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A Bibliometric Mapping of Innovative Entrepreneurship

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Abstract

The new global economy requires innovative businesses that can respond to all major challenges around the world. Innovative Entrepreneurship is an active field of research since innovation is nowadays crucial for the development of any business in the world. Policymakers are also focusing their attention on innovation in business because Innovative Entrepreneurship contributes to economic growth and job creation. To create an environment that supports Innovative Entrepreneurship it is appropriate to provide access to knowledge, labour, finance, and specific policies and regulations. Innovative Entrepreneurship has a new role in the economic development of any country that is interested in creating a competitive business environment. This paper aims to identify the most relevant research concerning Innovative Entrepreneurship and realize a bibliometric mapping of the information gathered during the investigation. To perform the bibliometric analysis was used a Scopus database which included articles related to Innovative Entrepreneurship. The processing of data has been carried out using VOSviewer, an effective tool for the visualization of bibliometric networks. The bibliometric mapping included multiple analysis such as co-authorship, citation, and co-occurrence. The results of this research can be a basis for present and future researchers who are operating in the field of entrepreneurship and who intend to investigate more thoroughly the importance of innovation for business development. Another important issue to be investigated is the development of innovative business models that can strengthen the business environment.

Keywords: *Bibliometric mapping, innovative entrepreneurship, co-authorship analysis, citation analysis, co-occurrence analysis.*

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1. Introduction

In the present time, the social and economic challenges that occur at the global level cause businesses to rethink their activities and introduce innovation in actual and future strategies. Furthermore, worldwide businesses have to enter on a new edge of development, an innovative one, to achieve a competitive advantage in the market (OECD, 2019).

Innovative Entrepreneurship is considered a factor that contributes to the economic development of a country, creating new businesses, new jobs, and social prosperity (Innovation Policy Platform, 2021). Moreover, Innovative Entrepreneurship represents more than new products, new services or methods, it designates a new model of business that inspires and changes the traditional way of doing business.

For instance, one action of EIT (European Institute of Innovation & Technology) consists in creating an innovation community where more stakeholders try to contribute to the socio-economic development of nations (European Institute of Innovation & Technology, 2021). Many businesses nowadays engage in this type of action and this circumstance highlights the significance of innovative entrepreneurship for future sustainable development.

The paper aims to identify the most relevant research concerning Innovative Entrepreneurship and to realize a bibliometric mapping of the information gathered during the investigation. This paper provides a bibliometric mapping that includes multiple analyses, such as co-authorship, citation, and co-occurrence.

After the introduction, the following sections will include a presentation of the research methods and data and the presentation of the results. The final part of the article will underline the main conclusions of the research results.

2. Research methods

The research methodology included a bibliometric analysis of the literature in the field of Innovative Entrepreneurship. The literature database used for the bibliometric mapping was downloaded from Scopus. Scopus is a bibliographic and bibliometric database that provides a large variety of scientific papers in various areas of research. Many researchers and academics are using Scopus data for their research papers and projects

because the quality and coverage of the literature are superior (Elsevier, 2021).

The Scopus database provided papers following "citation information, bibliographical information, abstract, keywords, funding details", and other information (Scopus database, 2021). The topic used for document search is Innovative Entrepreneurship. The results that met the selection criteria included a database of 329 documents related to Innovative Entrepreneurship, for the period 1980-present. In terms of the document type, have been selected all types of documents (article, conference paper, book chapter, review, conference review, book, editorial, erratum, retracted).

The achievement of the bibliometric mapping has been made using VOSviewer, an effective tool for the visualization of bibliometric networks that can display large bibliometric maps (Van Eck & Waltman, 2009). The bibliometric mapping included multiple analysis such as co-authorship, citation, co-occurrence, and co-citation.

3. Results

This section will present the status of the papers written in the field of Innovative Entrepreneurship for the period 1980-present and the results of the bibliometric analysis regarding co-authorship, citation, co-occurrence, co-citation.

The first publication related to Innovative Entrepreneurship was printed in 1980 and over the next 41 years, the results highlight a small volume of publications. This fact is illustrated in Figure 1 with the annual trend of publications related to Innovative Entrepreneurship for the period 1980-present. Since the number of Innovative Entrepreneurship-related publications over this period was quite low, it can be stated that this field of study is at the beginning of the research process. The relationship between innovation and entrepreneurship has begun to be investigated since innovation has been proven to be critical for technological advancement and business growth. The number of scholars who have researched Innovative Entrepreneurship started to increase after 2010. Since the role of entrepreneurship for economic growth has turned out to be crucial for every economy of the world, many scholars who have researched the field of entrepreneurship started to make correlations between innovation and entrepreneurship.

