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Article:

Miao, Z., Hur, E. and Moore, E. (Accepted: 2026) Circular Design Strategies in the Post-Consumption Journey: A Systematic Literature Review of Service Design for Circular Fashion SMEs. Journal of Services Marketing. ISSN: 0887-6045 (In Press)

<https://doi.org/10.1108/JSM-10-2025-0768>

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**Circular Design Strategies in the Post-Consumption
Journey: A Systematic Literature Review of Service Design
for Circular Fashion SMEs**

Journal:	<i>Journal of Services Marketing</i>
Manuscript ID	JSM-10-2025-0768.R2
Manuscript Type:	Research Article
Keywords:	service design, Circular economy, customer engagement, SMEs



Abstract

Purpose

Post-consumption processes are increasingly acknowledged as a critical component of facilitating circular fashion systems within SMEs. Nonetheless, research in this area often remains fragmented and dispersed across disciplinary domains. There is a limited understanding of how service design supports sustainable consumption and what challenges consumers encounter throughout the post-consumption journey. This study systematically maps and synthesises the fragmented research concerning post-consumption processes by critically analysing key service touchpoints, consumer pain points and service design strategies to develop an integrated framework for circular fashion SMEs.

Design/methodology/approach

This study systematically reviews 96 peer-reviewed articles selected from an initial pool of 997 publications using PRISMA guidelines. The data are analysed through inductive thematic analysis supported by NVivo to identify recurring post-consumption stages, consumer interactions and challenges and literature-discussed service design strategies. This is complemented by bibliometric analysis using CiteSpace.

Findings

Post-consumption functions as an interconnected, multi-stage service journey shaped by recurring touchpoints, consumer pain points and strategic interventions across usage, evaluation, after-sales service and disposal. Three key service design dimensions emerge, as follows: service optimisation,

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consumer engagement and ecosystem cooperation. Based on these findings, this study develops an integrated analytical framework linking post-consumption challenges with nine major service design strategies and highlights priorities for future research and practice.

Originality

This study advances circular fashion research by consolidating the fragmented post-consumption literature through a service design perspective. The proposed framework offers an analytical foundation for empirical research and interpreting post-consumption service challenges and service design strategies in circular fashion SMEs.

Keywords: Service design; Circular economy; Fashion; Consumer journey; SMEs

1. Introduction

The importance of implementing a circular economy has gained the attention of policymakers and industry in recent years, yet a “take–make–waste” logic still dominates practices in the fashion industry (MacGregor Pelikánová and Sani, 2023; Arimany Serrat et al., 2025). In the UK, nearly half of used textiles are still landfilled or incinerated, highlighting persistent challenges in translating circular ambitions into effective practice (Business Waste, 2024; Waste and Resources Action Programme [WRAP], 2024). Globally, approximately 92 million tonnes of textile waste are produced annually. Less than 15–20% of this textile waste is collected for recycling or reuse, with over 80% of textile waste being disposed of or burnt in landfills despite its potential for further utilisation (Shamsuzzaman et al., 2025).

Circular economy business models and implementation strategies seek to address these challenges by optimising resource management and decoupling economic activity from material consumption (Bocken et al., 2016; Ariño and Wang, 2025). However, the consumer pain points and service strategies of the post-consumption phase of circular fashion are not well understood. Scholars and stakeholders within the textile industry are increasingly recognising the importance of the post-consumption stage, but they differ in how they understand and interpret it, which makes it difficult to pinpoint the key challenges of this phase and provide appropriate strategies to address them (Pasqualotto et al., 2023; Shevchenko et al., 2023; Karimzadeh and Boström, 2024). This inconsistency is significant because sustained participation in various post-consumption activities is key to assessing how post-consumption challenges are collectively understood (Sinclair et al., 2018; Testa et al., 2024; Holmqvist et al., 2025). Although the outcomes of this phase are shaped through product use, evaluation, after-sales interaction and disposal-related re-engagement, these elements are dispersed across multiple research topics and have rarely been synthesised within a coherent analytical structure (Schallehn et al., 2019; Georgantzis Garcia et al., 2021; Timmerman, 2025).

Service design offers a complementary perspective for addressing this fragmentation because it draws attention to service interactions, consumer engagement and multi-actor coordination throughout the consumption process (Sönnichsen et al., 2025; Čaić et al., 2025). The development of an effective service design strategy helps stakeholders to understand and optimise the post-consumption consumer journey, facilitating continued participation in circular business models (da Costa, 2017; Bellos and Kavadias, 2021; Gomes et al., 2024). However, studies connecting service design to circular fashion remain conceptually dispersed, and limited attention has been paid to how service design is discussed in relation to the post-consumption journey (Kongelf and Camacho-Otero, 2020; Sun et al., 2023). The challenges in the post-consumption phase are particularly critical for small and medium-sized enterprises (SMEs), which face increasing pressure to pursue sustainable transitions while operating with constrained resources (Ooi and Memon, 2025). The adoption of circular business models offers fashion SMEs opportunities to reduce raw material costs (Martín-Díez et al., 2025) and enhance competitiveness (Feroli et al., 2022; Arsawan et al., 2026), and the development of effective strategies for SMEs can play a transformative role in circular service business practices. However, despite the prevalence of SMEs among circular businesses, little research has investigated how SMEs can effectively implement circular economy models. To address this research gap, this study conducts a systematic literature review to assess how service design is discussed in relation to the post-consumption phase of circular fashion. The review identifies recurrent post-consumption stages, consolidates associated touchpoints and pain points and develops an integrated analytical framework with particular relevance to resource-constrained circular fashion settings, especially SMEs. Accordingly, the study pursues four objectives as follows: (a) to systematically review how service design is discussed in the post-consumption phase of circular fashion, (b) to clarify how the post-consumption phase is conceptualised across the reviewed literature, (c) to identify the recurrent post-consumption circular fashion touchpoints and consumer pain points discussed in the reviewed studies, and (d) to develop an integrated analytical framework with relevant circular fashion strategies and outline priorities for future SME

empirical research.

This study contributes new insights into the key dimensions of service design interventions and maps the post-consumption journey by identifying service touchpoints and consumer pain points. This study also clarifies the service design dimensions in the post-consumption phases of circular fashion and offers an integrated analytical framework along with relevant service design strategies at each post-consumption stage. In addition, by uncovering patterns within past studies through an in-depth systematic review following the Preferred Reporting Items of Systematic Reviews and Meta-Analysis (PRISMA) guidelines and bibliometric analysis, the study identifies the current limitations of the dominant circular fashion research and provides a clear future research agenda with particular relevance to circular fashion SMEs.

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4 **2. Methodology**
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7 Given the fragmented and interdisciplinary nature of research on service design in the
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9 circular fashion post-consumption journey, a systematic literature review was considered
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11 appropriate. By synthesising existing knowledge, a systematic literature review provides a
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13 transparent and reproducible approach to consolidating dispersed insights, along with an
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15 interpretive basis for further research (Moher et al., 2009; Kirkwood et al., 2025). The
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17 literature review was conducted following PRISMA guidelines (Moher et al., 2009), which
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19 aim to minimise researchers’ subjective influence in literature classification, including
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21 biases that impact inclusion or exclusion, by applying rigorous and explicit logical principles
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23 (Elg et al., 2020; Della Lucia et al., 2025). To further articulate the procedural rationales, the
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25 methodology was also informed by the Scientific Procedures and Rationales for Systematic
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27 Literature Reviews (SPAR-4-SLR) protocol (Paul et al., 2021). SPAR-4-SLR has been
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29 applied to structure transparent review procedures and to combine bibliometric analysis with
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31 framework-based synthesis and future research agenda development. In this review, SPAR-
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33 4-SLR was used as a supplementary methodological reference to clarify the concept-driven
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35 refinement of the search terms and the screening process.
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39 **2.1. Search Strategy**
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42 A systematic search of Scopus and Web of Science was conducted as these databases
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44 provide extensive coverage of literature across a wide range of academic fields (Caputo and
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46 Kargina, 2022). In Scopus, searches were performed in the TITLE-ABS-KEY fields, while
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48 the topic field was used in Web of Science. Given the interdisciplinary and conceptually
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50 complex nature of the research domain, the search process followed an iterative and concept-
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52 driven strategy to enhance both sensitivity and robustness (Della Lucia et al., 2025), which
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54 is consistent with established methodological guidance for conducting systematic reviews in
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56 cross-disciplinary research contexts (Ciemer et al., 2025).
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59 The search terms were organised into four concept combinations that reflect the core
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analytical focus of the review: (a) opportunities and challenges in circular fashion SMEs, (b) design tools and strategic approaches within circular business contexts, (c) service design and related tools applied in the post-consumption phase, and (d) the role of service design in circular fashion businesses. Each search combined discipline-specific and cross-disciplinary terminology using Boolean operators (AND, OR, and NOT) to capture both the specialised and integrative strands of the literature. Consistent with the SPAR-4-SLR protocol, the search strategy documented the progression from the initial concepts and pilot-search refinements to the four final database search strings.

