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An Integrated Conceptual Model of Recommerce in the Circular Economy

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Abstract

This study explores recommerce as a key mechanism within the circular economy (CE) supporting sustainable development. Although the exchange of second-hand goods (SHG) has existed for centuries, its business processes, market structure, and principal components remain insufficiently systematized. Designed as a conceptual paper, the research employs a literature analysis to identify the defining characteristics of SHG, examine the role of product re-use within the CE, analyse the principal actors, business processes, market channels, and implementation challenges, and develop an integrated model of recommerce. The findings demonstrate that recommerce creates economic, environmental, and social value by extending product life, improving resource efficiency, reducing consumer expenditure, generating new business opportunities, and promoting sustainable consumption. The proposed integrated conceptual model brings together the definition, process, market structure, implementation challenges, and key interrelationships of recommerce into a unified framework, explaining the relationships among its principal drivers, inputs, business processes, market channels, and long-term outcomes. The proposed model provides practical implications for retailers, policymakers, and researchers, establishes a theoretical foundation for future empirical research supporting circularity and sustainable development, and requires further validation across different industries and national contexts.

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Key words:
recommerce, circular economy, second-hand goods, product re-use, integrated business model, sustainable development.

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1. Introduction

The transition from linear to circular economy (CE) has become one of the main priorities in addressing the growing pressure on natural resources and the environmental consequences of unsustainable production and consumption. Rather than focusing solely on recycling and waste management, the circular economy seeks to retain the value of products, materials, and resources for as long as possible. Product re-use represents one of the most effective strategies for achieving this objective by extending product lifecycles and reducing the need for new resource extraction.

Contemporary consumption patterns, however, are largely driven by convenience, rapid product replacement and increasing expectations regarding product availability and variety. Fast fashion is among the most visible examples of this broader consumption model, where short product lifecycles encourage frequent purchasing and disposal. Such practices accelerate resource depletion and generate considerable environmental impacts. According to Oberle et al. (2019), current linear economic systems are associated with biodiversity loss, water stress, greenhouse gas emissions, and substantial health problems resulting from environmental pollution.

The importance of extending product lifecycles is reflected in the European Commission's Circular Economy Action Plan, adopted as part of the European Green Deal. The Action Plan promotes measures aimed at preventing waste generation, reducing resource consumption, and encouraging sustainable production and consumption systems (European Commission, 2020). Within this policy framework, product re-use occupies a central role because it enables products to remain in circulation through repeated use by different consumers without substantially altering their original function. The increasing application of this principle has contributed to the rapid development of second-hand goods (SHG) markets and the emergence of recommerce as an increasingly important business phenomenon.

Although recommerce has attracted growing academic interest during the last decade, the existing literature remains fragmented. A search conducted in Scopus and Web of Science using the keywords ‘recommerce’, ‘re-commerce’, and ‘recommercialization’ identified only 31 and 17 publications, respectively, indicating that the field is still at an early stage of theoretical development. Most existing studies focus on individual aspects of recommerce, including consumer behaviour, motivations for purchasing SHG, digital resale platforms, or reverse logistics within particular industries or product categories (Schöggl et al., 2020). Consequently, relatively little attention has been paid to explaining recommerce as a comprehensive circular business model that integrates product re-use, market participants, value creation processes, commercial flows, market channels, immediate outputs, long-term outcomes, implementation challenges, and the interactions between them. As a result, there is still no widely accepted conceptual framework describing how recommerce operates within the broader circular economy or how the relationships among its principal components determine its contribution to circular economy and sustainable development objectives.

To address this research gap, the study develops an integrated conceptual model of recommerce grounded in the principles of the circular economy. It first clarifies the concepts of product re-use and recommerce and discusses their relationship within circular economic systems. It then identifies the main participants involved in recommerce, outlines the principal stages of the recommerce process, and examines the challenges that currently limit the development of SHG markets. The identified drivers, inputs, commercial flows, business processes, market channels, outputs, long-term outcomes, and challenges are subsequently integrated into a unified conceptual model that explains their sequential and feedback relationships. By bringing these elements together into a single conceptual framework, the paper aims to provide a clearer theoretical understanding of recommerce, explain its functioning as a dynamic circular business model, and establish a foundation for future empirical research.

To achieve the research objective, the study addresses the following research questions:

- RQ1: How can product re-use be conceptualized as a circular economy strategy, and what role do second-hand goods play in achieving its environmental objectives?
- RQ2: What are the main characteristics of recommerce as a circular business model, and which are the

principal actors and processes involved in its implementation?

- RQ3: What barriers and challenges currently constrain the development of recommerce and the expansion of second-hand goods markets?
- RQ4: How can the principal drivers, inputs, business processes, market channels, outputs, long-term outcomes, and implementation challenges of recommerce be integrated into a unified conceptual model explaining their interrelationships?

2. Research Design and Methodology

This study adopts a conceptual research design based on the analysis and synthesis of the existing scientific literature. Its primary objective is not to test empirical relationships but to clarify the concepts of product re-use and recommerce, explain their role within the circular economy, and develop a coherent conceptual understanding of the recommerce process and second-hand goods markets.

The study draws upon peer-reviewed publications indexed in Scopus and Web of Science, complemented by books, reports and policy documents issued by international organizations and institutions working in the field of circular economy and sustainable development. The literature selection focuses on publications addressing circular economy, product re-use, second-hand goods, resale, recommerce and related concepts. Additional relevant sources were identified through the reference lists of the selected publications whenever they contributed to the theoretical development of the topic.

The analysis follows a structured qualitative approach based on comparison, analysis and synthesis of the existing knowledge. The reviewed literature was examined to identify the different interpretations of product re-use, recommerce and second-hand goods, as well as the relationships between these concepts. Particular attention was paid to the similarities and differences among existing definitions, the processes characterizing recommerce, the participants involved in second-hand goods markets and the barriers affecting their development.

The conceptual framework integrates the identified theoretical approaches into a unified analytical structure. The reviewed literature was analysed and systematized to identify the relationships among the main concepts and to develop an integrated conceptual model of recommerce within the circular economy.

To achieve the research objective, the study is organized into three consecutive analytical stages (Figure 1).

