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Scientometric and bibliometric review on entrepreneurship networks and ecosystems

Revisión cienciométrica y bibliométrica sobre redes y ecosistemas de emprendimiento

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ABSTRACT

The scientometric and bibliometric review on Entrepreneurship Networks and Ecosystems seeks to characterize the existing information on this field, thus delving into trends, structures, knowledge systems, and other relevant indicators. In the field of business entrepreneurship, it is critical to understand the coexistence of different actors and the articulation of their efforts to achieve the expected objectives and generate synergies. Therefore, a study was conducted aimed at resolving the following question: What scientometric and bibliometric characteristics does the field of Entrepreneurial Networks and Ecosystems present? The quantitative and retrospective methodology was applied by combining databases and the VOSviewer program. As results, it is established that the countries that have the greatest content of scientific research in the field, the authors and collaboration networks, the evolution of citations and publications, as well as inferences and comparisons that favor the representation of the field. It is concluded that it is necessary to establish refined review systems, delve into hidden colleges, and generate comprehensive frameworks to understand disciplinary interactions.

Keywords: development administration, enterprises, organization and management, small enterprises.

JEL Classification: D21, D52, L26

RESUMEN

La revisión cienciométrica y bibliométrica sobre redes y ecosistemas de emprendimiento persigue establecer una caracterización de la información existente sobre este campo, por lo que se profundiza en tendencias, estructuras, sistema de conocimientos y otros indicadores relevantes. En el campo del emprendimiento empresarial es crítico comprender la coexistencia de diferentes actores y la articulación de sus esfuerzos para lograr objetivos esperados y generar sinergias. La metodología fue cuantitativa y retrospectiva, aplicada bajo la combinación debases de datos y el programa VOSviewer. Como resultados se encontraron los países que tienen mayor contenido de investigación científica en el campo, los autores y redes de colaboración, la evolución de las citaciones y las publicaciones, así como inferencias y comparaciones que favorecen la representación del campo. Se concluye que es necesario establecer sistemas refinados de revisión, profundizar en los colegios ocultos y generar marcos comprensivos apara entender las interacciones disciplinares.

Palabras clave: administración del desarrollo, empresa, organización y gestión, pequeña empresa.

Clasificación JEL: D21, D52, L26

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INTRODUCTION

Business relationships are essential for entrepreneurs as a gateway to external resources and for mobilizing them. In the business world, networks play a fundamental role in entrepreneurial ecosystems, as they develop based on cultural, territorial, social, political, and economic factors (Candeias & Franco, 2022; Fernandes & Ferreira, 2022; Knox & Arshed, 2022). Furthermore, these foundations do not act as passive foundations for their functioning but rather represent opportunities for generating synergies, strengthening business-society relationships, and building helix models adapted to local needs (Calabuig-Moreno et al., 2021; Medeiros et al., 2020; Rodrigues et al., 2023), among other benefits of a dynamic ecosystem.

Among the main causes of the emergence and popularity of active networking are high levels of unemployment and uneven growth in some economic sectors. It can be said that the stimulation of entrepreneurship has grown through public policies (Frisch et al., 2020; Audretsch et al., 2022); migration governance (B. Nguyen & Canh, 2020); education (Hassan et al., 2021; Longva, 2021; Q. D. Nguyen and Nguyen, 2023); mass media and social networks (Fan et al., 2021; Fang et al., 2022; Sahaym et al., 2021), and others. Prominent examples include grocery stores with or without delivery, which have provided alternatives for economic growth and job creation (Cvijanović et al., 2020; Kwil et al., 2020; Rosenthal et al., 2021).

According to the literature reviewed, there is a solid line of studies that approach the field from the perspective of its technological and innovation dimensions (González-Serrano et al., 2020; Mohammadi & Karimi, 2022; Suseno & Abbott, 2021; Zahra et al., 2023). This line of research is fundamental as it is based on the relationship between ventures, local government, established companies, and other key social actors, including at the community level. Among the most notable challenges we can mention the need to design joint strategies where ventures can break schemes, adapt paradigmatic approaches, and remain competitive without altering the essence of entrepreneurial activity, but with great contributions to transformation (Kreiterling, 2023; Si et al., 2023; Vig, 2023).

Another notable element relates to the information-knowledge transition. The transfer of new knowledge within the network of entrepreneurial firms can alter perceived organizational effectiveness, the management of technological capabilities, and market uncertainty (Funko et al., 2023; Kordshouli et al., 2024). Inadequate integration can determine how the firm adopts or combines the two opposing logics of causality and effectuation (Jin Zhang et al., 2022).

These insights highlight the distinct natures that converge in entrepreneurial ecosystems, as well as the need to explore how business, academic, student, and other emerging civil society ventures are linked (Correia et al., 2024; Guerrero et al., 2021). This line of research should contribute to a better understanding of networks, especially knowledge networks (Dameri & Demartini, 2020; Gerli et al., 2020; Calabuig-Moreno et al., 2021; Thai et al., 2023).

However, despite the relevance of the field, as well as the precise knowledge about its structure, studies tend to focus on specific lines. According to Fernandes and Ferreira (2022), entrepreneurship ecosystems have become a central topic on multiple agendas, both academic and industrial. These authors even support the need to establish a clear framework for understanding the theoretical framework of these relationships and their network nature, as well as to delve deeper into the disciplinary relationships and trends that have marked the emergence and evolution of this field in its configuration.