Pilot searching began in 2023, and the final database searches were conducted in March 2025. During this period, the search strategy underwent iterative refinement. The search strategy did not impose any publication date restrictions in order to capture the full breadth of relevant literature. The pilot searches were initially based on four seed concepts: “service design”, “circular economy”, “fashion” and “post-consumption”. A review of relevant titles, keywords and abstracts indicated that additional terms were included. As a result, “service design” was expanded to include related terms such as “design thinking”, “service blueprint” and “customer journey”. In addition, “circular economy” was supplemented with terms such as “circular business”. These refinements were consolidated into four final database search strings, which are presented in Appendix A along with their objectives, search terms, final sample sizes and the rationale for their inclusion in the review.

2.2. Screening

After determining the search terms and conducting the systematic searches, all records (n = 997) were exported for the screening process. The first stage filtered out 147 papers due to duplication, lack of full-text access or non-English content. The second stage involved screening titles and keywords and excluding 466 studies that were primarily focused on unrelated fields, such as chemistry, material science and molecular biology. In the third stage, abstracts from the remaining 384 papers were screened to assess their potential relevance to

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the review. Articles were excluded if the abstract suggested a misalignment with the broad scope of the study, including studies that focused on non-circular contexts, addressed organisational or technological issues or lacked an apparent connection to the post-consumption journey.

Full-text assessment (n = 216) was then conducted to confirm eligibility against the inclusion criteria. Studies were excluded if the full text did not explicitly examine service-based or design-oriented approaches within circular business contexts, failed to address consumer-related or post-consumption perspectives or focused primarily on technical, material or production-driven issues without substantive relevance to the service journey. This process resulted in the selection of 82 articles that met the eligibility requirements.

To improve the comprehensiveness of the review, a supplementary hand-search process was conducted through backward reference snowballing following the full-text screening stage. Hand searching was included as a supplementary search method because database searches alone may fail to retrieve all relevant studies, especially in interdisciplinary fields in which evidence is widely dispersed (Lee et al., 2024; Sabalbal et al., 2025). Following established supplementary search practices, the reference lists of the 82 selected studies were examined to identify additional records that might be relevant to the review topic. Any records identified through this process were assessed using the same inclusion criteria and screening procedures as those applied to the database search results. This supplementary step resulted in the inclusion of 14 additional peer-reviewed studies, yielding a final dataset of 96 studies. Grey literature and industry reports were not included in the review. In line with established systematic review practice, the co-authors discussed the inclusion criteria, screening decisions and overall review logic to strengthen procedural transparency and reduce the influence of single-researcher judgement (Wang et al., 2020; Pieper et al., 2021). **Figure 1 presents the full search terms and outlines the selection process that resulted in a final sample of 96 papers for the in-depth review.**

--Insert Figure 1 here--

2.3. Data Analysis

Consistent with previous studies in related domains (Alwani and Bhukya, 2025; Hasni et al., 2025), the data analysis process followed a two-stage synthesis strategy, combining complementary analytical methods to systematically structure and interpret the reviewed literature.

First, a descriptive bibliometric analysis was performed using CiteSpace (Version 6.4) to provide an overview of the thematic structure of the initial literature pool identified through the database searches, as visual analytics tools can reveal the literature network and enhance the methodological transparency of traditional qualitative reviews (Ali Abaker Omer and Dong, 2025; Silva et al., 2025). A keyword co-occurrence network was generated to visualise the dominant research themes and the overall distribution of concepts within the literature (see Figure 2).

--Insert Figure 2 here--

This analysis was used to support familiarisation with the field and to contextualise the subsequent qualitative analysis. This process identified a dense concentration of research around concepts such as “circular economy”, “sustainable development”, “product design” and “business models”, while service design–related and consumer-oriented terms appeared less prominently, suggesting their relatively limited representation in the existing literature.

In the second stage, the 96 included studies were imported into NVivo (Version 15) and analysed through an inductive and iterative thematic synthesis to enhance analytical precision and in-depth understanding of the field (Feor et al., 2023). Following repeated close readings of the full texts, initial open codes were assigned to passages referring to post-consumption stages, consumer actions, service touchpoints, pain points and service design–

related responses within circular business contexts. These codes were then compared across studies and progressively grouped into broader descriptive categories. Through further iterative interpretation, these categories were refined into higher-order themes that informed the identification of the recurring patterns presented in the integrated framework. To strengthen analytical credibility, the emerging coding structure and thematic groupings were discussed by the co-authors and refined through iterative review. This inductive thematic synthesis approach is particularly effective for organising conceptually fragmented service research into coherent analytical frameworks by enabling the integration of diverse perspectives while preserving the contextual richness of the selected studies (Espitia et al., 2025).

3. Synthesis of Results

This section synthesises the findings from the 96 included studies and is structured to present the scope of the literature and to outline how prior research addresses post-consumption activities, the consumer journey and service-related practices in the context of circular fashion SMEs.

3.1. Characteristics of the Studies

This review systematically analysed 96 papers, 95 of which were published within the past decade (from March 2015 onwards), with 70% published since 2020. This trend indicates that the application of design strategies to circular business transitions, as an emerging research field, has attracted increasing academic attention. Geographically, 86% of the studies were conducted in developed countries, particularly in Western contexts, including the UK, the US and the EU. This distribution may reflect early policy adoption of circular economy principles and stronger institutional support in these regions.

In the selected literature pool, at least 35% of the studies focused primarily on the fashion industry, and this emphasis on fashion reflects the sector's substantial environmental burden (de Aguiar Hugo et al., 2021), which has driven growing academic interest in circular fashion (Dissanayake and Weerasinghe, 2022). More than half of the studies, however, adopted a cross-sectoral perspective. Although these studies were not limited to fashion, they provided relevant insights into post-consumption service processes and service design challenges that informed the analytical framework of this review.

Figure 3 presents a keyword co-occurrence clustering map based on the 96 selected studies, identifying 16 clusters using the log-likelihood ratio (LLR) algorithm.

--Insert Figure 3 here--

Compared with the initial exploratory map generated from the full dataset (see Figure

2), this refined visualisation offers a more focused representation of the conceptual structure within the selected literature. The clustering map illustrates the distribution of key topics addressed across the reviewed studies, including areas related to access-based consumption, clothing repair, consumer behaviour, the customer journey and design-oriented approaches. It contextualises the scope of the selected literature and provides a transparent overview of how the final sample is positioned within the broader research landscape.

3.2. Circular Economy Practices in SME Contexts: Opportunities and Challenges

Across the reviewed studies, the concept of the circular economy is predominantly articulated through two interrelated dimensions: resource management strategies and principles (Kirchherr et al., 2017). The strategies primarily concern approaches to innovation through resource optimisation (Bocken et al., 2016; Konietzko et al., 2020). The principles include the “R framework” and a systems perspective (Jackson et al., 2014; Kirchherr et al., 2017; Popović and Radivojević, 2022). The R framework, regarded as the core of circular economy principles, originated with the 3Rs—Reduce, Reuse, and Recycle (King et al., 2006). It later expanded to the 6Rs—Reduce, Reuse, Recycle, Recover, Redesign, and Remanufacture (Jawahir and Bradley, 2016) to cover product life cycles and then to the 9R framework (Potting et al., 2017), which consists of 10 strategies: Refuse (R0), Rethink (R1), Reduce (R2), Reuse (R3), Repair (R4), Refurbish (R5), Remanufacture (R6), Repurpose (R7), Recycle (R8), and Recover (R9). In parallel, a systems perspective—spanning micro (individuals and SMEs), meso (organisations and sectors) and macro (national and global systems) levels—is commonly employed to situate circular practices within broader sociotechnical contexts (Iacovidou et al., 2021; Dautremont and Gobbo, 2025). The systems perspective provides the overarching conceptual foundation of the circular economy, emphasising multi-level coordination across product, organisational and societal systems. Within this systemic view, the R framework defines strategic pathways for circularity, and resource management serves as the operational means through which these R strategies are implemented, enabling effective material flow (Kirchherr et al., 2017).

Within the reviewed literature, circular economy practices are frequently portrayed as particularly accessible and beneficial for SMEs when compared to large enterprises, which tend to prioritise production process optimisation (Lernborg, 2021; Ferasso et al., 2024). The literature attributes this advantage to the smaller organisational scale of SMEs, which enables faster decision-making and greater flexibility in product design and material use (Thorley et al., 2018; Naranjo et al., 2025). Moreover, adopting circular practices helps SMEs reduce raw material consumption and minimise waste, which is an important advantage given their frequent constraints in terms of labour, capital and technology (Bassi and Brazzale, 2025). These advantages empower SMEs to drive consumer-side change by promoting product longevity and shifting business models from selling products to providing circular services (Lernborg, 2021).

