

## A BIBLIOMETRIC ANALYSIS: MARKET SUSTAINABILITY FOR SECOND-HAND PRODUCTS

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### ABSTRACT

*The rising global trend towards sustainable consumption has generated substantial interest in second-hand goods as a potential substitute for traditional purchases. Consequently, this study offers an in-depth bibliometric and literature review examination of academic research on second-hand commodities. The content explored herein is deemed to make a significant scholarly contribution to this area of study. A total of 401 eligible articles, authored between 1974 and 2022, were discovered using the appropriate keywords second-hand, pre-loved, or pre-owned. The bibliometric study reveals a consistent rise in the volume of academic articles concerning second-hand goods since 2019. Notably, the leading institutions producing this literature include Cebu Technological University, the University of Tehran, and the University of Hong Kong. Furthermore, the research uncovered five main subject areas: vintage and nostalgia, sustainability, circular economy, fashion, and sharing economy. Most studies of second-hand products focus on how design can enhance environmental performance. One of the five co-words analysis clusters scrutinises sustainable design users' behavior. This can help scholars in related fields select research partners and directions.*

## INTRODUCTION

Second-hand products, also known as preowned or second-hand items (D'Adamo et al., 2022; Bock, 2019), refer to products previously owned or used by someone and are subsequently offered for sale or reuse. Compared to purchasing new items, customers have the option to purchase cheaper products from second-hand retailers (Borusiak et al., 2020), which leads to increased consumption of sustainable goods and positive long-term environmental impacts. Bock's (2019) research reveals that buying pre-owned items aids in waste reduction and resource conservation by prolonging the lifespan of goods (Mangilit et al., 2022). First Insight (2000) reported that 62% of Generation Z, who are soon to join the workforce, opt for sustainable brands, matching the level found for millennials. Moreover, a remarkable 73% are willing to pay a premium for eco-friendly products. The study conducted by Kiehn and Vojkovic (2018) found that millennials are motivated to shop for second-hand clothing due to its popularity as a current trend and a sustainable consumption practice. The study conducted by Kiehn and Vojkovic (2018) found that millennials are motivated to shop for second-hand clothing due to its popularity as a current trend and a sustainable consumption practice. The study further reveals that some individuals purchase second-hand clothing to justify their higher consumption of clothing. The primary motive behind this shopping behaviour does not seem to be driven by environmental concerns, as reiterated by Kiehn and Vojkovic. The findings suggest that purchasing second-hand clothing meets the same requirements as fashionable clothes do for millennials.

On the contrary, Chaturvedi, Kulshreshtha, & Tripathi (2020) revealed that generation Z's purchasing intention for recycled clothing is influenced by willingness to pay, environmental concern, perceived value, and personal norms. As a result, the major predictors of recycled clothing purchase intention for future young generations were

willingness to pay, environmental concern, and perceived value.

However, financial challenges also plague the second-hand market (Yrjölä, Hokkanen, & Saarijärvi, 2021). Previous research by Akerlof (1970) suggests that knowledge asymmetry may lead to issues, as the quality and condition of second-hand goods can vary. Consequently, sellers may exploit buyers' struggles in gauging the product's true value by upping prices on inferior products. Belk and Ger (2003) argue that there is a social stigma associated with purchasing second-hand items. While buying second-hand goods became popular before it became fashionable (Kiehn & Vojkovic, 2018), entering thrift stores or second-hand shops was highly stigmatised and considered a sign of being unable to afford new products (Martínez, González, & Barrie, 2022). Furthermore, the goods within these stores were often viewed as dirty due to their previous use. Therefore, individuals may be deterred from purchasing second-hand items due to perceived lower social standing or hygiene concerns (Bosangit, Lyanna, & Koenig-Lewis, 2023). The social interactions involved in buying pre-owned goods may become more intricate as these perceptions can vary in diverse cultural contexts and because of economic and social concerns (Thompson, 2018).

The diverse findings in the literature demonstrate the intricacy of purchasing used items. A thorough, structured, and methodical assessment of prior studies is required to establish a coherent knowledge base and locate research deficiencies. Regrettably, despite numerous investigations conducted since 1974, there are no exhaustive and current literature analyses guiding future research on second-hand goods; the available assessments are confined by their limitations.