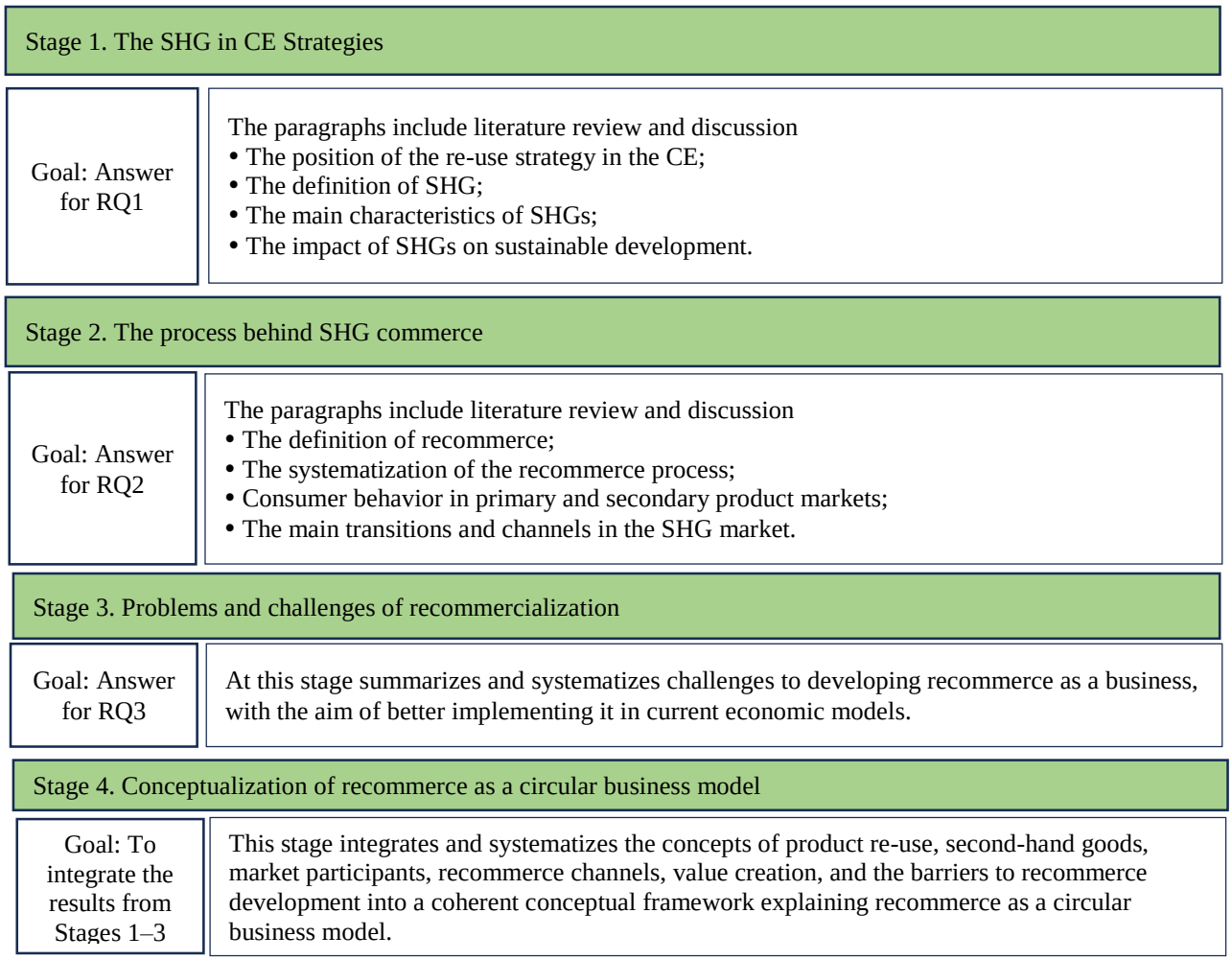


Fig. 1. Analytical framework of the study.
Source: Author's own elaboration.

The first stage examines the role of second-hand goods within circular economy strategies and analyses their contribution to sustainable resource use. The second stage conceptualizes recommerce by defining its main characteristics, participants and operational process. The third stage identifies and systematizes the principal barriers and challenges influencing the development of recommerce and second-hand goods markets. Together, these stages provide the basis for answering the research questions and for developing an integrated conceptual understanding of recommerce within the circular economy (Stage 4).

3. The second-hand goods in CE strategies

The need for a fundamental change in the functioning of economic and social systems has been recognized historically; however, today this need is increasingly urgent and existentially significant. The CE is best understood as "a refurbished rather than a virgin concept" (Reike et al., 2018, p. 247), building on earlier frameworks such as "sustainable growth," "green growth," and "sustainable development." CE integrates these existing strategies rather than introducing fundamentally new concepts.

Figure 2 presents the 10R strategies, which have evolved in number, scope, and content over time. Despite these developments, their common objective remains the extension of product lifecycles and the reduction of resource consumption (Potting et al., 2017; Reike et al., 2018; European Commission, 2024; Li and Sundararajan, 2023). Consumers can support sustainable consumption and circularity by: (i) efficiently using purchased products and reducing overall consumption (R0–R2); (ii) extending the lifespan of existing products

and components (R3–R7); and (iii) returning remaining materials to the environment (R8–R9) when the first two options are not feasible. While these behaviours have always been possible, they have gained critical importance due to growing resource limitations and population pressures.

The reuse strategy, positioned fourth among CE model strategies (Potting et al., 2017; Li and Sundararajan, 2023; Agrawal et al., 2023), is particularly important for advancing a sustainable and environmentally friendly future. It involves the use of products by second or subsequent owners for the purpose for which they were originally intended (Aichele et al., 2025). Secondary use requires items that have completed their first-use cycle but are not yet waste, their exchange through the SHG market, and their continued use according to the original purpose (Arman and Mark-Herbert, 2021). This process transforms previously owned items into SHG.

