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Knowledge evolution and trends in cooperatives and cohousing: A bibliometric overview

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ABSTRACT

Recent interest in alternative living and economic models has led scholars to turn their attention to cooperatives and cohousing communities. Cohousing communities are neighborhoods that are created and managed by residents, offering shared spaces and communal living to foster a sense of community and well-being. This study is based on comprehensive bibliometric analysis of the scientific literature on cooperatives and cohousing. The study describes the development of this research area, highlights key themes, explores interconnections, and creates knowledge on how this field has evolved. The analysis consists of examining bibliographic coupling, co-citations, and keyword co-occurrence in documents published in the Web of Science (WoS) from 1996 to 2024. The study identifies prominent themes, influential authors, and emerging trends. The findings contribute to the research on sustainable development and community-driven initiatives, offering insights into how cooperatives and cohousing can provide viable solutions to contemporary societal issues. The results reveal five main categories of future research on cohousing cooperatives: (i) Management and collaboration, (ii) Knowledge and dynamic capabilities, (iii) Innovation and technology, (iv) Trust and leadership, and (v) Strategies, organization, and sustainability. Within these categories, 17 future research directions can provide insight to support policies and practices that enhance the effectiveness and sustainability of cohousing cooperatives. This analysis advances the current understanding of how collective action and shared living arrangements can contribute to more resilient and equitable communities.

Introduction

There has recently been growing interest in alternative living and economic models, including in relation to cooperatives and cohousing communities (Guity Zapata & Stone, 2022). Both emphasize collaborative decision making, shared responsibilities, and mutual support. They are thus aligned with broader societal shifts toward sustainability and community resilience (Lubik & Kosatsky, 2019). The challenges of climate change, economic inequality, and urban housing crises (Larsen, 2019a,b) have made cooperatives and cohousing models more relevant than ever, highlighting their potential to create inclusive and sustainable communities (Lee et al., 2024; Winston, 2022).

Cooperatives are defined as autonomous associations of individuals who unite voluntarily to meet their common economic, social, and cultural needs and aspirations through jointly owned and democratically controlled enterprises (Lafont et al., 2023). Cohousing communities are conceptualized as a form of cooperative that is both established and managed by their residents, offering shared spaces and communal living to foster a sense of community and collective well-being (Wu et al., 2022). Both cooperatives and cohousing represent innovative ways of addressing contemporary challenges related to housing affordability, social isolation, and sustainable living (Candemir et al., 2021). The relevance of these models lies not only in their economic and social benefits but also in their capacity to reshape how people engage with their environment and governance structures by promoting a sense of belonging and shared purpose (Warner et al., 2024).

As noted by Levi and Davis (2008), cooperatives emphasize the importance of democratic member control and economic participation. They operate on principles where the collective needs and aspirations of members are prioritized over the search for individual profit (Ribeiro-Navarrete et al., 2024). Meanwhile, cohousing refers to a unique living arrangement where private homes have supplementary access to extensive common facilities designed to encourage social

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interaction and cooperation among residents (Tummers, 2015). Cohousing offers a solution to the increasing demand for sustainable and community-oriented living environments (Zeuli et al., 2014). The principles of democratic control, economic participation, and concern for the community lay the foundations of modern cooperative movements (Lafont et al., 2023). Over time, cooperatives have diversified into various sectors, including agriculture, retail, finance, and housing. In each time, the core principles of cooperatives are adapted to the specific context and needs (Benos et al., 2024). Such diversification highlights the flexibility of cooperatives in responding to the varying needs of different sectors. Hence, cooperatives are a vital part of the economy and society in many countries (Guity Zapata & Stone, 2024).

Although cohousing is a more recent phenomenon, it has its origins in the Danish *bofællesskab* model from the 1960s (Larsen, 2019a,b). This model sought to combine the autonomy of private dwellings with the advantages of shared resources and communal living. It spread globally, particularly in North America and Europe (Tummers, 2015; Williams, 2008), as a response to urbanization challenges and the growing desire for more socially connected and sustainable living environments. As the concept of cohousing has matured, cohousing communities have increasingly adopted the principles of environmental stewardship, often applying green building techniques, renewable energies, and shared transport systems. They are thereby aligned with global sustainability goals (Nguyen & Macchion, 2023). Today, cohousing communities foster sustainability. Many employ eco-friendly designs, renewable energy sources, and shared green spaces to boost sustainability (Wang et al., 2021). Given the interdisciplinary nature of cooperatives and cohousing, the present study covers various domains, including business management, social sciences, green technology, and sustainable development (Zheng et al., 2023). Considering these fields together can show the multifaceted impacts of cooperatives, which span economic, social, and environmental dimensions (Beck, 2020).

The cooperative model focuses on local participation and empowerment. Hence, cohousing communities actively fight against climate change and social inequality by promoting practices that are both environmentally sound and socially inclusive (Becerra & Thomas, 2017; Saura et al., 2023). Despite the growing literature on cooperatives and cohousing, the intersection of these fields remains underexplored in the context of digitalization and technological integration (Tummers, 2015). For instance, the increasing use of digital tools for community decision making, resource management, and collaborative governance represents a new frontier in the study of cooperative models that warrants deeper exploration. Therefore, understanding how these digital transformations affect the principles and functioning of cooperatives could reveal new pathways for enhancing their efficiency and community impact (Luo & Hu, 2015).

The present study consists of comprehensive bibliometric analysis that explores the scientific literature on cooperatives and cohousing. It details their development, underscores key themes, and explores interconnections within the academic discourse. This study fills the gap in the literature by providing a detailed bibliometric analysis. It thus provides original insights into the trends in scholarly research in this area. The primary research question guiding this study is as follows: *What are the main characteristics and future trends of cohousing cooperatives?*

To address this research question, the bibliometric methods of bibliographic coupling, co-citation analysis, and keyword co-occurrence are used, as previously detailed by Lafont et al. (2023) and Ribeiro-Navarrete et al. (2024). By considering publications from 1996 to 2024, this study identifies prominent themes, influential authors, and emerging trends in the literature. This approach gives an understanding of how these concepts have evolved over time and what the potential implications for future research and practice might be. Using VOSviewer, this bibliometric analysis offers a comprehensive systematic overview of the academic research on cohousing cooperatives. To answer the research question, four research objectives are proposed. The study aims to:

- create knowledge about cooperatives and cohousing,
- evaluate the role of cooperatives in cohousing organizational models,
- explore types of cooperatives and their links to cohousing initiatives, and
- propose future directions for the development of research on cohousing cooperatives.

The findings contribute to the broader discourse on sustainable development and community-driven initiatives. They provide insights into how cooperatives and cohousing offer viable solutions to contemporary societal issues. The results also identify future research directions to support policies and practices to enhance the effectiveness of these innovative models. This study advances the current understanding of how collective action and shared living arrangements can contribute to more resilient and equitable communities.

The study is structured as follows. Following this introduction, Section 2 provides a literature review. Section 3 describes the methodology. Sections 4 and 5 present and then discuss the results. Section 6 outlines future research questions and conclusions, as well as highlighting practical and theoretical implications and limitations.

Literature review

The cooperative model is grounded in several theoretical frameworks that highlight its unique organizational and operational principles (Harris et al., 1996). Historically, cooperatives have been seen as a response to the economic challenges faced by workers and communities. One of the foundational theories is embodied by the Rochdale Principles of the Rochdale Society of Equitable Pioneers (Fairbairn et al., 1994). These principles, which include democratic member control, members' economic participation, and concern for the community, are the cornerstone of modern cooperatives worldwide (Zeuli, 2016). They emphasize the importance of collective decision making and equitable distribution of profits. These key features differentiate cooperatives from other business models that focus on individual profit maximization (Altman, 2020).

Collective action theory explains the success and sustainability of cooperatives (Olson, 2012). This theory explores how individuals can effectively collaborate to achieve common goals. It explains the mechanisms through which cooperatives overcome the challenges associated with collective action, such as free-rider problems and coordination issues. By creating a structure where members have a direct stake in the organization's success, cooperatives can align individual incentives with collective goals, thereby enhancing cooperation and productivity (Sandler, 2015). This alignment is crucial in sectors where long-term commitment and mutual trust are essential (Nakayiso & Andrew, 2023; Barbosa et al., 2024).

Transaction cost economics (Williamson, 1989) was initially proposed by Ronald Coase and later expanded by Oliver Williamson. It provides another lens to understand cooperatives (Libecap, 2024). This theory suggests that cooperatives can reduce transaction costs related to market exchanges by internalizing transactions within the organization (Young, 2013). By doing so, they can achieve greater efficiency and lower costs with respect to traditional market-based transactions, especially in sectors where trust and long-term relationships are crucial, such as agriculture (Valentinov, 2007) and finance (McKillop, 2020). This efficiency can substantially enhance the competitive advantage of cooperatives in these industries.