This methodology aids in identifying key actors, major themes, and publication and citation patterns within the field, allowing for informed decision-making in both research and practice. The objective of this study is to

offer an overview of recent developments in second-hand research. Our research goals encompassed multiple facets.

- RO1.** To explore the publication and citation trend of second-hand product research
- RO2.** To identify the major contributors to second-hand products research.
- RO3.** To highlight the key themes and propose future avenues for second-hand product research.

To achieve these objectives, we begin by carrying out a performance analysis to evaluate the patterns of publication and citation in this subject, considering those of the leading contributors. Subsequently, we use scientific mapping to determine the intellectual organisation of the subject field. Through this procedure, outlined in Table 1, we identify repeated themes and propose potential avenues of investigation for further study in this field.

The outcomes of this review benefit several stakeholders, encompassing new and established academics, professionals, and policymakers, as they offer perspectives on publication and citation trends, significant contributions, and prominent themes in this research area. Additionally, our research adds to the shared comprehension of second-hand goods, whilst also highlighting crucial unexplored areas and future research prospects, making it a valuable resource for stakeholders in this research field.

### RESEARCH METHOD

Tranfield et al. (2003) state that the primary objective of conducting a literature review is to meticulously identify, specify, chart, and appraise relevant, existing literature. A literature review can comprehensively integrate various publications and methods using a systematic approach, facilitating a meticulous and profound analysis that scrutinises contextual linkages between the research (Raghuram et al., 2009).

The use of bibliometric analysis in the present study was selected for multiple reasons. Firstly, bibliometric analysis offers a more systematic study of several hundred publications, thus providing a more dependable approach in comparison to other text analysis methods, such as content analysis, when handling a large number of articles. Secondly, it allows for an extensive exploration of the associations between articles, citations, co-citations and keywords, leading to comprehensive and insightful outcomes. Finally, bibliometric analysis allows readers to efficiently identify research interest clusters within a field. Hence, this study employed bibliometric analysis due to its practicality, ability to conduct comprehensive analysis, and provision of clear visual representations of research clusters.

### DATA COLLECTION

This study employs a bibliometric approach to review the systematic literature on second-hand products (pre-loved or preowned) in order to examine past research. This paper adheres to conventional structures, including common academic sections and regular author and institution formatting, with factual and unambiguous titles. Grammatical correctness is maintained without any errors in spelling, grammar, or punctuation. The review systematically investigates the literature to answer questions (Dewey & Drahota, 2016), using techniques such as content analysis, bibliometric analysis, meta-analysis, and thematic analysis. The language variant chosen is British English. Objective and value-neutral language is utilised, avoiding biased or emotional language and sticking to common sentence structure and technical terms. Lim, Kumar, and Ali (2022) state that bibliometric analysis employs quantitative and statistical methods to evaluate literature. This methodology is capable of handling extensive sets of literature and reducing biases due to the objective measurement statistics used to analyse it (Mangilit et al., 2022; see Table

**Table 1** Review Procedure

SPAR-4-SLR (PRISMA)	Consideration	Decision
<b>Assembling (Identification)</b>	Search Focus	Second-hand markets
	Search keywords	("second-hand" OR "second hand" OR "pre-loved" OR "pre-loved" OR "preowned" OR "pre-owned")
	Search database	Scopus
<b>Arranging (Screening and Eligibility)</b>	Search field	Article title, abstract and keywords
	Search result	9538 articles
	Search period	Up until July 2022
	Subject area	Business Management and Accounting
	Document type	"Article"
	Publication stage	"Final"
	Source type	"Journal"
	Language	"English"
	Search Result	410 articles
<b>Assessing (Inclusion)</b>	Performance Analysis	Publication and citation trends Most impactful articles (citation) Most productive journals (publication) Most productive (publication) impactful (citation)
	Science Mapping	Co-word analysis (major themes) Bibliographic coupling (major themes) Trend analysis (trending themes and topics)

The data collection for this study underwent two stages: assembling (or identification) and arranging (screening and eligibility), as shown in Table 1. During the assembling stage, search keywords depicting preowned products were employed, including "second-hand" or "pre-loved" or "preowned" or "pre-owned". These keywords were identified through literature reviews (Paul et al., 2021). The Scopus database, a vast scientific database system, was utilized to investigate 9538 documents using the search field "Article Title, Abstract, and Keywords".

