A BIBLIOMETRIC ANALYSIS REGARDING GEM REPORTS DATA ON ENTREPRENEURSHIP

Geanina BRÎNZĂ
Ştefan cel Mare University of Suceava, 720229, Romania
Alexandru Ioan Cuza University of Iasi, 700506, Romania
brinza.geanina@gmail.com

Abstract
Entrepreneurship can contribute to the well-being of the society by creating innovative products and services that can meet the needs of customers and improve their quality of life. Entrepreneurs can also support local communities by engaging in social development projects and creating jobs, which help raise the standards of living. The Global Entrepreneurship Monitor report annually tracks the evolution of international entrepreneurship.
The paper aims to identify various components related to entrepreneurship in order to outline an overview of the publications that integrate global entrepreneurship monitor data. The bibliometric analysis was performed using VOS*viewer software based on 1.063 articles extracted from the Web of Science database. The results of the paper highlight the exploration of the constituent aspects of entrepreneurial research, identifying the analyses that were based on the Global Entrepreneurship Monitor reports from 2004 to 2023.*

Key words: *bibliometric analysis, entrepreneur, entrepreneurship, Global Entrepreneurship Monitor.*

JEL Classification: *L26, C38*

I. INTRODUCTION

Coteanu and Mareș (2009) claim that the entrepreneur relies on the fact that he leads an entrepreneurial activity. Entrepreneurship represents a complex phenomenon involving a variety of activities, human, technical, managerial and entrepreneurial characteristics, which require a set of skills. Within the entrepreneurial practice framework, individuals play various roles, especially that of managers (Filion, 2021).

According to GEM (2022), entrepreneurship refers to any effort to start a new business or expand an existing one, regardless of the type of entity involved (individual, team or existing business).

According to the Cluj Chamber of Commerce and Industry (2018) and Ajzen (2005), the entrepreneur is described as a positive person, desirous of independence and self-overcoming, optimistic, self-disciplined, healthy and full of energy, involved, determined, constant, easily adaptable, realistic, creative, original, good organizer, ingenious, sociable, leader, future-oriented and performance oriented. Schror (2006) argues that the analysis of the entrepreneurial profile is based on factors such as age, gender, education, previous experience and motivation. Entrepreneurship involves a diversity of activities and requires a set of skills, and the individuals who deal with it mainly play the role of managers (Filion, 2021). In order to understand the entrepreneurial profile and the activity specific to entrepreneurs, we need to understand the term entrepreneurship.

II. LITERATURE REVIEW

In the context of the demographic, technological and economic changes at international level, society has gone through a process of continuous transformation, generating both opportunities and challenges.

The multiple crises that have taken place lately, the war in Ukraine and the impact of the COVID-19 pandemic generated multiple imbalances through blockages, price increases, markets in a continuous change and global agitation, but paradoxically, these crises may also lead to opportunities (GEM, 2023).

Entrepreneurship is one of the major forces that sets the economy in motion, through the actions of the government and of public and private organizations. It can be associated with the idea of economic growth, because entrepreneurs bring new ideas and innovations to the market, creating jobs and contributing to the development of the private sector.

Entrepreneurship can also be seen as a force for social inclusion, as it offers opportunities for marginalised groups or for those excluded from the labour market. In this regard, entrepreneurship can promote equal opportunities and help reduce social and economic inequalities (Xavier et al., 2012).

According to GEM research, the data collected allows us to obtain information about the characteristics of entrepreneurs, as well as about the attitudes of the society and the levels of individual involvement at various stages of the entrepreneurial process and their business. This information provides a solid comparison basis for the states' economies, geographical regions and levels of economic development (GEM, 2012). At the same time, a 2011 study belonging to Petru et al. focuses on the behaviour of entrepreneurs in Romania, analysing the process of starting and managing a business.

In 2015, GEM conducted a study on entrepreneurial behaviour and attitude in Romania, analysing the perceptions of personal capabilities, motivation, gender equality, impact and values of the society. These perceptions influence perceived opportunity rates, perceived capabilities, fear of failure, and entrepreneurial intentions. The study also included information about entrepreneurial activity, such as the early stage of involvement in entrepreneurial activity (TEA), the stability rate of commercial property and the rate of entrepreneurial activity among employees. GEM found that entrepreneurs have a high social status, and two-thirds of adults believe that entrepreneurship is a viable career option. Also, half of the active population believes that they have the ability to start a business.