Nevertheless, the existing literature also highlights significant challenges faced by SMEs in implementing circular strategies. Frequent barriers include limited finances, a shortage of technical knowledge and staff capacity, weak market transparency and low customer awareness or willingness to engage with circular offerings (Rizos et al., 2016; Takacs et al., 2022; Carreira et al., 2024). These barriers often intensify when businesses depend on external partners and infrastructure to sustain post-consumption activities (Salonen et al., 2025).

3.3. Applying Circular Business Models in Fashion SME Contexts

The literature commonly defines circular fashion business models as approaches that extend the utilisation of fashion products and materials to optimise their usage and reuse (WRAP, 2022a). Studies focusing on fashion SMEs suggest that adopting circular business models is an important pathway for sustainable transition, particularly where organisational flexibility supports adaptation under resource constraints (Poldner et al., 2022; Piller, 2023). These business models are widely regarded as helping SMEs reduce demand for raw materials and support the recirculation of resources within the economic system, thereby

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contributing to the pursuit of sustainable objectives (Salvador et al., 2020; Bocken and Ritala, 2022).

Previous studies have commonly distinguished between circular strategies that narrow, slow or close resource loops, and these strategic logics support different business model configurations (Bocken et al., 2016). Within the fashion sector, closing and slowing strategies are particularly prominent. Closing strategies involve reusing post-consumer materials through recycling, downcycling or upcycling, depending on material quality and end-product value. Slowing strategies extend product lifespans by promoting durability, maintenance and repair, thereby reducing the demand for virgin materials (Richter et al., 2021; Caldera et al., 2022).

In the reviewed literature, repair, rental and second-hand resale are among the most frequently discussed circular service models in fashion; all three are considered slowing strategies because they aim to extend product use and enable repeated circulation of garments. This emphasis is broadly consistent with the UK-focused literature and industry reports, which also identify resale, repair and rental as the most prominent circular business models that use slowing strategies in the fashion sector (WRAP, 2022b; Clarke, 2024; Statista, 2024). Other models, such as take-back schemes and fashion swaps, also emerged in the reviewed articles, but they function more as enabling mechanisms or appear less frequently in the reviewed literature and remain at an early stage of development (Brydges, 2021; Poldner et al., 2022). For this reason, the present review centres on repair, rental and resale as the most developed and repeatedly examined service configurations while recognising other models as relevant but less extensively studied services with potential environmental and community benefits.

3.4. The Post-Consumption Journey in Circular Fashion Business

The literature conceptualises consumption in the context of the circular economy as a process that extends beyond purchase to include subsequent activities, such as use,

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4 evaluation and disposal. From a consumer-oriented perspective, existing studies commonly
5 distinguish between pre-purchase, purchase and post-purchase stages, capturing behaviours
6 from acquisition to disposal (Selvefors and Rexfelt, 2019; Hobson et al., 2021; Pasqualotto
7 et al., 2023). Complementing this view, lifecycle-oriented research describes consumption
8 as encompassing product use, re-evaluation, repair and disposal, with particular emphasis on
9 customer experience in the after-use stage (Schallehn et al., 2019; Georgantzis Garcia et al.,
10 2021).

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12 While some studies restrict the post-consumption phase to disposal or post-use
13 activities (Jiang et al., 2018; Karimzadeh and Boström, 2024), other research explicitly
14 includes product use within this phase (Kim et al., 2015). Indeed, the usage phase is critical,
15 both from a consumer and lifecycle perspective, as it directly influences later behaviours,
16 particularly disposal decisions (Shevchenko et al., 2023; Timmerman, 2025).

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18 Drawing on these relevant categorisations, this review conceptualises the post-
19 consumption phase as a broader analytical sequence that begins with product use and extends
20 through evaluation, after-sales interaction and disposal (Zarley Watson and Yan, 2013;
21 Georgantzis Garcia et al., 2021; Ferraz et al., 2023). This synthesis is consistent with prior
22 research showing that post-purchase processes in circular consumption are not limited to
23 end-of-life decisions but also involve use experience, reassessment, service contact and
24 subsequent re-engagement choices (Camacho-Otero et al., 2019; Vidal-Ayuso et al., 2023).
25 Consequently, four post-consumption stages are identified: usage, evaluation, after-sales
26 service and disposal. The usage stage refers to the period following purchase during which
27 consumers interact with, utilise and form experiences with a product or service. Consumer
28 perceptions at this stage influence subsequent behaviour and even eventual disposal
29 decisions (Sierra-Pérez et al., 2021). The evaluation stage involves the consumer's overall
30 assessment of the product and related services, encompassing satisfaction, affect and product
31 evaluation (Mano and Oliver, 1993; Testa et al., 2024). The after-sales service stage occurs
32 when consumers provide feedback, file complaints or request follow-up. Experiences in this
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phase are closely linked to usage and evaluation and can influence future disposal decisions (Hankammer et al., 2019; Sierra-Pérez et al., 2021). The disposal stage represents the final stage in the process, when consumers decide how to discard products. These decisions are deeply shaped by earlier experiences (Patwary, 2019). This stage is particularly critical in SME circular fashion settings that adopt circular business models as consumers can derive emotional, moral and functional value from the disposal of used garments, which in turn motivates their re-engagement with circular practices (Pera and Ferrulli, 2024; Tari and Trudel, 2024). Brands should therefore provide clear guidance and convenient circular options at this stage, transforming disposal into a re-engagement trigger that fosters continued participation (Lehner et al., 2020; Ungerman and Dědková, 2024).

Building on this focus, this research identifies consumer actions across post-consumption journeys in repair (n=13), rental (n=12), and second-hand resale services (n=17), which emerged as the most developed and frequently discussed service types in circular fashion literature (see Table I for a detailed overview). The customer journey concept is widely used in academia and industry to map brand-controlled interactions (Schau and Akaka, 2021). However, it often overlooks broader consumption processes, such as use, storage and disposal (Kokins et al., 2021; Schau and Akaka, 2021). In contrast, the consumer journey encompasses a wider range of behaviours motivated by higher-order goals and thus provides a more accurate representation of the consumer perspective (Shavitt and Barnes, 2020; Kokins et al., 2021). This aligns with the central aim of this study, which is to develop service design strategies from a consumer-centric perspective. This distinction is especially relevant in SME circular fashion settings, where continued participation depends heavily on what consumers do after acquisition. Recent research highlights the consumer journey as a key framework for understanding engagement by identifying important touchpoints and enabling stage-specific strategies to strengthen participation across the post-consumption phase (Holmqvist et al., 2025; Petreca et al., 2025). Across the reviewed studies, repair, rental and second-hand resale are not examined in the same way. Rental and resale studies are more often linked with platform-based interaction, the convenience of the service process

and trust, whereas repair research more frequently highlights physical product assessment and service responsiveness, as shown in Table I.

--Insert Table I here--

3.5. The Application of Service Design in Circular Fashion

Although the literature widely applies Product Service Systems (PSS) as a framework for establishing circular business models, several studies report that PSS pays limited attention to user-centred concerns, such as trust and continued participation (Sarancic et al., 2023; Teigiserova and Schraven, 2024). In response, service design is increasingly discussed as a complementary lens that brings service touchpoints, consumer engagement and multi-actor coordination into circular business model development (Dagilienè et al., 2024). Across the reviewed studies, this contribution is reflected through different service design approaches, which include touchpoint and process redesign, journey-based and co-design approaches and ecosystem-level coordination across actors (Carvalho Proenca, 2019; Salgado et al., 2022). As summarised in Table II, these approaches are associated with three established service design conceptualisations: design of services, design for service and service ecosystem design (Vink et al., 2021).

--Insert Table II here--

Despite the differing emphases of these three conceptualisations, the examined research indicates a convergence on three analytical issues. Design of services concerns how specific service processes and touchpoints are configured and improved, particularly where companies seek to reduce friction and improve reliability in post-consumption service delivery. Design for service highlights how consumers interpret and derive value from circular services over time. Service ecosystem design expands this perspective to systemic cooperation, recognising that services are shaped by shared norms and multiple actors and operate as multidimensional systems where physical, social, symbolic and natural elements

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interact to enable collaboration (Rosenbaum and Massiah, 2011). This perspective supports ecosystem collaboration as a key dimension of circular transformation. For the purposes of this review, these orientations are synthesised into three analytical dimensions: service optimisation, consumer engagement and ecosystem cooperation.