During the arrangement and screening stage, the search was conducted until the end of July 2022 without a specified start date to gather as many relevant articles as possible. The investigation was focused and limited to subject areas of business management and accounting to ensure relevance. Furthermore, technical abbreviations were explained upon first usage. It is crucial to consider the type of document to include in conceptual and empirical research. Therefore, the article type

was deemed the most appropriate choice because of its rigorous peer review process, unlike editorial and note types. The publication must be in its final stage to ensure replicability, as in-press articles are typically assigned to a later year. The search was restricted to journals as they meet two criteria: (i) the presence of peer review, and (ii) they represent complete research. Research in progress and explanatory works such as conferences and book chapters were not considered. The search was limited to English, which is the authors' proficient language. As a result of the filtering process, a total of 410 documents were obtained, with 9 being excluded; the final number amounted to 401 documents.

The assessment stage was pivotal in accomplishing this analysis. The final stage of data analysis involved assessment, which ultimately led to the completion of performance analysis and science mapping. Firstly, productivity and impact of preloved or preowned luxury products were scrutinised through publication and citation trends during

the performance analysis phase. The study revealed the most impactful articles based on both global and local citations. In addition, it identified the most productive publications and the most impactful contributors, including authors, journals, institutions, and countries. Technical term abbreviations were explained as necessary to enhance the readers' comprehension. The performance evaluation analysis in this study aligns with previous bibliometric reviews (Donthu, Reinartz, Kumar & Pattnaik, 2020) that examine the profiles of contributors commonly present in empirical research. However, the study conducted by Linnenluecke, Marrone, and Singh (2020) delves into the topic more analytically.

Next, this study conducted science mapping, co-word analysis, and bibliographic coupling analysis. The co-word analysis demonstrated the major themes present in the literature through the clustering of frequently occurring keywords. By utilizing two analytical techniques aimed at triangulating the significant themes in the literature (Lim, Kumar, and Ali, 2022), the bibliographic coupling analysis revealed critical themes in the literature through the clustering of articles with standard references (Donthu et al., 2021). Finally, a trend analysis was conducted to map the evolution of the articles and topics relating to pre-loved or preowned luxury products. The results of the bibliometric study are presented in the subsequent sections.

The study analysed 401 publications on second-hand products and yielded two main findings. Firstly, the performance analysis comprised publication and citation trends, as well as the identification of the most impactful articles, productive sources, authors, institutions, and countries.

Next, we conducted a science mapping analysis, which encompassed examining the co-occurrence of the author's keywords, the co-occurrence network of main themes, bibliographic coupling, and trend analysis of popular themes and topics. The study findings are presented below

## RESULTS AND DISCUSSION

### *Performance Analysis*

When studying the literature on second-hand marketplaces, analysing publication and citation trends is necessary to gain knowledge of the subject's leading authors, successful academic journals, and important publications. This study provides a summary of previous research, acknowledges significant contributions, and assists in comprehending the current state of the research field (Donthu, Reinartz, Kumar & Pattnaik, 2020).

### *Publication trend on second-hand product*

The data presented in Figure 1 reveals a steady rise in the number of publications about used goods from 1974 to 2022. The number of published articles has been increasing steadily since 1974, with a peak of 54 publications in 2019. Of particular note, over 41.39% (166 out of 401) of the articles were published after 1974, indicating a growing interest in the topic amongst researchers in recent years. This pattern points towards the emergence and increasing significance of the second-hand goods research sector.

