www.europarl.europa.eu/news/en/press-room/20240419IPR20590/right-to-repair-making-repair-easier-and-more-appealing-to-consumers

Zeithaml, V. A. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing*, *52*(3), 2–22. https://doi.org/10.1177/002224298805200302