GEM studies reveal that personal and social perceptions play an important role in starting and growing a business. Personal perceptions refer to how a potential entrepreneur perceives his capabilities, opportunities and fear of failure, which can influence the decision to start a business. Entrepreneurial intent represents the stage at which these personal perceptions turn into an intention to start a business in the future. Also, social perceptions represent the way in which society perceives entrepreneurship as a career choice, with high status and positive attention from the media. These social perceptions can influence the willingness of individuals to become entrepreneurs, but they can also have a positive effect on attracting partners and investors into the business. Therefore, understanding personal and social perceptions can be essential for the development and promotion of entrepreneurship within a community (Xavier et al., 2012).

The GEM report consistently demonstrated that opportunity-motivated businesses make a greater economic contribution than needs-driven ones. This finding is based on GEM results, which emphasize that entrepreneurship can be started at any time in a person's life, but it is more common among individuals between the ages of 25 and 34. These individuals can have skills and knowledge developed through higher education and work experience, as well as relationships and access to financial resources. These resources can confer continuous potential for development as individuals grow older, but they can also provide the opportunity to advance in their careers, increase wages and secure the personal belongings and income of families as employees (Kelley et al., 2011).

The factors that determine the start of a business are related to motivation, which can be generated by the desire for financial or non-financial success and by the factors that push or attract to entrepreneurship (Gódány et al., 2021). According to studies, the primary motivations behind opening a business include increased revenue, the desire to be independent, the lack of other work options, or of maintaining income (Kelley, Singer & Herrington, 2011). Also, social values play an important role in shaping personal goals and establishing social order within a group or community (Tsirogiann, Sammut & Park, 2014; Kluckhohn, 1951).

III. METHODOLOGY

Aim of the research

This study aims to identify the research trends regarding entrepreneurship that are based on the Global Entrepreneurship Monitor reports.

Research method

The bibliometric analysis was considered suitable for scientific research on entrepreneurs and entrepreneurship because the articles used were based on GEM reports.

Data collect from Web of Science

Articles extracted from the Web of Science database were used and then processed through the free VOSviewer software (van Eck, Waltman, 2017). Based on the bibliometric analysis, the keywords and the links between them are highlighted. With the help of this software, data analysis and evaluation can be performed (Doan, 2022).

The data was extracted from the Web of Science database in February 2023. Web of Science is a database provided by E-nformation that has a large volume of publications (article, proceeding paper, early access, book chapter, review article, book review, and editorial material). Also, the Web of Science is used by many scientific researchers who want to deepen some topics of scientific interest worldwide.

The search words in the Web of Science database were the *Global Entrepreneurship Monitor* with the aim of highlighting the aspects that form the perspective about entrepreneurship and entrepreneurs. In the first stage, the search was carried out and 1.063 documents were identified, integrating information from GEM reports. The

reference period is 2002-2023.

Analysis by subject area

The number of publications per field integrates 10 different scientific fields. The highest number of publications were written in Business (497 publications, respectively 46.71%), followed by Management (387 publications, respectively 36.37%), Economics (271 publications, respectively 25.47%) and other fields in which less than 100 documents were written. Table 1 shows the specific results by field where there are scientific publications. Most of the writings on topics related to entrepreneurship, entrepreneurial activity and data processing in GEM reports are in the field of economics. Scientific papers, it should be considered, can be classified by several areas.