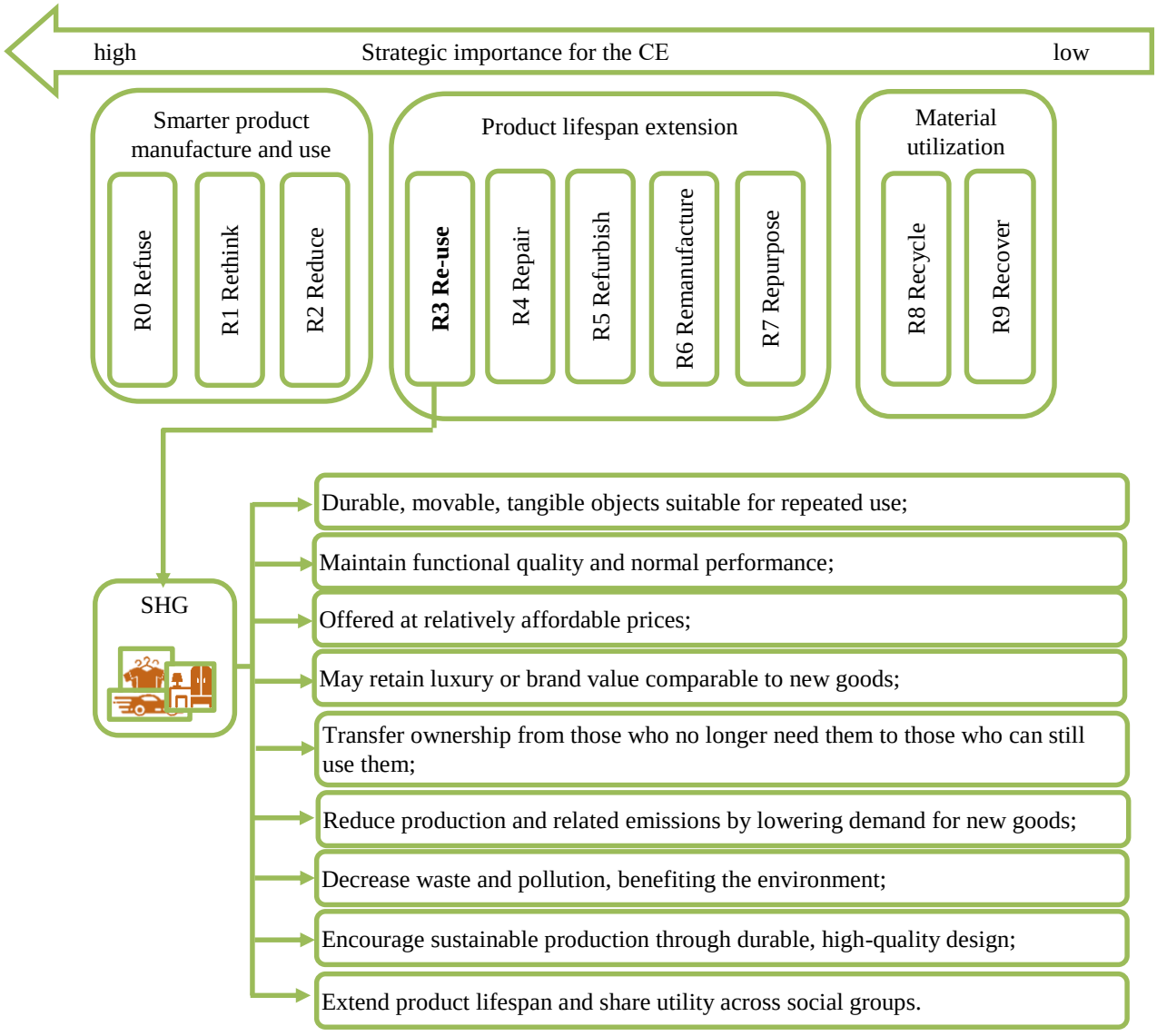


Fig. 2. R-strategies of the CE and key characteristics of SHG.
Source: Author's own elaboration based on Potting et al. (2017), Reike et al. (2018), European Commission (2024), and the reviewed literature.

SHG provide utility through their quality, functionality, and satisfaction, but to owners other than the first, effectively extending their lifespan. "In their broad sense, they are at least once previously owned products by an individual (regardless of their degree of use) that the first owner relinquished (via disposal,

deposit for follow-up utilization, pre-sale returns for maintenance, etc.), and their lifecycle has been extended through use by secondary, tertiary, and subsequent owners" (Hristova & Stojanov, 2024, p. 121).

Not all durable items qualify as SHG legally. According to the VAT Directive, Article 311(Section 1), SHG "means movable tangible property that is suitable for further use as it is or after repair, other than works of art, collectors' items or antiques and other than precious metals or precious stones as defined by the Member States" (European Council, 2006). Consequently, real estate, precious metals, works of art, and collector's items are excluded, despite their potential for repeated use. Unlike refurbishing, remanufacturing, or repurposing, which also extend product lifespans, the reuse strategy applies only to items that continue to serve their original function.

As shown in Figure 2, SHG possess distinct characteristics that differentiate them from newly manufactured products, creating a separate market with specific demand. SHG are primarily durable goods capable of multiple exchanges and uses, excluding immaterial products such as real estate and services.

For SHG to be viable for reuse, they must retain sufficient functional capabilities and quality, exhibiting only acceptable physical and moral depreciation from the consumer's perspective. Prior use introduces higher risk, particularly functional risk—the possibility of malfunction or unsatisfactory performance—and physical risk, including potential injury or other adverse effects during use (Kim et al., 2021). SHG should require minimal adaptation, function as intended, and not necessitate significant repair or modification (Bakker et al., 2014). Consumer willingness to purchase SHG is influenced by low visible wear, minimal prior use, or original packaging, with perceived poor quality or functional limitations being primary reasons for rejection (Lim & Holmes, 2023; Wilts et al., 2021). Health and safety concerns also play a critical role in purchase decisions (Wilts et al., 2021; Kim et al., 2021; Frahm et al., 2024; Wang et al., 2022).

SHG are generally offered at lower prices than new equivalents, compensating buyers for higher perceived risks and enabling financial savings. Exceptions include vintage, collectible, or luxury items, which may appreciate in value over time due to investment or Veblen effects. Luxury SHG provide access to prestigious brands, high quality, rare or discontinued items, and enhanced social identity at a lower cost, contributing to the CE's goal of increasing accessibility and reducing social inequality (Kapferer & Michaut, 2016).

Finally, the reuse and exchange of SHG facilitate effective redistribution of goods, transferring them from individuals who no longer value or cannot maintain them to others who can fully utilize their qualities and functionality (Steffen, 2023).

As a method of application of "a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops" (Geissdoerfer, et al., 2017, p. 579) the re-use of goods has a favourable impact by reducing new production and the associated consumption of resources, materials, and generation of pollutants, promoting sustainable consumption, and minimizing the loss of resources that could still be considered useful. Goods subject to secondary sale have a different type of contribution for expanding the potential of sustainable development.

SHG generate economic, social, and environmental benefits (Gwa et al., 2025) across multiple categories. Economically, they provide cost savings (automotive, clothing, electronics), stimulate markets (clothing, electronics, furniture), and retain value in luxury, collectible, and vintage items (Kapferer & Michaut, 2016), while supporting CE goals and creating local employment (Geissdoerfer et al., 2017; Hischier & Böni, 2021; Nichilo et al., 2025). Socially, SHG increase accessibility for low-income consumers, promote sustainable consumption, enhance self-perception and social identity, and reduce social inequality, though purchase decisions can be affected by perceived functional or safety risks (Kapferer & Michaut, 2016; Kim et al., 2021; Rodriques, 2023; Wilts et al., 2021). Environmentally, SHG conserve resources, extend product lifecycles, reduce waste, and lower carbon footprints, with life-cycle assessments confirming their benefits, particularly in clothing and furniture, thereby reinforcing CE strategies across all SHG categories (Geissdoerfer et al., 2017; Kim et al., 2021; Hischier & Böni, 2021; Klooster et al., 2024; Nichilo et al., 2025).

Continuous production driven by rapid consumer demand results in intensive resource consumption, the

emission of harmful substances, and the generation of substantial waste. Implementing product reuse and extending product lifespans can reduce production needs and waste generation, thereby promoting sustainable consumption patterns and stabilizing business operations. Several sectors are major contributors to environmental pollution, and the adoption of reuse strategies could significantly mitigate their impact.

