



## INNOVATION AND INTERNATIONALIZATION OF COMPANIES: BIBLIOMETRIC REVIEW OF THE LITERATURE BETWEEN 2013 AND 2022

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### ABSTRACT

**Objective:** This research aimed to analyze the conceptual-theoretical evolution of innovation and internationalization of companies. The objective is to map the knowledge on the interrelationship between innovation and internationalization, identifying the most cited articles and presenting cutting-edge studies through bibliographic pairing. **Method:** A bibliometric review was conducted using co-citation analysis and bibliographic pairing techniques. The maps were generated with the VOSviewer software to systematize knowledge on the relationship between innovation and internationalization of companies. **Main Results:** The analysis revealed three main clusters that highlight the strategic importance of innovation for processes and the choice to innovate through internationalization. The pairing map identified six clusters, with an emphasis on the importance of research and development (R&D). **Relevance / Originality:** The effects of innovation on internationalization capacity are still uncertain and present conflicting results. Thus, a systematic review that considers various internationalization strategies and innovation activities is necessary. **Theoretical / Methodological Contributions:** The study advances theoretically by identifying frontier studies, allowing future research to be directed in six areas: importance of R&D in emerging economies; impact of entrepreneurial orientation and innovation on export performance; demographic and geographic characteristics of firms; innovation capabilities in global firms; effects of business clusters and interorganizational networks on internationalization; and learning and renewal strategies to improve the internationalization process. **Social / Management Contributions:** The research provides managers with an overview of barriers and challenges in the internationalization of companies, highlighting innovation as a central element, and provides practical recommendations to improve business processes.

**Keywords:** Innovation, Internationalization, Bibliometric analysis, Co-citation map, Pairing map.

## INOVAÇÃO E INTERNACIONALIZAÇÃO DE EMPRESAS: REVISÃO BIBLIOMÉTRICA DA LITERATURA ENTRE 2013 E 2022

### RESUMO

**Objetivo:** Esta pesquisa visou analisar a evolução conceitual-teórica da inovação e internacionalização das empresas. O objetivo foi mapear o conhecimento sobre a inter-relação entre inovação e internacionalização, identificando os artigos mais citados e apresentando estudos de fronteira por meio de pareamento bibliográfico. **Método:** Realizou-se uma revisão bibliométrica utilizando técnicas de análise de cocitação e pareamento bibliográfico. Os mapas foram gerados com o software VOSviewer para sistematizar o conhecimento sobre a relação entre inovação e internacionalização das empresas. **Principais Resultados:** A análise revelou três *clusters* principais, que destacam a importância estratégica da inovação para os processos e a escolha de inovar por meio da internacionalização. O mapa de pareamento identificou seis *clusters*, com ênfase na importância da pesquisa e desenvolvimento. **Relevância / Originalidade:** Os efeitos da inovação na capacidade de internacionalização ainda são incertos e apresentam resultados conflitantes. Assim, é necessária uma revisão sistemática que considere diversas estratégias de internacionalização e atividades de inovação. **Contribuições Teóricas / Metodológicas:** O estudo avança teoricamente ao identificar os estudos de fronteira, permitindo direcionar futuras pesquisas em seis áreas: importância de pesquisa e desenvolvimento em economias emergentes; impacto da orientação empreendedora e inovação no desempenho das exportações; características demográficas e geográficas das empresas; capacidades de inovação em empresas globais; efeitos de *clusters* de negócios e redes interorganizacionais na internacionalização; e estratégias de aprendizagem e renovação para melhorar o processo de internacionalização. **Contribuições Sociais / para a Gestão:** A pesquisa oferece aos gestores uma visão geral sobre barreiras e desafios na internacionalização de empresas, destacando a inovação como elemento central, e fornece recomendações práticas para melhorar os processos empresariais.

**Palavras-chave:** Inovação, Internacionalização, Análise bibliométrica, Mapa de cocitação, Mapa de pareamento

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## INTRODUCTION

Innovation is an essential element for long-term sustainability of companies and impacts their global competitiveness (Du et al., 2023; Kafouros et al., 2008). It is impossible to innovate sustainably only within a company's home country, as each country has its own limitations and restrictions, particularly due to legal and institutional issues (Anand et al., 2021). The emphasis on innovating in other countries began in the early 1980s as companies sought to leverage various innovation resources both within and outside their home countries, which became a significant attribute for acquiring innovation capabilities. A substantial number of companies worldwide have highlighted the role of internationalization in their innovation–performance (Zhao et al., 2021).

Furthermore, in order to better understand the strategic decisions and outcomes stemming from innovation capabilities through the process of companies' internationalization, numerous researchers have developed a variety of studies. For example, Osarenkhoe and Fjellström (2017) investigated the importance of a platform created by a cluster organization to facilitate internationalization and thus enhance the competitiveness of its partners in the regional innovation system by providing access to global value chains and driving innovation. On the other hand, Hitt et al. (1997) emphasized in their research that internationalization is positively related to research and development (R&D) intensity, but that the interaction effects with product diversification are negative. The results of this study provided evidence of the importance of international diversification for competitive advantage but also suggested the complexities of implementing it to achieve those advantages in product-diversified companies. Kafouros et al. (2008) stated in their study that internationalization increases a company's ability to improve its performance through innovation; however, they also showed that companies are unable to benefit from innovation if their international activity falls below a threshold level.

