

Review

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Review

Associations between Grand Challenges and Multinational Enterprises: A Bibliometric and Thematic Analysis

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Abstract: Grand challenges represent wicked problems that affect many people globally. To overcome grand challenges and sustain our existence as human beings, issues have become increasingly central, and in recent years have led to an increase in research and literature on grand challenges affecting both international business areas and multinational enterprises. The aim of this study is to assess the status of literature in all areas connected to multinational corporations and grand challenges, which are global issues with significant implications. From 2013 to 2023, the WoS database was used to investigate eight search terms from literature, and bibliometric and thematic analyses were carried out based on the principles of systematic literature analysis. The most focused areas of the research are performance, multinational enterprises, foreign direct investment, management, firms' innovation, knowledge, international business, and impact. Asian, African, European, and other countries may emerge together in different clusters depending on whether the major challenges they are struggling with are similar or identical. The terms of grand challenges and innovation (open and social), technology transfer, R&D internalization, digital transformation or technology and artificial intelligence in the literature of multinational enterprises indicates that these themes are used as a tool to solve grand challenges.

Keywords: grand challenges; multinational enterprises; international business; bibliometric; science mapping

1. Introduction

Conceptualized and functionalized with various definitions, the term Grand Challenges (GC) refers to complex, broad, and vague, i.e. definitely unknown, and necessarily unsolvable wicked problems [1]. These problems, including climate change, food security, environmental degradation, disasters, poverty and inequality, and hunger in the world [2,3] are complex problems with significant consequences, unknown solutions, and introspective and evolving technical and social interactions [4]. In recent years, research and literature on grand challenges affecting both international business and multinational enterprise has increased, as grand societal challenges represent complex, wicked problems that affect many people globally [5,6].

According to The State of the Global Grand Challenges (2019) [7], global grand challenges (GGCs) are witnessing positive developments and changes in the areas of health, environment, security, education, energy, food, well-being, water, space, disaster resilience, shelter, and governance. The global grand energy challenge is closely linked to solving other major challenges, such as the environment, health, shelter, food, water, and well-being. Environmental sustainability

covers many areas including biodiversity, oceans and water, forests, soil, natural resources, global warming, air pollution, ecosystem management, disasters, chemicals, waste and more. Access to clean water is one of the most serious problems in the developing world [8]. Climate change is also a critical threat to humanity. Industrialization is not only affecting the climate, but also causing fatal air pollution. In addition, several up-to-date technologies can help solve the global grand environmental problem. Satellites, drones, robots, and sensors are improving the collection of environmental data and are also contributing to concrete solutions that can help repair the environment. One-third of the global population suffers from obesity, diabetes, or other food-related diseases due to inadequate nutrition. Food is linked not only to our individual well-being, but also to many other global grand challenges, including health, prosperity, the environment, disaster resistance, water, energy, governance, and more. According to the United Nations Sustainable Development Goals (2015) [9] more than 844 million people currently lack access to basic drinking water. In addition, more than 4.5 billion people lack safe, managed sanitation services, including toilets, sewerage, and sewage, while 2.3 billion people do not even have access to basic sanitation. Diseases are the second leading cause of child death worldwide, which can be prevented every year with safe water and sanitation [7]. Water is not only necessary for sanitation, drinking and cooking, but for agriculture, industrial activities, recreation, entertainment, and healthy environmental ecosystems. The International Food Research Institute notes that unsustainable water use currently threatens 40% of world cereal production and a quarter of the global economy [7].

High technology is also undermining food processing and distribution. New sensors and artificial intelligence technologies are increasingly being used to segregate and monitor food for deterioration, pollution and authenticity, and technological development in this area has accelerated in recent years. This reduces food waste and food-related diseases. According to the United Nations Sustainable Development Goals, more than 400 million people do not have access to basic health services, and 1.6 billion people live in sensitive environments where health and health services are at risk [7]. Approximately 28 million people live with HIV and 15 million are waiting for treatment. Every two seconds, one person between the ages of 30 and 70 dies from a non-communicable disease such as cardiovascular disease, chronic respiratory disease, diabetes, or cancer. An increasing number of autonomous kitchens and restaurants are being completed with entrepreneurs, robotic chefs, hygiene-sensitive unemployed shops, and food distribution robots. Technological development plays a critical role in helping to solve the global challenge of shelter. At the most basic level, digitization of the architecture, construction, and real estate sectors, building design, cost and supply projections, project management, supply chain management and equipment management also enable employees and customers to visit facilities virtually, resulting in increased efficiency. Similarly, technological developments play an important role in the prevention, prediction, and response of disasters.