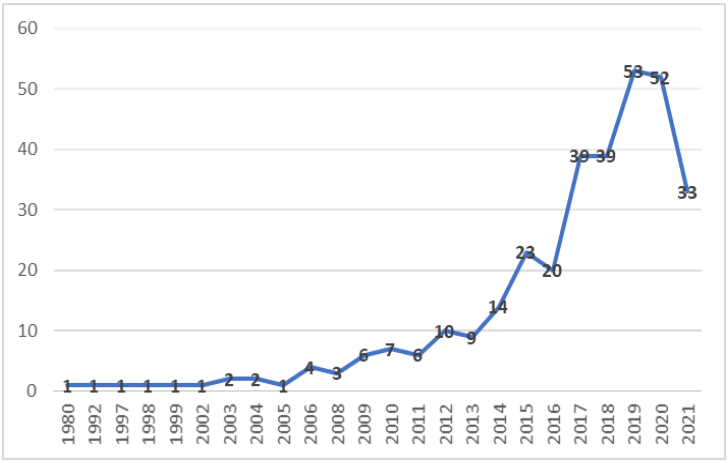


Figure 1. The annual trends of publications related to Innovative Entrepreneurship, 1980-2021
Source: author's representation after Scopus database

Figure 2 points out that the "Plekhanov Russian University of Economics" and "Financial University under the Government of the Russian Federation" are the top 2 institutes with Innovative Entrepreneurship publications. As regards the country of origin of each institute, the highest number of publications was recorded in Asia (Russian Federation, five institutes; Kazakhstan, two institutes), followed by Europe (the Netherlands, three institutes; Sweden and Spain, one institute for each country), North America (the United States of America, one institute), and South America (Argentina, one institute).

This situation concludes that the "innovative entrepreneurship" concept has been investigated to a greater extent by Russian and European institutes. Although the Russian institutes are not very known worldwide, the Russian scholars are notorious for their excellence in research and technology. However, many of their publications are only theoretical since the Russian Federation devotes a small percentage of its GDP to R&D activities. (World Bank, 2018) On the other side, in Europe, innovation is a factor included in various European policies since the innovation performance of the European businesses is crucial for a global competitive Europe. (European Commission, 2021).

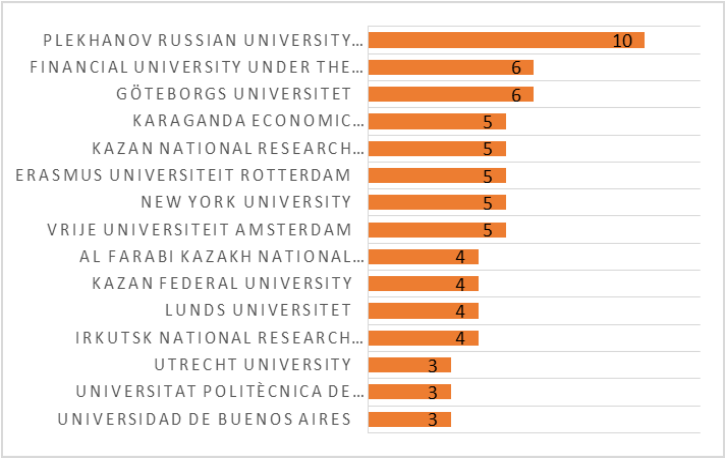


Figure 2. The top 15 institutes with publications related to Innovative Entrepreneurship, 1980-2021
Source: author's representation after Scopus database

The Russian Federation reported the highest number of publications related to "innovative entrepreneurship" (78 publications). The dominance of the Russian publications is noticeable once again. The top continues with China (35 publications), United States (33 publications), Spain (24 publications), Netherlands (18 publications), and Sweden (15 publications). These countries also marked a high number of publications related to Innovative Entrepreneurship. However, a specific question arises from this situation: Why some Asian countries are far above European or American countries in terms of Innovative Entrepreneurship publications?