Despite the increasing academic interest in associating innovation with the internationalization of companies and the effects of this relationship on organizational performance, the body of knowledge in this field remains highly fragmented, with diverse and often conflicting findings, also presenting varied

theoretical perspectives. In this sense, there is a lack of bibliometric studies that systematize the literature on these topics. Only recently, Christofi et al. (2019) and Papanastassiou et al. (2020) have attempted to fill this gap. The former focused exclusively on the impact of micro-level factors on technological innovation in the context of cross-border acquisitions, while the latter shed considerable light on the global R&D of multinational companies over the last 50 years from historically shifting perspectives. Thus, a more systematic review is necessary that encompasses the various internationalization strategies of companies and their diverse innovation activities.

Second, inconsistent findings persist regarding the relationship between internationalization and innovation. The literature presents conflicting results about the role of the diversity of international locations of companies, whether this leads to positive innovation outcomes, such as new products (Du et al., 2023), and whether international acquisition stimulates innovation attitudes and actions in other subsidiaries (Bertrand, 2009; Du et al., 2023).

Third, business environments, particularly global supply chains, face unprecedented political, economic, and social turbulence originating from various sources, including the global war against intellectual property, the rapid development of the digital economy, the COVID-19 pandemic, and trade tensions and protectionism. This represents significant challenges for companies' innovation capability-building processes (Bahl et al., 2021; Petricevic & Teece, 2019; Sun et al., 2021), which may question previous research findings and serve as an opportunity to revise our existing theories and findings. Without a systematic review of our current knowledge, it is difficult for scholars to determine what needs to be revised in rapidly changing environments.

In light of these arguments, this study aims to analyze the conceptual and theoretical evolution of innovation and the internationalization of companies, as well as to map the knowledge domain of these themes (co-citation of the most-cited articles) and present frontier studies (bibliographic coupling). It is expected that this study will contribute to the literature by presenting elements to enhance the understanding of the evolution of these constructs and identify emerging themes being investigated in these areas.

Moreover, the study is expected to provide new insights for future research. With the systematization of the literature in this research, new studies may identify emerging themes and develop deeper investigations on these topics. The research can also be utilized by managers of companies that are in the process of internationalization or are developing strategies aimed at internationalization.

More clearly, this research will contribute to theoretical advancement in two perspectives. First, by mapping and identifying the emergence and development of the scientific field regarding internationalization and innovation, it will allow for the identification of theoretical currents, research themes, and the theoretical basis that underpins the body of research on these topics. Second, it will contribute by mapping frontier studies, emerging themes, and current research gaps on innovation and internationalization, presenting these elements within the bibliographic mapping clusters. The identification of these clusters may direct the flow of new research to clarify existing theoretical gaps regarding these themes.

Regarding managerial contributions, the research will present six themes through the bibliographic coupling map. Managers can utilize the results to emphasize R&D actions, especially in emerging economies; implement entrepreneurial orientation and innovation initiatives to enhance export performance; develop innovation capabilities based on those identified in global companies; form strategic partnerships or interorganizational networks to enhance innovations and improve their internationalization capabilities; and finally, incorporate learning and renewal strategies to enhance the internationalization process.

The study is structured as follows: the first section presents the introduction, including context, the problem statement, research question, objectives, and expected contributions. Following this, a brief theoretical framework is presented (although not common in bibliometric studies, it is important to provide a theoretical foundation for the themes of innovation and internationalization of companies). Then, the research methods are outlined, highlighting the data collection procedures (sample) and data analysis techniques. In the fourth section, the results are presented, and the discussion of the identified clusters in the co-citation and bibliographic coupling maps is conducted. Finally, the last section contains

the conclusions, including contributions, limitations, and suggestions for future studies.

## 1. METHODOLOGY

This is a review study, developed using bibliometric techniques. It is important to highlight that this type of study provides an overview of a scientific field, allows for the mapping of the emergence and evolution of a scientific phenomenon, and offers a general picture of the most-cited/influential authors, educational institutions where the main publications are developed, cooperation networks between authors, recurrence of keywords, and frontier studies on a specific topic (Zupic & Cater, 2015). Bibliometric studies are important for identifying the growth trends of knowledge in a particular discipline, converging and diverging theoretical currents on a topic, and obsolescence (Zhu et al., 2021).

The choice to utilize bibliometric techniques in the present research stems from the need to systematize the research body from the past 10 years on innovation and internationalization of companies, as mapping the emergence, evolution, and overall knowledge domain on these themes required addressing a large volume of scientific publications in databases. This would not have been feasible without the application of bibliometric techniques; without them, the study's objectives would not have been achieved.

In this sense, the bibliometric method used in this research is not only essential for attaining the proposed objectives but also contributes to theoretical advancement by allowing for the presentation of a systematized framework (thematic clusters) on the emergence, evolution, and frontiers of knowledge regarding innovation and internationalization of companies. The argument that bibliometric techniques are fundamental for handling large volumes of publication data is reinforced by Donthu et al. (2021), who state that bibliometry is a tool that makes it possible to systematize and organize a large volume of data, thus mapping the emergence, evolution, and frontiers of knowledge in a specific scientific area.

Bibliometric analysis can be conducted based on five main techniques:

- Citation analysis;
- Co-citation analysis;
- Bibliographic coupling;

- Co-authorship analysis;
- Co-word analysis (Donthu et al., 2021; Zupic & Cater, 2015).

In this study, we only utilized the techniques of co-citation analysis and bibliographic coupling, which are considered predominant techniques for analyzing relationships among citations in studies (Marshakova, 1981). The choice of these two techniques was made based on the scope and objectives of this study.