Prosperity has a major impact on many other grand global challenges, including access to food, water, energy, health services, learning opportunities, and more. Migration is, above all, a major social and political issue recently [10]. While migration and the digital revolution have many positive and negative aspects in efforts to make the world more open and connected, almost all the effects of climate change are negative; rising sea levels and rising temperatures are both. The most severe consequences with global impacts [10].

According to the U.S. Office of Science and Technology Policy (2015) [11], the grand challenges that have been sought to be solved worldwide in recent years have been clearly listed. These are: increasing survival rates by 50 percent in the most difficult cancers to treat, creating devices that can detect, calculate and communicate without the need for cable or maintenance, making the "Internet of Things" revolution possible by not being larger than a grain of rice, and creating faster but less power-consuming computer chips, and maximizing the information technology revolution, producing atomically sensitive materials with fifty times the strength of aluminum at half the weight and at the same cost, and reducing the cost of turning sea water into drinking water. Because water resources around the world are vulnerable to threats such as pollutants, changes in land use, changing and increasing populations, climate change, and extreme weather conditions.

Global grand challenges such as climate change, ageing populations, health consequences, the emergence of new technologies, and increasing socio-political uncertainty have brought new ideas to researchers and academics working on multinational enterprises. The literature of international business (IB) and multinational enterprises (MNE) is increasingly focusing on the relationship between corporate innovation, internationalization efforts, and grand challenges, through research based mostly on qualitative methods and case studies [12]. The International Business Survey by Buckley (2002) [13] raised concerns about the role and responsibilities of multinationals in the broader social interests. Grand challenges represent complex and wicked problems that affect many people globally. To overcome grand challenges and sustain our existence as human beings, issues have become increasingly central, and in recent years have led to an increase in research and literature on grand challenges affecting both international business areas and multinational enterprises.

This review is limited to the grand challenges and is framed within the framework of international business and multinational enterprises. To prevent the replication of straightforward, well-known solutions that might aid in the growth and concentration of these problems, new analytical and pedagogical approaches should be designed [14]. To identify gaps or themes that have not been fully investigated, an assessment of the amount of current literature and thematic classification are required. The purpose of this research is to analyze the status of the literature on major global problems and publications in all fields related to international business and multinational enterprises, which are global issues with major implications. The following research questions guided this study:

RQ1: What is the mechanism by which the body of literature focusing on grand challenges and multinational enterprises has grown? (Annual Scientific Production)

RQ2: What literary topics are the most intense? (Word cloud analysis)

RQ3: Which topics are in the formative or neonatal stages? (Thematic maps)

RQ4: Which themes are most or closely related? (Co-occurrence Analysis)

2. Literature Review

In recent years, in a world facing a climate emergency and growing inequalities highlighted by the COVID-19 pandemic, such problems can be described as social grand challenges with large-scale negative consequences [15]. Overcoming the grand challenges will become more and more centralized to sustain our existence as human beings, and it will be difficult for management scientists to build a buffer against greater participation. The COVID-19 outbreak did nothing but underline this point [8,16]. According to a UN report, the global poverty rate is estimated to be 7% by 2030. COVID-19 pandemic loses 255 million full-time jobs [17].

As noted by Brammer and his colleagues (2019) [18], the lack of consistently applied conceptualizations of grand challenges is problematic, and acknowledging the heterogeneity of how grand challenges arise and how they arise in different contexts is an important first step towards starting to address them. The COVID-19 pandemic is shaking global economies and communities at a time when debates are gaining momentum about multinational corporations and their contribution to solving grand challenges [5,19].

Successful research and dissemination of policies and practices relating to grand challenges necessarily requires a significant level of international co-operation and coordination. Therefore, the biggest challenges in promoting research on GGCs relate to the establishment and sustainability of international research and innovation co-operations [20]. The grand challenges can be described as a multinational phenomenon [5]. Therefore, international business research is built on the theories of multinational enterprises and focuses on global access to their existing resources and capabilities that can be used to overcome grand challenges [6]. While addressing global grand challenges, such as differences in culture, language, resources and values, the interlocutor suggests that international may be fit to contribute [5]. The capacity of multinational enterprises and their contribution to national development have contributed significantly to the discovery of what sustainable activities can be undertaken. Such contributions are demanded through the transfer of advanced technology,

innovation and knowledge assets and their use to help implement sustainable practices and corporate social responsibility (CSR) [21].