These three dimensions are especially relevant to the post-consumption journey because the challenges identified in the reviewed literature are not confined to one level of analysis. Some concern the design and consistency of service processes, such as accessibility, timing, interface usability and the clarity of after-sales procedures. Others relate more closely to consumer interpretation and participation, including trust, perceived value, emotional response and willingness to continue engaging with circular services. Additional challenges are related to coordination between multiple actors, such as platforms, logistics partners, community infrastructures and broader governance arrangements. Therefore, the reviewed studies indicate that post-consumption challenges operate across interconnected service-process, consumer engagement and ecosystem dimensions. Organising the literature along the lines of these three dimensions provides a coherent structure for interpreting post-consumption touchpoints and pain points across different circular service models and supports the analytical mapping developed in the following section.

4. Discussion

4.1. Mapping Key Dimensions of Service Design Intervention in the Post-Consumption Journey

Building on the synthesis of the reviewed studies, this section consolidates recurring patterns of service touchpoints and consumer pain points reported across post-consumption journeys and examines how different dimensions of service design have been discussed in relation to these challenges in circular fashion literature, with particular relevance to fashion SME settings.

4.1.1 Identification of Service Touchpoints and Pain Points

Touchpoints are defined as interaction points offered by businesses (Homburg and Tischer, 2023), while pain points represent negative experiences during the consumer journey (Holz et al., 2024). Since pain points typically arise at specific touchpoints, identifying and modifying them is crucial for enhancing overall consumer experience in the circular fashion post-consumption journey (Papantonopoulos and Karasavova, 2022). As illustrated in Table III, these touchpoints and pain points reflect patterns repeatedly observed across different circular business models and post-consumption contexts within the reviewed literature.

--Insert Table III here--

In Stage 1 (usage), consumers typically encounter several pain points: P1 is inadequate product quality, often due to a mismatch between high expectations and poor product conditions; P2 is misalignment between product attributes and user needs, such as sizing or style; P3 is the absence of expected components or accessories, including poor packaging, which diminishes perceived value; and P4 is limited or faulty product performance, particularly with reused or repaired items. These pain points suggest that early post-consumption experiences are shaped not only by the condition of the item itself but also

by how reliably the service is delivered and interpreted by consumers. In the reviewed literature, such inconsistency issues are closely related to trust and perceived reliability, which can further affect consumers' willingness to engage (Camacho-Otero et al., 2018; Wallner et al., 2023; Hernandez et al., 2024).

In Stage 2 (evaluation), three common pain points were identified: P5 is unsatisfactory interactions during the purchase process, such as unhelpful customer service or confusing information, which undermine trust; P6 is decreasing emotional satisfaction over prolonged use as initial enthusiasm fades; and P7 is social disapproval or negative peer feedback, which may weaken consumers' confidence in their choices. These issues reflect challenges not only within the individual service journey but also in brand communication and reputation. Therefore, the literature suggests that consistent communication across post-consumption touchpoints is particularly important in SME circular fashion settings, where trust and brand credibility are frequently discussed as fragile yet central to continued participation in circular services.

In Stage 3 (after-sales service), consumers often experience service-related challenges: P8 is limited access to post-purchase support channels, leading to confusion or a lack of prompt assistance; P9 is procedural complexity or delays in handling returns and repairs, which can cause inconvenience and discourage further engagement; P10 refers to difficulty navigating or using digital interfaces, particularly when platforms are poorly designed or unintuitive; and P11 refers to perceived unfairness or ineffectiveness of support, which may leave consumer concerns unresolved. These issues point to broader challenges in operational consistency and communication within post-consumption service systems. In the reviewed literature, collaboration with technology partners is discussed as one possible means of improving responsiveness and consumer-facing support, particularly in settings where internal service capacity is limited.

Finally, in Stage 4 (disposal), pain points include the following: P12 is insufficient

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4 follow-up or proactive engagement at the end of the product lifecycle; P13 is limited
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6 consumer awareness of environmental impacts; P14 is distrust based on brand image or
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8 market feedback, especially if the company is perceived as lacking credibility or genuine
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10 commitment to sustainability; P15 is the absence of rewards or loyalty benefits, which
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12 reduces motivation for responsible behaviour; P16 is complex or time-consuming
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14 engagement processes, such as inconvenient return procedures or unclear instructions; and
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16 P17 is inadequate digital features that hinder seamless or user-friendly disposal and re-
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18 engagement. These barriers suggest that the reviewed literature approaches post-
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20 consumption challenges as interconnected, pointing to the need to consider service,
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22 experience and stakeholder coordination in relation to one another. Because smaller
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24 companies are often discussed as organisationally flexible but resource-constrained, post-
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26 consumption services can be a particularly relevant site for examining how consumer-facing
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28 circular strategies are configured under such conditions.
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32 Table I and Table III show that consumer pain points vary across both post-
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34 consumption stages and service types. During Stage 1 (usage), repair studies are mainly
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36 concerned with functional quality and fit, whereas rental studies focus more on cleanliness,
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38 and resale studies on description accuracy and undisclosed defects. During Stage 2
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40 (evaluation), repair research places greater emphasis on perceived repair quality. Rental
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42 studies emphasise dissatisfaction with earlier service aspects, such as booking and delivery,
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44 whereas resale studies highlight concerns about product accuracy. During Stage 3 (after-
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46 sales service) and Stage 4 (disposal), repair studies focus on re-repair and garment-care
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48 support, rental studies on complaints and return procedures, and resale studies on refunds
49
50 and resale services.
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52 *4.1.2 Leveraging Service Design Dimensions in the Post-Consumption Journey*

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55 As discussed in Section 3.5 and summarised in Table II, the three analytical
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57 dimensions were synthesised from key emphases identified in the reviewed literature and
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59 grounded in established service design conceptualisations (Vink, 2019; Vink et al., 2021).
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More specifically, design of services was associated with improvements to service touchpoints and contributed to service optimisation. Design for service, by contrast, was linked to participatory interactions that fostered consumer engagement, while service ecosystem design highlighted wider actor coordination and enabling conditions that supported ecosystem cooperation. These dimensions are therefore used to interpret the pain points identified across the post-consumption journey.

Service optimisation is most relevant to pain points that arise from the consistency of specific service processes. Across the reviewed literature, this includes issues such as unclear service procedures, weak responsiveness and friction in complaint handling (McQueen et al., 2022; Liu and Wan, 2023). These pain points indicate that post-consumption difficulties are often embedded in how services are organised and delivered. Service optimisation thus helps interpret challenges related to procedural clarity and reliability across different touchpoints.

Consumer engagement is most relevant to pain points that concern how consumers interpret, experience and continue participating in circular services over time. The reviewed studies found that many difficulties in the post-consumption journey were shaped by perceived value and willingness to re-engage (Lang et al., 2020; Wu et al., 2022). This is especially visible where consumers reassess the quality of circular services during post-consumption stages. From this perspective, pain points in this phase reflect how consumers respond to communication and support from circular services and whether they feel confident sustaining their participation (Pasqualotto et al., 2023; Gomes et al., 2024).

Ecosystem cooperation enhances businesses' access to resources and broadens service networks through cross-organisational collaboration (Nuutinen et al., 2025). The reviewed literature suggests that many post-consumption challenges in circular fashion involve dependencies on various external actors. Related pain points may reflect uneven service standards or weak alignment across the wider network through which circular services are

delivered (Bressanelli et al., 2022; Hernandez et al., 2024). Therefore, this dimension is useful for interpreting pain points that cannot be fully understood at the level of a single touchpoint or business, especially in SME contexts where post-consumption service provision often relies on external support and collaboration (da Costa, 2017; Hafeez et al., 2025).

These three dimensions provide an analytical structure for interpreting the touchpoints and pain points mapped in Table III. They indicate that post-consumption challenges emerge through interactions among service processes, consumer participation and wider actor coordination, providing the foundation for the service design-based responses developed in the following section.

4.2. Service Design Strategies and Integrated Framework Discussed in the Literature

After analysing the touchpoints and pain points that form the descriptive basis of the review, the service design-related strategies discussed or implied in the reviewed literature were grouped under the three dimensions. The strategies therefore function as sub-themes nested within these three dimensions, helping to organise how service design responses are discussed across the literature. They should be understood as interpretive categories that synthesise recurring patterns in how post-consumption challenges are addressed in circular fashion research. This perspective is especially relevant in SME contexts, where limited internal capacity, resource constraints and reliance on external coordination can make post-consumption service particularly difficult to deliver (Elf et al., 2022; Kuik et al., 2023; Mignacca et al., 2026).

Across the reviewed studies, challenges are associated with different types of service design response. In targeted circular fashion services, pain points are most often discussed alongside particular groups of strategies. Strategies under service optimisation are primarily concerned with extending, redesigning or digitally supporting service processes to improve

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usability and continuity across the post-consumption journey. Strategies under consumer engagement address how consumers experience and continue participating in circular services through clearer communication, better touchpoint management and educational support. Strategies under ecosystem cooperation reflect the extensive coordination required when post-consumption service provision depends on multiple actors, infrastructures and shared standards. As shown in Table IV, the nine strategies indicate that service design responses in circular fashion extend beyond process improvement to involve consumer engagement practices and wider system coordination.