Regarding the selection of co-citation analysis and bibliographic coupling techniques, it is important to mention that these techniques allow for the analysis of relationships among the citations of the studies selected in the sample, enabling the tracing of the knowledge domain in a specific scientific field (Zupic & Cater, 2015). More specifically, this research opted to use co-citation analysis, which is suitable for mapping the emergence and evolution of a specific scientific field through the analysis of common references between two studies. This technique enabled the research to identify the emergence and evolution of the themes of innovation and internationalization of companies from 2013 to 2022.

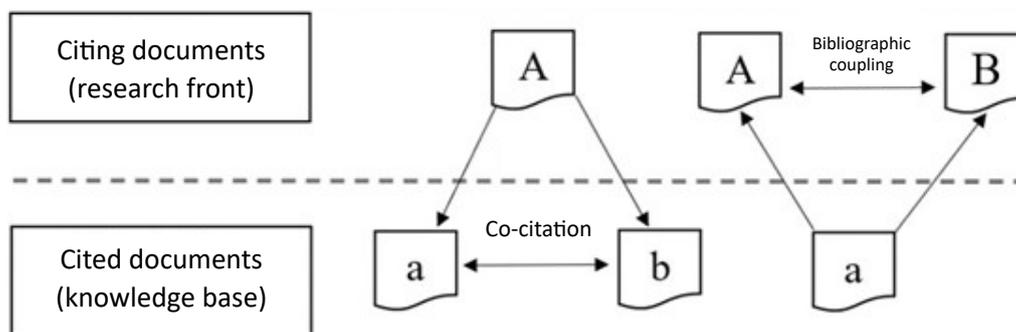
Conversely, the bibliographic coupling technique was used to map the frontiers of knowledge by identifying frontier studies (the most recent) on innovation and internationalization, thus providing new directions for future research. One of the main applications of bibliometric research relates to its capability to provide, through bibliographic coupling maps, an agenda for new research. Figure 1 presents these two techniques.

Based on the objectives proposed by this research, we chose to collect articles from the Web of Science

database. The choice was determined by the importance of this database, as it concentrates on the most influential journals with the greatest impact in terms of publication metrics, along with a substantial number of articles on the topic. It is noteworthy that the Web of Science is the oldest database and has the most extensive coverage in terms of journal indexing (Birkle et al., 2021). The database is considered more reliable compared to others and provides descriptive graphical outputs that are easy to understand (Birkle et al., 2021). The Web of Science was developed based on the Science Citation Index, founded by Eugene Garfield in 1964, which expanded its selective, balanced, and comprehensive coverage of the world’s leading research to include around 34,000 journals currently (Birkle et al., 2021).

The software used for mapping co-citation and bibliographic coupling clusters was VOSviewer. We chose VOSviewer because it is a free software, allowing for easy access for researchers. The quality of the graphical outputs and the ease of interpreting the relationships among studies, such as link strength, density, and links to other studies, were also considered (Van Eck & Waltman, 2018).

To select articles for the sample, the terms “innovation” and “internationalization” were searched together in the topic field (title, abstract, and keywords) in the main search interface of the Web of Science database. Initially, 3,223 documents were identified. To ensure transparency and replicability—a crucial attribute in bibliometric studies—129 articles with early access and 122 documents published in 2023 were excluded, which was still ongoing. This reduced the sample to 2,972 documents. Subsequently, only



Search: Zupic and Cater (2015).

**Figure 1.** Co-citation and bibliographic coupling.

articles were considered due to methodological rigor (this type of document undergoes blind review by two or three reviewers), ensuring both the methodological quality and contributions of the studies. Consequently, the results included 2,241 articles. A filter based on fields of knowledge was also applied at this stage, retaining only studies conducted within the realm of applied social sciences (management, business, economics, tourism, hospitality, and leisure). After applying this filter, 1,322 articles remained. Finally, only articles published in English were considered, leading to a final sample of 1,322 articles.

The filters applied were intended to select publications with greater theoretical and methodological rigor, as only articles were chosen. In general, articles undergo multiple analyses, and only those that yield theoretical and managerial contributions are selected. It is worth noting that the representativeness of the research in terms of the proportion of selected documents is above 50%, as 1,322 articles were selected from a total of 3,223 documents identified in the preliminary search (before the application of filters). However, upon closer examination, it can be observed that the representativeness is qualitatively greater, as the leading journals in terms of impact on these themes accept only articles that have undergone double-blind review. Thus, it is understood that this research selected articles with the highest impact, as they were published in rigorous journals.

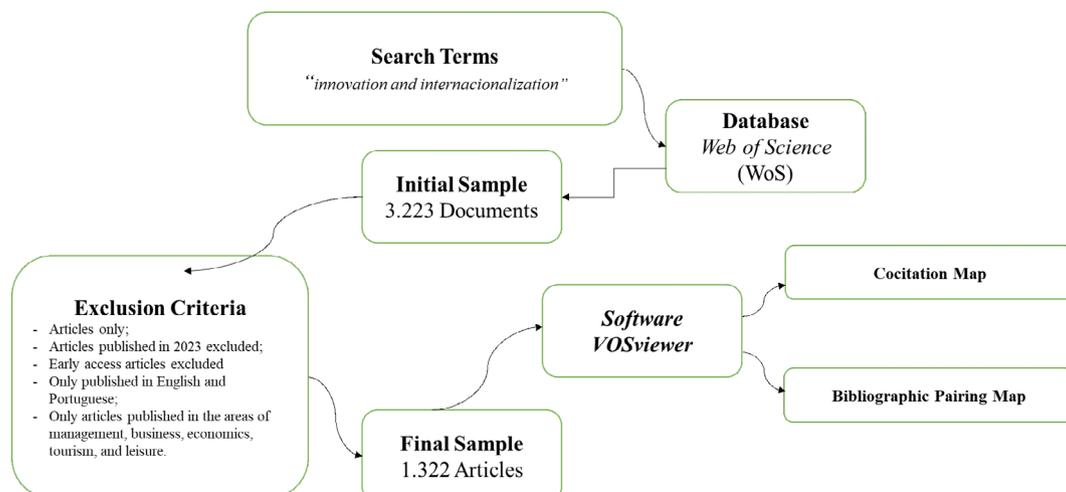
To minimize potential impacts related to the exclusion of other important publications on the subject, a search was conducted with the same search terms and