Despite the increasing academic interest in the bibliometric method, the first study to invent the accumulation, the study of 115 qualitative methods has provided a theoretical contribution to our understanding of what is driving grand challenges from both an entrepreneurial and international business perspective, the activities undertaken to this, and to some extent the results that arise [6]. Recent statements on multinational enterprises have adopted a quantitative perspective [22,23]. International business researchers are strongly positioned in providing information on grand challenges, especially as they deal with cross-border interaction between organizations and individuals in the context of a global business system. Such grand challenges include anti-globalization sensitivity and its impact on the strategy, location, and operations of multinationals, as well as issues that are traditionally considered part of the international business sphere, and climate change, poverty, migration, terrorism, and infectious diseases [5].

The rise of multinational enterprises has attracted interest among international business academics [24–26]. The environmental capabilities and concerns of MNEs help determine location choices: MNEs with more environmental capacity are more likely to deploy their operations in areas where they have stricter environmental regulations, while MNEs with greater environmental concerns prefer to choose in this way: Direct foreign investment targets are referred to as “fertility havens”. The grand challenges are naturally phenomena-based [27]. Beyond the important question of how MNEs are affected by the grand challenges of society, a more fundamental line of research is whether MNEs are part of the solution or the problem [28].

3. Materials and Methods

This study is a comprehensive integrative review of the grand challenge and multinational enterprises literature to shed light on an emerging topics and themes in this field. A thematic and bibliometric analysis considers a topic from the perspective of multiple research designs and methodologies to provide a more complete picture of the phenomenon being evaluated. A systematic literature review made with bibliometric and thematic analysis is done by integrating and blending the findings and results with the existing literature and should explain how the search and selection criteria to be used in the selection phase were selected.

Bibliometrix is a package for bibliometric analysis written in R programming language. R is an ecosystem software meaning it operates in an integrated environment consist of open-libraries, the open-algorithm and open-graphical software. To explore the bibliometrix package, we studied the longitudinal development of graphene between 2013 and August 31, 2023, using data acquired from WoS database. After the preliminary literature review and determining research questions, objectives, and research methods, the Web of Science (WOS) was preferred as the databases on which the bibliometric analysis will be conducted, considering the criteria of academic recognition and prestige. Web of Science (WoS) is the world’s oldest, most widely used, and authoritative database of research publications and citations [29]. Then, the articles’ metadata was transferred to the R program, and the Bibliometric package was used for analysis and visualization. R, one of the programs used for bibliometric analysis, is highly preferred due to its open-source code, many additional packages, and visualization support [30].

Scientific mapping is carried out to determine the knowledge base and intellectual structure of a subject or field of research using bibliometric analysis, to study the research background (or conceptual structure) of a topic or area of research, and to create a map of a network structure for a particular scientific community [30]. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA) [31] was used to structure the review. A standard bibliometric workflow consists of study design, data collection, data analysis, data visualization and interpretation [32]. While performing an integrative review, the PRISMA flow diagram helps to demonstrate the various search efforts that are carried out throughout the review’s lifetime and the choices made during the inclusion and exclusion of the articles to be selected for the

review [33]. We anticipate that the PRISMA notification will benefit the authors, editors, and referees of systematic reviews, and different review users, including guidelines developers, policymakers, etc.

3.1. Themes in the Literature

Bibliometric analysis can find authors and publications with most impact at a certain field, thematic fields based on Keyword Plus Analysis and classification of these in more specific thematic groups require additional analysis. As a result of the research, it was decided which keywords the authors will use. Keywords attained by literature-focused authors and appointed words were defined for finding the publications. Table 1 depicts each research inquiry and sources in literature related themes and keywords in the international business, multinational enterprises, and grand challenges literature. This is based on studies used and analyzed for multinational enterprises and grand challenges datasets.

Table 1. Themes and Related Keywords in the literature.

Themes	Related Keywords	Sample References
Grand Challenges/Global Grand Challenges	Sustainability Corporate responsibility	social Omenn, G.S. (2006); Tarnovskaya et al., (2022); Wadhwa, (2022). Brammer et al., (2019); Eisenhardt, et al., (2016); Ferraro, et al., (2015); Jamali, et al., (2021); Pisani, et al., (2017); Thomsen, (2015).
International Business Multinational Enterprises	Internationalization	Bondy and Starkey, (2014); Van Tulder et al., (2021); Montiel, et al., (2022); Sinkovics, et al. (2022); Luo & Zhang, (2016); Verbeke & Kano, (2015); Sinkovics & Archie-acheampong, (2020).
Grand challenge and Multinational enterprises	Social innovation	Fernhaber & Zou (2022); Peerally, et al., (2022); Ordonez-Ponce, & Talbot, (2023); Li et al., (2018); Park, (2018); Buckley, et al., (2017); Buckley, (2017); Doh, et., (2021); Zhao, et al., (2021); Preuss, et al., (2016); Surroca, et al., (2013); Verbeke, (2021).