--Insert Table IV here--

--Insert Figure 4 here--

Figure 4 provides a structured synthesis of how post-consumption challenges and service design strategies are connected in the reviewed literature. This synthesis clarifies that these challenges are interrelated and systemic and that the strategies discussed in circular fashion research are grouped accordingly. The framework therefore offers a foundation for future empirical investigation and a more coherent perspective for interpreting post-consumption service design in SME circular fashion settings.

5. Conclusion

This study examines the literature to understand how service design is discussed in relation to the post-consumption phase of circular fashion. A systematic review of 96 studies concluded that the post-consumption phase is a multi-stage service context comprising four analytically distinct stages: usage, evaluation, after-sales service and disposal. Across these stages, the review identifies recurrent touchpoints and pain points and organises them in relation to three service design dimensions: service optimisation, consumer engagement and ecosystem cooperation. On this basis, the study develops an integrated analytical framework that links post-consumption challenges with the nine service design strategies discussed across the reviewed literature.

The findings suggest that post-consumption service issues are particularly consequential in SME circular fashion contexts, which are often characterised by resource constraints and limited internal capacity. Service design is **used** here as an analytical lens for interpreting how recurring post-consumption challenges and possible responses are discussed in the literature. This positioning is especially important given that the strategy types identified in the review remain conceptual and require further empirical testing in real-world SME settings.

5.1. Research Contribution

This study contributes to the literature on circular fashion and service design in three ways. First, it foregrounds consumer-facing service in the post-consumption phase and clarifies this phase as a multi-stage journey through which circular services are encountered and sustained. In doing so, it shifts attention away from the dominant emphasis on production systems and supply chains and towards how consumers encounter circular services across usage, evaluation, after-sales service and disposal. Second, it develops an integrated analytical framework that organises recurring post-consumption challenges and service design-related responses into three dimensions—service optimisation, consumer

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engagement and ecosystem cooperation—and conceptualises post-consumption as a multidimensional service context in which service-process challenges, consumer participation and ecosystem conditions interact. Third, it reveals uneven patterns of empirical attention across post-consumption stages and strategy types and outlines a future research agenda for subsequent empirical testing and theory development in circular fashion SME settings.

From a managerial perspective, the framework is best understood as a structured diagnostic lens that may be useful to different actors involved in post-consumption circular services. For managers in resource-constrained circular fashion firms, especially SMEs, it offers a way of identifying where consumer-facing difficulties are most likely to arise across the post-consumption journey and which issues may require priority attention under conditions of limited organisational resources. For service designers and internal customer-experience teams, the framework provides a means of interpreting whether particular challenges are more closely related to service optimisation, consumer engagement or ecosystem cooperation, thereby supporting more focused service redesign and touchpoint analysis. For ecosystem partners, such as logistics providers or platform operators, the framework highlights where post-consumption difficulties appear to extend beyond single-firm capacity and where coordination may matter most. Finally, for industry intermediaries and policy-support organisations, the framework offers an analytical basis for considering what kinds of external support, standards and collaborative mechanisms may be needed to strengthen circular service provision in resource-constrained SME settings. Therefore, the framework may support more differentiated reflection on post-consumption challenges across stakeholder roles while still requiring empirical testing before any stage-specific strategy can be treated as validated practice.

5.2. Limitations and Future Agenda

While this study offers a structured review of service design in circular fashion, it has

18 the geographical scope to test how post-consumption service challenges and service design
19 responses vary across different settings. In addition, the review points to underdeveloped
20 questions concerning governance and responsibility allocation in circular fashion systems,
21 suggesting a need to examine how responsibilities are organised across firms, platforms,
22 intermediaries and regulatory actors, as well as how policy mechanisms, such as extended
23 producer responsibility, may influence the conditions under which resource-constrained
24 SMEs participate in circular service provision. The reviewed literature highlights different
25 priorities related to service processes, consumer engagement and ecosystem conditions.
26 Service optimisation studies emphasise reliability and usability, consumer engagement
27 research focuses on continued participation, and ecosystem studies highlight resource access
28 and actor coordination. However, little is known about how resource-constrained SMEs
29 balance these priorities in practice. Future research should examine how such trade-offs vary
30 across post-consumption stages, service types and regional contexts.
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46 Given these limitations and the gaps identified throughout the review, four major
47 research themes were identified to guide future investigations. Table V presents a set of
48 potential research questions under each theme, together with representative references
49 associated with each suggested direction. The proposed future research agenda focuses on:
50 (1) empirical research and methodological extension; (2) mechanisms and strategies in the
51 post-consumption journey, including AI and emerging technologies; (3) organisational
52 design under SME constraints; and (4) governance and regulatory influences on circular
53 practices, ecosystem coordination, and contextual transferability.
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--Insert Table V here--

In summary, this study fulfils its objectives by clarifying the post-consumption phase as a multi-stage service context, developing an integrated analytical framework with particular relevance to circular fashion SME settings and outlining priorities for future empirical research. It contributes to the academic understanding of service design in circular fashion and provides a structured basis for managerial reflection and further empirical inquiry.

Appendix A. Mapping Final Database Search Terms to Concepts Represented in the Final Sample

Search category	Search objective	Final database search terms	Concepts represented in the final sample
1. Circular SME opportunities and challenges	To capture opportunities and challenges associated with circular fashion SMEs.	("Small and medium enterprise" OR SMEs OR SME) AND "circular economy" AND ("fashion" OR "apparel" OR "clothing" OR "textile")	SME / small-firm (n=14); Fashion / clothing (n=13); Circular economy / sustainability (n=13); Circular business model (n=6); Lifecycle / end-of-use (n=5); Service design / design thinking (n=5)
2. Design tools/strategies/models in circular business	To identify design tools and strategic approaches within circular business contexts.	("Design tool" OR "design strategy" OR "design framework" OR "design model" OR "canvas" OR "customer journey" OR "consumer journey" OR "service blueprint") AND ("circular economy" OR "circular business")	Circular economy / sustainability (n=14); Design tools / canvas / framework (n=32); Circular business model (n=29); Lifecycle / end-of-use (n=5); Digital technologies / platform (n=14)
3. Service and design-related tools in post-consumption circularity	To identify service and design-related literature on post-consumption circular practices within circular economy contexts.	("Service design" OR "design thinking" OR "customer journey" OR "consumer journey" OR "service blueprint" OR "design tool" OR "canvas") AND ("circular economy" OR "circular business") AND ("post consumption" OR "post-consumption")	Circular economy / sustainability (n=14); Post-consumption / lifecycle (n=12); Service design / design thinking (n=12); Design tools / canvas / framework (n=11); Customer journey / experience / touchpoints (n=11)
4. Service design in circular fashion	To identify the role of service design in circular fashion businesses.	("Service design" OR "customer journey" OR "consumer journey" OR "service blueprint" OR "customer engagement") AND ("circular fashion" OR "fashion" OR "apparel" OR "clothing" OR "textile")	Fashion / textile / clothing concepts (n=13); Customer journey / experience / touchpoints (n=13); Circular economy / sustainability (n=13); Consumer engagement / behaviour / adoption (n=11); Resale / second-hand (n=7)

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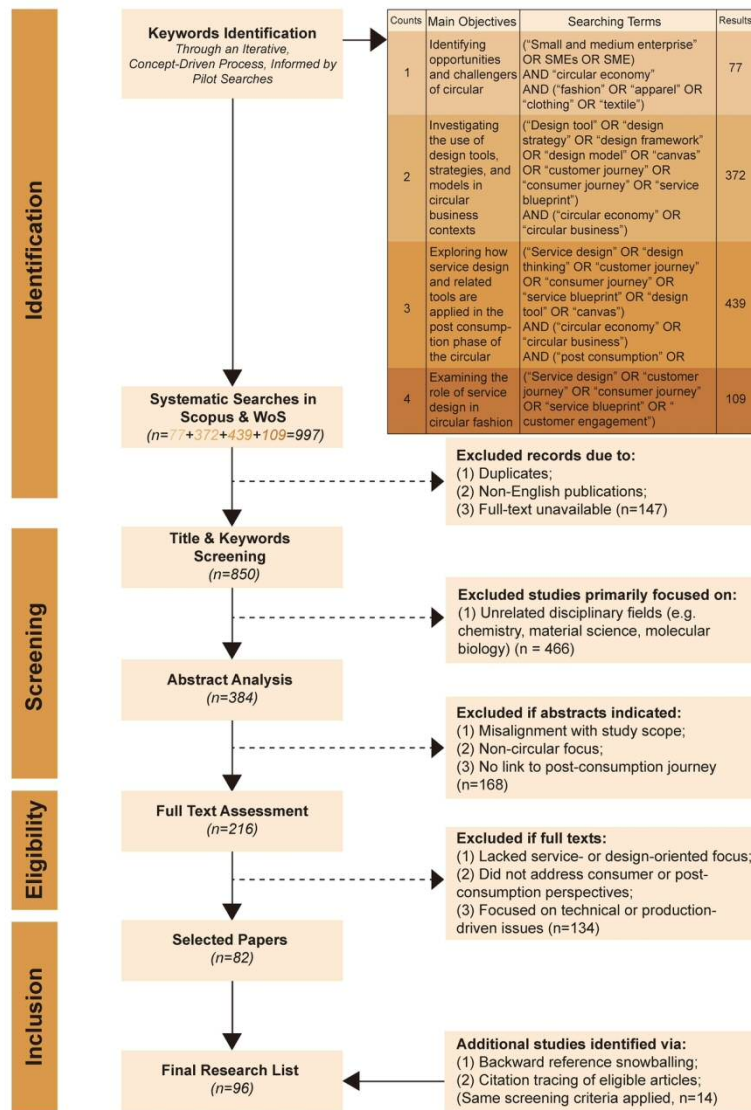