The fashion industry is the second most polluting industry globally, after the oil sector (Van Woensel, 2020). Over the past 15 years, individuals now own approximately 60% more clothing, while the utilization of these garments has halved, resulting in an average annual textile consumption of 11.5 kg per person. Production of new clothing has doubled since 2000, driven largely by fast fashion, which accelerates both consumer demand and the rapid turnover of garments. This increase in clothing consumption generates substantial waste, including unsold garments that are either new and unworn or quickly discarded. Purchasing second-hand clothing (SHC) is an effective strategy to mitigate these impacts. Compared to new garments, SHC reduces CO_2 emissions by 82%, improves energy efficiency eightfold, and reduces water consumption by 78 times (ThredUp, 2021). Although R3–R7 CE strategies currently represent only 3.5% of the global fashion market, they have the potential to grow to 23% by 2030, representing approximately $700B (UN, 2023; Klooster et al., 2024).

The furniture industry contributes significantly to greenhouse gas emissions, resource depletion, and waste generation. The emergence of "fast" furniture—mass-produced, low-cost items with poor durability and short lifespans—further exacerbates these environmental effects (Cooper et al., 2021). In addition to ecological impacts, such products may expose humans to harmful chemicals with long-term health consequences. Furniture lifespans can be extended through prolonged use, resale, modernization, or repurposing, making reuse strategies particularly relevant for this sector.

Electronic waste (e-waste) poses well-documented risks to soil, water, and climate (Twagirayezu et al., 2022). With increasing digitalization and rising demand for electronics, the environmental impact of production and disposal is expected to grow. The reuse of electronics is complex: while extending product life is desirable, technological and moral obsolescence may reduce the environmental benefits of secondary use. In some cases, purchasing new electronics with improved durability and efficiency may be environmentally preferable. Nevertheless, lifecycle extension strategies, including R3–R5, remain important, as consumers increasingly seek "like-new" devices at lower costs (Lim & Holmes, 2023). The EC estimates that improving the quality of new electronics to allow multiple reuses could save €176.5B over 15 years, reduce waste by approximately 3Mt, decrease the demand for new resources by 1.8Mt, and cut greenhouse gas emissions by 18.5Mt (European Commission, 2023).

The automotive sector consumes the majority of global petroleum reserves and is a major source of greenhouse gas emissions, as well as air, soil, and water pollution. While automobile production generates substantial harmful substances, the majority of environmental impact (80–90%) originates from fuel consumption and associated emissions. Extending the lifespan of internal combustion engine vehicles may exacerbate emissions; therefore, the sector is transitioning to alternative propulsion systems, such as hybrid and electric vehicles. Electric vehicles could reduce greenhouse gas emissions by up to 50% by 2030, corresponding to approximately 540Mt of CO_2-equivalent. The EU's "Fit for 55" plan aims to reduce net emissions by at least 55% by 2030, phasing out internal combustion engine vehicles by 2035 (European Council, 2024). Developing a secondary market for electric vehicles, facilitated by prolonged battery life, is expected to improve public health, reduce consumer costs, enhance affordability, and enable systemic innovations while creating employment opportunities.

Reuse strategies are particularly suitable for products such as clothing and furniture. In contrast, technological obsolescence in electronics and automobiles currently favours the adoption of new products, which are safer, more energy-efficient, and digitally optimized. The R3 strategy emphasizes the importance of SHG by extending their functional lifespan, reducing resource consumption, limiting waste generation, and decreasing the need for new production. According to the EC, secondary product use is considered a higher-priority process than recycling, highlighting the critical role of an effective SHG market in achieving circular

economy objectives (European Commission, 2020).

4. The process behind second-hand goods commerce

The literature does not provide a uniform understanding of recommerce. The reuse strategy facilitates resale transactions and the development of a secondary market for SHG, commonly referred to as recommercialization or recommerce. By its nature, recommerce involves the resale of previously owned products through physical or digital channels, with products repaired or refurbished, where necessary, before being reused or resold (The New York Times, 2005; Arman & Mark-Herbert, 2021). Existing studies associate recommerce with reverse logistics (Fu et al., 2021; Wang et al., 2021), reverse e-commerce (Chu et al., 2021), reverse marketplaces (Arora et al., 2007) or product resale. Although these concepts are closely related, they differ in their objectives, scope and underlying processes. The main differences are presented in Table 1.

Table 1

Comparison of related concepts with recommerce

Concept	Main Characteristics	
Reverse logistics Fu et al. (2021); Wang et al. (2021); Graczyk & Witkowski (2011); Dimitrova & Gallucci (2017); Arman & Mark-Herbert (2021)	**Objective**	Recover value from returned, damaged or end-of-life products
	Focus	Reverse flow of products, materials and information
	Participants	Manufacturers, retailers, logistics providers, recyclers
	Differences with recommerce	• encompasses product return, repair, refurbishment, remanufacturing, recycling and disposal. • products may change their condition or even their original purpose before re-entering the market. • generally, involves manufacturers or retailers, whereas recommerce may also occur directly between consumers (C2C).
Reverse e-commerce Chu et al. (2021); Li & Sundararajan (2023)	**Objective**	Conduct the return or resale of products through digital platforms
	Focus	Online transactions involving previously owned products
	Participants	Consumers, online platforms, retailers
	Differences with recommerce	• represents only the online channel through which recommerce may be performed.
Reverse marketplace Arora et al. (2007); Arman & Mark-Herbert (2021)	**Objective**	Enable the exchange of previously owned products
	Focus	Marketplace or digital platform for used goods
	Participants	Consumers, online platforms, retailers
	Differences with recommerce	• represents the environment or platform through which recommerce is performed rather than the business model itself.
Product resale Ferraro et al. (2016); Li & Sundararajan (2023)	**Objective**	Transfer ownership of an existing product
	Focus	Individual resale transaction
	Participants	Individuals or firms
	Differences with recommerce	• single transaction within the broader recommerce process • does not encompass the actors, channels and value creation mechanisms characterizing recommerce.

Source: Author's own elaboration based on the cited literature.

The comparison presented in Table 1 shows that recommerce shares common characteristics with several related concepts, although none of them fully reflects its scope. Reverse logistics differs from recommerce in its primary objective and scope. It includes activities such as product return, repair, refurbishment, remanufacturing, recycling and disposal, which may alter the condition or original function of products and generally involve manufacturers, retailers or logistics providers. By contrast, recommerce focuses on the repeated commercialization of products without changing their original function and may also take place directly between consumers or other organizations. Reverse e-commerce represents only one transaction channel through which recommerce may be performed, while reverse marketplaces provide the environment in which exchanges take place. Similarly, product resale refers to a single transfer of ownership rather than the

broader process of repeated commercialization. Based on these distinctions, recommerce is understood in this study as the repeated commercialization of second-hand goods through their transfer to subsequent users without changing their original function. It integrates product re-use, market participants, transaction channels and repeated exchanges into a single circular business model. In this way, it contributes to extending product lifecycles, preserving product value and supporting the objectives of the circular economy (Li & Sundararajan, 2023; Arman & Mark-Herbert, 2021).