Source: own elaboration.

Bibliometric research which is a theme-based examination type emphasizes on data and tendencies [34] in the field and offers an advantageous technique by evaluating and analyzing academic research outputs [35]. With literature review depicted in Tablo 1 a range of studies are summarized where conclusions can be drawn and analyzed as a whole and research themes providing access to publications which can respond to research questions. Related keywords being used have also been compiled. Three selection filtering were used for the purpose of choosing publications and obtaining samples related to specified area. Excluding repetitive publications is important for the prevention of same data repetitions and thus all repetitive documents are excluded. All publication titles were scanned one by one, and publications not related to subject and research themes are excluded. All summaries and keywords are scanned as a last selection filter and items not related to the theme are excluded. Research model and process of the work is depicted in Figure 1.

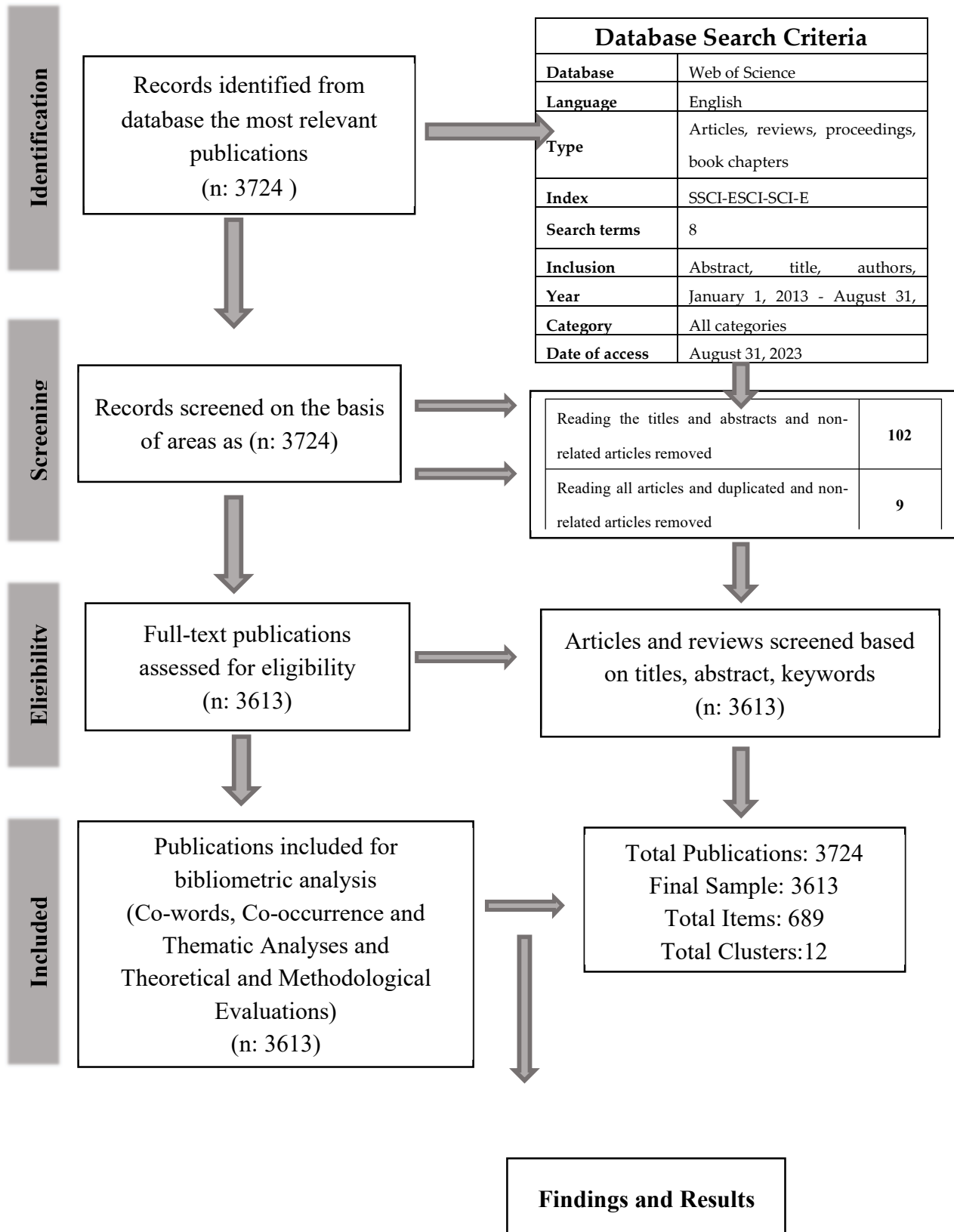


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram.