Figure 1. Search Terms and Selection Process Flowchart (Source: Authors Own Work)

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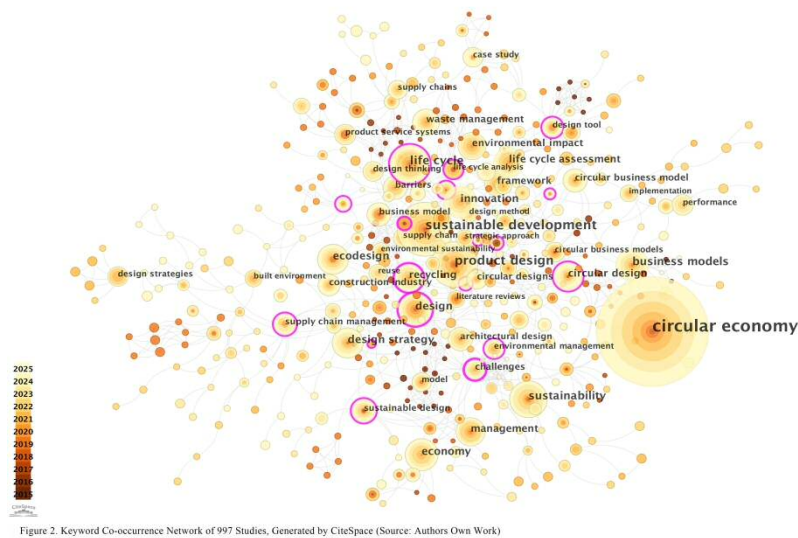


Figure 2. Keyword Co-occurrence Network of 997 Studies, Generated by CiteSpace (Source: Authors Own Work)

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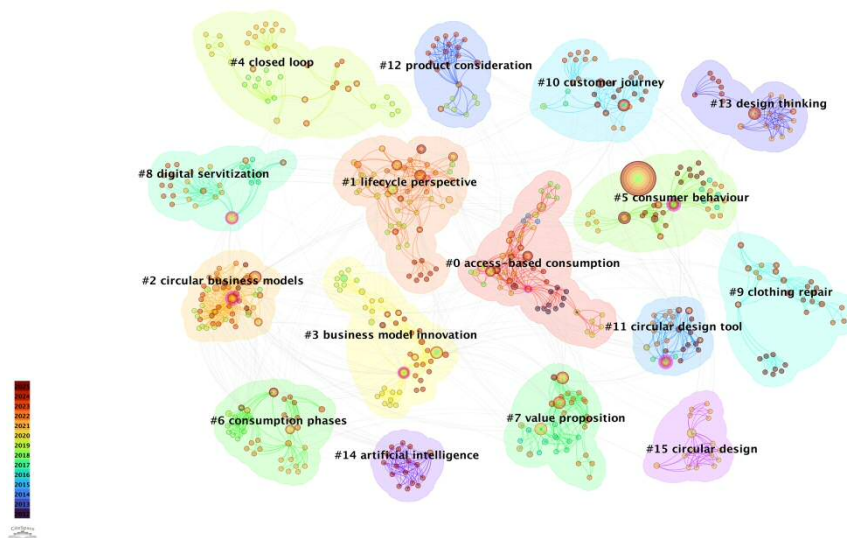


Figure 3. Keyword Clustering Map of 96 Selected Studies, Generated by CiteSpace (Source: Authors Own Work)

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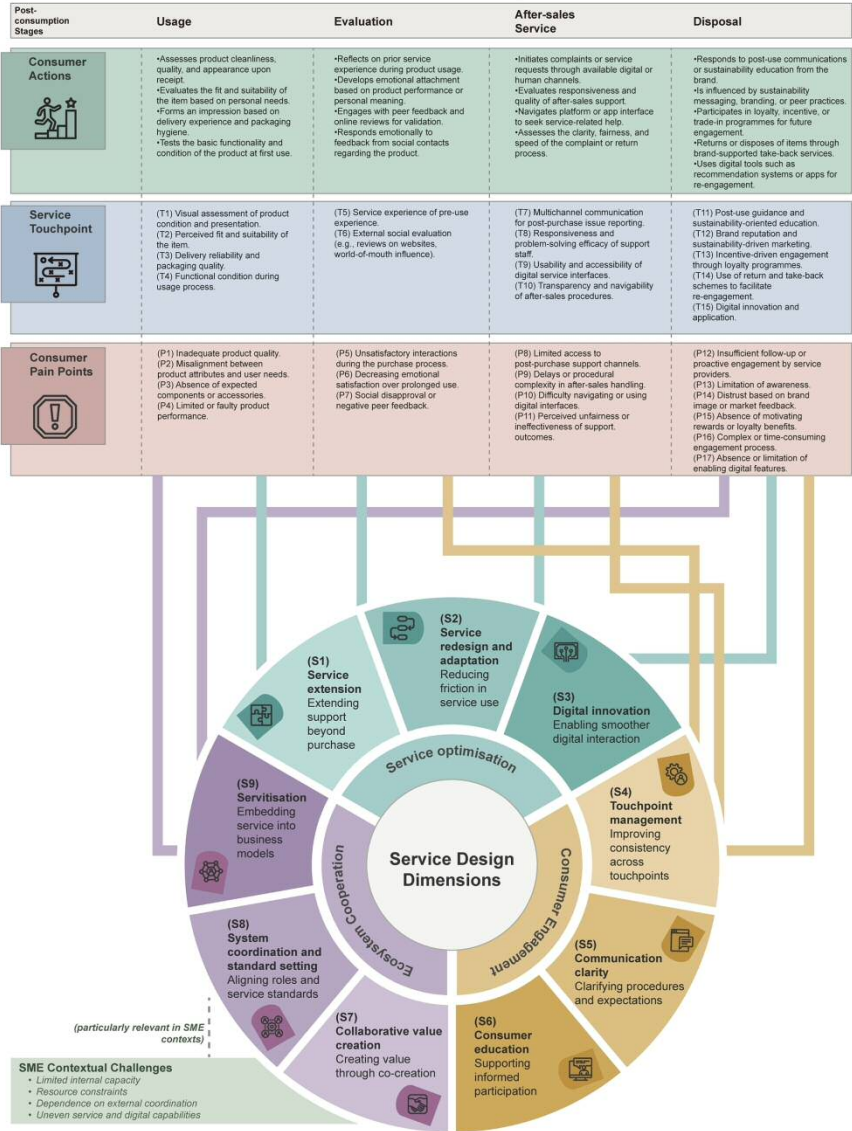


Figure 4. Integrated Framework Linking the Post-Consumption Journey with Service Design Dimensions and Strategies in Circular Fashion SME Contexts (Source: Authors Own Work)

Figure 4. Integrated Framework Linking the Post-Consumption Journey with Service Design Dimensions and Strategies in Circular Fashion SME Contexts (Source: Authors Own Work)