Similarly, theories that emphasize community building, social capital, and sustainable living underpin cohousing (Durrett & McCamant, 2011). The issues of growing urbanization and the associated social isolation have led to a resurgence in communal living models. One of the most pertinent frameworks is communitarian theory. This theory

highlights the importance of shared values and mutual support in creating cohesive communities (Sites, 1998). Advocated by thinkers such as Amitai Etzioni (1996), communitarian theory underscores the role of strong social ties and collective responsibility in enhancing the well-being of community members. Cohousing communities foster these connections by design through shared spaces and collaborative decision-making processes (Rand et al., 2015).

Social capital theory offers a way of understanding the importance of social networks in cohousing (Häuberer, 2011). Articulated by Pierre Bourdieu and Robert Putnam (Siisiainen, 2003), this theory posits that social networks have value and that the interactions within these networks can lead to various forms of capital, namely economic, cultural, and symbolic. In cohousing communities, social capital is built and maintained through regular communal activities and the shared management of resources, which in turn fosters trust, reciprocity, and a strong sense of community. This social cohesion can lead to more resilient and supportive living environments (Wang et al., 2020).

Finally, the theory of planned behavior offers a way of analyzing the decision-making process in joining and participating in cohousing (Conner & Armitage, 1998). Developed by Icek Ajzen (1991), this theory suggests that behavior is driven by intentions, which are shaped by attitudes, subjective norms, and perceived behavioral control. In the context of cohousing, positive attitudes toward communal living, supportive social norms, and the perceived ease of adapting to such a lifestyle can significantly influence individuals' decisions to participate in these communities (Sanguinetti, 2013). Understanding these factors can help in designing more effective outreach and engagement strategies for cohousing projects.

Creating a community: the context of cohousing cooperatives

Given the synergies between cooperatives and cohousing, integrating these two models offers a promising way of creating more sustainable and resilient communities. Both models emphasize democratic governance, shared ownership, and the prioritization of collective well-being over individual profit (Sanguinetti, 2014). This alignment creates opportunities for integrating cooperative principles into cohousing developments, thereby enhancing their social and economic sustainability. The shared values and goals of these models make them naturally complementary (Warner et al., 2024). Moreover, cooperative cohousing initiatives can foster a sense of shared identity among residents, leading to stronger communal bonds and a higher degree of collective problem solving (Hendriks & Dzur, 2022).

Likewise, the development of housing cooperatives that operate on cohousing principles has shown to be effective in managing residential properties collectively, ensuring that housing remains affordable and that the benefits of communal living are realized (Bianchi & Costa, 2024). For instance, pooling resources and sharing responsibilities among members strengthens a community's capacity to invest in sustainable technologies and practices. The housing cooperative model can also provide stability in housing markets by offering long-term secure housing options. Furthermore, housing cooperatives can engage in local policy advocacy, pushing for regulations that support affordable housing and community-led development (Molloy, 2020).

Another area where these models overlap is in relation to eco-villages. Eco-villages combine elements of cohousing with sustainable living practices (Marckmann et al., 2012). These communities aim to minimize environmental impact through the use of renewable energy, sustainable agriculture, and shared resources. Adopting cooperative principles in such communities ensures that eco-friendly practices are managed democratically and equitably, encouraging a culture of environmental stewardship (Litfin, 2014). This kind of governance structure can also create a feedback loop where members are continuously involved in refining and improving sustainability initiatives (Amaral et al., 2020). This approach can create models of living that are both environmentally sustainable and socially inclusive (Hagbert, 2019). Additionally, eco-villages can serve as experimental hubs for testing new green technologies, with cooperative structures allowing for collective decision making in technology adoption and use. Eco-villages are directly linked to cohousing cooperatives (Marckmann et al., 2012).

Using digital platforms to manage cooperative cohousing communities is a new development that promises to enhance their efficiency and inclusivity (Ribeiro-Navarrete et al., 2024). Digital tools facilitate decision making, resource sharing, and community engagement, thereby enabling members to collaborate effectively and participate actively in the management of their communities. These technologies can streamline operations and improve transparency, making cooperative processes more accessible. For example, Konnova et al. (2020) explained how a centralized digital platform can help manage communal resources, schedule maintenance activities, and provide real-time updates on community projects, thereby increasing engagement and accountability. The adoption of digital platforms not only supports effective governance but also encourages the development of smart, adaptive solutions tailored to meet the unique needs of each community.

These theoretical frameworks underpin cooperatives and cohousing and highlight the potential for these models to address contemporary challenges in sustainability, community resilience, and social equity (De Jorge-Huertas & De Jorge-Moreno, 2024). Integrating cooperative principles into cohousing creates communities that are not only economically viable but also socially and environmentally sustainable (Bianchi & Costa, 2024). Finally, this integration offers a valuable model for urban planners and policymakers seeking to understand how localized, community-driven initiatives can contribute to broader societal goals such as affordable housing, social cohesion, and environmental conservation (Wedler & Tribble, 2022).

Methodology

Bibliometric analysis

This study employs bibliometric analysis to explore the academic research on cooperatives and cohousing. The Web of Science (WoS) database was used to search for relevant studies. Bibliometric analysis involves quantitative examination of bibliographic data to study academic contributions in specific fields (Geng et al., 2024). As noted by Demir et al. (2024), this type of analysis is essential to identify the structural and dynamic characteristics of research domains. It enables visualization of networks of documents, authors, journals, and keywords, which illustrate the interconnections and relevance of contributions to the field. Furthermore, bibliometric analysis can be used for the study of an emerging topic to identify trends and patterns, as well as for well-established research areas (Shahin & Alimohammadlou, 2024).

The present study used three bibliometric techniques: co-citation analysis to map the intellectual structure based on the frequency with which publications are cited together; bibliographic coupling to identify documents that share common references; and keyword co-occurrence analysis to detect the most frequently used keywords in the database (Chawla & Goyal, 2022; Ribeiro-Navarrete et al., 2024).

Data sampling and description

To ensure a high standard of rigor and scientific quality, data were sourced from the WoS database. This database contains journals indexed in Journal Citation Reports (JCR) with impact factors. It includes some of the most prestigious academic journals worldwide. Structured searches were conducted using Boolean operators (AND, OR) to refine the search criteria: *(TS=Cooperatives AND TS=Cohousing) OR (TS=collaborative housing OR TS=co-housing)*. The results were filtered for documents in the Business, Business Finance, Economics, and Management categories of WoS. The searches returned an initial sample of 120 articles based on these terms. The searches were performed on June 24,

2024. The data set included studies published between January 1, 1996, and June, 24, 2024. The year 1996 was selected as the starting year because it offered the earliest instance of the term *cohousing cooperatives* in the WoS database. It thereby marked the birth of this concept in the academic literature. This data collection period thus ensured that all research on the concept of cohousing cooperatives in the scientific literature within the specified research categories was included in the current study.

Fig. 1 illustrates the general trend in the study of cohousing cooperatives from January 2000 to June 2024. The reason for this choice of date range is that, even though the sample comprised research published over the period 1996 to 2024, the WoS does not allow the creation of figures containing more than 25 years of data. Fig. 1 reveals a large increase in the number of publications over time. The number peaked in 2019, with 14 published articles. Since 2011, interest in this field has grown substantially, with a surge in research and publications culminating in the peak in 2019. From 1996 to the early 2000s, publications were rare and sporadic. However, there was noticeable growth in the number of studies starting in 2003, with several minor peaks up to 2008. This increase in interest has remained consistent, indicating a sustained trend in the research on cohousing cooperatives in the scientific literature over the past few decades. This trend indicates the growing recognition and exploration of cohousing cooperatives as an important area of academic inquiry.

The sample of documents was built using the WoS categories of Business, Business Finance, Economics, and Management. The descriptive analysis of the sample identifies several subcategories in the research on cohousing cooperatives. Management has the most records (67, or 55 % of the total of 120). Next, Business has 37 records, constituting 30 % of the total. Economics is also a prominent category, with 32 records (26.667 % of total records). Industrial Engineering and Environmental Studies have 12 records each, corresponding to 10 % of the total. This finding indicates the notable interdisciplinary interest in the environmental and industrial engineering aspects of cohousing cooperatives. Business Finance, Operations Research, Management Science, and Public Administration each have six records (5 % of the total). Similarly, Regional Urban Planning has six records, highlighting the relevance of urban and regional planning perspectives in the field. Finally, Civil Engineering has five records (4 % of the total), and Environmental Sciences has four records (3 % of the total). This diverse distribution across categories reflects the multifaceted nature of research on cohousing cooperatives, which spans management, business, economics, engineering, environmental studies, and urban planning.