Based on the above, it is important to conduct a scientometric and bibliometric review to understand the level of scientific research addressing a critical social phenomenon in economic and social development, as well as an emerging transdisciplinary field. Additionally, data visualization and the identification of trends in institutions, publications, authors, and other indicators could foster the growth of the field in Latin America, as it provides guidance to interested researchers.

METHODOLOGY

The combination of scientometric and bibliometric analyses has recently become a growing trend, as it combines the strengths of both approaches to determine the trend behavior of a field, make inferences about it, and evaluate the performance of lines, authors, and the impact of scientific research (Kang et al., 2021; Rubiales-Núñez et al., 2024; Sánchez-Castillo et al., 2024). Consequently, both types of studies are considered key to improving scientific research, as they facilitate the development of networks for academic collaboration, the identification of gaps or needs, as well as future avenues (Tamasiga et al., 2023). In the context of the exponential growth of funds allocated to research and the number of research results that are socialized, the combination of the tool sets of both approaches contributes considerably to the quality and rigor of the studies (Jambrino-Maldonado et al., 2022; Malik et al., 2021).

Rationality

The protocol was designed jointly, retrospectively, quantitatively, non-experimentally, and inferentially oriented. Additionally, a broad approach was established, chosen to fulfill the fundamental objectives, but especially to observe the evolution of the field based on the disciplinary relationships that have shaped it. To guide its execution, we developed what the literature recognizes as the central element of these combined proposals: the research question, defined as follows:

What scientometric and bibliometric characteristics does the field of entrepreneurial networks and ecosystems present?

Finally, a combinatorial approach with databases was chosen. Initially, a search was conducted in the Dimensions database due to its versatility, coverage, and analytical capabilities (Ejaz et al., 2022; Moral-Muñoz et al., 2020). Subsequently, the utilities offered by the Scimago Journal & Country Rank were used to explore recent trends in map configuration and measure knowledge trends (García-Villar & García-Santos, 2021; Valderrama et al., 2022).

Search strategy and indicators

The search strategy was based on a broad approach, established year ranges, and the absence of restrictions. The formula used was TITLE-ABS-KEY ("Entrepreneurship" OR "ecosystem" OR "network"). According to temporary needs, the formula was modified, which in general was AND PUBYEAR > X AND PUBYEAR < X AND (LIMIT-TO (OA , "all").

Table 1.
Search strategy

Type of study	Bibliometric analysis	Scientometric analysis
Indicadores	Temporal evolution of trends in different ranges. Unrestricted document typology. Knowledge structure by subject area. Production by country or region. Affiliations.	Lotka's Law. Zipf's Law. Hirch Index.

Source: own elaboration

Data analysis

Two fundamental tools were used: VIZ Tools, offered by Scimago Journal & Country Rank, and VOSviewer software. First, the Subject Bubble Chart was used to explore the composition of the knowledge map by discipline within the area of Business, Management, and Accounting for the three countries with the highest number of publications. Second, the software was used to apply the scientometric indicators presented in table 2 and three types of analysis with all their units: co-authorship, citations, and co-citations. This software offers multiple advantages, including the fact that it does not generate duplicates, offers basic visualization tools, and frees the researcher from excessive data cleaning burdens, ideal for the broad design of this study (Moral-Muñoz et al., 2020). Regarding its limitations, it was considered that it does not provide advanced analysis in terms of evolution, geospatial visualization, and spectrograms (Moral-Muñoz et al., 2020).

RESULTS

Below are the results obtained according to the indicators explored. The findings are displayed separately and discussed later for greater clarity and quality.

Initial scientometric analysis

Application of Lotka's Law

The first indicator analyzed was the application of Lotka's Law, the importance of which lies in the partial identification of the contribution of the most relevant authors to the development of the field (Shelton, 2020). A total of thirteen authors were identified (Figure 1), the first being Sarah Jack, with a total of nine documents and 618 citations. This analysis showed that Ronald S. Burt had the most citations, with 940, associated with four documents. Regarding the relationship between authors, two small invisible colleges were found; the most important was the one related to Sarah Jack.