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Table I

Extracted Consumer Actions in the Three Circular Fashion Business Models

Type	Usage	Evaluation	After-sales Service	Disposal
Repair Service (n*=13)	- Assesses whether the repaired product looks and functions as expected (Camacho-Otero et al., 2018); - Tries on the item to check fit, especially if alterations were made (McQueen et al., 2022); - Judges the reliability of the service based on delivery speed and packaging (Hernandez et al., 2024); - Tests the function of repaired components (e.g., zippers, fastenings) (McQueen et al., 2023).	- Reflects on repair quality and responsiveness while using the item (McQueen et al., 2023); - Develops emotional attachment to the repaired product due to care, longevity, or personal history (Zijlema et al., 2017); - Shares experiences by posting comments on websites or forums (Lewallen, 2024).	- Contacts the provider to give feedback or report issues (Tombeng and Mambu, 2024); - Responds to service provider follow-up when contacted directly (Tombeng and Mambu, 2024); - Uses the repair service website or app to request follow-up or track status (Tombeng and Mambu, 2024); - Attempts to initiate a re-repair process and expects clear, easy procedures (Tombeng and Mambu, 2024).	- Reads follow-up messages or emails about garment care and tips from the repair provider (Hernandez et al., 2024); - Feels encouraged to reuse the service after seeing brand messaging about sustainability and garment longevity (Ficks and Karmestål, 2019); - Feels discouraged from reusing the service if the price is too high and there are no economic incentives (Zhang and Hale, 2022); - Returns worn items for recycling through a brand-supported take-back or drop-off program (Stål and Jansson, 2017); - Uses an app to learn care information, make appointment and receive further support (Hernandez et al., 2024).
Rental Service (n=12)	- Judges the cleanliness and appearance of the rented garment upon delivery (Lang et al., 2020); - Tries on the item to assess fit (McKinney and Shin, 2016); - Forms a first impression based on delivery timing and hygiene of packaging (Lang et al., 2020); - Checks that the item is fully functional and ready to wear (Lang et al., 2020).	- Reflects on earlier service aspects (e.g., booking, delivery) while using the product (Lang et al., 2020); - Becomes emotionally attached and considers purchasing the rented item (Yuan and Shen, 2019); - Seeks out others' reviews about the item (Lee and Huang, 2021).	- Reports issues such as sizing, stains, or delays via chat, email, or customer service (Lang et al., 2020); - Decides whether to resolve the issue or abandon the platform depending on service responsiveness (Lang et al., 2020). - Avoids making complaints if the return/complaint interface is difficult to use (Lang et al., 2020); - Proceeds with returns or complaints only if the process is easy and timely (Yuan and Shen, 2019; Soroni et al., 2021).	- Receives instructions on return procedures, tips for extending garment life, or suggestions for future rental items (Lang et al., 2020); - Responds to targeted ads or social media content promoting rental as fashionable and eco-friendly (Savelli et al., 2024); - Uses economic incentives to rent again; checks app for exclusive member offers (Helinski and Schewe, 2022); - Uses prepaid return packaging or drop-off points to return items conveniently; considers renting again due to ease of process (Yuan and Shen, 2019); - Interacts with virtual try-on tools or smart wardrobe planning features to rent again (Zhang and Liou, 2021).

Second-hand Resales (n=19)	• Compares the received item to the original online description (Cervellon and Vigreux, 2018); • Tries on the garment, dealing with sizing uncertainty (Liang and Xu, 2018); • Reacts to packaging: doubts hygiene or professionalism if it is poor (Charnley et al., 2022); • Looks for undisclosed functional issues that may reduce satisfaction (Negash and Akhbar, 2024).	• Reassesses seller communication and product accuracy while using the item (Gu et al., 2023); • Forms emotional connections based on the item's story or uniqueness (Turunen and Leipämaa-Leskinen, 2015); • Writes online reviews on platforms or social media to express feelings (Cervellon and Vigreux, 2018).	• Files a complaint about misleading descriptions or damaged goods (Murtas and Pedeliento, 2025); • Evaluates platform or seller based on the quality of after-sales service (Cerio et al., 2025); • Navigates the platform interface to request support, appreciating simplicity (Liu and Wan, 2023); • Applies for refunds and evaluates whether the process feels secure and reliable (Liu and Wan, 2023).	• Reads platform prompts about reselling unwanted items, care instructions, or how to list their own products for sale (Murtas and Pedeliento, 2025); • Sees brand campaigns or user stories that portray second-hand shopping as responsible and trendy, prompting return visits (Sepe et al., 2025); • Lists more items or shops again if economic incentives exist on the resale platform (Zheng et al., 2012); • Sells items via platform-supported services or trade-in programs, initiating another resale cycle (Joyner Armstrong and Park, 2020); • Searches for preloved products using AI-based recommendation, enhanced product image, and smart interactive system (Charnley et al., 2022).
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Table II

Linking Typical Approaches with Analytical Dimensions in Different Service Design Conceptualisations (Adapted from Vink et al., 2019)

Service Design Conceptualisation	Design of Services	Design for Service	Service Ecosystem Design
Typical approaches/tools in the reviewed literature	Touchpoint mapping; service blueprinting; process redesign; interface improvement; digital service support	Journey mapping; co-design; communication design; consumer education; experience prototyping	Stakeholder mapping; ecosystem network alignment; collaborative service design; partnership orchestration; business model canvas
Main analytical focus in post-consumption contexts	Improving the reliability and consistency of service delivery across specific touchpoints and processes	Understanding how consumers experience and continue participating in circular services across the post-consumption journey	Examining how post-consumption services depend on wider actor coordination
Key references applying the concept	West and Di Nardo, 2016; Ko, 2020; Kongelf and Camacho-Otero, 2020; Karpen et al., 2023; Sun et al., 2023	West and Di Nardo, 2016; Fleischmann, 2018; Halstenberg et al., 2019; Kim et al., 2020; Neramballi et al., 2020; Kovács, Beke, et al., 2021; Arredondo-Soto et al., 2022; Pantouvakis and Gerou, 2022; Shamsuzzoha et al., 2023; Trimmingham et al., 2024	Fleischmann, 2018; Halstenberg et al., 2019; Neramballi et al., 2020; Sarbu et al., 2020; Sierra-Pérez et al., 2021; Shamsuzzoha et al., 2023; Sun et al., 2023; Cao et al., 2024
Linked analytical service design dimensions	Service optimisation	Consumer engagement	Ecosystem cooperation

Table III
Mapping Key Dimensions with Service Touchpoints and Pain points in the Post-Consumption Journey

Stage	Service Touchpoint	Consumer Pain Point	Major Reference	Analytical Dimensions
Stage 1: Usage	(T1) Visual assessment of product condition and presentation.	(P1) Inadequate product quality.	Camacho-Otero et al., 2018; Lang et al., 2020; Wallner et al., 2023	Ecosystem cooperation
	(T2) Perceived fit and suitability of the item.	(P2) Misalignment between product attributes and user needs.	McKinney and Shin, 2016; Liang and Xu, 2018; McQueen et al., 2022	Service optimisation
	(T3) Delivery experience and packaging quality.	(P3) Absence of expected components or accessories.	Lang et al., 2020; Hernandez et al., 2024	Ecosystem cooperation
	(T4) Functional condition during usage.	(P4) Limited or faulty product performance.	Bressanelli et al., 2022; Gomes et al., 2022; Wallner et al., 2023	Ecosystem cooperation
Stage 2: Evaluation	(T5) Service experience during the pre-use experience.	(P5) Unsatisfactory interactions during the purchase process.	Arredondo-Soto et al., 2022; Fachbach et al., 2022; Hummen and Sudheshwar, 2023	Consumer engagement
		(P6) Decreasing emotional satisfaction over prolonged use.	Bressanelli et al., 2022; Gomes et al., 2022	Consumer engagement
	(T6) External social evaluation (e.g., reviews on websites, word-of-mouth influence).	(P7) Social disapproval or negative peer feedback.	Lee and Huang, 2021; Lu et al., 2023	Service optimisation
Stage 3: After-sales service	(T7) Multichannel communication for post-purchase issue reporting.	(P8) Limited access to post-purchase support channels.	Newman et al., 2018; Bressanelli et al., 2022; Wallner et al., 2023	Consumer engagement
	(T8) Responsiveness and problem-solving efficacy of support staff.	(P9) Delays or procedural complexity in after-sales handling.	Lang et al., 2020; Bressanelli et al., 2022	Consumer engagement
	(T9) Usability and accessibility of digital service interfaces.	(P10) Difficulty navigating or using digital interfaces.	Newman et al., 2018; Lang et al., 2020; Liu and Wan, 2023	Service optimisation
	(T10) Transparency and navigability of after-sales procedures.	(P11) Perceived unfairness or ineffectiveness of support.	Bressanelli et al., 2022; Wallner et al., 2023	Consumer engagement
	(T11) Post-use communication	(P12) Insufficient follow-up or	Das et al., 2023; Islam and Iyer-Raniga, 2023;	Consumer engagement

and sustainability-oriented education.	proactive engagement by service providers.	Saeedi et al., 2023	
	(P13) Limited environmental awareness.	Wu et al., 2022; Scholtysik et al., 2023	Ecosystem cooperation
(T12) Brand reputation and sustainability-driven marketing.	(P14) Distrust based on brand image or market feedback.	Islam and Iyer-Raniga, 2023; Sepe et al., 2025	Service optimisation
(T13) Incentive-driven engagement through loyalty programmes.	(P15) Absence of motivating rewards or loyalty benefits.	Shao and Lassleben, 2021; Shi et al., 2022; Mallick et al., 2024	Consumer engagement
(T14) Use of return and take-back schemes to facilitate re-engagement.	(P16) Complex or time-consuming engagement processes.	Saeedi et al., 2023; Cao et al., 2024; Mallick et al., 2024	Consumer engagement
(T15) Digital innovation and application.	(P17) Limitation in enabling digital features.	Newman et al., 2018; Charnley et al., 2022	Service optimisation