exclusion criteria in the Scopus database. The results between the two databases were compared using an Excel spreadsheet. An 86% overlap was found between the databases, indicating that 86% of the studies from our sample collected in the Web of Science were also published in the Scopus database. In light of this, it was decided to utilize the data retrieved from the Web of Science, based on Gluck (1990), who argues that when it comes to overlap between databases, the greater the overlap, the greater the similarity of studies; in other words, the higher the similarity in the databases, the less relevant it is to analyze both databases simultaneously. The methodological design of the research is presented in Figure 2.

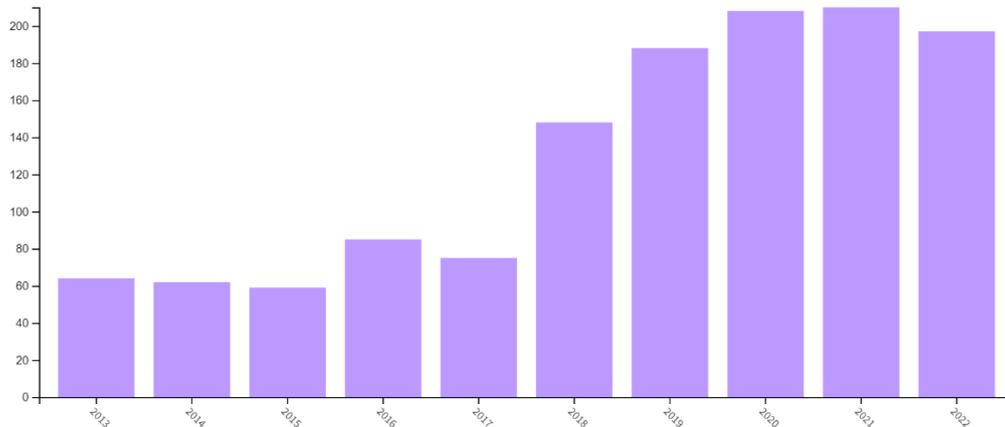
Figure 3 shows the evolution of publications on innovation and internationalization of companies. We chose to analyze the research flow of these themes over the past 10 years to present the state-of-the-art discussions and current perspectives. When examining the graph, we can see an exponential increase in the number of articles published from 2018 onward and reaching a peak of 200 publications. This increase can partially be explained by the expansion of bilateral relations in international negotiations, but it is not solely attributed to that factor. In this regard, examining the co-citation and bibliographic coupling maps allows us to outline some possibilities.

## 2. ANALYSIS OF BIBLIOMETRIC RESULTS

The 1,322 studies that comprise the sample of this research were imported into the VOSviewer software



**Figure 2.** Methodological design of the research.



**Figure 3.** Evolution of publications on innovation and internationalization of companies in the Web of Science.

to facilitate the development of the co-citation and bibliographic coupling maps. The co-citation map resulted in the identification of three clusters, which will be discussed in detail in the following sections of this research. To enable graphical visualization and illustrate the relationships among the studies, the software was configured to include only articles that have been cited at least five times.

### 2.1. Co-citation analysis

The 1,322 studies that make up the sample of this research were imported into VOSviewer software to facilitate the creation of the co-citation and bibliographic coupling maps. The co-citation map resulted in the identification of three clusters, which will be discussed in detail in the following sections of this research.

According to the VOSviewer software manual, the seminal studies on innovation and internationalization of companies, along with the importance of R&D (red cluster), formed the main cluster of the co-citation map (Van Eck & Waltman, 2018). This cluster consists of 161 seminal studies related to innovation, internationalization, and the importance of R&D—studies that have guided the research flow in terms of foundational theories and theoretical grounding. The most influential study within this cluster was conducted by Cohen and Levinthal (1990). This work is critically important as it investigates how R&D contributes to enhancing organizational performance and how organizational structure impacts the innovation development process through R&D. This study has a link

strength of 1,660, has been cited 72 times by other studies in the sample, and is linked to 382 studies.

The second most influential study in this cluster is a seminal research on the internationalization of companies conducted by Hitt et al. (1997). The authors argue in their study that international diversification is negatively related to performance in non-diversified companies, positively related in highly product-diversified companies, and curvilinearly related in moderately product-diversified companies. International diversification is also positively related to R&D intensity, but the interaction effects with product diversification are negative. The results of this study provide evidence of the importance of international diversification for competitive advantage, but also suggest the complexities of implementing it to achieve those advantages in product-diversified companies. This study has a link strength of 1,745, has been cited 66 times by other studies, and is linked to 376 studies.

The processes of acquiring external knowledge and the barriers to the internationalization of companies constitute the green cluster. The green cluster is the second most important cluster in the VOSviewer co-citation map, composed of 141 studies. The theme analyzed by the studies in this cluster refers to examining the processes of acquiring necessary external knowledge and the barriers faced by companies during internationalization.