**Figure 1** Publication Trends on Second-hand Products

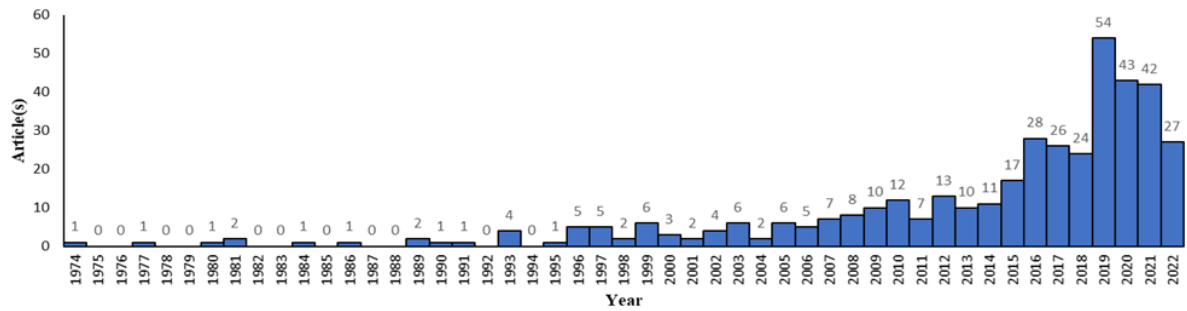


Table 2 exhibits the journals with the most prolific rates when imposing a criterion of five sources for used goods. Six journals accounted for 76 articles, equivalent to approximately 20% of the total 401 publications. The remaining 80% of unprinted works were published in other journals. Around 38.15 percent and 19% of the overall articles in the sample and the top 10 journals, individually, were represented by the 29 articles published in the Journal of Cleaner Production. Notably, a recent study on a specialised VAT regime is discussed in “A New (Circular) Economy: A New Special Arrangement for Second-Hand Goods!” published in Volume 30, Issue 2, 2021. The publication examines the process of returning goods from the consumer to the productive sector.

The article “Towards Building Sustainable Consumption: A Second-Hand Buying Intention,” published in a different issue of 2022, indicates a positive correlation between the desire to purchase used goods and the intention to visit second-hand shops. The International Journal of Production Economics ranked first with ten articles, closely followed by the Journal of Business Research with eleven. Business History and the Journal of Fashion Marketing and Management jointly occupied the fourth position, each with nine articles. Technological Forecasting and Social Change ranks fifth with 8 articles. Despite the recent emphasis on various disciplines, the sustainability of used goods remains the primary focus (Mangilit et al., 2022). According to previous studies, the sustainability of second-hand products may need more time

to garner more attention. The significance and necessity of considering sustainable and user-centred design has been adequately emphasised (Hahn & Kühnen, 2013). However, sectors such as operations management and production may require more time to gain the attention of researchers. Hahn and Kühnen (2013) further stress the need for multidisciplinary research due to the unique characteristics of second-hand items.

**Table 2** Top 5 prolific sources for second-hand product

Rank	Source	Article(s)
1	Journal of Cleaner Production	29
2	Journal of Business Research	11
3	International Journal of Production Economics	10
=4	Business History	9
=4	Journal of Fashion Marketing and Management	9
5	Technological Forecasting and Social Change	8

**Most impactful authors**

Table 3 displays the authors with the highest number of citations based on their publication history. The top author with the most citations is Mont O, who has published 2 articles. Mont, alongside Matthias Lehner and Emma Edbring, conducted research to comprehend the factors that influence individuals to engage in unconventional consumption patterns and the obstacles they encounter in doing so. Mont’s research aims to objectively investigate consumer sentiments and understand the reasons behind the growing enthusiasm for



alternative consumption practices. These practices encompass various consumption patterns, including sustainable consumerism, second-hand marketplaces, and the sharing economy. To gain more insight into these topics, Mont conducts literature reviews and case analyses as part of their research. The business model design methodology is widely used by top researchers in this field. This framework is effective in analysing the dynamics of alternative consumption models. Table 3 presents the noteworthy contributions of various authors, wherein Mont O dominates in terms of citation count, particularly in exploring alternative consumption models and utilising methods such as literature reviews, case analyses, and business model design. Identifying the most prolific writers may uncover the scholars who have significantly influenced a specific topic or field of study (Seglen, 1997). It may indicate an author's expertise, research output, and influence in the academic sphere. It is imperative to also consider the relevance and significance of their research. It is worth noting that solely measuring productivity may not always reflect the value or quality of an author's contributions.