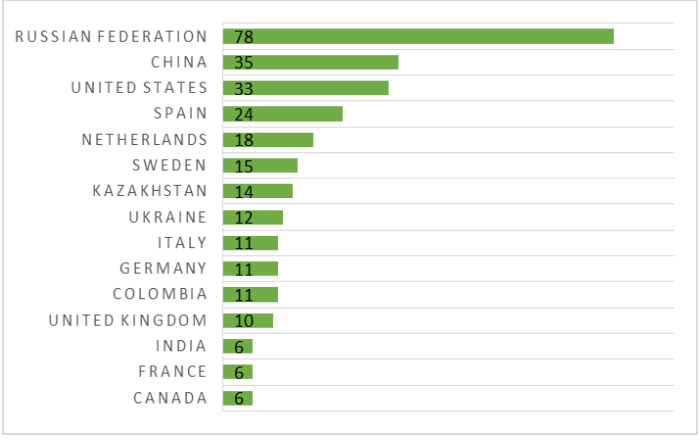


Figure 3. The top 15 countries with publications related to Innovative Entrepreneurship, 1980-2021
Source: author's representation after Scopus database

To perform the top 10 journals with publications related to Innovative Entrepreneurship have been selected only the papers published in journals, excepting book series and conference proceedings. The journal that published more than ten publications is the Academy of Entrepreneurship Journal (15 publications). The rest of the journals published less than eight articles related to Innovative Entrepreneurship. The majority of the journals include entrepreneurship research, European studies research and regional studies.

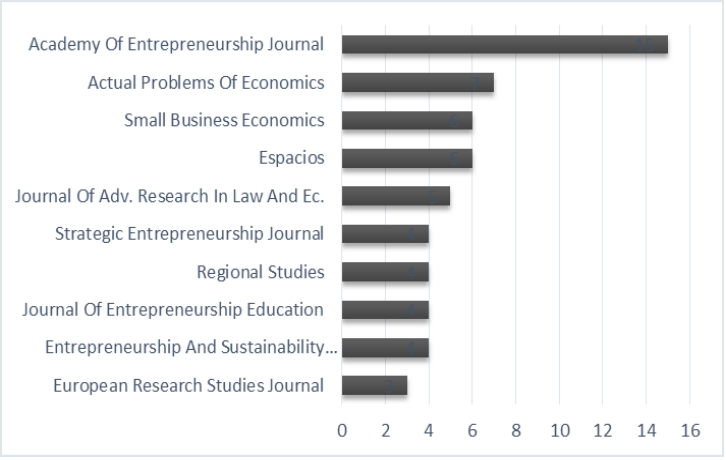


Figure 4. The top 10 journals with publications related to Innovative Entrepreneurship, 1980-2021
Source**:** author's representation after Scopus database

In the period 1980-2021, the most cited publications related to Innovative Entrepreneurship, regardless of the document type, belong to Baumol, W. J. (2010), Block, J.H. (2017), Cliff, J.E. (2006), and Mayhew, M. J. (2012). Citation is an essential aspect of the research since it shows how qualitative the publications are. Baumol (2010) wrote in his book about the micro theory of innovative entrepreneurship, Block (2017) wrote about the Schumpeterian entrepreneur, Cliff (2006) wrote about innovative firms, and Mayhew (2012) examined the relationship between Innovative Entrepreneurship and higher education.

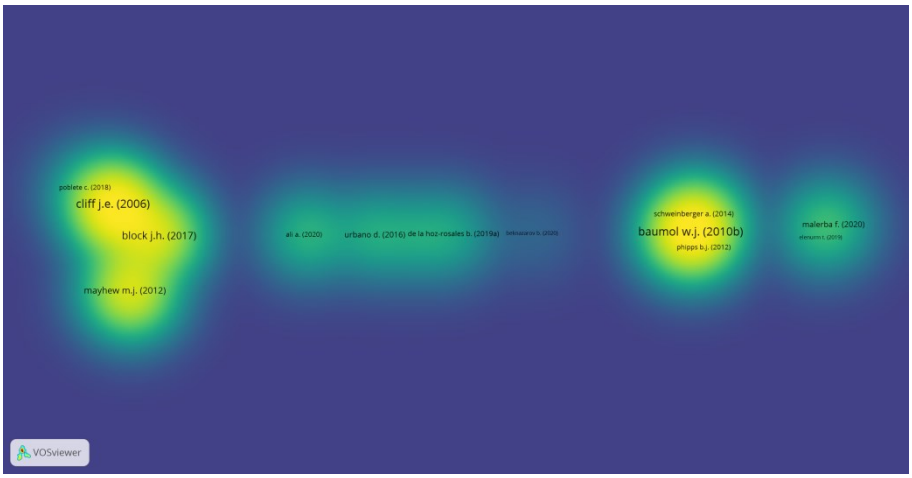


Figure 5. Citation density visualization map of publications related to Innovative Entrepreneurship
Source: author's representation after Scopus database