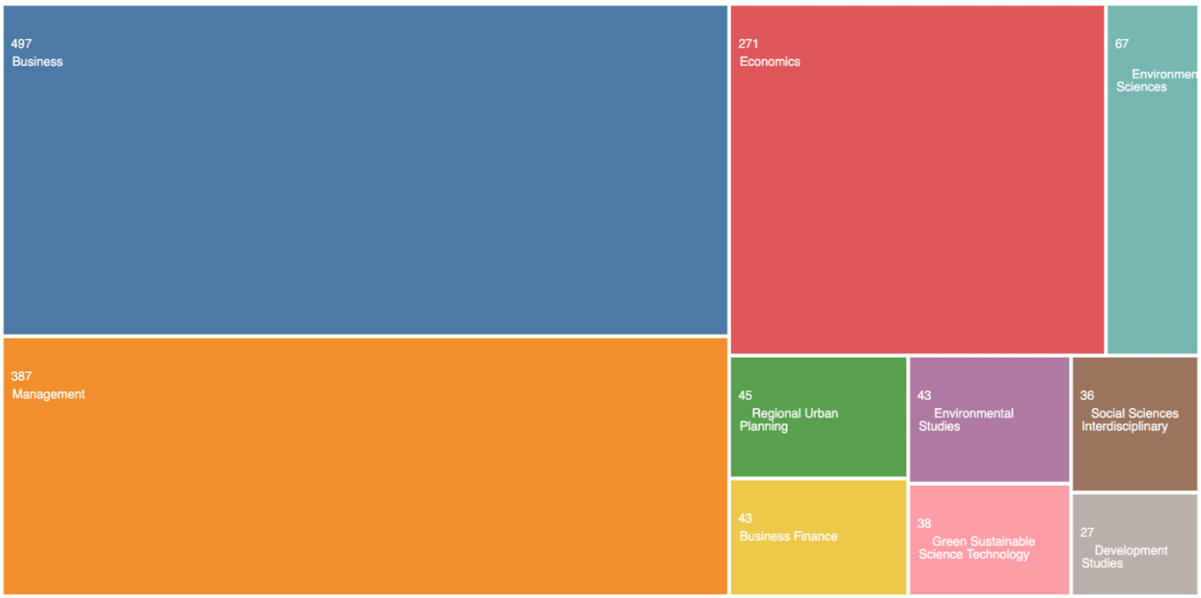

Figure 1: Number of documents by subject area

Source: the author's own analysis based on the Web of Science database

Analysis by time

In the year-by-year analysis one can observe that the period in which publications on entrepreneurship with data based on GEM reports began to appear, is 2004-2023. The number of publications increased between 2004 (2 publications) until 2020 (148 publications), and in the years 2021 and 2022 there was a slight downward train of publications on these topics. I believe that the trend of publications in 2021 (132 publications), 2022 (109 publications), and January and February 2023 (10 publications) is downward because it illustrates the negative effects generated by the COVID-19 pandemic that has diminished entrepreneurial activity worldwide. Many businesses were closed after the lockdowns generated by the COVID-19 pandemic, which also led to declines in economies nationwide. The perspective of entrepreneurship is, on the contrary, positive, offering new lines of business for entrepreneurs (Galindo-Martín, Castaño-Martínez & Méndez-Picazo, 2021) and implicitly a new interest in the scientific research based on GEM results aimed at entrepreneurship and entrepreneurial activity respectively.