Figure 1 illustrates the PRISMA flow scheme. PRISMA is the minimum evidence-based set of elements for reporting in systematic reviews and meta-analyses. PRISMA focuses on reporting

reviews that evaluate randomized studies but can also be used as a basis for reporting systematic reviews of other types of research, particularly the evaluation of interventions.

4. Data Analysis and Findings

The study began with the definition of research terms and the analysis of their status in literature. Research terms are synonymous and closely related to the theme of grand challenges and multinational enterprises. All data information obtained from the database using research terms is presented in Table 1.

Table 1. Main information.

Description	Results
ABOUT DATA	
Timespan	2013:2023
Sources (Journals, Books, etc)	3724
Documents	7000
Annual Growth Rate %	2,23
Document Average Age	4,62
Average citations per doc	14,85
References	184097
DOCUMENT CONTENTS	
Keywords Plus (ID)	5508
Author's Keywords (DE)	10860
AUTHORS	
Authors	9581
Authors of single-authored docs	1096
AUTHORS COLLABORATION	
Single-authored docs	1290
Co-Authors per Doc	2,68
International co-authorships %	37,3
DOCUMENT TYPES	
Article	3181
Book chapter	317
Review	208
Proceedings	18

According to table 1, the basic information in the research data consists of the annual growth rate in the area over the past decade and in detail from the publications. The annual production rate of documents has increased by 2.23%. In our analysis as the authors of the papers, most of the research has been carried out by more than one author. Total authors per document is 2.68 and the

international co-authorship rate is 37.3%. The most article is (3181) when it comes to document types. The growth rate per year in the area is shown in Figure 2.

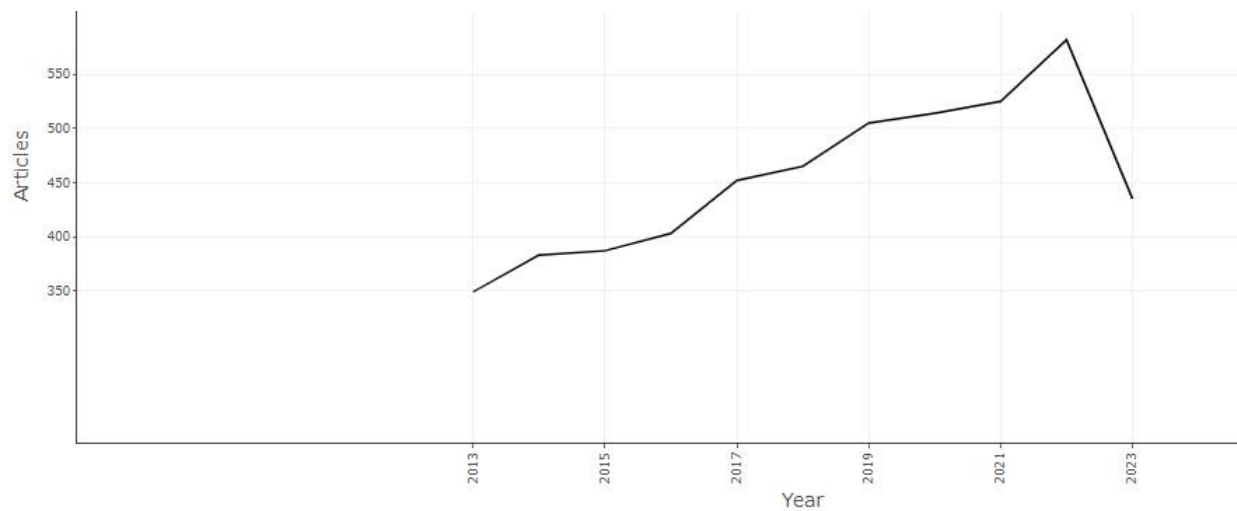


Figure 2. Annual Scientific Production.

Figure 2 illustrates a steady increase in the number of publications over the years. In 2023, 440 publications were produced in eight months and are expected to decline again. This is due to the inclusion of publications in the first eight months of the study. There were 600 publications, reaching a peak in 2022.

Figure 3 illustrates the most published journals. The most widely published journal is the journal of international business studies. It is ranked second in the international business review and third in the journal of world business. The aim of our research was to conduct a systematic literature analysis of publications based on the relationship between multinational enterprises and grand challenges, so it is not surprising that the most publications are published in journals in the field of business and management. Publications on this subject are published under the sustainability magazine, which has the feature of being a multidisciplinary magazine with the most publications.