The principal study in this cluster is an article written by Johanson and Vahlne (1977). In this seminal study, the authors developed a model for the internationalization process of companies based on empirical research. The model focuses on the gradual acquisition, integration, and utilization of knowledge about foreign markets and operations, as well as the gradual

increase of commitments to foreign markets. In particular, attention is centered on growing involvement with each specific foreign country. This study has a link strength of 3,181, has been cited 144 times by other studies in the sample, and is linked to 405 studies.

The second most important study in this cluster was developed by Knight (2004). This research was conducted within the context of the internationalization of higher education institutions, aiming to study internationalization at both the institutional and national/sectoral levels. Both levels are significant. The national/sectoral level has a relevant influence on the international dimension through policies, financing, programs, and regulatory frameworks; however, it is generally at the institutional level that the true process of internationalization occurs. This article analyzes the meaning, definition, justification, and approaches to internationalization using a bottom-up (institutional) and a top-down (national/sectoral) approach, examining the dynamic relationship between these two levels. Key policy issues and future directions for internationalization are identified. The study has a link strength of 2,619, has been cited 109 times by other studies, and has connections with 367 other studies.

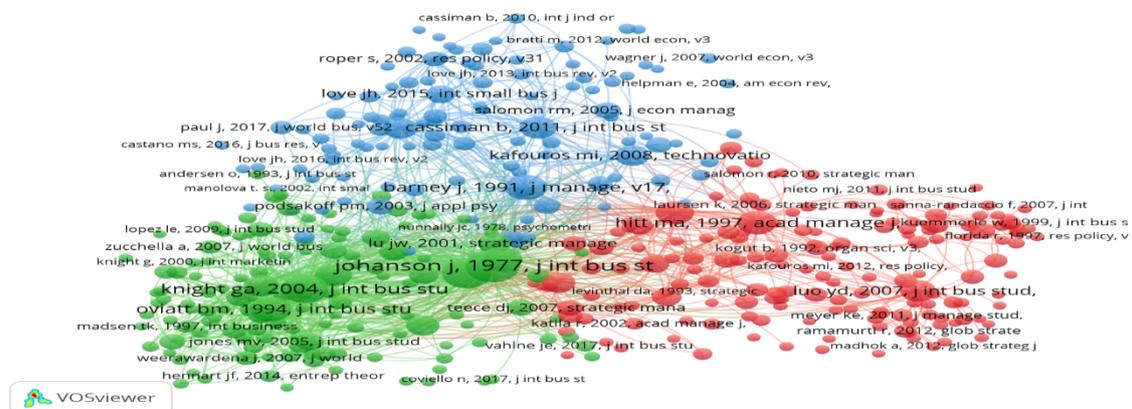
The blue cluster, which focuses on the resource-based view and the influence of R&D employees' competencies on company performance, is the last cluster identified in our analysis. This cluster comprises 110 studies that utilize the resource perspective to investigate the influences of R&D team competencies on innovations and consequently on the performance of companies.

The most influential study in this cluster is the seminal resource-based view study in strategic management developed by Barney (1991). It has a link

strength of 1,788, has been cited 89 times by other studies within the sample, and is linked to 390 studies. The study examined the connection between a firm's resources and sustained competitive advantage. Four empirical indicators of a firm's resource potential to generate sustained competitive advantage—rarity, imitability, substitutability, and organization of resources—are discussed. The model is applied by analyzing the potential of various resources within the firm to create sustained competitive advantages. The article concludes by examining the implications of this resource-based model for sustained competitive advantage across other business disciplines.

The second most important study in the blue cluster was developed by Kafouros et al. (2008). In this research, the author stated that it has long been recognized that R&D plays a critical role in the global competition for technological leadership. However, due to intense competition and imitation from rivals, companies do not always manage to reap the rewards from their innovations. This study theoretically and empirically examines the impacts of innovation and scientific knowledge on the productivity performance of multinational corporations and the conditions under which firms benefit from their technological discoveries. The paper also investigates to what extent the research efforts of other companies may contribute to a firm's productivity and how multinationals rely on inventions, ideas, and external knowledge. The co-citation map displaying the identified clusters is presented in Figure 4.

In summary, the three identified clusters illustrate the essential themes surrounding innovation, internationalization, and the role of R&D. They highlight



**Figure 4.** Co-citation Map.

key studies that have shaped the research landscape in these areas and provide a foundation for understanding the complex relationships between these constructs. The insights gained from these clusters can offer valuable directions for future research and managerial strategies within the realm of innovation and internationalization.

## 2.2. Bibliographic pairing analysis

The bibliographic mapping analysis allowed for the presentation of frontier studies, that is, the current research trends and pathways for future research on the relationship between the themes of innovation and internationalization of companies. The bibliographic map resulted in the identification of six clusters, which will be discussed in-depth in this research.

The red cluster, concerning the importance of R&D in the innovation and internationalization process in emerging economies, was the main cluster of the bibliographic mapping. This cluster consists of 78 articles, and the predominant theme analyzed refers to the importance of R&D in the innovation and internationalization processes in emerging economies.

The main study in this cluster was conducted by Awate et al. (2015). The authors analyzed the internationalization of companies in developing countries compared to advanced economy multinational enterprises (AMNEs), as well as emerging economy multinational enterprises (EMNEs). They investigated the internationalization of R&D in EMNEs compared to that of AMNEs in the context of an emerging and knowledge-intensive industry. They found that these two are fundamentally different processes. While the internationalization of R&D activities in AMNEs can largely be explained in terms of the twin strategies of competence exploitation and competence creation, the internationalization of R&D in EMNEs is rooted in the global strategy of firms to catch up with industry leaders. A thorough comparison of knowledge flows reveals that in AMNEs, the headquarters typically serves as the main source of knowledge for R&D subsidiaries. The study has a link strength of 401, was cited 227 times by other studies in the sample, and has 145 links to other studies.