Based on this conceptual understanding, the recommerce process can be described through a sequence of interconnected stages involving different market participants and transaction channels. Figure 3 presents the model of this process, integrating its principal stages, actors and transaction channels identified in the reviewed literature.

Figure 3 presents the proposed process model of recommerce within circular economy. The model illustrates the sequence of product flows, market participants and transaction channels through which second-hand goods circulate between the primary and secondary markets. Rather than explaining causal relationships, it describes the operational logic of recommerce and the interaction between its main actors within the circular economy.

The primary market encompasses the relationships and flows of goods, information, finances, marketing communications, ownership and risk between manufacturers, retailers, intermediaries and end-users associated with newly manufactured products. The principal participants in the secondary market include first consumers (FC), new-goods retailers selling used products, specialized SHG retailers and secondary consumers (SC).

A product lifecycle begins with its production and initial commercialization in the primary market. Marketing and logistics activities ensure product availability and transfer ownership to the FC. During the use phase, the FC determines the subsequent management of the product. Three main alternatives may be distinguished. The first involves continued use of the product by the same owner through the application of strategies R0–R2, R4 and R5. The second extends the product lifecycle through strategies R3 and R5–R7 by transferring ownership to another consumer, retailer or manufacturer. The third includes material recovery through strategies R8–R9, where further product use is no longer possible. These alternatives contribute to resource efficiency, waste reduction and the implementation of circular economy principles. In contrast, product disposal without further use results in the loss of product value, additional production and increasing environmental pressure (OECD, 2025).

When ownership is transferred for further use, the first consumer becomes a seller in the secondary market and the product acquires the characteristics of a second-hand good. At this stage, the transaction becomes part of the recommerce process. Secondary consumers may subsequently retain the product, resell it, transfer it to another user or direct it to other circular economy strategies. For recommerce to occur, the exchanged product should satisfy the characteristics of a second-hand good and the transaction should involve either a monetary payment or barter.

The conceptual model distinguishes two principal recommerce channels. The direct channel (C2C) enables the exchange of products between consumers through physical marketplaces or digital platforms (Arman & Mark-Herbert, 2021). The indirect channel (C–B–C) involves retailers acting as intermediaries by purchasing second-hand goods from first consumers and subsequently reselling them to secondary consumers. This channel includes both hybrid retailers combining new and used products and retailers specialized in second-hand goods. While the direct channel provides greater flexibility and direct interaction between market participants, digital platforms expand market reach and reduce transaction costs (Charnley et al., 2022). The indirect channel offers additional product verification, greater transparency and a higher degree of standardization.

The process model presented in Figure 3 demonstrates that recommerce is not merely an individual resale transaction but a sequence of interconnected activities involving multiple actors and transaction channels. This process-oriented perspective provides the basis for the integrated conceptual framework developed in the final stage of the study, where the relationships between circular economy principles, recommerce mechanisms,

value creation and market barriers are synthesized into a unified conceptual model.

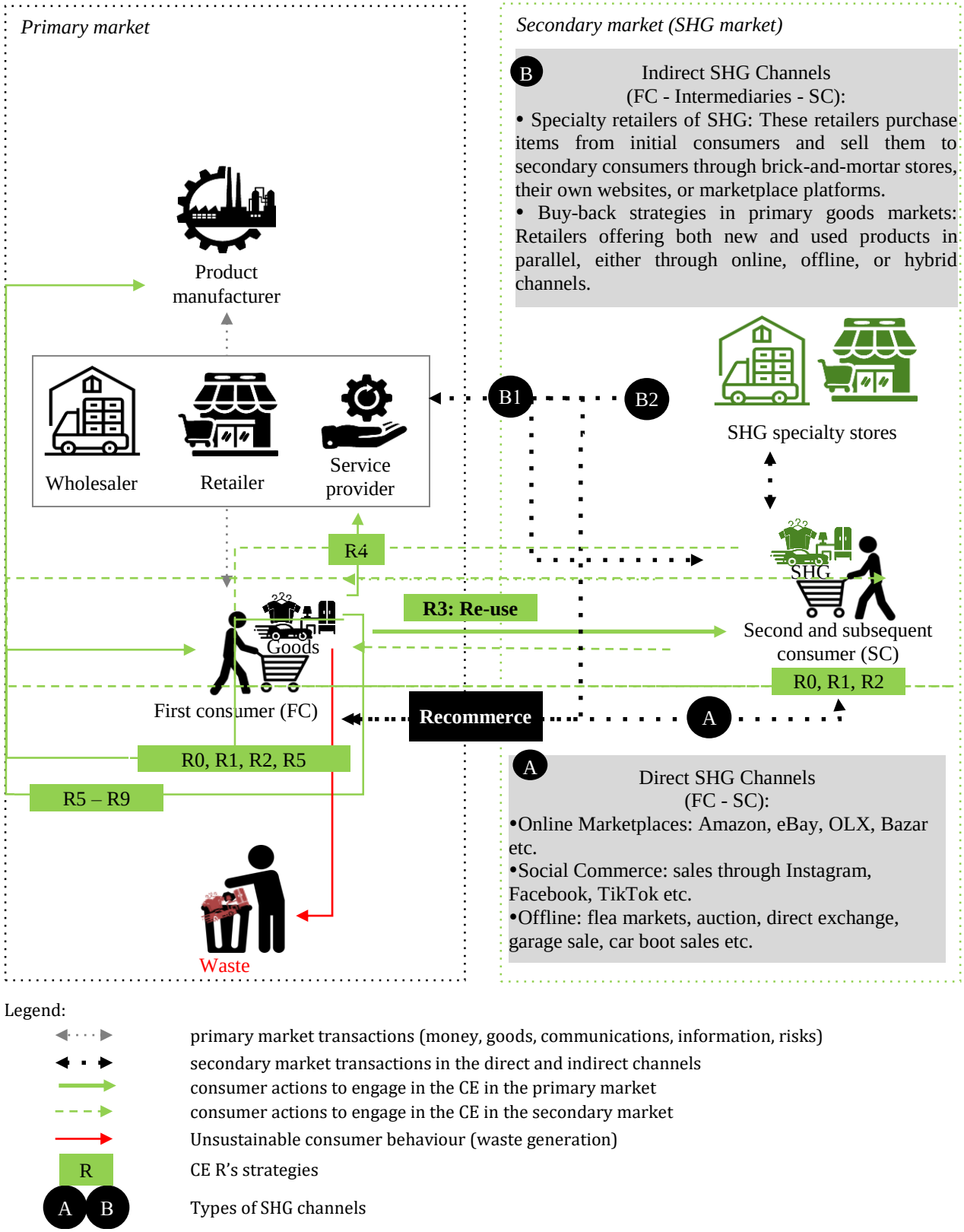


Fig. 3. Recommerce process within CE Strategies.
Source: Author's own elaboration based on the reviewed literature.