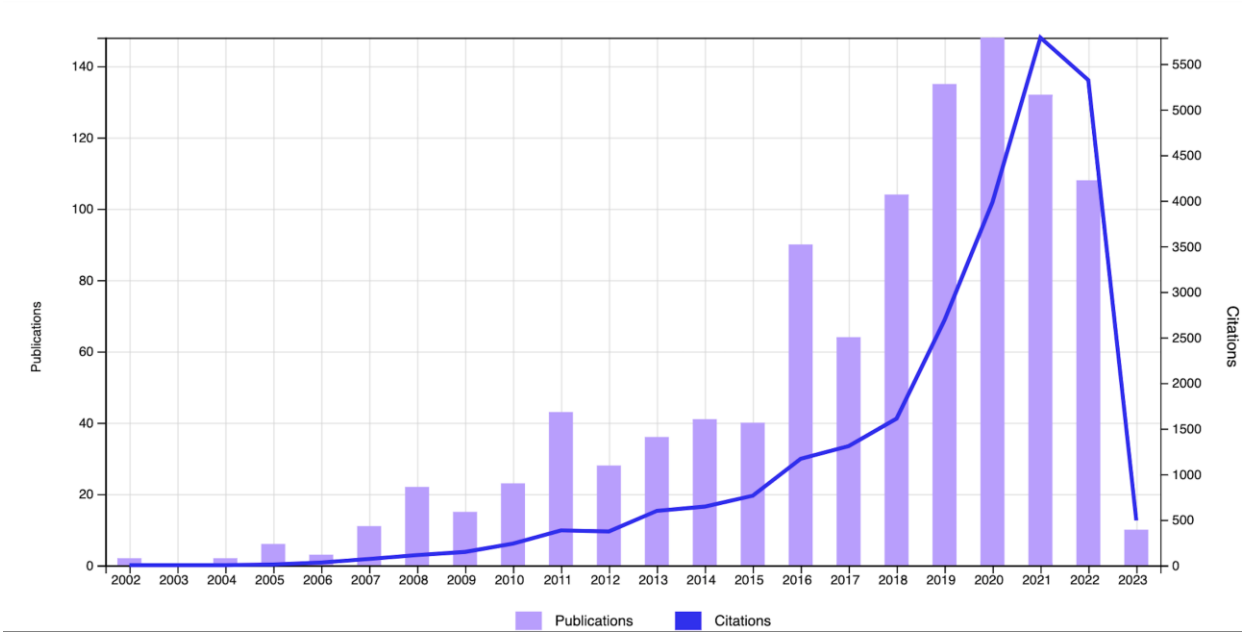

Figure 2 - Number of documents by years
Source: the author's own analysis based on the Web of Science database

Bibliometric analysis regarding the scientific research carried out on the basis of GEM reports

In this study, an analysis of keywords and co-emergence aimed at highlighting the relationships between keywords was carried out. The keywords represent the aspects studied in the publications extracted from the Web of Science database, using the VOSviewer software for analysis. Keywords can be found in 11 clusters differentiated by colours, 322 items and 10.089 links.

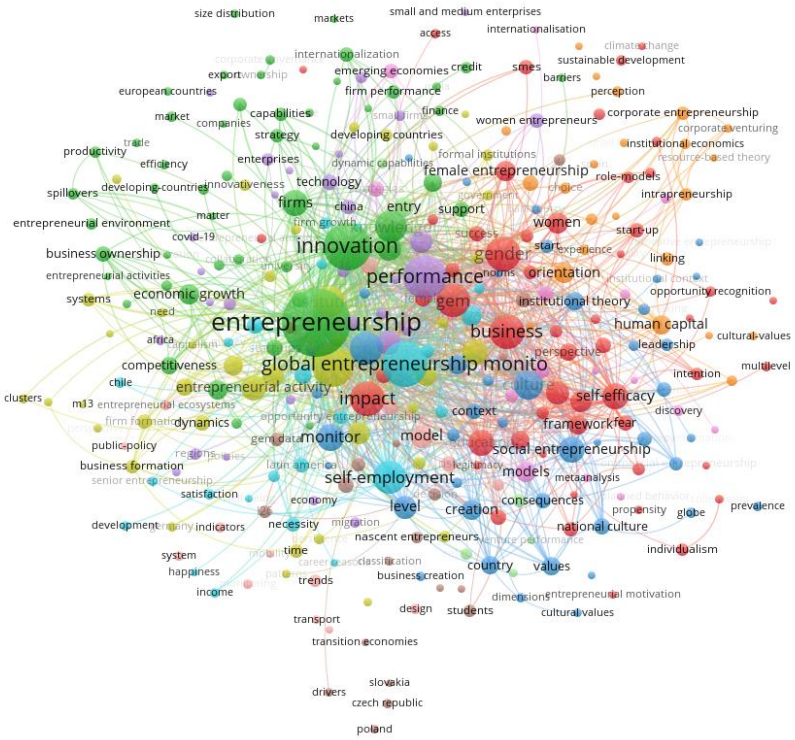

Figure 3 – Concept map based on GEM data
Source: the author's own analysis based on the VOSviewer

The results in Figure 3 show the conceptual map of the studies carried out on the Global Entrepreneurship Monitor and the links between keywords. Based on these, the strongest appearances were identified through terms

such as: entrepreneurship, innovation, Global Entrepreneurship Monitor, GEM, growth, performance, business, self-employment, determinants, and gender.