The second most influential study in this cluster was authored by Piperopoulos and Dimov (2018). This study asserts that, although previous research

conceptualizes how the pursuit of knowledge motivates the internationalization of emerging market enterprises (EMEs), whether outward foreign direct investment (OFDI) actually leads to better innovation–performance has received limited attention. This issue was addressed in the research by conceptualizing how OFDI from Chinese EMEs enhances the organizational learning and innovation–performance of their subsidiaries and whether geographic location choices influence this relationship. The panel data analysis of Chinese EMEs shows that OFDI has a positive effect on the innovation–performance of the subsidiaries of Chinese EMEs and that this effect is stronger when OFDI is directed toward developed rather than emerging countries. The study has a link strength of 369, was cited 166 times by other studies, and has 156 links to other studies.

The second cluster in terms of importance in the bibliographic mapping is the green cluster, focusing on the role of entrepreneurial orientation, market orientation, technological innovation, and organizational innovation in improving export performance. This cluster consists of 51 studies. The theme analyzed by studies in this cluster concerns the role of entrepreneurial orientation, market orientation, technological innovation, and organizational innovation in improving the performance of exporting companies.

The most influential study in this cluster was developed by Goudarz and Ciabuschi (2017). This study has a link strength of 737, has links with 197 studies, and was cited 119 times by other studies. The authors analyzed the relevance of different types of innovation for the export performance of companies. Despite extensive research on the innovation–performance relationship, previous studies have primarily focused on technological innovations, leaving the effects of organizational innovations relatively unexplored. Hypotheses regarding the relationship between organizational and technological innovations and the performance of exporting companies were tested through structural equation modeling using data from 218 Swedish export firms. The results indicate that organizational innovation improves export performance both directly and indirectly by supporting technological innovation.

The second most important study in this cluster was authored by Boso et al. (2012). The study has a link strength of 393, 147 links with other studies, and

was cited 107 times by other studies in our sample. It explored how two specific market-based resources, export-oriented entrepreneurial behavior and market-oriented export behavior, act to drive the product innovation–performance of firms in their export markets. Based on data from 164 Ghanaian exporters, the results indicated that both export-oriented entrepreneurial behavior and market-oriented export behavior drive the success of export product innovation. It is more likely that entrepreneurial-oriented behavior constitutes a key driver of product innovation success when market-oriented behavior is strong.

Demographic characteristics (age, size, and experience), geographical characteristics, and their effects on export performance and internationalization represent the third cluster of the bibliographic mapping, the blue cluster. This cluster comprises 49 articles, and the predominant theme analyzed by studies in this cluster was the analysis of the effects of demographic characteristics (age, size, and experience) and geographical characteristics of companies on export performance and internationalization.

The most influential study in this cluster was written by D'Angelo and Zeller (2013). It has a link strength of 916, 199 links with other studies, and was cited 113 times by other studies in our sample. The authors considered the determinants of export performance of small- and medium-sized enterprises (SMEs) using a survey of SMEs in the UK that are internationally involved. They developed a model that incorporates the effects of prior organizational and managerial learning. The empirical analysis enabled them to separately identify the positive effects on exports from the firm's international experience and the negative effects of the firm's age. The positive export effects also resulted from embedded knowledge acquired through the recruitment of managers with prior international experience.

The second most important study in the blue cluster was authored by Love and Roper (2016). It has a link strength of 916, 197 links with other studies, and has been cited 124 times by other studies. The objective of this article was to examine the determinants of two distinct geographical pathways to the internationalization of SMEs. Regional and global pathways were juxtaposed to study the influence on export performance of selected key intangible resources,

namely innovation, human resource management, networking, and firm experience.

Differentiated capabilities for innovation and internationalization of born-global firms—the yellow cluster—is the fourth in terms of importance in the bibliographic mapping. This cluster consists of 37 studies, and the theme analyzed by studies in this cluster pertains to the examination of the role of differentiated capabilities in the innovation and internationalization of born-global firms.

The most influential study in this cluster was developed by Cavusgil and Cavaleiro (2015). It has a link strength of 784, 176 links to other studies, and has been cited 463 times by other studies. The study consists of commentary and reflection on the authors' 2004 article in the *Journal of International Business Studies*, "Innovation, Organizational Capabilities, and the Born Global Firm," which provided a framework for the phenomenon of early and rapid internationalization among young entrepreneurial firms. This work can be characterized as an integration of market-oriented, entrepreneurial, and capability-based thinking around exporting, positioning itself as the born-global exporter. The article also reported results from a national study of startup firms that expanded abroad early in their evolution. In the present commentary, the authors reflect on the contributions of the 2004 article, reviewing studies on the topic over the last decade and offering suggestions for future investigations.

The second most important study in the yellow cluster was authored by Coviello (2015), with a link strength of 706, 202 links to other studies, and 176 citations from other studies in the sample. This too is a commentary relating to the decade award-winning article from Knight and Cavusgil published in the *Journal of International Business Studies* and offers numerous contributions to research in international business. For example, it advances the interdisciplinary discourse on business internationalization. A critical review of the study, however, reveals that certain findings require reinterpretation. This commentary addresses this by discussing the resulting implications and the question of when it is (in)appropriate to use the term "born global." Parts of Knight and Cavusgil's work are then used as a foundation to identify firm-level research questions. Finally, points from Cavusgil and Knight's retrospective are used to argue

that we need a greater understanding of the central individual(s) for firm internationalization behavior. Research suggestions are made based on concepts and theories from the literatures of entrepreneurship, innovation, and psychology.