The proposed process also reflects the growing importance of recommerce in contemporary retailing. Many new-goods retailers have already adopted hybrid business models combining the sale of new and second-hand products in order to retain customers, respond to changing consumer preferences and support more sustainable consumption. Examples include automobile buy-back programmes (Hu et al., 2025), IKEA's leasing and repair initiatives (Kans et al., 2024), clothing resale platforms (ThredUp, 2021) and Apple's Trade In programme. At the same time, specialized SHG retailers, such as used car dealers, vintage clothing stores and second-hand furniture retailers, continue to play an important role despite challenges related to product heterogeneity, demand uncertainty and consumer trust.

The growing importance of recommerce is reflected in the continuous expansion of the secondary market, which is expected to increase by 12% in 2025 compared with 2024 and achieve a compound annual growth rate of 12.5% by 2029 (Groeneveld et al., 2024). These developments indicate that recommerce is becoming an increasingly important mechanism for extending product lifecycles and supporting the transition towards a circular economy.

5. Problems and challenges of recommercialization

Recommerce offers clear environmental benefits but its implementation faces several economic challenges. These primarily arise from unrestrained consumer demand and the pursuit of instant gratification, driven by mass behaviour, fashion trends, and rapid innovation cycles. Client-centric business models incentivize market actors to accelerate production and introduce increasingly diverse and modern products. Although sustainable development strategies can enhance product utility and brand trust, they currently remain secondary considerations for consumers and are not yet central to business commercialization.

The CE model requires a profound transformation of economic systems, business practices and consumer behaviour, often generating uncertainty, scepticism, and criticism among stakeholders. The main obstacles are economic and market-related, followed by political and regulatory, and then technical and technological challenges, all of which impede the achievement of ecological objectives (Griffiths et al., 2025). Rather than representing isolated constraints, the challenges associated with recommerce constitute an interconnected system in which each barrier influences and reinforces the others. Consequently, overcoming individual obstacles in isolation is unlikely to ensure the successful development of recommerce without simultaneously addressing the broader set of market, behavioural, technological, and economic constraints.

Unlike the linear economic model, valued for its simplicity, predictability, and short-term financial returns, the CE model emphasizes long-term sustainability and systemic transformation. It demands substantial investment in technology, infrastructure, and behavioural change, offering less immediate financial certainty. Within this framework, recommerce faces its own set of constraints and risks, some of which are illustrated in Figure 4.

The SHG market is primarily a niche sector, constrained in its ability to generate significant demand and profit due to product characteristics and consumers' reluctance to compromise on quality. Globally, the secondary market is projected to account for 10.5% of the consumer goods market by 2025 (Statista, 2025), reflecting limited consumer demand, which is a core challenge (Kirchherr, et al., 2018). Building consumer trust in product quality and mitigating perceived purchase risks remains crucial, as evaluating SHG's residual value is subjective and depends on retailers' ability to enhance transaction transparency.

The limited market potential is further reinforced by the intrinsic characteristics of SHG. Unlike newly manufactured goods, which rely on brand identity and mass production, SHG are unique, bearing signs of prior use, personal history, and sometimes evoking nostalgia. However, the individuality of SHG—variations in size, design, or brand—reduces mass appeal. Barriers to recommerce include low consumer awareness, limited offer transparency, and the potential risk of "lemon" products. These factors increase perceived purchase risk and, consequently, further constrain market demand. Digital platforms and technologies can alleviate these challenges (Padmavathy, et al., 2019), yet their availability remains limited compared to new products, and implementing smart technologies or proprietary platforms is often economically inefficient (Frahm, et al.,

2024; Kim, et al., 2021). Successful SHG retailing requires specialized marketing skills, including pricing, presentation, digital utilization, and inventory management, to reduce purchase risk and enhance desirability.

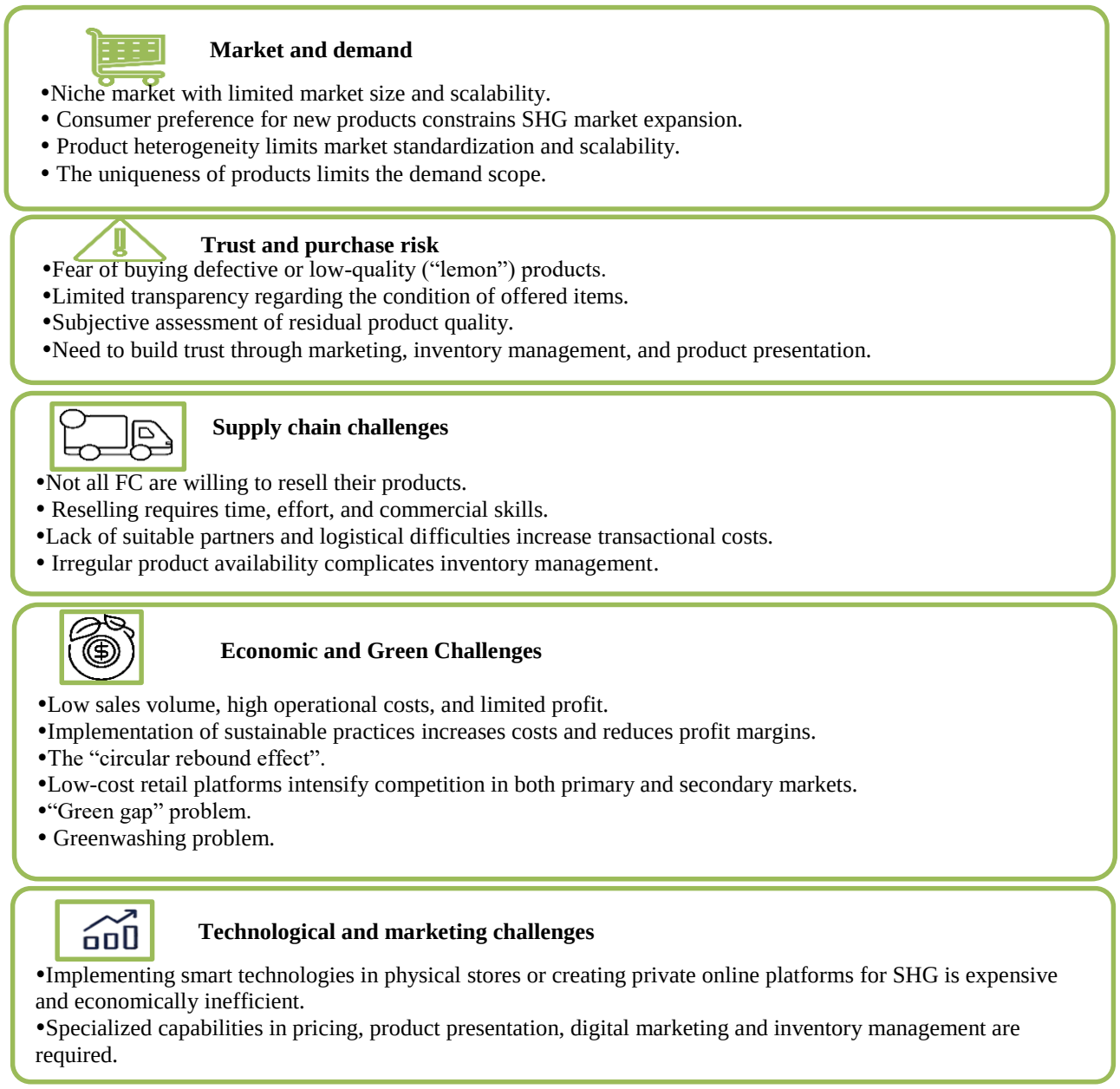


Fig. 4. Conceptual framework of the main challenges in recommerce
Source: Author's own elaboration based on the reviewed literature.