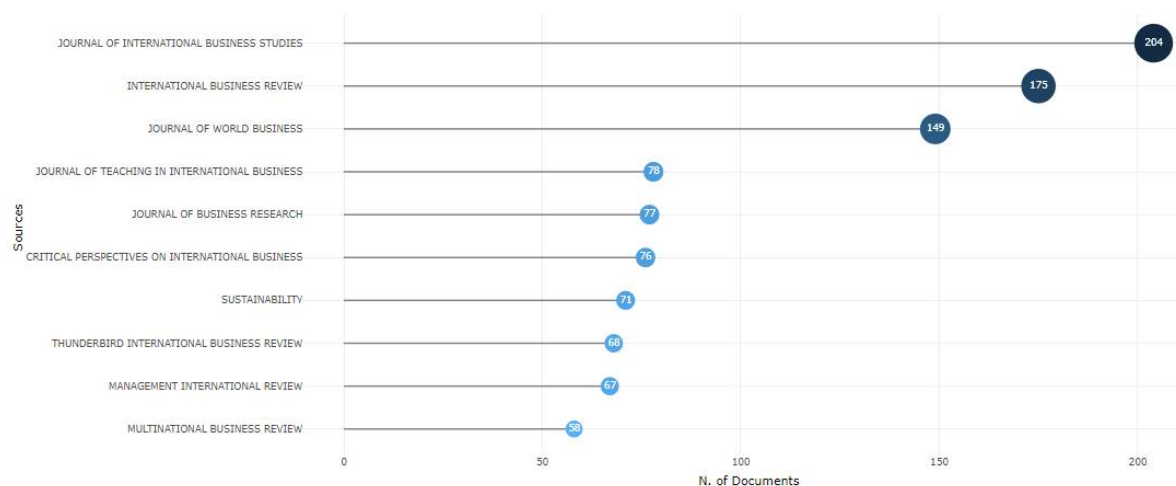


Figure 3. Most Relevant Sources.

4.1. Word Cloud Analysis

According to R's word cloud analysis of the Bibliometrix package, Figure 4 shows word cloud visually.



Figure 4. WordCloud.

According to Figure 4, the purpose of using a word cloud for research terms is to study the most used terms, which means that most of the analysis is carried out in these areas. A word cloud, also known as the Tag Cloud, converts text data into typically single-word identifiers visualized according to the relative value of the color in the cloud [36]. The size and place of every word is very important. The larger the word means that most of the work is concentrated in these areas. The most concentrated areas of our work are performance, multinational enterprises, foreign direct investment, management, firms' innovation, knowledge, international business, and impact. Words written in smaller letters indicate potential directions of work [37]. The smaller terms are dynamic capabilities, subsidiaries, sustainability, entrepreneurship, productivity, corporate social responsibility, globalization, and institutions. Word cloud cannot just describe the highest frequency, in other words, it can explain the relationship. Word clouds are used to locate the center of the written text [38].

4.2. Co-occurrences of Research Terms

According to Figure 5, co-occurrence analysis, which is an analysis of the synthesis of keywords, was carried out to better understand and understand the data. Co-occurrence analysis is a bibliometric method used to map the field of research.

Cluster 11	Social Innovation, Social Problem, Social Work.
Cluster 12	Environmental Regulation, Natural Environment

Table 2 depicts the terms of the twelve clusters based on the co-occurrence analysis. The ordered list of sets with the most terms. The most common terms are grand challenge, sustainability, host country, and sustainable development. Most of the co-occurrence terms of both the grand challenge and multinational enterprises relate to environmental issues. It is evident that concepts that are strongly associated with international business have given rise to a variety of country name formulations. The fact that countries in Asia and Africa belong to the same cluster raises the possibility that the most challenging aspects of country-to-country collaboration are related to the similarities and closeness of the countries involved in multinational cooperation. European nations make up the third cluster of nations. There seems to be a relationship between the terms that co-occur in each cluster.

Researchers and practitioners in both developed and developing countries are more aware of normative and instrumental reasons for to conduct socially responsible activities and contribute in positive ways to the environment and societies in which they operate [39]. Non-Western situations provide additional layer of complication since theorization and empirical evidence now in use are primarily focused on developed country contexts [40]. Current research suggests that distinct institutional rules, socioeconomic circumstances, actor configurations, and challenge patterns have been brought about by the circumstances of rising nations [41,42]. Consequently, studying distinct institutional sub-environments and a range of social actors that may have implications on the larger issues raised by these contexts is made easier in non-Western contexts [16].