Business clusters, interorganizational networks, and ibusiness and their effects on the process of internationalization of firms form the purple cluster, which is the fifth in the bibliographic mapping. This cluster consists of 29 articles, with the predominant theme analyzed by studies in this cluster being the examination of how competitive strategies of business clusters, interorganizational networks, and ibusiness can contribute to improving firms' capacity for internationalization.

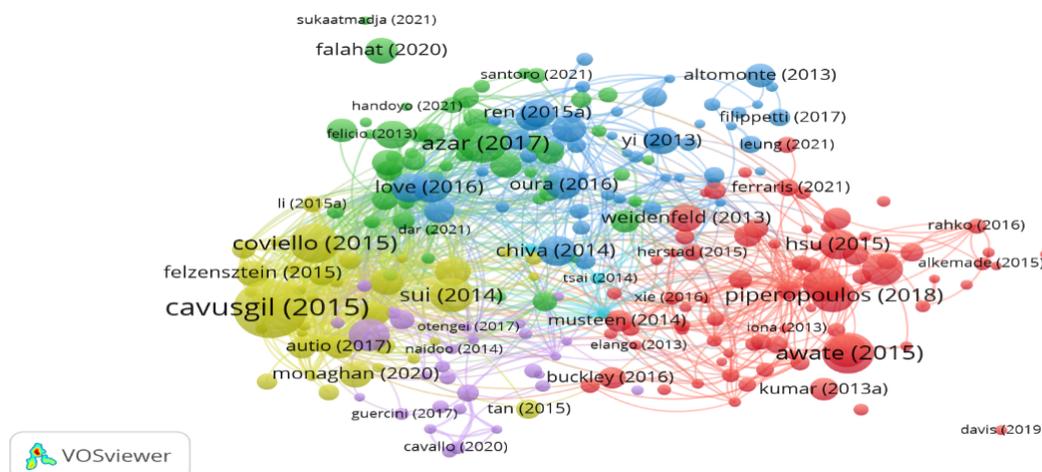
The most influential study in this cluster was authored by Brouthers and Hennart (2016). This study has a link strength of 574, 173 links to other studies, and was cited 141 times by other studies in our sample. The authors claimed that they extended existing internationalization theory to encompass this new type of organization. They theorized that, as ibusiness firms create value through the creation and coordination of a user network, they tend to experience greater outsidership liabilities when expanding abroad and thus focus on user adoption and diffusion processes as they internationalize. Based on a multi-case investigation of a sample of ibusiness firms, they developed new theories and testable hypotheses, thus providing a significant contribution by expanding the theory of internationalization to a new set of firms.

The second most important study in the purple cluster was authored by Felzensztein and Giménez

(2019). This study has a link strength of 254, 119 links to other studies, and has been cited 52 times by other studies. The study provides a comparison of three countries and examines the internationalization of family winemakers across distinct regional wine clusters in Argentina, Chile, and New Zealand. In-depth interviews were conducted with owner-operators to understand the drivers and barriers to the internationalization of their businesses. The key findings revealed that while size and age are not determinants of the capacity for internationalization, various dimensions influence this process.

The most influential study in this cluster was conducted by Riviere and Suder (2016). This study has a link strength of 904, 204 links to other studies, and has been cited 18 times by other studies. The authors relied on the literature on internationalization and strategy to investigate what is known about whether and how companies renew their capabilities through internationalization. They anticipated that the scope of internationalization has an inverted U-shaped effect on the company's ability to create renewal alternatives, thereby enabling the development of renewal capabilities. However, they also drew attention to factors that may represent limitations on the role of internationalization for strategic renewal. Internationalization strategies related to location decisions, timing, and risk mode are antecedents of capacity renewal strategies, identified as linear versus nonlinear paths of renewal.

The second most important study in the light blue cluster was authored by Tsai (2014), which has a link strength of 509, 164 links to other studies, and has been cited 21 times by other studies in the sample.



**Figure 5.** Bibliographic pairing.

Based on R&D intensity and learning capacity, this study concluded that there is an S-shaped relationship between a company's internationalization and performance. The results also showed that R&D intensity and learning capacity significantly strengthen the impact of internationalization on companies' performance. These findings imply that R&D intensity and learning capacity are the main drivers of the success of advanced emerging market companies in foreign markets. The bibliographic mapping with the identified clusters is presented in Figure 5.

### 3. DISCUSSION AND FINAL CONSIDERATIONS

In this bibliometric review, the intellectual structure, emergence, and evolution of the relationship between innovation and internationalization of companies in the literature were identified through co-citation mapping. Additionally, the boundaries of the research areas on these themes were identified through bibliographic coupling, along with research trends and insights for future studies. The following sections present the main theoretical and managerial implications, as well as an extensive suggestion of future avenues for research.

#### 3.1. Theoretical implications

The literature on innovation and internationalization has developed in a multifaceted manner. Our results demonstrated the importance of foreign direct investment in companies, particularly in multinational enterprises from emerging economies. As highlighted by Awate et al. (2015), the process of internationalization of R&D in multinational enterprises from emerging economies is fundamentally different from that of multinational enterprises from advanced economies. While multinational enterprises from advanced economies adopt strategies of competence exploitation and creation, those from emerging economies focus on recovery and attempts to catch up with market leaders. This reflects the significance of R&D as a mechanism for learning and innovation, essential for companies in emerging economies to overcome competitive disadvantages and align with global standards.