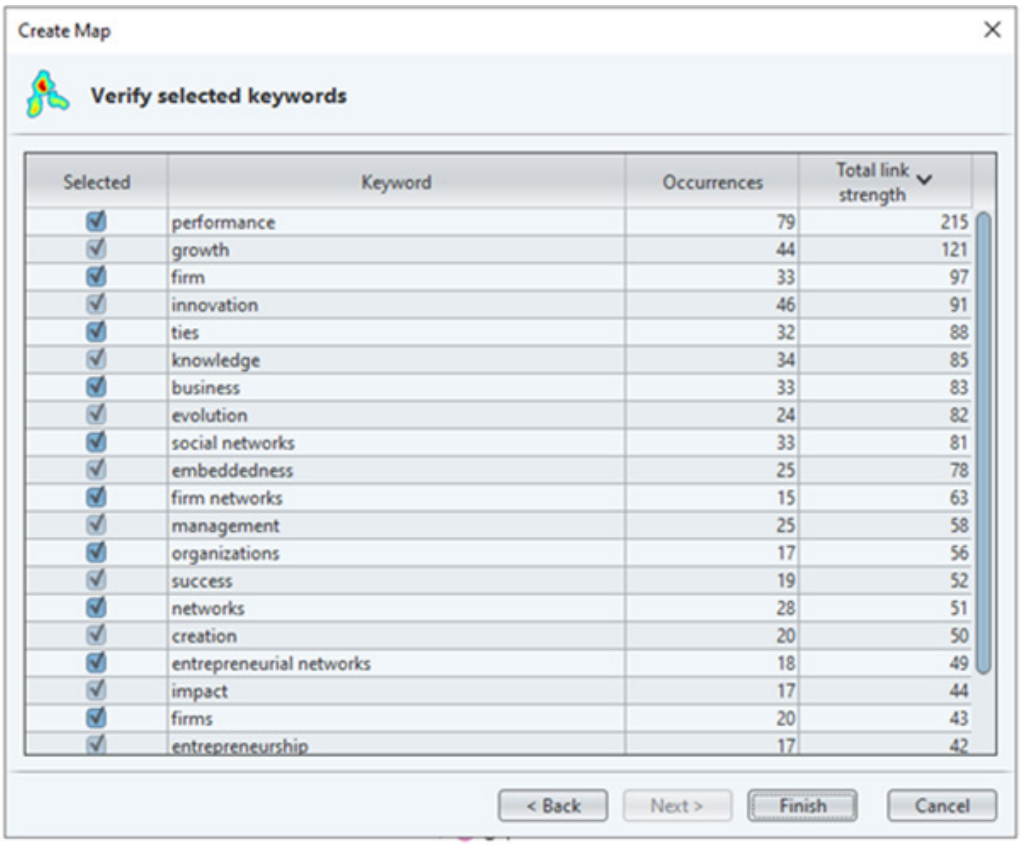
Figure 1.
Application of Lotka's Law

Source: own elaboration, based on VOSviewer

Application of Zipf's Law

The second indicator corresponded to the application of Zipf's Law, whose importance is given by the identification of keyword frequencies, not only by language but also based on the knowledge structure they represent (Shelton, 2020). A total of 20 keywords were found, including constructions and the rest as terms (Figure 2). The main result of this indicator was the unexpected relationship between the terms "performance" (rank 1, with 79 occurrences) and "entrepreneurship" (rank 20). This phenomenon can be interpreted based on indexing strategies since the use of thesauri or other catalogs can alter frequencies, especially in favor of traditional categories and to the detriment of emerging fields.

Figure 2.
Application of Zipf's Law



Source: own elaboration, based on VOSviewer

Application of the Hirsch index

Table 2.
Country Ranks

Country	Region	Documents	Citable documents	Citations	Self-citations	Citations per document	H index
United States	Northern America	80456	72720	2469514	795032	30.69	517
United Kingdom	Western Europe	37721	34026	961447	227888	25.49	301
Germany	Western Europe	23462	20005	335711	56952	14.31	199
China	Asiatic Region	20921	20246	297500	133128	14.22	180
India	Asiatic Region	19511	18623	168696	60673	8.65	126
Australia	Pacific Region	14448	13689	365467	57481	25.3	212
Canada	Northern America	11184	10360	374007	40168	33.44	234
Italy	Western Europe	10806	9718	215531	46966	19.95	165
Spain	Western Europe	10788	10290	211023	37599	19.56	168
Russian Federation	Eastern Europe	9934	9535	36737	19187	3.7	59

Source: own creation based on ScimagoJCR

Based on the results of the previous indicator, it was decided to expand the search to the megafield "Business, Management, and Accounting" using the tools offered by ScimagoJCR. As can be seen in table 1, among the countries with the greatest production on topics related to entrepreneurship ecosystems and networks through scientific production in the megafield are the United States, the United Kingdom, and Germany. Fundamentally, the first two stand out in terms of the h-index, although the North American predominance is also evident in the number of documents.

Regarding publications from the most recent available period, the analysis performed using ScimagoJCR tools in the top ten journals in the field showed a range of publication impact from 24.6 to 11.4 (Table 3). Regarding the relevance of the field of entrepreneurial ecosystems and networks, Small Business Economics (14.1 CiteScore) and Journal of Small Business Management (11.4 CiteScore) stood out, which underlines the growing interest in this area of knowledge.

Table 3.
Field "General business, Management and Accounting"

Source title	CiteScore	Highest percentile	2020-23 Citations	2020-23 Documents	% Cited	SNIP	SJR	Publisher
Academy of Management Review	24.6	99.0 % 1/478 Strategy and Management	4260	173	92	5.128	10.486	Academy of Management
International Journal of Production Economics	21.4	99.0 % 1/207 Management Science and Operations Research	25144	1177	89	2.855	3.074	Elsevier
Supply Chain Management	16.7	98.0 % 3/218 General Business, Management and Accounting	3615	216	91	2.275	2.507	Emerald Publishing
Journal of International Business Studies	16.2	98.0 % 4/218 General Business, Management and Accounting	4441	274	88	3.481	4.6	Springer Nature
Academy of Management Journal	16	97.0 % 5/218 General Business, Management and Accounting	4602	287	93	3.745	8.271	Academy of Management
Journal of Intellectual Capital	14.5	98.0 % 19/1543 Education	3228	222	91	2.341	1.611	Emerald Publishing
Small Business Economics	14.1	97.0 % 20/716 Economics and Econometrics	8828	627	89	2.827	2.53	Springer Nature
Journal of Business Ethics	12.8	99.0 % 6/1025 Law	16276	1273	91	2.841	2.624	Springer Nature
Decision Sciences	12.4	96.0 % 9/218 General Business, Management and Accounting	2078	167	86	2.036	2.145	John Wiley y Sons
Journal of Small Business Management	11.4	95.0 % 10/218 General Business, Management and Accounting	2775	244	97	2.44	1.632	Taylor y Francis