Table 1 presents the top 10 journals with the most citations. From this point of view, the article published by Nijkamp in 2003 in Regional Studies recorded the highest number of citations. The top continues with the Journal of Business Venturing (122 citations), Review of Managerial Science (114 citations), Industry and Innovation (82 citations), Education + Training (81 citations). All the journals presented in the table are related to business studies, industry, innovation, and entrepreneurship.

Table 1. The top 10 journals with the most citations

Journal	Title of the article (year of publication)	Authors	Number of citations
Regional Studies	"Entrepreneurship in a Modern network economy" (2003)	*Nijkamp, P.*	200
Journal of Business Venturing	"New to the game and questioning the rules: The experiences and beliefs of founders who start imitative versus innovative firms" (2006)	*Cliff, J.E., Jennings, P.D., Greenwood,* R.	122
Review of Managerial Science	"Entrepreneurship research: mapping intellectual structures and research trends" (2019)	*Ferreira, J.J.M., Fernandes, C.I., Kraus, S.*	114

Industry and Innovation	"The Schumpeterian entrepreneur: a review of the empirical evidence on the antecedents, behaviour and consequences of innovative entrepreneurship" (2017)	*Block, J.H., Fisch, C.O., van Praag, M.*	83
Education + Training	"Embedding new entrepreneurship programmes in UK higher education institutions: Challenges and considerations" (2006)	*Smith, A.J., Collins, L.A., Hannon, P.D.*	81
European Planning Studies	"Marketing and innovation: Useful tools for competitiveness in rural and peripheral areas" (2006)	*Dinis, A.*	54
International Journal of Knowledge-Based Development	"The innovation ecosystem as booster for the innovative entrepreneurship in the smart specialisation strategy" (2014)	*Romano, A., Passiante, G., Vecchio, P.D., Secundo, G.*	51
Research in Higher Education	"Exploring Innovative Entrepreneurship and Its Ties to Higher Educational Experiences" (2012)	*Mayhew, M.J., Simonoff, J.S., Baumol, W.J., Wiesenfeld, B.M., Klein, M.W.*	51
Journal of Entrepreneurship Education	"Innovative entrepreneurship models in the management system of enterprise competitiveness" (2019)	*Drobyazko, S., Barwińska-Małajowicz, A., Ślusarczyk, B., Zavidna, L., Danylovych-Kropyvnytska, M.*	46
Journal of Business Research	"Use of infrastructures to support innovative entrepreneurship and business growth" (2015)	*Roig-Tierno, N., Alcázar, J., Ribeiro-Navarrete, S.*	44

The keywords co-occurrence network map of publications related to Innovative Entrepreneurship is illustrated in Figure 6. This network map was performed in VOSviewer and provides visibility about the discipline fields. The nodes that are bigger than the other ones reflect the weight between the nodes. In Figure 6, the biggest nodes and words, shown in red, are entrepreneurship, innovative entrepreneurship and innovation. With green colour, the biggest nodes and words are entrepreneurship education,

education computing, and students. Therefore, between these nodes is recorded a strong weight. Furthermore, a closer distance between the nodes highlights a closer relationship between the words. The closest relationship is between entrepreneurship, innovative entrepreneurship and innovation.

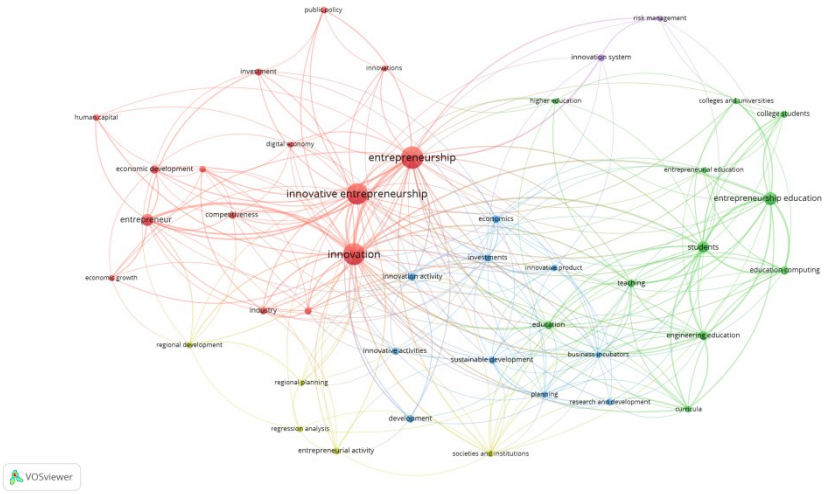


Figure 6. Keywords co-occurrence network map of publications related to Innovative Entrepreneurship
Source: author's representation after Scopus database