The effectiveness of these efforts also depends on the relationship between the primary and secondary markets, which operate simultaneously and continuously influence one another. The primary and secondary markets are competitive but interdependent. The value and availability of new products influence secondary market pricing and demand, while the secondary market can impact primary market attractiveness through the “resale effect” and potential “substitution effect” (Kessous & Valette-Florence, 2019; Wang, et al., 2022). The interaction between these markets can slow consumption, extend product lifespan, and promote parallel market strategies.

At the same time, market interactions are strongly shaped by consumer behaviour. The “green gap” highlights a disconnect between environmental knowledge and purchasing actions, while greenwashing by

new product retailers may inadvertently boost demand for new goods over sustainable used items (Gleim & Lawson, 2014; Margariti, et al., 2024). Platforms offering inexpensive new products, such as Aliexpress, Temu, and Shein, intensify competition for both markets. Thus, fostering complementary rather than exclusive relationships between markets can encourage sustainable consumption.

Consumer behaviour also directly affects the functioning of the SHG supply chain. Challenges in the SHG supply chain include the willingness of final consumers to resell possessions, effort requirements, and personal attachment to goods (Haws, et al., 2012; Winterich, et al., 2017). High transaction costs, financial risks, and distribution inefficiencies further constrain recommerce. Eco-oriented businesses face profitability concerns due to low demand, high costs, and niche market dynamics (Cristoni & Tonelli, 2018). Flexible pricing and marketing strategies may lead to the "affordance paradox," where increased accessibility raises consumption and reduces environmental benefits (Dekhili, et al., 2025). Hybrid offerings of new and used goods can offset losses, increase consumer willingness to pay, and support sustainable consumption (Margariti, et al., 2024).

Overall, recommerce remains economically marginal, constrained by consumer adaptation, retailer coordination challenges, and persistent barriers to extending product lifespans (Wilts, et al., 2021). These barriers should not be considered independently, as limitations in one area often reinforce constraints in others, creating a cumulative effect that hinders the wider adoption of recommerce. Consequently, improving only one aspect of the system is unlikely to substantially accelerate recommerce without parallel progress in the remaining areas.

6. Integrated Conceptual Framework of the Recommerce Business Model

The previous sections examined the theoretical foundations of recommerce by identifying its key participants, commercial flows, business processes, distribution channels, drivers, challenges, and expected impacts. Although these elements have been extensively discussed in the literature, they are typically examined in isolation. Integrating these interrelated components into a single conceptual framework is therefore essential for explaining how recommerce functions as a business model and how its individual elements collectively contribute to the achievement of circular economy and sustainable development objectives.

Figure 5 presents the integrated conceptual model of recommerce developed in this study, illustrating the relationships among its key drivers, business processes, challenges, and immediate and long-term outcomes.

The proposed model conceptualizes recommerce as a dynamic system driven by the interaction between macro-environmental developments, business activities, and market mechanisms. Rather than representing isolated stages, the individual components are interconnected through sequential and feedback relationships that collectively determine the long-term contribution of recommerce to the circular economy.

The model begins with the identification of the principal drivers stimulating the development of recommerce. The transition towards a circular economy, the implementation of sustainable development objectives, increasing resource scarcity, the growing importance of product re-use, and changing consumer values create favourable conditions for extending product life cycles. However, these developments can only initiate the recommerce process if first consumers choose resale as their preferred circular economy strategy for managing products after their initial use. This decision returns products to the market, increasing the availability of second-hand goods, stimulating consumer participation, encouraging retailers to develop resale activities, and accelerating the adoption of digital platforms. Consequently, these developments establish the necessary inputs required for the operation of the recommerce business model.