To identify the main records by number of citations in WoS, Table 1 summarizes the most influential records, as well as the number of records by category and the percentage of the total. Although the records with the most citations are on the topics of cooperatives and cohousing,

Table 1
WoS categories, percentage of records, and most cited articles.

WoS category	Number of records	% of total
Management	67	55 %
Business	37	30 %
Economics	32	26 %
Environmental Studies & Industrial Engineering	24	20 %
Article	Author	Citations
Governance choices for corporate social responsibility: to contribute, collaborate or internalize?	Husted, B.W.	137
The high impact of collaborative social initiatives	Pearce, J. A., & Doh, J. P.	111
The effect of competitive and non-competitive R&D collaboration on firm innovation	Huang, K. F., & Yu, C. M. J.	80
The relationship between urbanization and economic growth An empirical study on ASEAN countries	Nguyen, H. M., & Nguyen, L. D.	64
Different Missions and Commitment Power in R&D Organizations: Theory and Evidence on Industry-University Alliances	Lacetera, N.	55
Towards a collaboration framework for circular economy: The role of dynamic capabilities and open innovation	Köhler, J., Sönnichsen, S. D., & Beske-Jansen, P.	51
Team diversity and its management in a co-design team	Trischler, J., Kristensson, P., & Scott, D.	32
Towards community engagement: six steps to expert learning for future scenario development	VanWynsberghe, R., Moore, J., Tansey, J., & Carmichael, J.	17
Beyond supply and assembly relations: Collaborative innovation in global factory systems	Enderwick, P., & Buckley, P. J.	14
Collaborative housing models in Vienna through the lens of social innovation Austria	Gruber, E., & Lang, R.	10

Source: Adapted from Web of Science data and VOSviewer results.

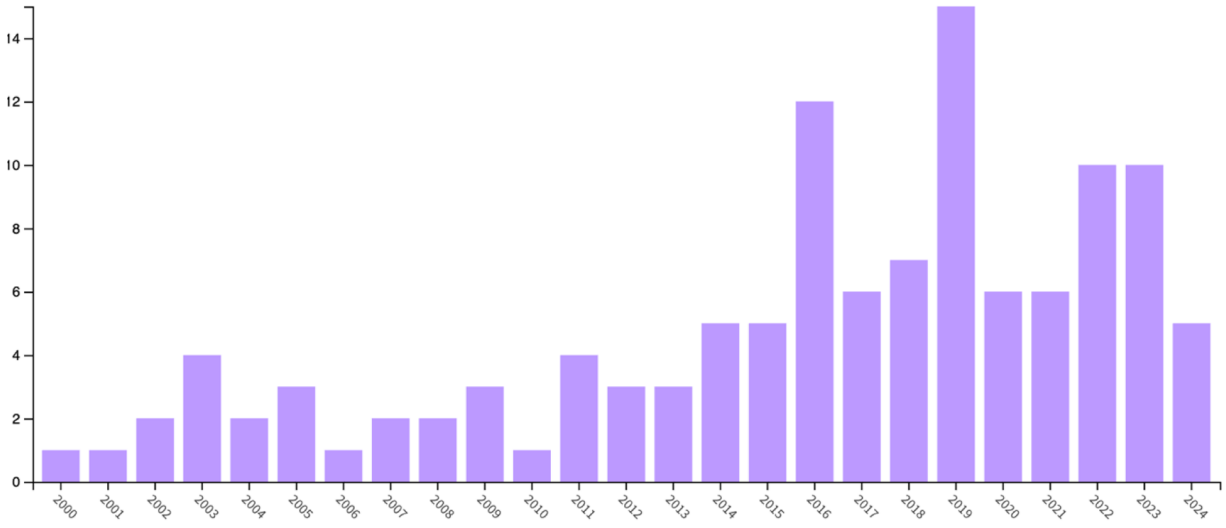

Fig. 1. Number of published articles by year from January 2000 to June 2024.
Source: Web of Science, retrieved October 7, 2024.

they are linked to processes of personnel management, innovation in collaborative organizations, and the structural processes of business organization. They are not directly related to theories on cohousing or prominent research in this area. This finding helps show the emerging nature of this field and indicates that authors justify their studies based on previous research in similar but not directly related areas.

Results of the bibliometric analysis

Following the indications of Lafont et al. and Ribeiro-Navarrete et al. (2024), this section presents the results of three bibliometric analyses: co-citation analysis, bibliographic coupling, and keyword co-occurrence (see Table 1).

Co-citation analysis

Co-citation analysis in VOSviewer is a bibliometric technique that identifies relationships between documents, authors, or journals based on citation patterns (Hou et al., 2018). This analysis helps map the intellectual structure and research trends in a particular field (see Fig. 1). By considering the frequency with which pairs of documents are cited together, VOSviewer creates visual data representations, often in the form of network maps. These maps illustrate clusters of related studies, highlighting key areas of research and the connections between them. The software uses advanced algorithms to group items into clusters based on their co-citation links. These clusters enable easy identification of major themes and influential documents in the literature. In summary, co-citation analysis in VOSviewer provides an understanding of the structure and dynamics of academic research, enabling the identification of core literature, emerging trends, and potential areas for future investigation (Shah et al., 2020).

Table 2 elaborates on the impact of these key contributors and the linkages between them. Teece has the most citations (26) and a total link strength of 103, indicating an extensive influence and frequent co-citations with other authors. Cohen has the next most citations (20) and a total link strength of 75, reflecting a significant contribution to the field. Dyer has 10 citations and a link strength of 57, whereas Hagedoorn has 14 citations and a link strength of 52. These scholars are also central figures in the co-citation network. Nelson and Eisenhardt have 14 and 15 citations and link strengths of 51 and 50, respectively. These results indicate their strong presence and links in the academic community. Chesbrough and Powell have 10 and 11 citations and link strengths of 36 and 35, respectively. These results show that they also play a role in shaping the research landscape.

These most-cited authors are responsible for the key contributions and central positions within the co-citation network. Hence, the analysis reflects their pivotal role in advancing knowledge and fostering intellectual discourse in their respective fields. The analysis of co-citation patterns provides deeper insights into key influences and thematic intersections in the broader research domain.

Fig. 2 presents a reference co-citation analysis map that illustrates the co-citation relationships among influential authors on cohousing cooperatives. The network map is composed of multiple clusters. Each cluster represents a group of authors who are frequently cited together. Each cluster thereby indicates these authors' intellectual proximity and contribution to specific research themes. The total number of authors identified in the bibliometric analysis was 5031. The minimum number of co-citations required to be included in Fig. 2 was set to 8. A total of 19 authors in the sample met this criterion.

The most prominent nodes in the map correspond to the authors with the highest co-citation frequencies. Grant forms a central node, indicating a substantial influence and frequent co-citations with other key authors. This central presence suggests that the work of Grant is pivotal in the field and frequently offers a key reference for other researchers. Similarly, Teece and Cohen also form central nodes within the network. The prominence of these authors in the co-citation map highlights their central role and extensive influence in shaping the discourse on cohousing cooperatives. The existence of frequent co-citations with other authors indicates that their research is integral to the research community. It suggests that their research often serves as a reference for other studies. Distinct clusters are marked by different colors. These clusters denote the thematic areas within the co-citation network. For instance, the green cluster, which includes Chesbrough, Von Hippel, and Rosenberg, focuses on innovation and technology management. The connections between these authors indicate a coherent body of literature addressing aspects related to this theme. These connections underscore their collective contribution to understanding innovation processes and technological advancements in the context of cohousing cooperatives. Another notable cluster in Fig. 2 includes Eisenhardt, Powell, and Gibson, who are part of the blue and red clusters. This cluster reflects their collective contributions to organizational studies and strategic management. The existence of frequent co-citations among these authors suggests that their research is often referenced together. This finding underscores their impact on these fields. The strong presence of Eisenhardt in this cluster indicates significant contributions to strategy and organizational theory.

The network also reveals interconnections between clusters, indicating interdisciplinary linkages. For example, Teece and Williamson appear in multiple clusters, highlighting the relevance of their influential research across different areas. This finding suggests that their research addresses fundamental concepts in various disciplines, thereby fostering interdisciplinary dialogue and integration. The network map

Table 2
Reference co-citation and author co-citation results.