The following ten keywords of the publications related to Innovative Entrepreneurship were the most used: entrepreneurship, innovation, innovative entrepreneurship, entrepreneurship education, entrepreneur, students, engineering education, economic development, education computing, and education. The occurrence of these keywords underlines that innovative entrepreneurship is investigated in correlation with other factors such as entrepreneurship education, economic development, general education, and engineering education.

Table 2. The top 10 keywords of the publications related to Innovative Entrepreneurship

Keywords	*Occurrence*
entrepreneurship	66
innovation	65
innovative entrepreneurship	59
entrepreneurship education	23
entrepreneur	19

students	18
engineering education	11
economic development	10
education computing	10
education	10

Source: author's representation after Scopus database

Co-authorship analyses are significant because they emphasize the strength of the collaboration between two or more countries that write papers related to Innovative Entrepreneurship. Figure 7 illustrates the country co-authorship network map of publications connected to Innovative Entrepreneurship. From first sight, the diversity of the colours underlines multiple and various research ideas. Moreover, the biggest the nodes are, the most influential the countries are. In the present case, the Russian Federation, the United States and Spain are the most influential countries concerning Innovative Entrepreneurship-related publications.

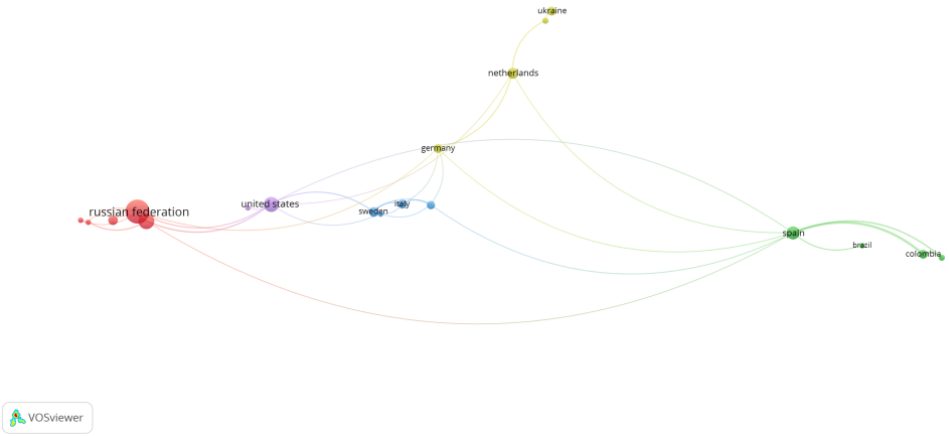


Figure 7. The country co-authorship network map of publications related to Innovative Entrepreneurship
Source: author's representation after Scopus database

4. Conclusions

The concept of innovative entrepreneurship begins to be more and more studied by scholars since innovation is nowadays crucial for the economic growth of numerous companies. After 2010, more scholars began to study more the concept of Innovative Entrepreneurship.

The analyses underlined that institutes from Asia (Russian Federation, five institutes; Kazakhstan, two institutes), followed by Europe (the Netherlands, three institutes; Sweden and Spain, one institute for each country), North America (the United States of America, one institute), and South America (Argentina, one institute) published the highest number of papers related to Innovative Entrepreneurship.

Moreover, the scholars have studied the concept of Innovative Entrepreneurship in correlation with issues such as entrepreneurship education, innovation, educational computing. The Russian Federation is the most influential country when it comes to Innovative Entrepreneurship-related publications.

To conclude, this research concerning Innovative Entrepreneurship publications can be a basis for present and future scholars and researchers who are operating in the field of entrepreneurship and who intend to investigate more thoroughly the importance of innovation for business development. Another important issue to be investigated by scholars is the development of innovative business models that can strengthen the business environment.

Acknowledgement

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