The significance of environmental sustainability and green chemistry concepts, energy security, global infectious disease control, and the multidisciplinary research and development challenges exemplified by global initiatives to reduce extreme poverty and hunger were some of the co-occurring themes pointed out [43]. To reduce disease and boost yields, chemical inputs are essential to modern agriculture. Moreover, the most poisonous and polluting products are pesticides and fertilizers. Their purpose is to eliminate and contaminate fungus, germs, and insects [8]. The effects of pollution, resource constraints, climate change, war and other socio-ecological challenges are no longer problems that can be mainly observed in geographically remote and economically backward countries [44].

4.3. Research Themes Analysis

In Figure 6, the thematic map of the vertical (degree of development/intensity) and horizontal (grade of importance/centricity) axes is shown as bubbles in a four-quarter chart [45]. The word formations of the cluster determine the size of the balloon. The X-axis shows the network cluster centralization or the degree of interaction with other graphical clusters and measures the importance of a work theme. The Y axis represents the density, a measure of the internal strength and theme growth of a cluster network [35,46,47]. Themes can be classified into four groups according to concentration and intensity [35]. Motor themes (first quarter, top right): well-developed and important research area themes to configure a research area, Niche themes: themes of very special and limited interest, emerging or decreasing themes, (third quarter and bottom left): themes with low centralization and low intensity, representing themes that are at least developed and marginal. Core themes (fourth quarter, bottom right): high-centricity and low-intensity themes that are important but not yet fully developed in research [30,35]. These topics are vital for interdisciplinary research topics.

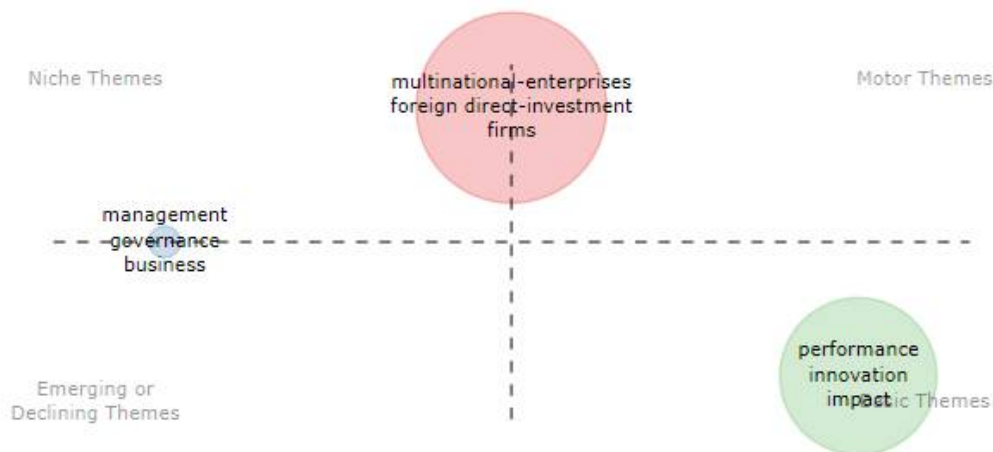


Figure 6. Visualization of thematic mapping.

According to Figure 6, both motor and niche themes include multinational-enterprises, foreign direct investments, and firms. The fact that a single cluster is in both areas indicates that these terms both indicate a well-developed area and that there are new and special areas that will attract attention. Moreover, there are basic themes in the most scholarly production of metaphor research. Basic themes include performance, innovation, and impact. Niche themes are represented in a cluster includes themes such as corporate social responsibility, entrepreneurship, and internationalization. In both emerging or declining and niche themes contains themes such as management, governance, and business.

5. Discussion and Conclusion

Grand challenges are a concept that can help accelerate progress, for not only the science and engineering community, but also for students, journalists, the public and their elected representatives, to develop an understanding of possibilities, appreciate risks, and make an urgent commitment [43]. It can be said that in the clustering of co-occurrence terms, what matters is the place each term deserves. The analyses in the study play a complementary role. The research questions that trigger our research are the core issues that affect most countries closely today. Answering our research questions is the purpose of this research. That is why our systematic analysis of literature, using the scientific method, aims to identify the most concentrated terms in literature so far, co-occurrence terms, common interests revealed by research, and interests that have not yet been sufficiently developed. In the most intensive terms, the emergence of expressions such as entrepreneurship, corporate social responsibility, performance, knowledge, and management indicated that grand challenges and intensive interest in the field of multinational enterprises deserve a place in research. In the analysis of co-occurrence, a very wide range of terms appears. The terms in which each co-occurrence cluster is connected appear to be terms that are closely related to each other. It can be said that countries in proximity, especially in terms of countries, have a common literature on major problems. Asia, Africa, Europe, and other countries may emerge together in different clusters depending on whether the major challenges they are struggling with are similar or identical.