**Table 3** The most impactful authors for second-hand products

Rank	Author	Total Citation(s)	Article(s)
1	Mont O	364	2
2	Burt R.S	251	1
3	Dalhammar C	185	1
3	Jacobsson N	185	1
4	Gullstrand Edbring E	179	1
5	Guiot D	179	2

**Most productive and impactful institutions**

Table 4 displays the highest publishing organizations that have produced more than

seven articles, alongside their locations and number of publications. Cebu Technological University researchers have published the largest number of papers. This is in comparison to the most cited authors in Table 3. The University of Tehran has produced 13 articles, making it the second most productive institution. The University of Hong Kong and Tsinghua University follows with 11 each. Wang et al. (2019) argue that knowledge of institutional productivity and impact facilitates researchers in identifying potential collaborators, thereby enhancing research quality and visibility. Collaborations with reputable institutions result in higher-quality research outputs and increased research impact.

Additionally, funding agencies and organisations prioritise institutions with an established productivity and impact track record (Adams, 2013). Researchers who are cognisant of these institutions can deliberately pursue alliances or associations that boost their prospects of obtaining funding for their projects.

Researchers can gain insight into their competition and benchmark their own performance by monitoring the productivity and impact of other institutions (Roser et al., 2019). This knowledge enables researchers to identify strong and weak areas in their work, and compare them to those of other institutions.

By identifying the most productive and impactful institutions, researchers can also spot emerging trends and hotspots. This understanding helps researchers to select research directions and topics that are probable to gain attention and have a more extensive impact.

**Table 4** The Most Productive and impactful institutions

Ranking	University of Affiliation	Articles
1	Cebu Technology University	19
2	University of Tehran	13
=3	The University of Hong Kong	11
=3	Tsinghua University	11
=4	Monash University	9
=4	Zhejiang University	9
=5	University of Helsinki	8
=5	Zhejiang University of Technology	8
=6	Lappeenranta University of Technology	7
=6	Nanjing University of Aeronautics and Astronautics	7

### Science Mapping

#### Co-occurrence of Authors' Keywords

The co-occurrence network reveals the crucial study themes surrounding second-hand items, presented in Tables 5 and Figure 2-3. All keywords were utilised as the analysis unit in conjunction with co-occurrence as the analysis type. The 20 keywords were categorised into 5 clusters, each representing a distinctive trait that falls under the five key themes: fashion, sustainability, circular economy, vintage, and nostalgia.

We categorise the five clusters based on the articles' content, with a focus on those with high-rank values. Vintage and nostalgia themes are covered by the second-hand, luxury, vintage, and nostalgia labels found in Cluster 1 (Veenstra & Kuipers, 2013; Sarial-Abi, Vohs, Hamilton, & Ulqinaku, 2017). For example, in Figure 5, Waldman (1996) suggested that an exclusive leasing policy could eradicate the second-hand products market (Dindarian et al., 2012). It is reasonable to argue that the current product design and the emerging second-hand market pose the primary obstacles to reuse electrical home appliances, rather than the quality of discarded products or the cost of electrical replacement parts. Brooks (2019), on the other hand, draws a comparison between the life cycles of fast fashion and used clothing. The extant literature has furnished a theoretical base, but there is still more to be

done to develop a lucid conceptual framework of second-hand goods.

Cluster 2, centering on sustainability, has been labelled with three categories: consumers, business model, and sustainability (Goodland, 1995; Constanza & Patten, 1995; Lubin & Esty, 2010). The pieces on every topic offered informative insights into the interplay of sustainability, consumer conduct, and the second-hand trade model. These discoveries may aid forthcoming scholars in scrutinising their research to gain further knowledge on these themes and their contribution to boosting more ecologically-conscious consumer practices.

Cluster 3 covers topics including reuse, remanufacturing, recycling, and circular business models, which offer valuable guidance for companies, decision-makers, and individuals seeking to adopt more sustainable and circular practices (Yuan, Bi & Moriguichi, 2006; Blomsma & Brennan, 2017; Razza, D'Avino, L'Abate, & Lazzeri, 2018). The textile industry has been analysed, and the lessons learned can be translated to other fields.