Source: own elaboration, based on Scopus database

Bibliometric analysis in Dimensions

The first indicator analyzed was research categories, limiting the area to the top five results. The data collected confirms the diversity of studies that include aspects related to entrepreneurial ecosystems, networks, and sustainability in their research intentions (Table 4). Furthermore, interest was evident from other disciplines, which supports the growing approach to entrepreneurship as a phenomenon that transcends economic issues. This result coincides with those found by similar studies, which show growing interest over time and in terms of areas (Knox & Arshed, 2022; Robertson et al., 2020). Among the most common were digital transformation, the food industry, and environmental and human sciences.

Table 4.
Research categories

Area	Number of articles
35 Commerce, Management, Tourism and Services	49 727
3507 Strategy, Management and Organisational Behaviour	33 756
44 Human Society	30 770
46 Information and Computing Sciences	18 788
38 Economics	8 545

Source: own elaboration

Regarding the publication type, articles and book chapters predominated (Table 5). This result points to the progressive consolidation of the field, although the limited number of conference papers could be indicative of an early stage in knowledge transfer and represent an interest in the empirical study of phenomena (Bacon et al., 2020), especially those associated with entrepreneurship and small businesses (Anand et al., 2021).

Table 5.
Publication type

Type	Number of articles
Article	66 857
Chapter	53 751
Edited Book	22 705
Monograph	13 007
Proceeding	5 026

Source: own elaboration

Regarding the most important and influential journals, the analysis of scope and objectives revealed that entrepreneurship ecosystems attract researchers from diverse disciplines who address the outcomes, barriers, and limitations associated with the visions of these companies without disregarding the social and environmental impact. Regarding impact, among the top ten journals, only one was classified by ScimagoJCR as Q4 (Lecture Notes in Networks and Systems), while five appeared as Q1, two as Q2, and two are not indexed but belong to the prestigious Springer publishing house and the SSRN network (a repository managed by Elsevier).

Table 6.
Most relevant sources

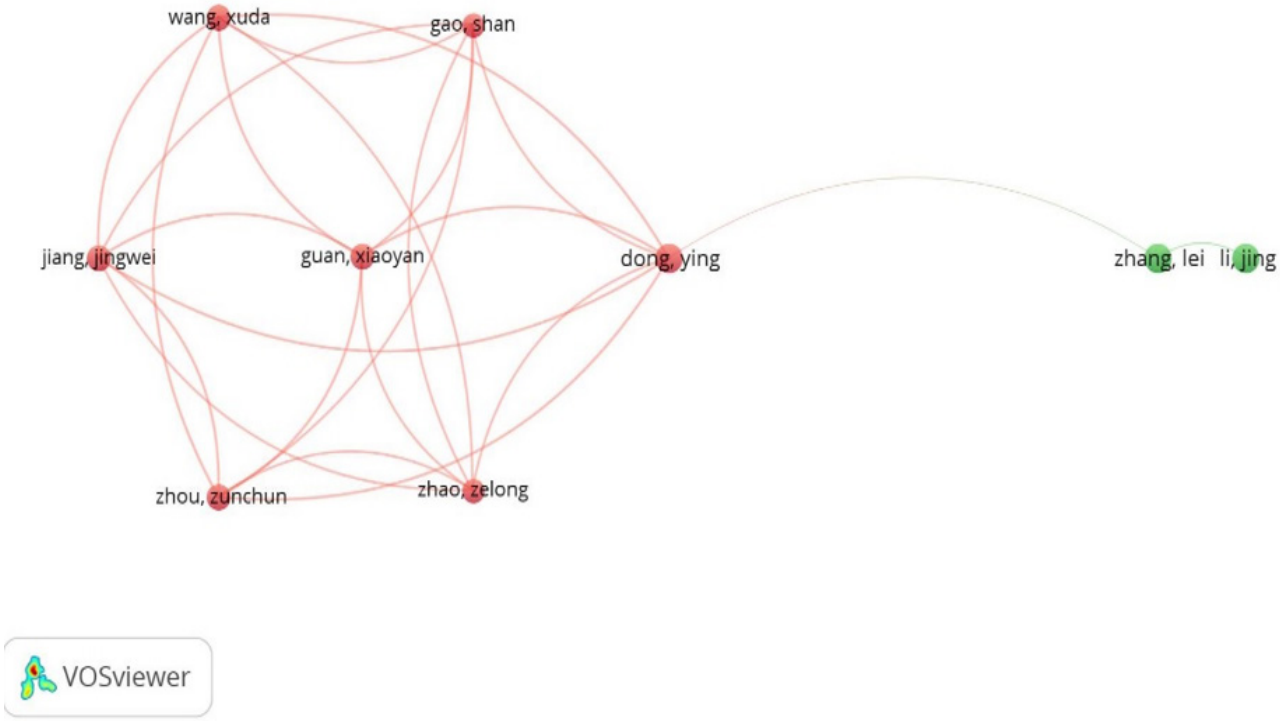
No.	Name	Publications	Citations	Citations means	Scimago JR quartile
1	SSRN Electronic Journal	4 073	4 073	4 073	-
2	Sustainability	3 355	3 355	3 355	Q1
3	Encyclopedia of the UN Sustainable Developmental Goals	2 656	2 656	2 656	Book series by Springer
4	Technological Forecasting and Social Change	1 029	1 029	1 029	Q1