In terms of collaboration, technology-oriented digital solutions appear to stand out in work on grand challenges. The combination of the terms of grand challenges and innovation (open and social), technology transfer, R&D internatization, digital transformation or technology and artificial intelligence in the literature of multinational enterprises shows that these themes are used as a way and a tool to solve grand challenges. Technology transfer is defined as a process aimed at distributing

technologies from source to other people, organizations, and locations [48]. From this perspective, technology transfer is a milestone in the development of a somewhat technologically capable social entrepreneur who can leverage technological innovations to solve social problems, thereby contributing to redirecting innovation systems and ecosystems towards socio-technical problems. Technology transfer can stimulate innovation, competitiveness and growth in various sectors and regions. It can also bring together the expertise and resources of different actors, helping to address global challenges such as climate change, health, and security. Technology transfer can also create value for both academia and industry, creating new products, services, patents, revenue, and collaborations. Despite the relevance of the topic, the limited literature on the subject is mostly narrow and anecdotal [49,50]. Major challenges, identified as transcending national borders but potentially solvable through science, technology, and innovation, are gaining increasing interest [5].

The solutions include forms of co-operation between governments, private firms, and public and third-sector organizations [5]. The relationship between grand challenges and innovation arises in one of two ways that are not necessarily mutually exclusive: external challenges that can inspire innovations that are capable of coping with them, and innovations which can lead to unpredictable consequences that result in new challenges. Innovation policies for grand challenges are directly linked to wider socio-technical transitions. They call for a rethinking of the fundamental theoretical structures of innovation systems and ecosystems developed in the field of innovation management and economics towards a greater link between the social and technological components of innovation processes and the technological development. International business (IB) literature is increasingly focusing on the relationship between firm innovation, internationalization efforts and grand challenges, through research based mostly on qualitative methods and case studies [51].

More attention needs to be paid to unrecognised terms that have emerged from the thematic map, and more attention should be given to them in the future. The terms corporate social responsibility, entrepreneurship and internationalization refer to the gaps in literature as relative terms. It is important to understand the knowledge accumulated under the ceiling of specific concepts such as corporate social responsibility, non-market strategies or sustainable development. The international business research on corporate social responsibility (CSR) and sustainability has adopted a strictly strategic focus and provides insights and findings showing how firms can overcome or reduce risks or wider responsibilities through CSR and investment in sustainability.

When we consider the developing country context, we also see a wide range of outcomes, from the entirely positive and development-oriented consequences of CSR to the detrimental consequences that CSR has in developing countries, such as diluted or controversial responsibility for development and addressing grand challenges. Therefore, there is a real need to focus on conceptualizing grand challenges in developing country contexts. Academics need to identify the major challenges that are common in developing countries and seek to gain a better understanding of the specific groups of actors involved in solving these challenges, as well as the various mechanisms, activities, and processes that they trigger, potentially leading to different models. The importance of institutional involvement and innovation in the face of the grand challenges of heterogeneous environments has increased interest in the fields of CSR study, business research and application, which is the responsibility of companies to go beyond legal requirements to meet the needs of different stakeholders [52–54]. The increasing pressure of stakeholders has focused on CSR in their own countries by transferring socially irresponsible practices to foreign counterparts. There is an interesting shift in the interaction between the homeland and host country pressures on MNE's CSR actions [55].

As a result, this study offers a comprehensive evaluation of the literature of multinational enterprises and grand challenge. From 2013 to 2023, the WoS database was used to investigate eight search terms from literature, and bibliometric and thematic analyses were carried out based on the principles of systematic literature analysis. Over the past decade, an intense effort has been made around the world to understand, combat, and prevent wicked problems. Trade unions and partnerships are business models that make business relationships and the nature of business compulsory throughout the world. It is necessary to have great power to solve grand challenge and

wicked problem, and it is impossible for a single country to cope with these problems alone. Grand challenges can be solved more easily with multi-national business structures, and more effective results can be achieved. The goal is to get the world out of the wicked problems. This research revealed the state of the literature in this field, and we saw that it was a growing literature. This research indicated that technology, innovations, and corporate social responsibility" need to be studied more actively to solve grand challenges, and that the field will develop depending on the performance of entrepreneurs who are aiming for internationalization.

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Conflicts of Interest: The authors declare no conflict of interest.

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