Cluster 4 focuses on fashion concerning second-hand items, aligning with the cluster's core themes of second-hand markets, consumer behaviour, style, retail, and clothing (Ma, Shi, Chen, & Luo, 2012; Cervellon, Hjerth, Ricard, & Carey 2010; Hur, & Cassidy, 2019).



The researchers have provided useful insights into the opportunities and challenges facing the fashion industry, particularly in light of the growing second-hand market and the trend towards more sustainable and conscientious consumer behaviours. Their studies stressed the importance of prudent fashion consumption decisions and advocated for more environmentally friendly clothing retail practices. This discovery highlights the necessity of additional, comprehensive quantitative investigations.

Comparatively, Cluster 5 is linked to sharing economies, thrift stores, and cooperative consumption (Schor, 2016; Hamari, Sjolint, & Ukkonen, 2016; Kenney & Zysman, 2016). This group of articles is named the “sharing economy” cluster as they are all concerned with aiding readers’ understanding of the sharing economy, group consumption, and the benefits of thrift store purchasing. The study presents objective evidence supporting the potential for sharing platforms to enhance sustainability, community empowerment, and transform traditional business models. As more technology-related data is gathered, efficient techniques and tools are expected to emerge.

**Table 5** Co-occurrence Network of 5 Main Themes on Second-hand Products (Pre-loved or Preowned)

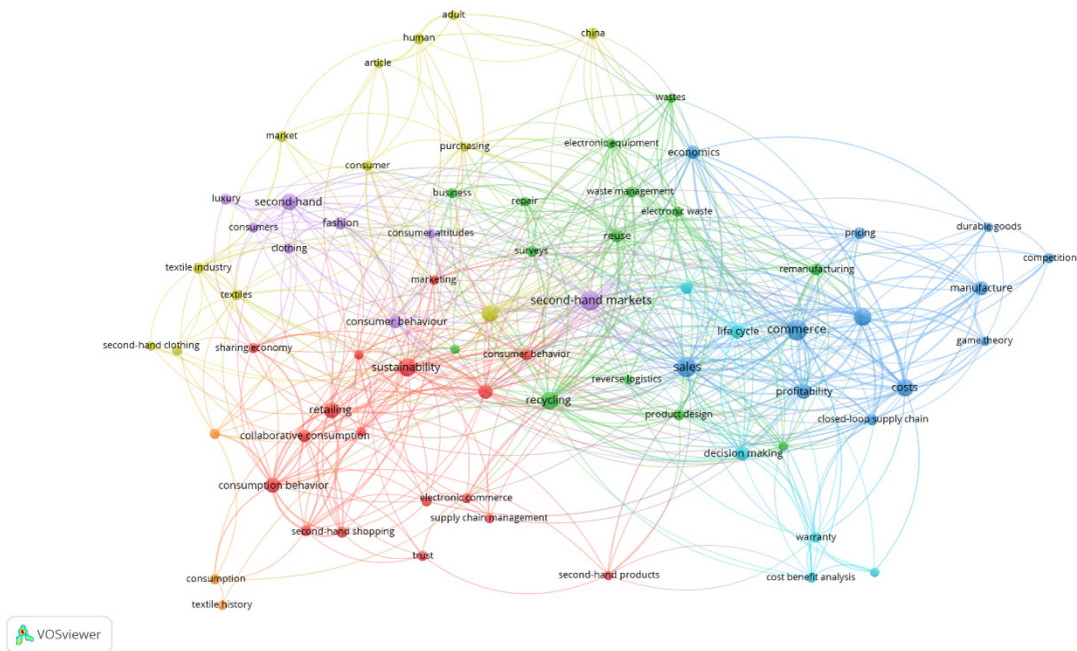
Main Theme	Key Words (Topics)	Cluster
<b>Vintage and Nostalgia</b>	second-hand	1
	luxury	1
	vintage	1
	nostalgia	1
<b>Sustainability</b>	sustainability	2
	consumers	2
	business model	2
<b>Circular Economy</b>	circular economy	3
	reuse	3
	remanufacturing	3
	recycling	3
	circular business models	3
<b>Fashion</b>	second-hand markets	4
	consumer behaviour	4
	fashion	4
	retailing	4
	clothing	4
<b>Sharing Economy</b>	collaborative consumption	5
	second-hand shopping	5
	sharing economy	5