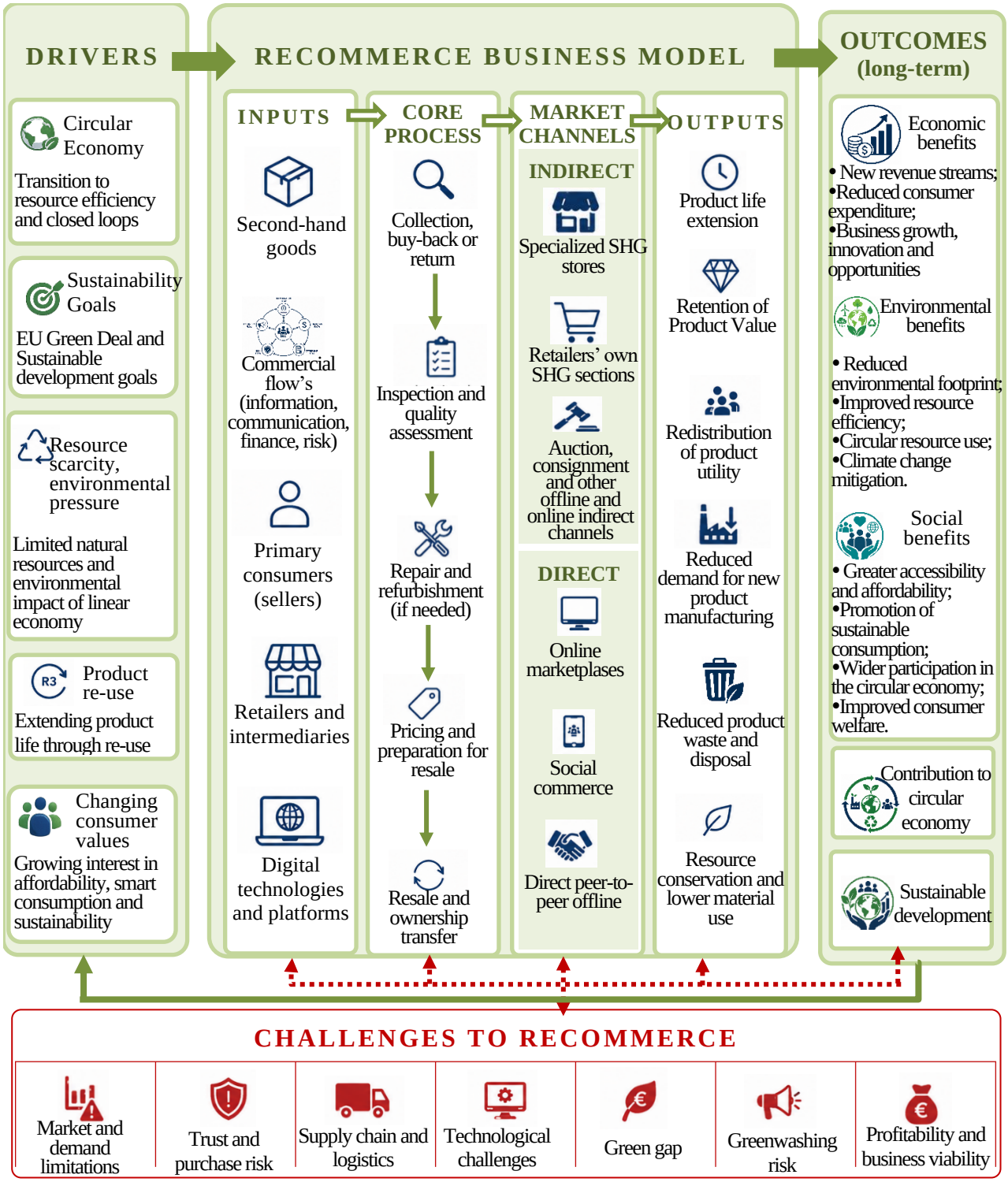


Fig. 5. Integrated Conceptual Model of the Recommerce Business Model

Source: Author's own conceptualization based on the reviewed literature.

These inputs jointly initiate the core business process. The availability of second-hand goods, generated by the primary market through the consumption of new products, constitutes the fundamental input of recommerce. However, products only become part of the recommerce system once first consumers choose resale as a circular economy strategy, allowing them to re-enter the market. At this stage, the commercial flows supporting market exchange—including information, financial, ownership, risk, and promotion flows—are

activated alongside the interaction of the different market participants and digital technologies. The availability of second-hand products alone, however, does not generate value unless products undergo a sequence of commercial activities including collection, inspection, quality assessment, refurbishment where necessary, pricing, and preparation for resale. Each activity reduces uncertainty regarding product quality while increasing the residual value that can be transferred to subsequent consumers. The process therefore transforms used products from post-consumption items into marketable commercial assets, enabling them to enter a new commercial lifecycle within the secondary market.

Once products have been prepared for resale, they enter the market through different distribution channels. The choice between indirect and direct channels depends on the level of intermediation, retailer involvement, digitalization, and consumer preferences. Both indirect and direct channels may operate through online and offline formats, allowing recommerce to replicate the omnichannel structure of the primary market and provide secondary consumers with comparable purchasing opportunities. Indirect channels generally provide higher levels of quality assurance and transaction security, whereas direct channels increase market accessibility, transaction speed, and geographical reach. Consequently, the coexistence of online and offline direct and indirect channels enables the secondary market to respond to the evolution of the primary market while different channel structures influence the efficiency and scalability of recommerce without altering its fundamental business logic.

Implementation of the business process generates several immediate outputs, including product life extension, retention of product value, redistribution of product utility, reduced demand for new product manufacturing, lower waste generation, and improved resource efficiency. These outputs constitute the direct operational effects of recommerce and collectively create the conditions for achieving broader economic, environmental, and social outcomes. Economically, recommerce creates new revenue streams for businesses, reduces consumer expenditure, stimulates business growth and innovation, and supports the emergence of new business opportunities based on circular business models. At the environmental level, extending product lifecycles reduces the extraction of virgin resources, lowers waste generation and landfill disposal, decreases greenhouse gas emissions associated with new production, and improves overall resource efficiency From a social perspective, recommerce increases access to affordable products, promotes responsible consumption, strengthens consumer participation in circular economy practices, and supports the transition towards more sustainable consumption patterns. The interaction of these economic, environmental, and social outcomes ultimately reinforces the contribution of recommerce to the circular economy and sustainable development by generating long-term value for businesses, consumers, and society.

Over time, these outcomes reinforce the transition towards a circular economy and supports sustainable development objectives. Unlike a linear value chain, the proposed model assumes that these long-term outcomes further reinforce the initial drivers. Greater consumer acceptance of recommerce, increasing awareness of sustainability, improvements in resource efficiency, and wider implementation of circular business practices stimulate further market development, thereby creating a continuous feedback mechanism within the system.

Several cross-cutting challenges influence the implementation and long-term development of the proposed business model. Market limitations, consumer trust, logistics, technological readiness, the green gap, greenwashing practices, and profitability concerns influence each stage of the business model rather than individual activities in isolation. However, these challenges are not static and may change both in their composition and in the strength of their influence as recommerce develops. During the early stages of market development, barriers related to consumer trust, logistics, technological readiness, and profitability are generally more pronounced, limiting the implementation and expansion of recommerce activities. As recommerce becomes more established, growing consumer acceptance, accumulated market experience, technological development, and the wider adoption of circular business practices gradually reduce the constraining effect of many of these challenges. At the same time, changes in the market environment may increase the importance of existing challenges or create new ones. Consequently, their influence depends not

only on the nature of the individual challenges but also on the level of development of the recommerce market. Their cumulative effect may therefore either facilitate or constrain the long-term economic, environmental, and social value generated by recommerce.

7. Conclusion

This study conceptualizes recommerce as an integrated circular business model that extends product lifecycles, preserves product value, and contributes to the transition towards a circular economy. By integrating the fragmented literature on product re-use, second-hand goods, and circular economy, it develops a unified conceptual framework explaining the relationships among the principal drivers, market participants, business processes, transaction channels, outputs, long-term outcomes, and implementation challenges of recommerce.

The analysis shows that product re-use represents one of the most important circular economy strategies, while second-hand goods constitute the practical mechanism through which this strategy is implemented (RQ1). Recommerce is conceptualized as a circular business model integrating multiple actors, commercial flows, and transaction channels rather than a single resale transaction (RQ2). The analysis further shows that the development of recommerce is constrained by interconnected market, behavioural, technological, supply-chain, and economic challenges that collectively influence its implementation (RQ3). Finally, these elements are integrated into a unified conceptual model explaining the relationships between the drivers, inputs, business processes, market channels, outputs, challenges, and long-term economic, environmental, and social outcomes of recommerce (RQ4).

The proposed model provides a theoretical foundation for future empirical research and practical implications for retailers and policymakers seeking to promote circular business models and sustainable consumption. As a conceptual study, it requires empirical validation across different industries and national contexts. Future research may examine the proposed relationships using quantitative and qualitative approaches and evaluate the applicability of the model across different product categories and recommerce formats.

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