Entrepreneurship is considered a factor that can influence economic growth and contribute to technological innovation (Pong, Ho & Autio; 2005).

In the bibliometric analysis, entrepreneurship is found in the green cluster, with 337 occurrences and 296 links of keywords.

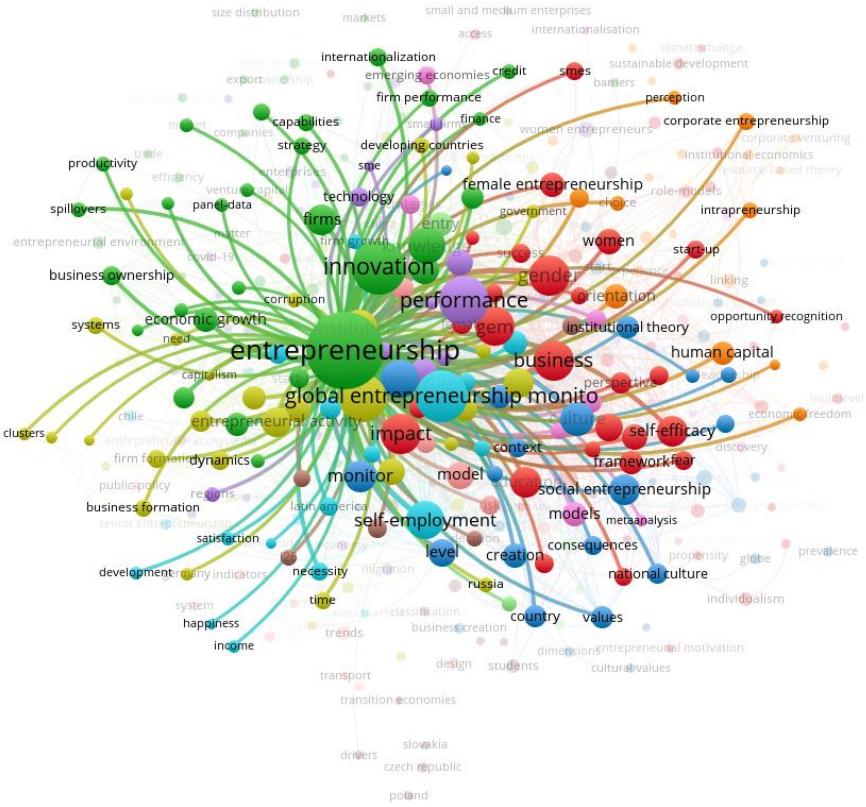

Figure 4 – Co-keyword network visualization regarding entrepreneurship based on GEM data
Source: the author's own analysis based on VOSviewer

Figure 4 can show the strongest appearances and links that entrepreneurship has with innovation, performance, Global Entrepreneurship Monitor, growth, determinants, institutions, entrepreneurial activity, networks, impact, knowledge, business, gender and self-employment. One should mention that the keyword entrepreneurship is the strongest term, which is distinguished by size and it is the most studied one in the publications based on GEM reports. The keywords on the outside of Figure 4 present weak links through the small size and distance from the centre of the clusters, this aspect showing that there is a smaller number of publications on those keywords (topics).

The entrepreneur was associated with the idea of innovation by Schumpeter (1911). Entrepreneurs are individuals who create new businesses, easily identify new business ideas and are consistent with the idea of innovation, action, opportunity identification, risk management and resource efficiency (Filion, 2021).

In Figure 5, the entrepreneurs' item has 19 occurrences and 69 links. It is also noticed that it is located in the brown cluster, presenting links in 4 other clusters that target topics such as: entrepreneurship, innovation, determinants, growth.

In the bibliometric analysis in Figure 5, the key words that are related to entrepreneurs are entrepreneurship, innovation, performance, growth, culture, networks, women, men and SMEs. These aspects offer an insight into the approach of GEM reports coupled with the vision of the researchers who extracted data from these reports to present an insight into entrepreneurship.