5	Tobacco Induced Diseases	956	956	956	Q1
6	Lecture Notes in Computer Science	914	914	914	Q2
7	Lecture Notes in Networks and Systems	847	847	847	Q4
8	Journal of Business Research	774	774	774	Q1
9	Journal of Cleaner Production	765	765	765	Q1
10	HortScience	529	529	529	Q2

Source: own elaboration

Regarding the analysis by co-authorship by authors, a total of 10 399 (N=10 399) were found, of which 39 (n=39) met the minimum document indicator (5>) (Figure 3). The result showed a predominance of Chinese authors concentrated in two well-defined clusters. The most important is the one formed around X Guan, an author with a large number of publications and co-authorships, which confirms the existence of invisible colleges around the field (Goyanes & De-Marcos, 2020).

Figure 3.
Analysis by co-authorship by authors

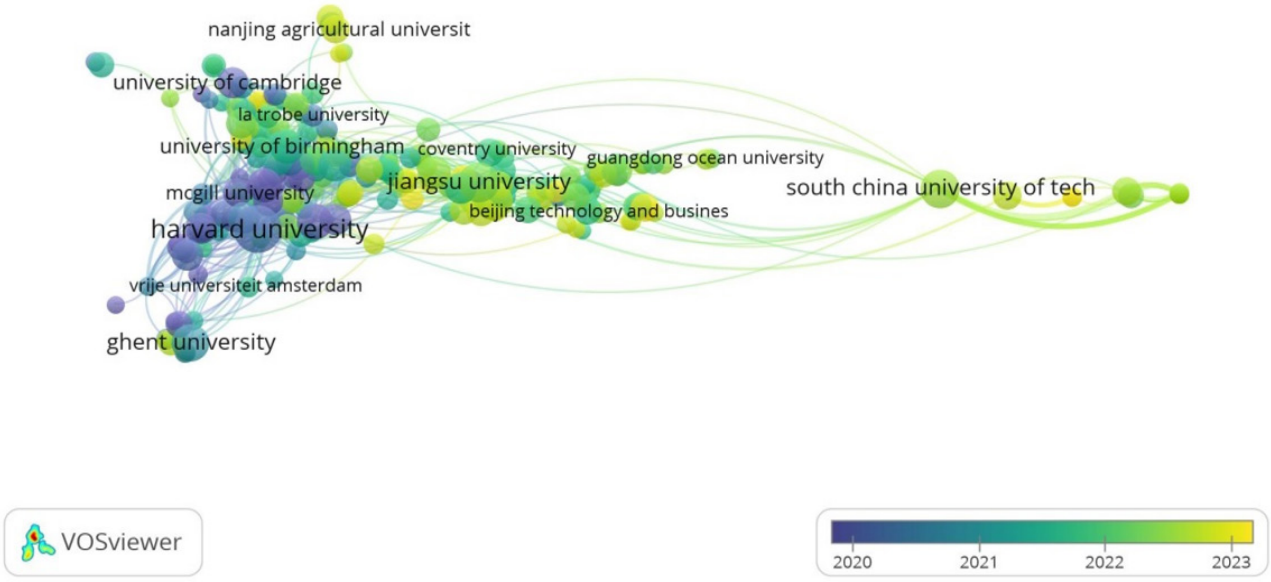


Source: own elaboration

Regarding the analysis by co-authorship by organizations, a total of 3 643 (N=3 643) were found, of which 283 met the minimum document indicator (5>), but only 277 showed connection (n=277). An overlap analysis was carried out in the period 2020-2023, which confirmed the trend towards strengthening the field in China and the presence of North American and British universities (Figure 4).