Table IV
Discussions in the Literature about Service Design Strategies in Circular Fashion SME Post-consumption Contexts

Service Design Dimension	Literature-discussed Strategy	Interpretive Description	Representative References
Service optimisation	(S1) Service extension	This strategy encompasses post-consumption services that extend interaction beyond the core transaction, including membership schemes, care support, take-back options, or tracking and follow-up services identified across the reviewed literature.	Camacho-Otero et al., 2018; Shao and Lassleben, 2021; Shi et al., 2022; AbdelAziz et al., 2023; Alves et al., 2023; Talukder et al., 2025
	(S2) Service redesign and adaptation	This strategy captures modifications to existing services aimed at better aligning with consumer expectations, improving satisfaction and reducing friction throughout post-consumption interactions.	Newman et al., 2018; Camacho-Otero et al., 2018; Lang et al., 2020; Liu and Wan, 2023; Wallner et al., 2023
	(S3) Digital innovation	This strategy highlights the integration of digital tools into circular business models to strengthen post-consumption services through improved consumer interface design, transparency and engagement. Technologies such as AI-powered recommendation systems or virtual try-on platforms are increasingly discussed as mechanisms for enhancing consumer experience and supporting continued participation.	Newman et al., 2018; Amatulli et al., 2020; Narayan and Tidstrom, 2020; Charnley et al., 2022; Huynh, 2022; Nnenna Ijeoma Okeke et al., 2024; Shete et al., 2024
Consumer engagement	(S4) Touchpoint management	This strategy emphasises the intentional management of service touchpoints to ensure consistent service quality throughout the consumer journey. The literature frequently identifies after-sales interactions as a critical weakness for SMEs, where fragmented or inconsistent support may undermine consumer trust and long-term engagement.	Camacho-Otero et al., 2018; Lang et al., 2020; Aryska et al., 2022; Bressanelli et al., 2022; Charnley et al., 2022; Mallick et al., 2024
	(S5) Communication clarity	This strategy underscores the importance of transparent, accessible and continuous communication in supporting consumers' decision-making. Effective communication across stakeholders is consistently associated with stronger trust-building and clearer expectation management in circular services.	Lang et al., 2020; Bressanelli et al., 2022; Shete et al., 2024; Testa et al., 2024
	(S6) Consumer	This strategy involves educational and sense-making initiatives that enhance consumer	Caputo et al., 2018; Das et al., 2023; Islam and Iyer-

	education	understanding of the environmental and functional value of circular services, thereby encouraging sustained participation.	Raniga, 2023; Testa et al., 2024; Talukder et al., 2025
Ecosystem cooperation	(S7) Collaborative value creation	This strategy reflects consumer co-creation within service experiences as a mechanism for strengthening engagement in circular fashion systems. Such collaboration contributes to broader relational dynamics among consumers, companies, and other actors involved in post-consumption service ecosystems.	Garcia et al., 2019; Wu et al., 2022; Perotti et al., 2024
	(S8) System coordination and standard setting	This strategy focuses on the establishment of shared standards, clearer role distribution, and more coherent coordination across ecosystem actors. Emerging policy mechanisms, such as extended producer responsibility (EPR), offer valuable future research perspectives for understanding responsibility allocation, particularly in resource-constrained SME contexts.	Arias et al., 2022; Tong et al., 2024
	(S9) Servitisation	This strategy describes the deeper integration of service logic into circular business models, where ongoing service provision becomes central to value creation and depends on broader infrastructural and collaborative systems.	Gonda et al., 2020; Pizzichini et al., 2023; Johnstone, 2024

Table V
Future Research Themes and Potential Research Questions

Research Theme	Representative Reference	Identified Gap	Potential Research Questions
Theme 1 Empirical research and methodological extension	Camacho-Otero et al., 2018; Kongelf and Camacho-Otero, 2020; Gomes et al., 2022; Phan, 2024; Testa et al., 2024; Kemi and Zilahy, 2025	Evidence coverage remains narrow.	To what extent does incorporating empirical evidence (e.g., case studies, interviews, surveys) alter or refine the themes and patterns identified in systematic literature reviews of circular fashion services?
	Liang and Xu, 2018; Lang et al., 2020; Lee and Huang, 2021; Helinski and Schewe, 2022; Testa et al., 2024	Empirical testing remains limited.	How do comparative, longitudinal, or other temporally sensitive designs refine understanding of how post-consumption engagement evolves across stages and across different circular fashion business models?
Theme 2 Mechanisms and strategies in the post-consumption journey	McKinney and Shin, 2016; Cervellon and Vigreux, 2018; Lang et al., 2020; Radtke et al., 2022; Murtas and Pedeliento, 2025	Cross-stage interactions remain underexplored.	How do post-consumption pain points interact across different stages to shape continued participation and re-engagement in circular fashion services?
	Cervellon and Vigreux, 2018; Charnley et al., 2022; Negash and Akhbar, 2024; Talukder et al., 2025; Murtas and Pedeliento, 2025	Trust effects are unevenly evidenced.	Under what conditions do communication and transparency practices strengthen consumer trust and continued participation across circular fashion service models?
	McKinney and Shin, 2016; Cervellon and Vigreux, 2018; Lang et al., 2020; Tombeng and Mambu, 2024; Murtas and Pedeliento, 2025	Limited understanding of technology-enabled touchpoint effects	How can AI and other emerging technologies be integrated into the digital and non-digital touchpoints to enhance consumer experiences at different post-consumption stages, and for which consumer groups are these interventions most effective?
	Han S.L-C. et al., 2017; Zhang and Liou, 2021; Rexfelt and Selvefors, 2021; Arias et al., 2022; Wu et al., 2022; Dagilienė et al.,	Education and co-creation mechanisms remain unclear.	How do consumer education and co-creation practices influence cognitive, affective and behavioural engagement over time across post-consumption stages?

2024			
Theme 3 Organisational design under SME constraints	West and Di Nardo, 2016; Stål and Jansson, 2017; Ballie and Woods, 2018; Battesini Teixeira et al., 2023; Johnstone, 2024; Dehghannejad et al., 2025; Nguyen et al., 2026	Strategy prioritisation remains weakly understood.	How do fashion SMEs prioritise and sequence post-consumption service design responses under conditions of limited internal capacity and resource constraints?
	McKinney and Shin, 2016; Stål and Jansson, 2017; Lang et al., 2020; Zhang and Liou, 2021; Huynh, 2022; McQueen et al., 2023; Amasawa et al., 2025; Dehghannejad et al., 2025	Strategy combinations remain weakly evidenced.	How do combinations of new service offerings and existing service alterations address different post-consumption pain points, and how might their effectiveness vary across SME capability and business model configurations?
	Stål and Jansson, 2017; Kongelf and Camacho-Otero, 2020; Sierra-Pérez et al., 2021; Petreca et al., 2022; Karpen et al., 2023; Dagilienė et al., 2024; Holmqvist et al., 2025b	Dimensional interaction is under-tested.	How do service optimisation, consumer engagement and ecosystem cooperation interact in practice, and which combinations are most important for addressing particular post-consumption challenge configurations?
Theme 4 Governance, ecosystem coordination and contextual transferability	Boldrini and Antheaume, 2021; Arredondo-Soto et al., 2022; Wu et al., 2022; Mallick et al., 2024; Tong et al., 2024	Responsibility distribution is underexamined.	How are responsibilities for repair, take-back, resale, redistribution and after-sales support distributed across SMEs, platforms, logistics, actors and other ecosystem partners in circular fashion systems?
	Bianchini et al., 2019; Salo et al., 2020; Saeedi et al., 2023; Mallick et al., 2024; Tong et al., 2024	Policy effects remain weakly explored.	How do policy frameworks, including extended producer responsibility (EPR), shape the organisation of post-consumption service provision in circular fashion, and with what implications for resource-constrained SMEs?
	Fleischmann, 2019; Konietzko et al., 2020; Boldrini and Antheaume, 2021; Perotti et al., 2024; Mallick et al., 2024	Enabling conditions remain fragmented, especially beyond developed western countries.	How do post-consumption service design challenges and enabling conditions vary across underexamined geographical contexts, and what can comparative empirical studies reveal about differences in infrastructure and market maturity conditions?

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Turunen and Leipämaa-Leskinen, 2015; Cervellon and Vigreux, 2018; Liang and Xu, 2018; Karimzadeh and Boström, 2024; Sepe et al., 2025	Cultural transferability remains uncertain.	How do cultural perceptions of ownership, value, sustainability and care shape engagement with repair, rental and second-hand services, and how can service design responses be adapted across different contexts without undermining local legitimacy or usability?
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