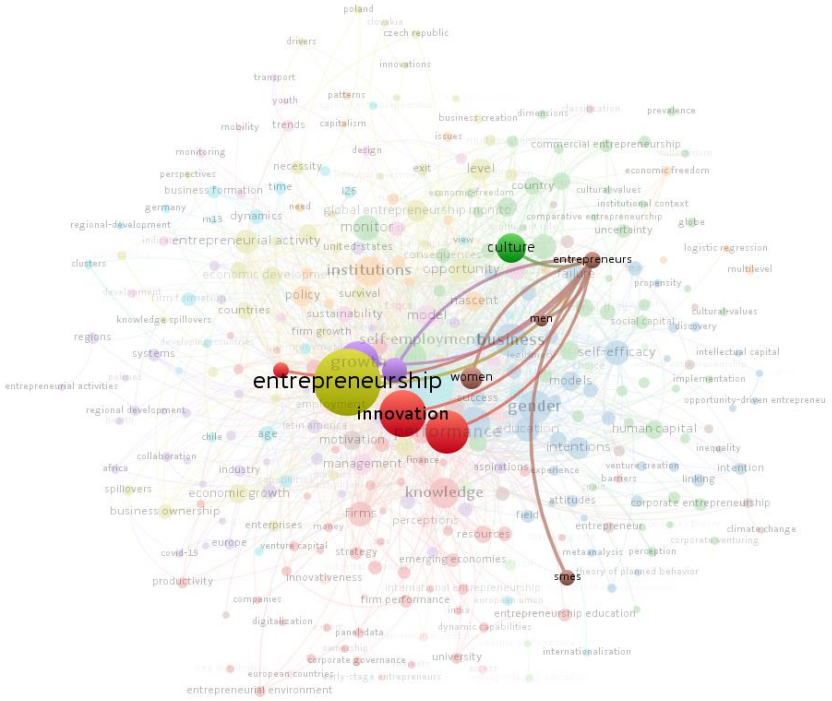

Figure 5 – Co-keyword network visualization regarding entrepreneurs based on GEM data
Source: the author's own analysis based on VOSviewer

Bibliometric analysis regarding co-authorship on GEM reports

The bibliometric analysis displays a total of 2418 authors who have researched GEM reports in order to understand their constituent parts.

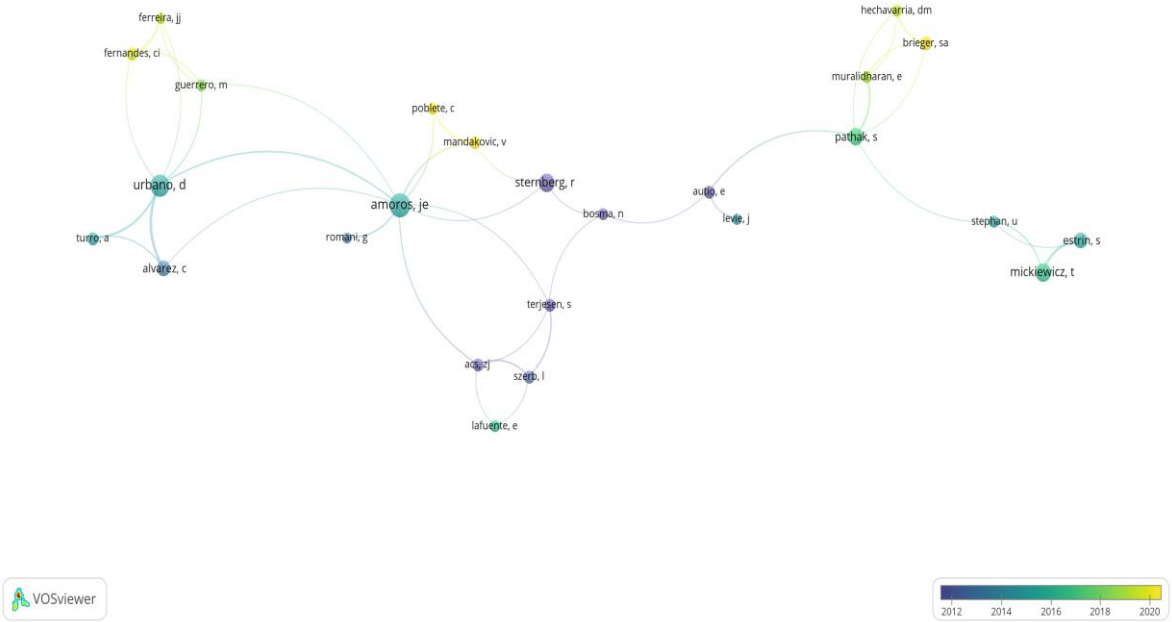

Figure 6 – Author's co-operation network on GEM reports
Source: the author's own analysis based on VOSviewer