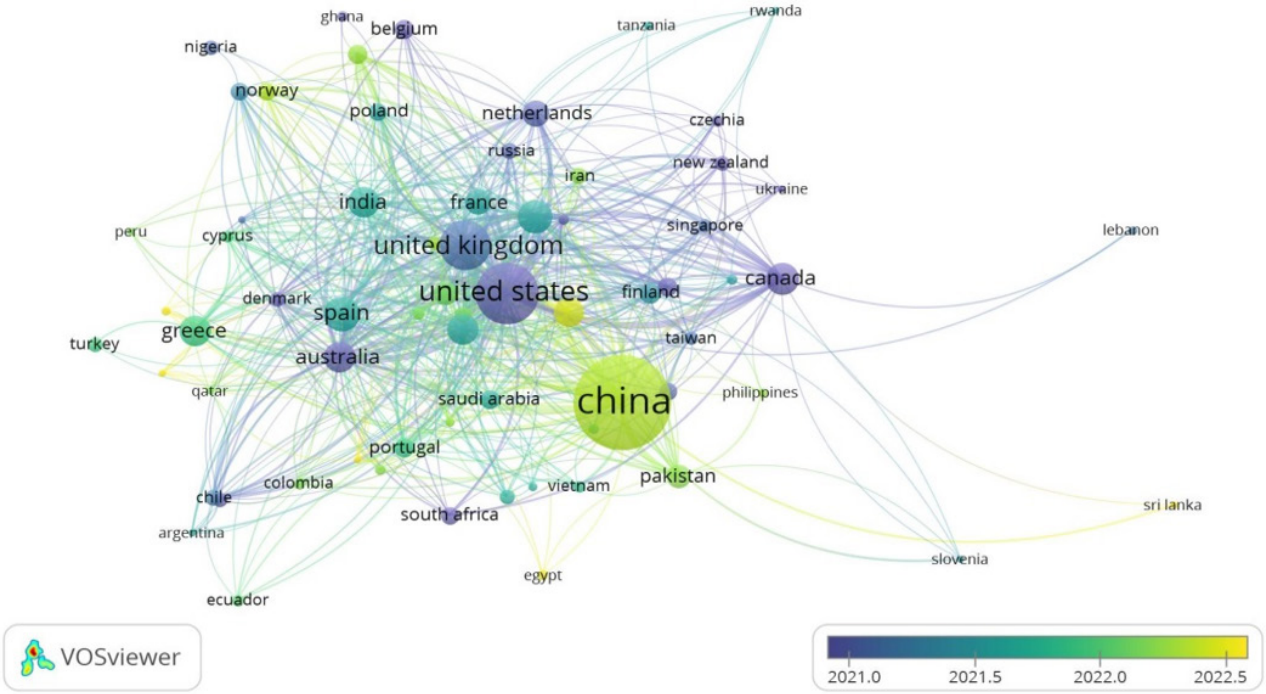
Regarding the analysis by co-authorship by country, a total of 107 (N=107) were found, of which 69 (n=69) met the minimum document indicator (5>). The result confirmed previous analyses by showing the United States as the center and China as one of the main producing countries, but with less centrality and collaboration. These results coincide with those found by other studies with a similar rationale (Calabuig-Moreno et al., 2021; García-Lillo et al., 2023; Robertson et al., 2020). In addition, there is a need to delve deeper into the conditions of the different contexts and their impact on the formation of ventures (Mourao & Martinho, 2020).

Figure 4.
Analysis by co-authorship by institutions



Source: own elaboration

Figure 5.
Analysis by co-authorship by country



Source: own elaboration

CONCLUSIONS

The analysis of the study confirms the importance and growth of the field of entrepreneurship ecosystems and networks. It also demonstrates the importance of considering megafields and their relationship with different disciplines that, outside of them, contribute to shaping current and future lines of research. The most prominent countries were identified as the United States, the United Kingdom, and Germany. Close behind in terms of relevance is China, a country with limited external collaboration networks but solid recent production.

Another notable result was the tendency toward the formation of hidden networks, both in the scientometric

and bibliometric analysis. This finding reinforces the need to integrate into academic networks and participate in international collaborations. In this sense, it can be concluded that invisible colleges are crucial for the future development of knowledge in the field of entrepreneurship networks and ecosystems.

REFERENCES

Anand, A., Muskat, B., Creed, A., Zutshi, A., y Csepregi, A. (2021). Knowledge sharing, knowledge transfer and SMEs: Evolution, antecedents, outcomes and directions. Personnel Review, 50(9), 1873–1893. https://doi.org/10.1108/PR-05-2020-0372

Audretsch, D., Belitski, M., Chowdhury, F., y Desai, S. (2022). Necessity or opportunity? Government size, tax policy, corruption, and implications for entrepreneurship. Small Business Economics, 58(4), 2025–2042. https://doi.org/10.1007/s11187-021-00497-2

Bacon, E., Williams, M., y Davies, G. (2020). Coopetition in innovation ecosystems: A comparative analysis of knowledge transfer configurations. Journal of Business Research, 115, 307–316. https://doi.org/10.1016/j.jbusres.2019.11.005

Calabuig-Moreno, F., Gonzalez-Serrano, M., Alonso-Dos-Santos, M., y Gómez-Tafalla, A. (2021). Entrepreneurial ecosystems, knowledge spillovers, and their embeddedness in the sport field: A bibliometric and content analysis. Knowledge Management Research & Practice, 19(1), 65–83. https://doi.org/10.1080/14778238.2020.1752120

Candeias, A., y Franco, M. (2022). The role of entrepreneurial resilience in forms of collaboration: A systematic literature review with bibliometric analyses. EuroMed Journal of Business, 17(4), 752–789. https://doi.org/10.1108/EMJB-05-2021-0075

Correia, M.., Marques, C., Silva, R., y Ramadani, V. (2024). Academic Entrepreneurship Ecosystems: Systematic Literature Review and Future Research Directions. Journal of the Knowledge Economy. https://doi.org/10.1007/s13132-024-01819-x

Cvijanović, D., Ignjatijević, S., Vapa, J., y Cvijanović, V. (2020). Do Local Food Products Contribute to Sustainable Economic Development? Sustainability, 12(7), 2847. https://doi.org/10.3390/su12072847

Dameri, R., y Demartini, P. (2020). Knowledge transfer and translation in cultural ecosystems. Management Decision, 58(9), 1885–1907. https://doi.org/10.1108/MD-10-2019-1505

Ejaz, H., Zeeshan, H., Ahmad, F., ... y Younas, S. (2022). Bibliometric Analysis of Publications on the Omicron Variant from 2020 to 2022 in the Scopus Database Using R and VOSviewer. International Journal of Environmental Research and Public Health, 19(19), 12407. https://doi.org/10.3390/ijerph191912407