Title	Author(s)	Citations	Link strength	Author(s)	Citations	Link Strength
Firm Resources and Sustained Competitive Advantage	Jay Barney	9	30.00	Teece, D. J.	26	103
Absorptive Capacity: A New Perspective on Learning and Innovation	Wesley M. Cohen and Daniel A. Levinthal	12	27.00	Cohen, W. M.	20	75
Building Theories from Case Study Research	Kathleen M. Eisenhardt	8	5.00	Dyer, J. H.	10	57
Dynamic capabilities: what are they?	Kathleen M. Eisenhardt, Jeffrey A. Martin	6	21	Hagedoorn, J.	14	52
Toward a knowledge-based theory of the firm	Robert M. Grant	5	11.00	Nelson, R. R.	14	51
Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology	Bruce Kogut, Udo Zander	6	15.00	Eisenhardt, K. M.	15	50
An Evolutionary Theory of Economic Change	Nelson, Richard R.	5	11.00	Chesbrough, H.	10	36
Interorganizational collaboration and the locus of innovation	Powell, W.W. Koput, K.W. Smith-Doerr, Laurel	5	5.00	Powell, W.W.	11	35
Dynamic capabilities and strategic management	David J. Teece, Gary Pisano, Amy Shuen	9	30.00	Williamson, O. E.	8	30
Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance	David J. Teece	5	18.00	Grant, R. M.	8	29

Source: Authors.

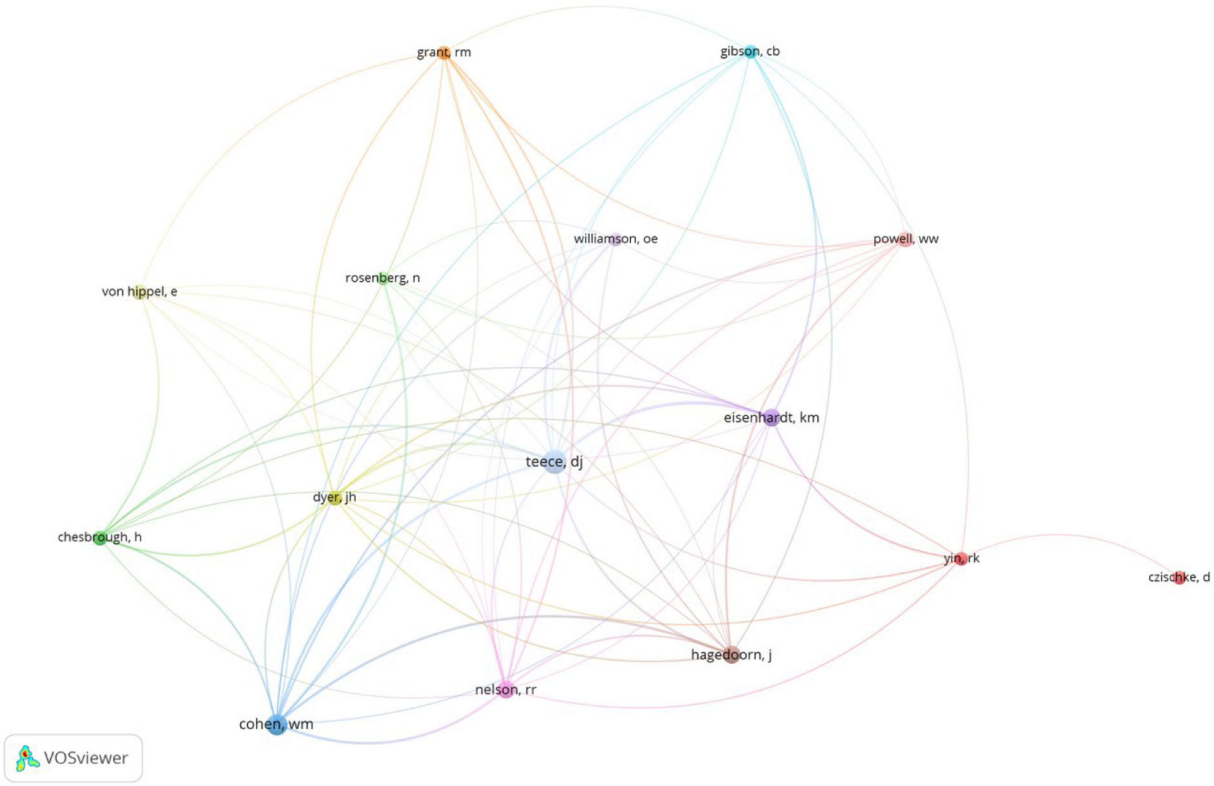

Fig. 2. Reference co-citation analysis network map.
Source: Authors based on VOSviewer and WoS data.

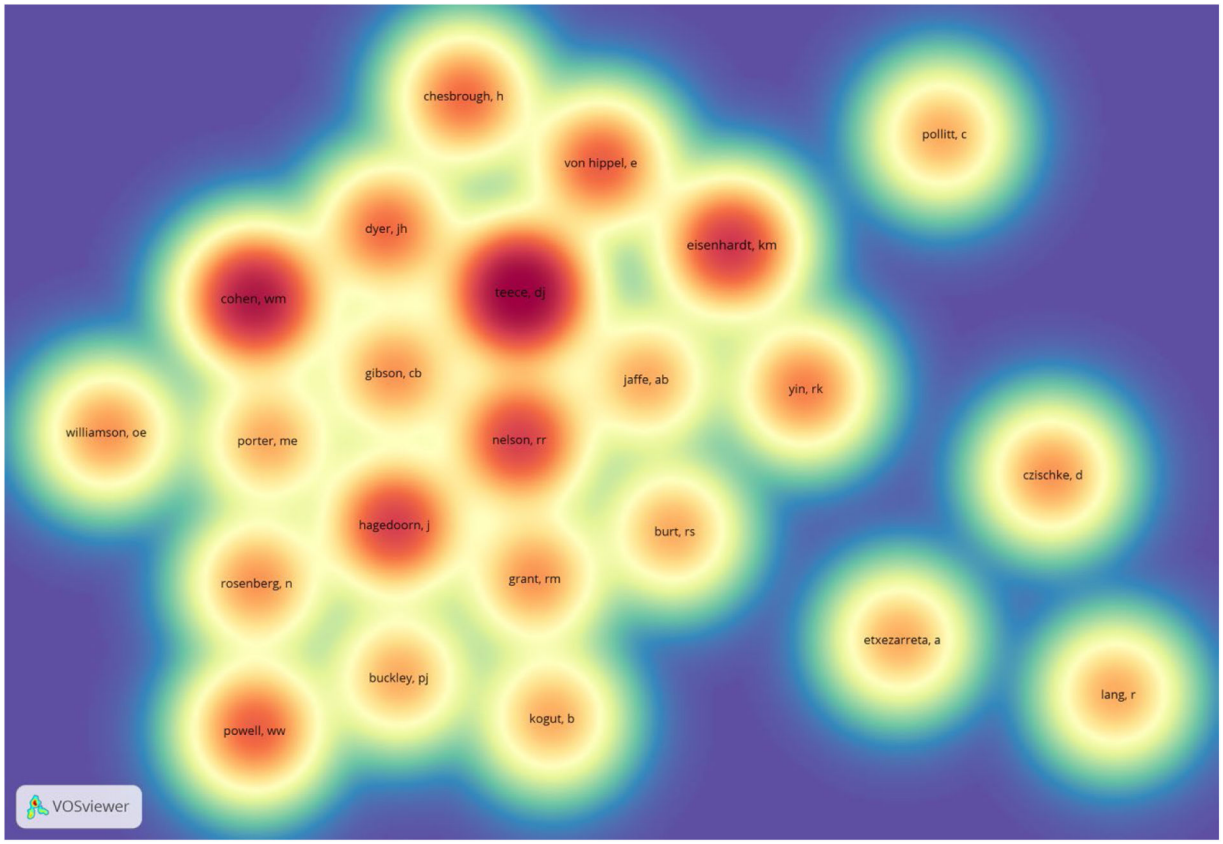

Fig. 3. Density map of author co-citation analysis.
Source: Authors based on VOSviewer and WoS data.

also shows that some authors (e.g., Hagedoorn, Nelson, and Rosenberg) connect multiple clusters, suggesting that their research spans multiple areas of study and contributes to a broader understanding of cohousing. The presence of these connecting authors highlights the interconnectedness of different research themes and the complexity of the intellectual landscape.

To understand the main relationships between the authors identified in the analysis, the density map of author co-citations appears in Fig. 3. This density map visually represents the intensity of co-citations among authors. Redder hues indicate higher co-citation frequencies and stronger connections. For example, a red node suggests a high frequency of co-citations and a central role in the academic discourse. Teece is closely connected to Cohen, Dyer, and Eisenhardt. The proximity and color intensity of these nodes indicate that their research is often cited together. The map thus reflects a shared thematic focus on organizational strategy and innovation management. To the left of Teece are Cohen and Dyer, who also appear as prominent authors with high co-citation frequencies. Cohen's work on absorptive capacity and knowledge management is frequently linked with Dyer's research on strategic alliances and organizational learning. These findings highlight a thematic convergence on organizational knowledge and innovation.