However, there are only 25 authors who published and present mutual connections in this network. The authors are grouped into 7 clusters, and the clusters are interconnected. The authors of Amoros JE, Urbano D., Mickiewicz T., Sterngerg R. are the ones who published the most on this topic and are found in Figure 6 in the

central part in the blue and purple colour clusters. In the current period there are authors with a smaller number of publications on the subject and they can be seen in the yellow cluster on the top of the figure.

CONCLUSIONS

This research focuses on the evolution of the aspects that conceptualize entrepreneurship, respectively the entrepreneur, based on the Global Entrepreneurship Monitor reports.

The GEM reports represent a joint project between two universities, London Business School (UK) and Bobson College (USA) that collect data directly from individuals running businesses, based on surveys on entrepreneurship around the world (Anselmo, 2023). This study aims to leverage the data developed and published in GEM reports in order to provide a realistic and quality perspective on topics of interest to researchers, specialists, decision-makers and all people interested in the topic treated in this paper.

Therefore, GEM reports aim to present data that will form a realistic perspective on entrepreneurship, presenting the evolution of entrepreneurship aspects, providing results of research conducted on the basis of surveys, drawing perspectives, offering necessary solutions to a constantly changing society. Entrepreneurship is a successful predictor of a rich and healthy society.

This work was done on the basis of 1063 publications taken from the Web of Science database and processed by means of the VOSviewer free software. From the results of the bibliometric analysis it can be seen that innovation and performance are essential in the GEM reports. Innovation supports the exploitation of new opportunities, provides new opportunities for jobs and promotes productivity. The GEM reports provide an overview of international entrepreneurship and can provide valuable insights to policymakers.

The study also presents the limits that arise as a result of the use of a single Web of Science database. This does not allow us to cover all the scientific studies carried out in the field of interest. Also, the VOSviewer software cannot provide a clear and complete picture of the data collected. For these reasons, an in-depth analysis on the topic of research can be carried out by studying a more extensive content of papers by combining data from several databases.

In conclusion, research on the subject of entrepreneurship, using the GEM reports, can bring a series of information that generate economic and social benefits, through innovation, performance, the creation of jobs and innovative products and services. It is noticed that entrepreneurs represent viable solutions for repairing both a damaged society and for building resistant companies.

ACKNOWLEDGMENT

This work is supported by project POCU 153770, entitled “Accessibility of advanced research for sustainable economic development – ACADEMIKA” co-financed by the European Social Fund under the Human Capital Operational Program 2014-2020.