Fan, M., Qalati, S., Khan, M., ... y Khan, R. S. (2021). Effects of entrepreneurial orientation on social media adoption and SME performance: The moderating role of innovation capabilities. PLOS ONE, 16(4), e0247320. https://doi.org/10.1371/journal.pone.0247320

Fang, G., Qalati, S., Ostic, D., Shah, S., y Mirani, M. (2022). Effects of entrepreneurial orientation, social media, and innovation capabilities on SME performance in emerging countries: A mediated–moderated model. Technology Analysis & Strategic Management, 34(11), 1326–1338. https://doi.org/10.1080/09537325.2021.1957816

Fernandes, A., y Ferreira, J. (2022). Entrepreneurial ecosystems and networks: A literature review and research agenda. Review of Managerial Science, 16(1), 189–247. https://doi.org/10.1007/s11846-020-00437-6

Frisch, N., Cohen, N., y Beeri, I. (2020). Wind(ow) of Change: A Systematic Review of Policy Entrepreneurship Characteristics and Strategies. Policy Studies Journal, 48(3), 612–644. https://doi.org/10.1111/psj.12339

Funko, I., Vlačić, B., y Dabić, M. (2023). Corporate entrepreneurship in public sector: A systematic literature review and research agenda. Journal of Innovation & Knowledge, 8(2), 100343. https://doi.org/10.1016/j.jik.2023.100343

García-Lillo, F., Seva-Larrosa, P., y Sánchez-García, E. (2023). What is going on in entrepreneurship research? A bibliometric and SNA analysis. Journal of Business Research, 158, 113624. https://doi.org/10.1016/j.jbusres.2022.113624

García-Villar, C., y García-Santos, J. (2021). Bibliometric indicators to evaluate scientific activity. Radiología (English Edition), 63(3), 228–235. https://doi.org/10.1016/j.rxeng.2021.01.002

Gerli, F., Chiodo, V., y Bengo, I. (2020). Technology Transfer for Social Entrepreneurship: Designing Problem-Oriented Innovation Ecosystems. Sustainability, 13(1), 20. https://doi.org/10.3390/su13010020

González-Serrano, M., Añó, V., y González-García, R. (2020). Sustainable Sport Entrepreneurship and Innovation: A Bibliometric Analysis of This Emerging Field of Research. Sustainability, 12(12), 5209. https://doi.org/10.3390/su12125209

Goyanes, M., y De-Marcos, L. (2020). Academic influence and invisible colleges through editorial board interlocking in communication sciences: A social network analysis of leading journals. Scientometrics, 123, 791–811.

Guerrero, M., Liñán, F., y Cáceres-Carrasco, F. (2021). The influence of ecosystems on the entrepreneurship process: A comparison across developed and developing economies. Small Business Economics, 57(4), 1733–1759. https://doi.org/10.1007/s11187-020-00392-2

Hassan, A., Anwar, I., Saleem, I., Islam, K., y Hussain, S. (2021). Individual entrepreneurial orientation, entrepreneurship education and entrepreneurial intention: The mediating role of entrepreneurial motivations. Industry and Higher Education, 35(4), 403–418. https://doi.org/10.1177/09504222211007051

Jambrino-Maldonado, C., Rando-Cueto, D., Núñez-Sánchez, J., Iglesias-Sanchez, P., y De Las Heras-Pedrosa, C. (2022). Bibliometric Analysis of International Scientific Production on the Management of Happiness and Well-Being in Organizations. Social Sciences, 11(7), 272. https://doi.org/10.3390/socsci11070272

Jin Zhang, J., Baden-Fuller, C., y Zhang, J. (2022). The dynamics of entrepreneurial networking logics: Evidence from United Kingdom high-tech start-ups. International Journal of Entrepreneurial Behavior & Research, 28(9), 405–426. https://doi.org/10.1108/IJEBR-12-2021-1040

Kang, Q., Li, H., Cheng, Y., y Kraus, S. (2021). Entrepreneurial ecosystems: Analysing the status quo. Knowledge Management Research & Practice, 19(1), 8–20. https://doi.org/10.1080/14778238.2019.1701964

Knox, S., y Arshed, N. (2022). Network governance and coordination of a regional entrepreneurial ecosystem. Regional Studies, 56(7), 1161–1175. https://doi.org/10.1080/00343404.2021.1988067

Kordshouli, H., Yousefi, S., Alimohammadlou, M., y Askarifar, K. (2024). Detecting, visualizing, and analyzing trends and patterns in university-based entrepreneurial ecosystem literature. Management Review Quarterly. https://doi.org/10.1007/s11301-024-00444-x

Kreiterling, C. (2023). Digital innovation and entrepreneurship: A review of challenges in competitive markets. Journal of Innovation and Entrepreneurship, 12(1), 49. https://doi.org/10.1186/s13731-023-00320-0

Kwil, I., Piwowar-Sulej, K., y Krzywonos, M. (2020). Local Entrepreneurship in the Context of Food Production: A Review. Sustainability, 12(1), 424. https://doi.org/10.3390/su12010424

Longva, K. (2021). Student venture creation: Developing social networks within entrepreneurial ecosystems in the transition from student to entrepreneur. International Journal of Entrepreneurial Behavior & Research, 27(5), 1264–1284. https://doi.org/10.1108/IJEBR-09-2020-0661