Another important node in the network is that of Nelson. This node is positioned near that of Teece and has a similar color, indicating frequent co-citations. Nelson is known for research on evolutionary economics and innovation systems, which is closely aligned with the themes explored by Teece. The proximity of Nelson to other influential authors such as Hagedoorn and Grant emphasizes the interconnected nature of research on innovation and strategic management. Overall, the density map in Fig. 3 highlights the core authors and their intellectual linkages in the field. The red and orange nodes represent the most frequently co-cited authors. These nodes indicate the central themes and key contributors to the scholarly debate. This analysis underscores the collaborative nature of research in this domain and the foundational sources shaping ongoing study.

Bibliographic coupling of sources

Bibliographic coupling of sources is a bibliometric technique used to measure the relatedness of documents based on the references they share. When two documents cite the same third document, they are said to be bibliographically coupled. This method provides insights into the structure and development of research fields by identifying clusters of related documents (Phan Tan, 2022). In a bibliometric study using VOSviewer, bibliographic coupling helps visualize the connections between various sources, revealing how different studies are interlinked through their citations. By analyzing these connections, it is possible to identify major research themes, influential sources, and emerging trends within a field. This technique complements other bibliometric methods such as co-citation analysis by offering a different perspective on the intellectual landscape of a research domain (Freire & Veríssimo, 2021). Table 3 presents the main documents in this research field. This list highlights the diversity of themes, all of which share a common link with community organization, cooperative leadership, and people management. The scope of the publishing journals also covers business, innovation, and sustainability.

Fig. 4 illustrates the interdisciplinary nature of research on cohousing cooperatives. The connections between journals show that themes such as innovation, management, sustainability, and cooperative economics together advance the understanding and implementation of cohousing models. Fig. 4 shows that the journal *R&D Management* is closely connected to *Technovation* and *Journal of Business Research*. This connection reflects a shared focus on research and development (R&D), innovation management, and business strategy. These themes are relevant to cohousing cooperatives, which often require innovative approaches and effective management practices to thrive. *International Journal of Management* and *Creativity and Innovation Management* have a strong connection, indicating a common interest in organizational behavior and innovation processes. These journals contribute to understanding how cooperative leadership and creative management strategies within cohousing communities can be applied to enhance collaboration and sustainability.

Table 3
Bibliographic coupling of sources.

Source	Documents	Citations	Link strength
Journal of Business Research	2	31	20.00
CIRIEC-España Revista de Economía Pública, Social y Cooperativa	5	29	17.00
International Journal of Managing Projects in Business	2	38	15.00
Technovation	2	63	14.00
REVESCO – Revista de Estudios Cooperativos	2	3	13.00
Construction Management and Economics	2	50	10.00
R&D Management	2	107	7.00
Energy Policy	3	17	4.00
Creativity and Innovation Management	2	41	3.00
International Journal of Public Sector Management	2	25	3.00

Source: Authors based on VOSviewer results.

The cluster including *Construction Management and Economics* and *Energy Policy* highlights the overlap between sustainable construction practices and energy management in cohousing projects. These journals' focus on sustainable development and efficient resource management is aligned with the goals of creating environmentally friendly and energy-efficient cohousing communities. *Revesco-Revista de Estudios Cooperativos* and *CIRIEC-España Revista de Economía Pública, Social y Cooperativa* are linked through their emphasis on cooperative economics and public policy. Research published in these journals provides insights into the economic and social frameworks that support the development and sustainability of cohousing cooperatives.

Author keyword co-occurrence

Yuan et al. (2022) explained that author keyword co-occurrence analysis is a valuable tool in bibliometric studies for mapping the thematic evolution and intellectual structure of a research field. It offers a comprehensive overview of the current state of knowledge and helps identify gaps and potential areas for further investigation. It is used to identify and visualize the relationships between keywords selected by authors in their publications. This method works by analyzing the frequency with which pairs of keywords appear together in the same documents.

According to Table 4, the keyword co-occurrence analysis reveals several strong relationships among the keywords in this research field. The keyword "knowledge" has the highest occurrence and total link strength, indicating its central role in the literature. This finding reflects the importance of knowledge in understanding various research themes and its frequent association with other key concepts. The keywords "dynamic capabilities," "governance," and "open innovation" also have high total link strengths, emphasizing their interconnectedness within the literature. These terms often appear together, suggesting that discussions on dynamic capabilities and governance are crucial in the context of open innovation, where firms use both internal and external knowledge sources to drive innovation. The keywords "research and development" (R&D) and "technology" are closely linked, underscoring their deep connections. The frequent co-occurrence of these keywords highlights the pivotal role of technological advancements and R&D in fostering innovation and knowledge creation. The keywords "integration," "leadership," and "trust" have strong co-occurrence relationships. These results indicate the relevance of these concepts in collaborative and organizational settings. Effective integration and leadership are

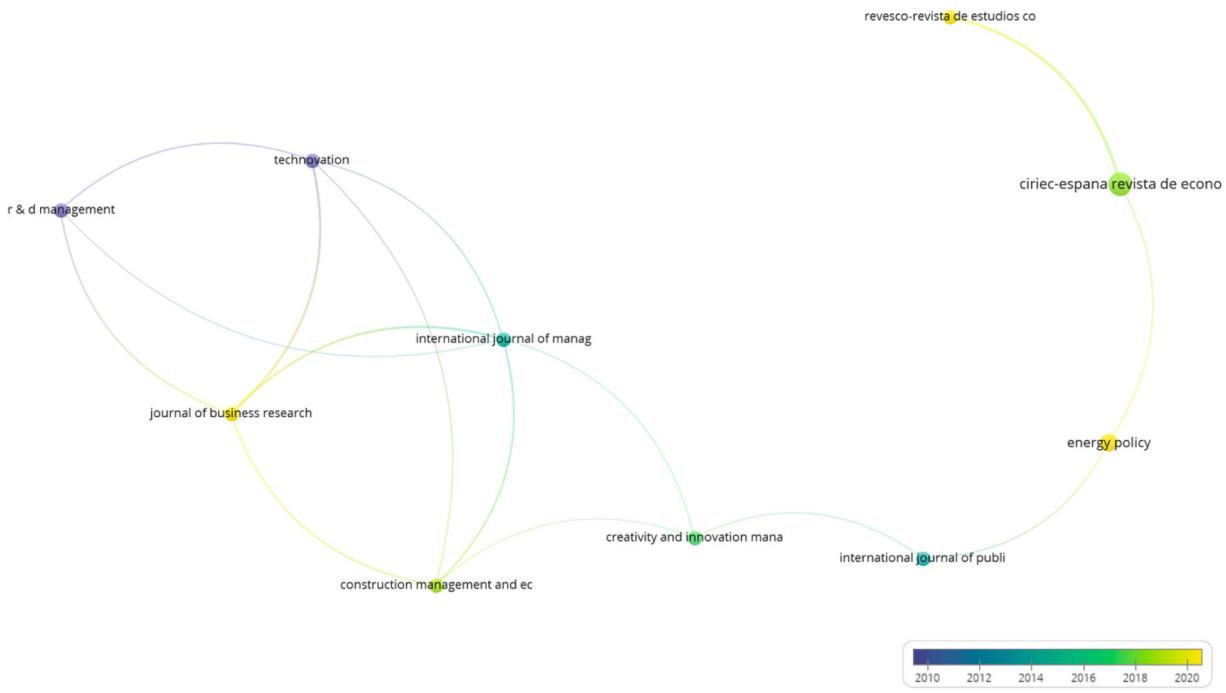

Fig. 4. Bibliographic coupling of sources by average year of publication.
Source: Authors based on VOSviewer results.

Table 4
Author keyword co-occurrence.

Keywords	Occurrences	Total link strength
Knowledge	9	32.00
Dynamic capabilities	6	29.00
Governance	7	29.00
Open innovation	6	29.00
Research and development	6	26.00
Technology	8	25.00
Integration	5	24.00
Leadership	7	22.00
Trust	5	21.00
Product development	5	20.00

Source: Authors based on VOSviewer results.

essential to foster trust among team members, which is in turn crucial for successful innovation and product development. Finally, "product development" appears frequently with other keywords, reflecting its importance in the broader context of innovation management.

As a result of the author keyword co-occurrence analysis, a network map was produced (see Fig. 5). In this map, nodes represent keywords, and the links between them indicate co-occurrences. The size of each node reflects the frequency of usage of the keyword, whereas the thickness of the links reflects the strength of the co-occurrence relationship. Using this map, clusters of keywords that frequently appear together can be identified, revealing key themes and subtopics within the research domain.