**Figure 2** Co-Occurrence Network Map



Caption: Cluster 1 (Red) Cluster 2 (blue) Cluster 3 (Green) Cluster 4 (Purple) Cluster 5 (Orange)

**Figure 3** Co-occurrence and Author



### CONCLUSION AND IMPLICATIONS

Evaluation of previous research on pre-owned products reveals noteworthy findings and implications. Analysis of the publication dates indicates a growing interest in this field, particularly since 2019. This trend underlines the heightened importance of understanding the subtleties of second-hand goods. Furthermore, the referenced literature offers valuable insights into the impact of these studies. Many of these publications have considerably influenced scholarly and practical dialogues within this domain, underscoring their enduring importance. It is worth noting that research activity has surged since 2019, which could imply the real-world significance and applicability of such research in this field.

Scholarly publications on the trade of second-hand goods span multiple academic journals, showcasing the interdisciplinary nature of this field. The presence of research in economics, business, and policy-making publications suggests that the impact of used goods extends beyond specific disciplines. Such diversity facilitates a comprehensive

academic debate from various perspectives, improving our understanding of these complex phenomena.

The participation of different authors, nations, and institutions reflects the global interest and importance of second-hand product research. Eminent scholars have made a significant contribution to its development. Although academic institutions have largely influenced the shaping of this field, the crucial contribution of international organizations and government bodies highlights its practical and policy implications.

Taken together, our research on the mapping of 5 clusters/themes and their implications contributes to a comprehensive framework that provides a valuable reference point for future studies, management decision-making, and policy formulation in the critical field of international business. Overall, the performance evaluation highlights a dynamic and expanding area of research that generates noteworthy studies on the intricacies of second-hand goods. The variety of contributions from different regions, industries, and entities

emphasises the necessity for a global and cooperative approach.

The bibliometric analysis of second-hand products offers valuable insights into the expanding academic research concerning this subject. Utilising a systematic examination of scholarly publications, this review demonstrates the escalating interest and importance of second-hand products in several domains, including sustainability, consumer behaviour, retail, and the circular economy. The research outlines the linkage between second-hand products and broader concepts of sustainable consumption and resource efficiency, as revealed by the co-occurrence of terms like “sustainability,” “reuse,” “recycling,” “consumer behaviour,” and “circular economy.” This strong thematic relationship emphasises the interconnectedness of research related to second-hand products. The significance of second-hand products in the context of sustainability and circular economy is highlighted by this review.

The importance of managerial involvement in second-hand shopping is twofold: reducing waste and protecting resources while promoting responsible consumer behaviour. By analysing consumer motivation and perception towards used goods, companies can tailor their strategies to accommodate an informed and environmentally conscious customer base. As global environmental awareness continues to flourish, the significance of embracing second-hand products in addressing overconsumption and waste production escalates. This indicates that increased accessibility and convenience will support the expansion and long-term viability of the second-hand market.

Furthermore, the adoption of bibliometric review in the study showcases the importance of second-hand products in shaping theories related to consumer behaviour and retail practices. This, in turn, facilitates the conceptualization of a circular economy that seeks to minimize waste and maximize resource utilization.

The bibliometric analysis underlines the potential for future research in the second-hand market to promote the circular economy model by extending product lifetimes and decreasing demand for new items. Subsequent studies could investigate upcoming trends, sharing economy innovations, and the influence of digital platforms on second-hand goods accessibility and preference. The bibliometric review of second-hand goods highlights the topic’s growing significance in academia and its pertinence to wider debates concerning sustainability, consumer behaviour, and the circular economy. The review provides a valuable basis for researchers, policymakers, and corporations who wish to comprehend and utilise the potential of used goods to promote a sustainable and responsible method of consumption and resource management.

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