Malik, A., Butt, N., Bashir, M., y Gilani, S. (2021). A scientometric analysis on coronaviruses research (1900–2020): Time for a continuous, cooperative and global approach. Journal of Infection and Public Health, 14(3), 311–319. https://doi.org/10.1016/j.jiph.2020.12.008

Medeiros, V., Marques, C., Galvão, A., y Braga, V. (2020). Innovation and entrepreneurship as drivers of economic development: Differences in European economies based on quadruple helix model. Competitiveness Review:

An International Business Journal, 30(5), 681–704. https://doi.org/10.1108/CR-08-2019-0076

Mohammadi, N., y Karimi, A. (2022). Entrepreneurial ecosystem big picture: A bibliometric analysis and co-citation clustering. Journal of Research in Marketing and Entrepreneurship, 24(1), 23–38. https://doi.org/10.1108/JRME-10-2020-0141

Moral-Muñoz, J., Herrera-Viedma, E., Santisteban-Espejo, A., y Cobo, M. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. El Profesional de la Información, 29(1). https://doi.org/10.3145/epi.2020.ene.03

Mourao, P., y Martinho, V. (2020). Forest entrepreneurship: A bibliometric analysis and a discussion about the co-authorship networks of an emerging scientific field. Journal of Cleaner Production, 256, 120413. https://doi.org/10.1016/j.jclepro.2020.120413

Nguyen, B., y Canh, N. (2020). The Effects of Regional Governance, Education, and InMigration on Business Performance. Kyklos, 73(2), 291–319. https://doi.org/10.1111/kykl.12223

Nguyen, Q., y Nguyen, H. (2023). Entrepreneurship education and entrepreneurial intention: The mediating role of entrepreneurial capacity. The International Journal of Management Education, 21(1), 100730. https://doi.org/10.1016/j.ijme.2022.100730

Robertson, J., Pitt, L., y Ferreira, C. (2020). Entrepreneurial ecosystems and the public sector: A bibliographic analysis. Socio-Economic Planning Sciences, 72, 100862. https://doi.org/10.1016/j.seps.2020.100862

Rodrigues, A., Marques, C., y Ramadani, V. (2023). Artisan entrepreneurship, resilience and sustainable development: The quintuple helix innovation model in the low-density and cross-border territories. Journal of Enterprise Information Management. https://doi.org/10.1108/JEIM-02-2023-0066

Rosenthal, A., Maciel, A., Dos Santos, K., y Deliza, R. (2021). Healthy food innovation in sustainable food system 4.0: Integration of entrepreneurship, research, and education. Current Opinion in Food Science, 42, 215–223. https://doi.org/10.1016/j.cofs.2021.07.002

Rubiales-Núñez, J., Rubio, A., Araya-Castillo, L., y Moraga-Flores, H. (2024). Evolution of ambiguity tolerance research a scientometric and bibliometric analysis. Frontiers in Psychology, 15, 1356992. https://doi.org/10.3389/fpsyg.2024.1356992

Sahaym, A., (Avi) Datta, A., y Brooks, S. (2021). Crowdfunding success through social media: Going beyond entrepreneurial orientation in the context of small and medium-sized enterprises. Journal of Business Research, 125, 483–494. https://doi.org/10.1016/j.jbusres.2019.09.026

Sánchez, V., Pérez, A., y Gómez, C. (2024). Trends and evolution of Scientometric and Bibliometric research in the SCOPUS database. Bibliotecas, Anales de Investigación, 20(1). http://revistas.bnjm.sld.cu/index.php/BAI/article/view/834

Shelton, R. (2020). Scientometric laws connecting publication counts to national research funding. Scientometrics, 123(1), 181–206. https://doi.org/10.1007/s11192-020-03392-x

Si, S., Hall, J., Suddaby, R., Ahlstrom, D., y Wei, J. (2023). Technology, entrepreneurship, innovation and social change in digital economics. Technovation, 119, 102484. https://doi.org/10.1016/j.technovation.2022.102484

Suseno, Y., y Abbott, L. (2021). Women entrepreneurs' digital social innovation: Linking gender, entrepreneurship, social innovation and information systems. Information Systems Journal, 31(5), 717–744. https://doi.org/10.1111/isj.12327

Tamasiga, P., Ouassou, E., Onyeaka, H., ... y Molala, M. (2023). Forecasting disruptions in global food value chains to tackle food insecurity: The role of AI and big data analytics – A bibliometric and scientometric analysis. Journal of Agriculture and Food Research, 14, 100819. https://doi.org/10.1016/j.jafr.2023.100819

Thai, Q., Mai, K., y Do, T. (2023). An Evolution of Entrepreneurial Ecosystem Studies: A Systematic

Literature Review and Future Research Agenda. SAGE Open, 13(1), 215824402311530. https://doi.org/10.1177/21582440231153060

Valderrama, P., Jiménez-Contreras, E., Escabias, M., y Valderrama, M. (2022). Introducing a bibliometric index based on factor analysis. Scientometrics, 127(1), 509–522. https://doi.org/10.1007/s11192-021-04195-4

Vig, S. (2023). Sustainable development through sustainable entrepreneurship and innovation: A single-case approach. Social Responsibility Journal, 19(7), 1196–1217. https://doi.org/10.1108/SRJ-02-2022-0093

Zahra, S., Liu, W., y Si, S. (2023). How digital technology promotes entrepreneurship in ecosystems. Technovation, 119, 102457. https://doi.org/10.1016/j.technovation.2022.102457

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