Fig. 5 shows the relationships among key concepts in the literature. The map reveals several central nodes, each representing frequently occurring keywords. The links indicate the strength of their co-occurrence. Management emerges as a central node, closely linked with the keywords "collaboration," "innovation," and "performance." This finding suggests that effective management practices are crucial for the success of cohousing cooperatives, emphasizing the importance of collaboration, innovation, and performance optimization within these communities. Collaboration is another significant node, linked to the keywords "open innovation," "networks," and "integration." This finding indicates that collaborative networks and open innovation are vital to the functioning of cohousing cooperatives, where community members work together and pool resources and ideas to enhance their living environment. Innovation is a prominent keyword associated with knowledge, dynamic capabilities, and technology. The link between innovation and these terms highlights the role of technological advancements and dynamic capabilities in driving innovation in cohousing cooperatives. Knowledge sharing and continuous improvement are essential to foster an innovative culture in these communities.

Trust and leadership are also important nodes, connected with strategies and organization. Trust and effective leadership are fundamental in cohousing cooperatives, where communal living relies on mutual trust and strategic organization to ensure smooth operations and conflict resolution. Knowledge and absorptive capacity are closely related, indicating that the ability to absorb and use new knowledge is critical for the development and sustainability of cohousing cooperatives. This relationship underscores the importance of continuous learning and adaptation to new information and practices within these communities.

Finally, sustainability and design are linked to consumption and supply chain management. This finding reflects the emphasis on sustainable practices and efficient resource management in cohousing cooperatives. The focus on sustainable design and consumption patterns is integral to creating environmentally friendly and socially responsible living arrangements.

Discussion

The results of the bibliometric analysis show increasing scholarly interest in the topic of cohousing cooperatives. This interest reflects broader societal shifts towards sustainable and community-driven living models. The co-citation analysis, bibliographic coupling, and keyword co-occurrence methods used in this study identified the links between key themes, influential authors, and emerging trends. A key finding is the central role of management, collaboration, and innovation in the research on cohousing cooperatives. The keyword co-occurrence analysis shows that the keywords "management," "collaboration," and

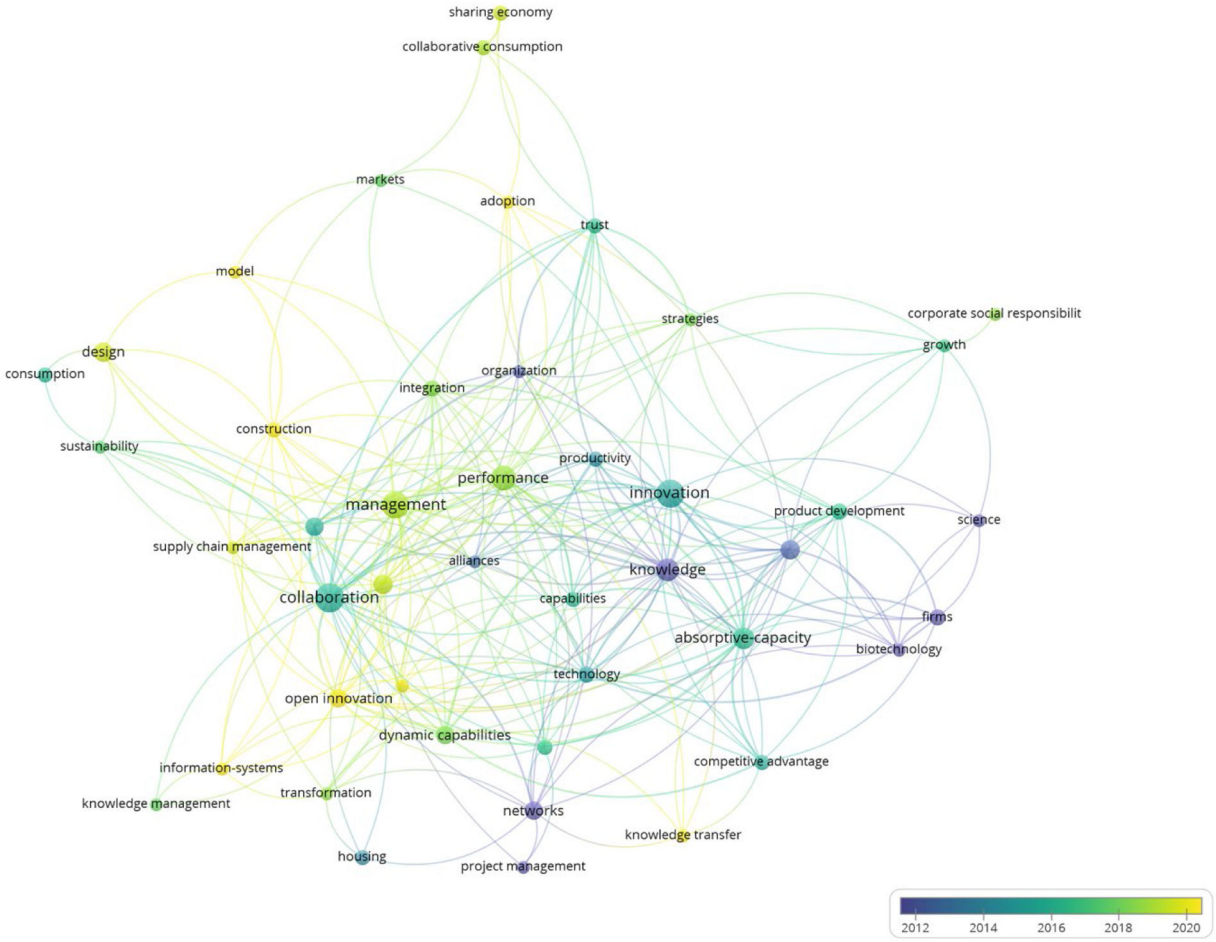

Fig. 5. Author keyword co-occurrence by average year of publication.
Source: Authors.

"innovation" frequently appear together, indicating their critical importance in this field. This finding is aligned with the approach of other studies that emphasize the need for effective management practices and innovative approaches in fostering successful cooperative and cohousing communities (Meliá-Martí et al., 2024; Sanguinetti, 2013). Also, collaborative technologies can enable real-time decision making and resource management in these communities, which could further enhance their operational efficiency (Ruiu, 2014).

The prominence of the keywords "knowledge" and "dynamic capabilities" in the co-occurrence network further illustrates the importance of knowledge management and the ability to adapt to changing circumstances. These aspects are crucial for the sustainability of cohousing cooperatives because they enable communities to use shared knowledge and continuously improve their practices (Carrere et al., 2020). Neumeyer et al. (2020) also cited the importance of the digital literacy of community members as a key factor in successfully implementing new technologies and strategies. This assertion highlights the need for continuous education and skill-building in these communities. The linkages between the keywords "knowledge," "innovation," and "technology" suggest that technological advancements are integral to enhancing the efficiency and effectiveness of these communities. These findings corroborate those of previous research (Angioni & Musso, 2020). Furthermore, adopting smart systems for energy and resource management within cohousing cooperatives can lead to optimized consumption patterns, an outcome that is aligned with global sustainability goals (Setiawan et al., 2023).

The analysis reveals the importance of the keywords "trust" and "leadership" in the functioning of cohousing cooperatives. The frequent co-occurrence of these terms with the keywords "strategies" and "organization" indicates that trust and effective leadership are fundamental for maintaining cohesive and resilient communities. This finding is consistent with the principles of cooperative governance in relation to democratic decision making and mutual trust among members (Ruiu, 2016). The effectiveness of these communities often depends on leaders' ability to navigate complex regulatory environments. Hence, those in leadership roles should have an understanding of policy implications and community-building skills (Rostami & Salehi, 2024). This aspect further supports the notion that governance structures in cohousing cooperatives need to be both adaptable and transparent to foster a sense of belonging and shared purpose.

The bibliographic coupling also reflects the interdisciplinary nature of research on cohousing cooperatives. *R&D Management, Technovation*, and *Journal of Business Research* are closely connected, reflecting a shared focus on R&D, innovation management, and business strategy. These themes are directly related to the implementation and sustainability of cohousing models, which require innovative solutions and effective management practices (Angioni & Musso, 2020). Interestingly, the emerging literature suggests that these interdisciplinary approaches could benefit from drawing on sustainability science, which explores the long-term social, economic, and environmental impacts of cohousing cooperatives. Such integration-related initiatives could further enrich the strategic framework of these communities (Voigt & von der Oelsnitz, 2024).