REFERENCES

1. Ajzen, I. (2005) *Attitudes, Personality And Behavior Second Edition*, Open University Press. ISBN 10: 0 335 21703 6 (pb) 0 335 21704 4 (hb) ISBN 13: 9780 335 217038 (pb) 9780 335 217045 (hb)
2. Anselmo, K. (2023) *Noua cercetare GEM: Impactul pandemiei asupra antreprenoriatului la nivel mondial este mixt; Emiratele Arabe Unite numărul 1 în Global Entrepreneurship Monitor Index.* Comunicat de presă global. https://www.gemconsortium.org/reports/latest-global-report. Accesed february 27, 2023.
3. Camera de Comerț și Industrie Cluj (2018) *Manual Competențe Antreprenoriale Program De Formare Autorizat ANC, Antreprenoriat Sustenabil în Regiunea NV*. Programul Operaţional Capital Uman 2014-2020 Axa prioritară 3- Locuri de munca pentru toti Obiectiv specific 3.7- Creșterea ocupării prin susținerea întreprinderilor cu profil nonagricol din zona urbană Titlul proiectului: Antreprenoriat sustenabil in Regiunea Nord Vest. https://ccicj.ro/wp-content/uploads/2018/02/Manual-competente-antreprenoriale-CCI-3.7.pdf. accesed december 8, 2022.
4. Coteanu, I., Mareș, L. (2009) *Dicționarul explicativ al limbii române (ediția a II-a revăzută și adăugită)*, Academia Română, Institutul de Lingvistică. Editura Univers Enciclopedic Gold. https://dexonline.ro/sursa/dex09.
5. Doan, K.H. (2022) *Bibliometric Analysis of Indigenous Entrepreneurship*, Ecoform Ecoforum , 2022, 11.1: 0-0.
6. Filion, L.J. (2021) *Defining the entrepreneur*. World Encyclopedia of Entrepreneurship - Second Edition. Edward Elgar Publishing Limited. Cheltenham, UK, Northampton, MA, USA. http://dx.doi.org/10.4337/9781839104145.
7. Galindo-Martín M.Á., Castaño-Martínez M.S., Méndez-Picazo M.T. (2021) *Effects of the pandemic crisis on entrepreneurship and sustainable development*. J Bus Res. Dec;137:345-353. doi: 10.1016/j.jbusres.2021.08.053. PMID: 34602680; PMCID: PMC8479488.
8. GEM (2012) *Entrepreneurship in Ireland 2011. Global Entrepreneurship Monitor (GEM*). https://enterprise.gov.ie/en/Publications/Publication-files/Forfás/Global-Entrepreneurship-Monitor-GEM-2011.pdf.
9. GEM (2022) *Global Entrepreneurship Monitor 2021/2022 Global Report: Opportunity Amid Disruption*. London: GEM. https://gemconsortium.org/report/gem-20212022-global-report-opportunity-amid-disruption.
10. GEM (Global Entrepreneurship Monitor) (2023). *Global Entrepreneurship Monitor 2022/2023 Global Report: Adapting to a “New Normal*”. London: GEM. Accesed: 28 februay, 2023

11. Gódány, Z., Machová, R., Mura, L., Zsigmond, T. (2021) *Entrepreneurship Motivation in the 21st Century in Terms of Pull and Push Factors*. TEM Journal. Volume 10, Issue 1, Pages 334-342, ISSN 2217-8309, DOI: 10.18421/TEM101-42.
12. Kelley, D., Singer, S., Herrington, M. (2011) *Global Entrepreneurship Monitor, 2011 Global Report*. https://www.gemconsortium.org/report/gem-2011-global-report.
13. Petru, T.P., Benyovszki, A., Nagy, A., Pete, I., Györfy, L., Matiș, D., Szász, L., Matiș, E. (2011) *Entrepreneurship in Romania 2011*. Country Report. GEM Romania 2011 Report.
14. Schror, H. (2006) *The profile of the successful entrepreneur Results of the survey 'Factors of Business Success'* , Industry, Trade and Services, European Communities, Eurostat.
15. Scumpeter, J. A. (1911) *Theorie der wirtschaftlichen Entwicklung. Eine Untersuchung ueber Unternehmergewinn, Kapital, Kredit, Zins und den Konjunkturzyklus*, Berlin: Duncker und Humblot; translated by Redvers Opie, 1934 & 1963, The Theory of Economic Development: an Inquiry into Profits, capital, credit, Interest and the Business Cycle, Oxford: Oxford university Press.
16. Tsirogianni S., Sammut, G., Park E. (2014) *Social values and good living*. In A. C. Michalos (Ed.) Encyclopedia of Quality of Life and Well-Being Research (pp. 6187-6190). Dordrecht, Netherlands: Springer.
17. van Eck, N.J, Waltman, L. (2017) *Citation-based clustering of publications using CitNetExplorer and VOSviewer*. Scientometrics. 111. 10.1007/s11192-017-2300-7.
18. Wong, P.K., Ho, Y.P., Autio, E. (2005) *Entrepreneurship, Innovation and Economic Growth: Evidence from GEM data*. Small Bus Econ 24, 335–350. https://doi.org/10.1007/s11187-005-2000-1
19. Xavier, RS., Kelley, D., Kew, J., Herrington, M., Vorderwulbecke, A. (2012) *Global Entrepreneurship Monitor, 2012 Global Report*. https://www.gemconsortium.org/report/gem-2012-global-report.