The importance of entrepreneurial orientation in the process of innovation and internationalization

was also discovered. Organizational innovation is seen as an indirect way to enhance export performance by supporting technological innovation, challenging the traditional view that only technological innovation impacts export success (Goudarz & Ciabuschi, 2017). Boso et al. (2012) add that entrepreneurial behavior and market-oriented behavior are critical factors for the success of product innovation in export markets, expanding the notion that both technological and organizational aspects are interdependent.

In our research, the demographic and geographical effects on export performance and internationalization were also uncovered. D'Angelo and Zeller (2013) suggested that a firm's international experience and the knowledge of managers with international experience are key factors for export performance, highlighting the importance of human capital and organizational experience. Regarding geographical aspects, it was found that different geographical pathways (regional and global) influence the internationalization of SMEs. This further underscores the role of intangible resources, such as innovation and relationship networks.

These theoretical findings provide a comprehensive understanding of how companies in emerging economies innovate and internationalize. They emphasize differences in R&D strategies between multinational enterprises from emerging and advanced economies, the impact of geographical and demographic factors on export performance, and the importance of both organizational and technological innovation capabilities for success in exports. Finally, the rapid internationalization of born-global firms is an emerging area that suggests the need for more studies on the individuals responsible for these decisions.

#### 3.2. Managerial implications

The findings of the study suggest that companies from emerging economies should focus on R&D strategies to strengthen their innovation capabilities and compete globally. Unlike multinationals from advanced economies, multinationals from emerging economies can use the internationalization of R&D as a way to acquire knowledge and regain their competitive position relative to industry leaders. Managers of companies in emerging

economies should prioritize locating their R&D operations in developed markets, where they can access technological resources and accelerate their innovation–performance.

In the context of exporting companies, organizational and technological innovations need to be managed together to optimize export performance. Organizational innovation, for instance, can be used to sustain

**Table 1.** Perspectives for future research.

Perspective	Research question (RQ)	Application
Social network analysis	<p>Q1. How do global networks and networking affect companies in their internationalization processes?</p> <p>Q2. How can we map the relationships between large companies and their stakeholders in the innovation and internationalization process?</p> <p>Q3. What is the relationship between business networks and research and development?</p>	<p>To study the importance of global networks and the role of networking in the internationalization process, social network analysis is a valuable tool. It allows us to map and understand the connections between companies, subsidiaries, and international markets, identifying the most influential nodes and the flows of knowledge and innovation. Social network analysis reveals how relationships between companies influence the flow of knowledge, innovation, and internationalization.</p>
Cultural and institutional factors	<p>Q4. How do cultural and institutional factors influence the adoption of organizational innovations?</p> <p>Q5. How do these cultural and institutional factors affect the internationalization process of companies?</p> <p>Q6. What are the differences in innovation processes in different cultures?</p>	<p>Future studies could investigate how cultural and institutional factors in different emerging countries influence the adoption of organizational innovations. Organizational innovation is important, but little is explored about how this innovation fits into different institutional contexts, such as government regulations or cultural norms.</p>
Role of managers in companies born global	<p>Q7. What are the main skills, experiences, and networks of managers of born-global companies?</p> <p>Q8. What differentiates these managers from other companies?</p>	<p>There is a need for greater understanding of the role of individuals, especially managers and entrepreneurs, in the internationalization process of born-global firms. Future studies could investigate the skills, experiences, and networks of these individuals and how they directly impact the rapid and innovative internationalization strategies of these firms.</p>
Impact of disruptive technologies on innovation and internationalization of companies in emerging economies	<p>Q9. What are the impacts of disruptive technologies on companies in emerging economies?</p> <p>Q10. How has this shaped the innovation and internationalization processes of these companies?</p>	<p>With the advancement of disruptive technologies (such as artificial intelligence, blockchain, and the Internet of Things), new research could explore how these technological innovations impact the internationalization of emerging economy firms and their research and development strategies. This would help to understand how new technologies are shaping innovation and internationalization practices in emerging economies.</p>

and maximize the effectiveness of technological innovations, resulting in greater success in exports. Additionally, market-oriented and entrepreneurial behaviors are essential for the success of product innovation, and managers should integrate these orientations into their export strategies to maintain competitiveness.

Finally, SMEs that wish to internationalize must pay attention to the international experience of their managers and the importance of building global networks. Hiring managers with experience in international markets can improve export performance, while the adoption of regional or global strategies can be determined by innovation and management capabilities. Born-global companies, in particular, should leverage their innovative capabilities from the outset to expand rapidly and compete internationally, suggesting that the managers of these companies must be agile and proactive in exploring new global opportunities.

### 3.3. Prospects for future research

Table 1 presents a non-exhaustive list of future research pathways using methods and exploring important topics and themes for the development of the literature.

The study has some limitations. The first is the choice to use only the Web of Science database, as, despite a high overlap with the Scopus database, it is recommended that future studies utilize research from both databases for a more robust analysis. Another limitation pertains to the method, the bibliometric analysis, as although a bibliometric review is a technique for identifying the theoretical evolution of the relationship between the themes of innovation and internationalization of companies, it does not allow for an in-depth analysis of the divergences between the studies within each cluster. This could provide new insights. Therefore, it is recommended that future studies conduct systematic literature reviews, especially in areas identified in the bibliographic pairing, as the clusters identified in this map address research trends and the frontiers of knowledge regarding the relationship between these themes.

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