The connections between *Construction Management and Economics* and *Energy Policy* highlight the intersection of sustainable construction practices and energy management in cohousing projects. These findings

are aligned with the goals of creating environmentally friendly (Saura et al., 2021) and energy-efficient living environments, emphasizing the role of sustainability in the design and operation of cohousing communities (Wang et al., 2021). For instance, Karakislak et al. (2023) and Delicado et al. (2023) have argued that adopting renewable energy technologies such as solar panels and smart grids in cooperative housing structures not only reduces environmental impact but also empowers residents to participate actively in energy governance, thereby reinforcing the cooperative model.

The analysis of influential authors in the bibliometric analysis further supports these observations. Prominent figures such as Teece, Cohen, and Eisenhardt are frequently co-cited, having made important contributions in the fields of organizational strategy, innovation, and knowledge management. Their research provides valuable insights into the mechanisms that drive successful collaboration and innovation in cooperative and cohousing settings (Garciano, 2011). Recent theoretical advancements suggest that the integration of these mechanisms with digital platforms could redefine collaborative practices, enabling more inclusive and flexible models of cooperative governance (Phelan et al., 2012).

Finally, the digitalization of cohousing cooperatives entails complex dynamics shaped by the interplay of management, collaboration, and technological innovation. The identification of themes such as trust, leadership, and knowledge management reinforces the idea that successful cooperative communities depend not only on shared resources and goals but also on strategic governance and adaptive learning. The integration of these aspects in the research reveals the ways in which cooperative housing models can foster more resilient and sustainable communities. Thus, the bibliographic coupling and connections between a range of fields such as sustainable construction and energy policy indicate that cohousing cooperatives lie at the intersection of diverse domains. This complexity demands a more comprehensive understanding of how principles from various disciplines can be harnessed to develop holistic strategies for community building and sustainability.

Future research questions

As a proposal for the ongoing development of research on cohousing cooperatives, 17 future research questions in this area are suggested. These 17 questions are divided into the following key categories for the development of this field: Management and collaboration, Knowledge and dynamic capabilities, Innovation and technology, Trust and leadership, and Strategies, organization, and sustainability. The proposal of these research questions was driven by the need to address gaps in the current body of literature on cohousing cooperatives. The analysis in this study reveals that the fields of management, collaboration, innovation, and governance in cohousing cooperatives are multifaceted and evolving. Hence, it is important to explore these themes in greater depth. The following proposed research questions aim to guide future scholarly inquiry toward crucial areas for understanding the successful implementation and sustainability of cooperative housing models. The questions are also designed to encourage a multidisciplinary exploration of cohousing cooperatives across various domains such as organizational management, technological integration, and social dynamics. Under this holistic approach, it is assumed that a comprehensive understanding of cohousing cooperatives requires the examination of not only how key aspects act in isolation but also how they interact and influence one another within the cooperative framework. Finally, the proposed research questions offer a roadmap for advancing academic research by investigating the complexity and potential of cooperative living (see Table 5).

Table 5
Future research questions in the study of cohousing cooperatives.

Research category	Research questions
Management and collaboration	■ How do effective management practices influence collaboration within cohousing cooperatives, and what specific management techniques are most beneficial? ■ What role does collaborative decision making play in the success and sustainability of cohousing cooperatives? ■ How can conflict resolution strategies be effectively implemented in cohousing cooperatives to enhance collaboration?
Knowledge and dynamic capabilities	■ How do cohousing cooperatives leverage dynamic capabilities to adapt to changing environmental and social conditions? ■ In what ways does knowledge sharing within cohousing cooperatives enhance their ability to innovate and respond to challenges? ■ How can cohousing cooperatives create systems for the continuous capture and dissemination of knowledge among members?
Innovation and technology	■ How can technological advancements be integrated into cohousing cooperatives to improve operational efficiency and community engagement? ■ How do cohousing cooperatives integrate renewable energy technologies to promote sustainable living practices? ■ What innovative approaches have been successfully implemented in cohousing cooperatives to enhance sustainability and quality of life for residents? ■ How do cohousing cooperatives balance the adoption of new technologies with a sense of community and tradition?
Trust and leadership	■ How does trust among members affect the governance and decision-making processes in cohousing cooperatives? What leadership styles are most effective in fostering a cohesive and resilient cohousing community? How can cohousing cooperatives build and maintain trust among diverse members over time? ■ How can leadership in cohousing cooperatives effectively address and mitigate issues of social equity and inclusivity within the community?
Strategies, organization, and sustainability	■ What organizational strategies are most effective in ensuring the long-term sustainability of cohousing cooperatives? ■ How do strategic planning and organizational structure impact the growth and development of cohousing cooperatives? ■ What role does member participation play in shaping the strategic direction of cohousing cooperatives? ■ How do cohousing cooperatives use sustainable building practices and materials in their construction and renovation projects to minimize environmental impact? ■ In what ways do cohousing cooperatives promote sustainable living behaviors among residents, such as waste reduction, energy conservation, and sustainable transport?

Source: Authors.

Conclusions

This study employed bibliometric analysis to explore the academic literature on cohousing cooperatives from 1996 to 2024. The methodology was based on three bibliometric techniques: co-citation analysis, bibliographic coupling, and keyword co-occurrence analysis. Using VOSviewer, documents retrieved from the WoS database were analyzed to identify prominent themes, influential authors, and emerging trends in cohousing cooperatives. This approach enabled systematic examination of the intellectual structure and development of research on cohousing cooperatives, offering insight into the evolution of this research field and the connections across various academic disciplines. The literature provides several insights in relation to RQ1: *What are the main characteristics and future trends of cohousing cooperatives?*

First, the analysis reveals substantial growth in academic interest in cohousing cooperatives, particularly in recent years. This increase is reflected in the number of publications and citations. It indicates the growing recognition of the importance of these cooperative models in addressing contemporary societal issues such as housing affordability, social isolation, and sustainable living. The data show that the concept of cohousing cooperatives is gaining traction in various academic disciplines, including management, business, economics, environmental studies, and industrial engineering. This interdisciplinary interest underscores the multifaceted nature of cohousing cooperatives and indicates their potential to contribute to multiple areas of research and practice.

Second, the co-citation and bibliographic coupling analyses highlight the prominent themes and influential authors within the field. Key themes include knowledge management, dynamic capabilities, governance, open innovation, and technology integration. These themes are crucial because they reflect the underlying principles and practices that drive the success and sustainability of cohousing cooperatives. For instance, the emphasis on dynamic capabilities and open innovation suggests that these communities thrive on their ability to adapt to changing conditions and use collective creativity for continuous improvement.

The keyword co-occurrence analysis further supports these findings by illustrating the strong connections between the concepts of management, collaboration, innovation, trust, and leadership. Effective management practices and collaboration are essential to foster a cohesive and resilient community in cohousing cooperatives. Similarly, trust and leadership play a pivotal role in ensuring smooth governance and strategic decision-making processes. The integration of technology and innovation is also cited as critical for enhancing operational efficiency and promoting sustainable living practices within these communities.

Despite the growing body of literature, the study identifies several areas where further research is needed. Future research should explore the specific management techniques that are most beneficial for collaboration in cohousing cooperatives, the role of knowledge sharing in enhancing innovation, and the impact of technological advancements on community engagement and sustainability. Additionally, studies should investigate how trust and leadership dynamics influence governance and decision-making processes. It would also be of interest to study the organizational strategies that best support the long-term sustainability of cohousing cooperatives.

In conclusion, this study provides a comprehensive overview of the academic research on cohousing cooperatives, identifying key themes, influential authors, and emerging trends. The findings contribute to the broader discourse on sustainable development and community-driven initiatives, offering valuable insights into how cohousing cooperatives provide viable solutions to contemporary societal challenges. The study provides a platform for future research by proposing 17 pertinent research questions that address gaps in the current literature. The study thus aims to advance the understanding of cohousing cooperatives and their potential to create more resilient, equitable, and sustainable communities.

Theoretical implications

One of the theoretical implications of this study is that it highlights the multifaceted nature of cooperatives and cohousing in scholarly research, reinforcing and extending the foundational theories in this area. The findings are aligned with traditional cooperative principles such as the Rochdale Principles, which emphasize democratic member control, economic participation, and community orientation. The frequent co-occurrence of the keywords "management," "collaboration," and "innovation" indicates their central role in successful cooperative initiatives. The findings suggest that, despite changes in societal needs and technological advancements, the core principles of cooperatives remain relevant and adaptable to different contexts, including cohousing. The study thus provides a nuanced understanding of how these traditional principles can be operationalized in modern cooperative housing settings.

Specifically, the study contributes to collective action theory by suggesting that collaboration, trust, and shared leadership are pivotal in overcoming collective action challenges such as the free-rider problems commonly observed in communal living. The study extends the application of this theory by showing that cooperative housing models can effectively align individual incentives with collective goals, ensuring sustained participation and resource management. This finding is particularly relevant in cohousing settings, where the success of shared facilities and common spaces depends on the active involvement of all members. The study offers insight into how cooperative governance structures can be designed to facilitate collective action when trust, leadership, and strategies are linked. This topic is often considered in cooperative studies but has been less widely explored in the context of cohousing.

The prominence of the keywords "dynamic capabilities" and "knowledge management" in the results of this study underscores the importance of adaptability and learning in sustaining cooperative models. The study thus enriches theory by indicating that successful cohousing cooperatives function not only as static entities but also as adaptive systems capable of evolving in response to external pressures such as economic shifts, technological changes, and environmental concerns. By integrating dynamic capabilities into the discussion of cooperatives, the study advances the theory that flexibility, continuous learning, and innovation are central to the resilience and long-term sustainability of these communities. This idea expands on traditional cooperative theories, which often focus on static governance principles rather than the dynamic aspects of community adaptation.

The present study also contributes to communitarian theory. Once shared values are emphasized, mutual support and social capital enhance the resilience of cohousing communities. The findings underscore the role of social cohesion in sustaining communal living arrangements. This notion adds a layer to the existing theoretical understanding of communitarianism by illustrating that the cooperative model not only fosters a sense of community but also promotes practices that support environmental sustainability. The connection between the keywords "sustainability," "trust," and "collaboration" observed in the keyword co-occurrence network reinforces the notion that social capital within these communities extends beyond interpersonal relationships and also includes environmental stewardship. This intersection presents a unique opportunity for future research to explore the ways in which social and environmental aspects of cooperatives depend on each other, thereby broadening the theoretical discourse on communal living.

In addition, the theoretical implications extend to the integration of technology and digital platforms in cooperative management. The study's findings suggest that digital platforms play a crucial role in enhancing communication, decision making, and resource sharing in cohousing cooperatives. This intersection between digitalization and cooperative governance offers new theoretical insights, challenging the traditional view that cooperatives operate solely through face-to-face interactions and manual management practices. By including digital platforms in the cooperative model, cooperative theory can evolve by explaining how technology facilitates democratic governance and shared decision making. This perspective opens up avenues for further exploration of how digitalization can reshape the structures and practices of cooperatives in ways that were unaccounted for in the traditional cooperative literature.

Moreover, the findings underline the importance of institutional theory in understanding the regulatory and policy frameworks that influence the development of cohousing cooperatives. The emphasis on the keywords "policy," "regulation," and "governance" indicates an interaction between cooperatives and regulatory environments. This situation highlights the need for theoretical models that address how institutional structures support or hinder cooperatives. The implication

is that cooperatives and cohousing communities operate within a complex web of societal norms, legal frameworks, and economic systems. Accordingly, the success of these communities often hinges on their ability to navigate this institutional landscape. By incorporating these elements into the theoretical discussion, the study contributes to a more holistic understanding of the factors that affect the viability and effectiveness of cooperative models.

Furthermore, the study addresses the gap in cooperative theory in relation to sustainability science. The connections between the keywords "sustainability," "energy management," and "community resilience" suggest that cohousing cooperatives offer practical models for sustainable living. This idea is aligned with the focus of sustainability science on combining the social, economic, and environmental dimensions of sustainability. Hence, cooperative models may provide a theoretical basis for exploring sustainable governance in communal settings. The insights from this study should prompt further theoretical exploration into how the principles of sustainability are implemented in practice within cooperative housing models, thereby enriching the discourse on sustainable development.

Finally, the study enriches the theoretical discourse on cooperatives and cohousing. It bridges the gap between traditional cooperative theories and the emerging themes of dynamic capabilities, digitalization, and sustainability, thereby providing a comprehensive framework for future research. By framing cohousing cooperatives as adaptive, technology-enabled communities that function within broader societal and institutional contexts, the study lays the groundwork for a new generation of theoretical models that can more accurately reflect the evolving nature of cooperative living. It offers scholars a more holistic perspective and a robust theoretical foundation for investigating the complexities and potentials of cohousing cooperatives in contemporary society.

Practical implications

The findings of this study have several practical implications for enhancing the development and sustainability of cohousing cooperatives. For instance, the importance of effective management and collaboration in these communities underscores the need for robust governance structures that facilitate democratic decision making. Implementing clear and transparent communication channels and holding regularly scheduled community meetings are crucial measures to ensure that all members actively participate in decision-making processes. This level of involvement would strengthen the community's sense of ownership and allow for more inclusive and equitable management of resources. Therefore, training in collaborative leadership and conflict resolution is recommended because these skills are pivotal for managing disputes, building trust, and fostering a cooperative culture that can overcome internal and external challenges.

The study also emphasizes the critical role of knowledge management systems. Creating shared digital platforms for information exchange, resource management, and community updates can help members adapt to changing circumstances and adopt innovative practices. For example, a centralized digital repository could offer a knowledge base for sustainable living practices, maintenance guidelines, and community policy documents. This approach would ensure that valuable knowledge would be retained within the community and could be accessed by all members, regardless of how long they had been part of the cooperative. Such platforms could also include training modules or resources for new members, helping streamline their integration into the community and ensuring the preservation of cooperatives' core values and practices.

Another important practical implication is the integration of technology and digital tools, which can substantially improve operational efficiency in cohousing cooperatives. Adopting smart home technologies, renewable energy systems, and digital platforms for resource monitoring is aligned with the sustainability goals of these communities. For instance, digital energy management systems can track consumption patterns in real time, enabling residents to identify areas where energy use can be optimized, thus reducing costs and environmental impact. Furthermore, technology can facilitate the democratic management of shared spaces, enabling digital booking systems for communal facilities to enhance transparent and fair usage. Adopting these technological tools helps not only in achieving sustainability targets but also in enhancing the overall quality of life within the community.

In this line of research, building trust within the community is another essential practical consideration. The study highlights the importance of trust-building activities and leadership development programs for maintaining community cohesion. Organizing social events, workshops, and training programs can help foster interpersonal relationships, build trust, and ensure that all members feel valued and heard. Leaders should adopt participatory and transparent practices to handle a range of perspectives and potential conflicts, especially in diverse communities. Additionally, rotating leadership roles and forming various committees for specific community functions can promote a sense of shared responsibility and reduce the concentration of power, thus ensuring alignment with the cooperative principle of democratic member control.

The implementation of environmentally friendly practices in both the construction and daily operations of cohousing cooperatives is equally important. Sustainable building design features, including energy-efficient materials, water conservation systems, and green spaces, should be prioritized from the planning phase to enhance environmental sustainability. Cooperatives can also invest in shared renewable energy sources such as solar panels and wind turbines to decrease their carbon footprint while lowering energy costs. The focus on sustainability extends to promoting eco-friendly behaviors among residents, including waste reduction, recycling programs, and the use of shared transport such electric vehicle charging stations and communal bike-sharing systems. Incorporating these practices not only ensures alignment with the environmental goals of cohousing cooperatives but also sets a precedent for other communities looking to adopt sustainable living models.

Furthermore, the findings suggest that cohousing cooperatives have the potential to influence local policymaking and urban planning. Thus, if cooperatives actively engage with local governments and policymakers, these communities can advocate regulations that support affordable housing, community land trusts, and the integration of cooperative housing models into broader urban development strategies. In practice, cooperatives could thus work toward creating frameworks for housing that emphasize shared ownership, communal resource management, and social inclusivity. Engaging with policymakers would allow cooperatives to shape the regulatory environment in a way that would foster their growth and protect their long-term viability.

In conclusion, these practical implications offer a comprehensive guide for cooperative members, urban planners, and policymakers aiming to enhance the effectiveness of cohousing cooperatives. Focusing on the development of robust governance structures, the adoption of new technology, and the incorporation of sustainable practices can substantially improve operational efficiency, member engagement, and overall community well-being.

Limitations and future research

This study has several limitations that should be acknowledged. First, the bibliometric analysis used data from the WoS database. Although this database is comprehensive, it may not capture all relevant publications, particularly those in non-indexed or emerging journals. Additionally, the analysis was limited to articles written in English. It therefore potentially overlooked important contributions in other languages. Furthermore, although bibliometric methods provide valuable insights into research trends and interconnections, they cannot capture the full depth of qualitative aspects of the literature. Future research

could benefit from including empirical analyses and expanding the data sources to address these limitations.

CRediT authorship contribution statement

Liu Fagang: Supervision, Methodology, Investigation, Conceptualization. **Fracisco Javier S. Lacarcel:** Methodology, Investigation, Conceptualization. **Virginia Simón-Moya:** Methodology.

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