

Making a long story short: A portrait of Entrepreneurial Ecosystem Literature

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1. Introduction:

The ecosystem term was first used to refer to the business field, by James Moore in 1993 in an article published at Harvard Business Review (Mason & Brown, 2014). In his article, Moore (1993) claims that companies should not only be seen as a member of a specific sector but as part of a business ecosystem involving several sectors. In these business ecosystems, companies are capable of developing competencies to innovate, in which they would work both cooperatively and competitively around new products, they would meet the needs of customers and incorporate innovations. With the publication of this article, the term ecosystem associated with business became part of the academic and institutional investigations (Voicu-Dorobanțu, 2016)

The entrepreneurial ecosystem offers a vision of the company that looks at it no longer just as a single entity, but as part of an ecosystem in which it is inserted, and the relationships that follow can strongly influence the performance of firms. The growth of companies within this perspective starts to depend more on their external environment than on their internal characteristics and operations (Mason & Brown, 2014). This approach emphasizes the presence of entrepreneurs within ecosystems, which come to be seen as central pieces both for the initial development of these sites and for their conservation over time (Stam, 2015).

In this sense, Mason and Brown (2014, p. 5) defines entrepreneurial ecosystem as

“a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of ‘blockbuster entrepreneurship’, number of serial entrepreneurs, degree of sellout mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment.”

Isenberg (2011) highlights that entrepreneurial ecosystems is composed by six pillars: (i) Cultural - encompasses social norms (tolerance to risks, mistakes, and failures, social status of entrepreneurs, desire and ambition for innovation, etc.) and success stories of entrepreneurs (wealth generation, an international reputation, etc.); (ii) Politics - related to the government (such as support and investment institutions, financial support for research and development, tax benefits, etc.) and local leadership; (iii) Financial - availability of financial capital (angel investors, etc.); (iv) Human Capital - the presence of qualified labor available for the labor market and educational institutions; (v) Market - the presence of networks (of entrepreneurs, multinational companies) and first customers; and (vi) Support - Existence of infrastructure

(telecommunications, transport and logistics, energy, etc.), support professionals (lawyers, accountants, etc.) and non-governmental institutions. In sum, the author points out that each entrepreneurial ecosystem has a unique character since each one uses and combines these six dimensions in distinct and specific ways.

There are a sort of attributes, principles and pillars (Stam, 2015) associated with the entrepreneurial ecosystem, as well as interconnection with different actors, which leads to the lack of a broadly accepted and a theoretically grounded entrepreneurial ecosystem's definition and understanding (Alvadelen & Boschma, 2017; Kansheba & Wald, 2020; Roundy et al., 2018). Moreover, studies are needed to strengthen the clear understanding of the entrepreneurial ecosystem phenomenon (Kansheba & Wald, 2020) because "the usefulness of the ecosystem concept for research and policy-making depends on an advanced understanding of its causal mechanisms" (Wurth et al., 2021, p. 29). Thus, a better holistic understanding of entrepreneurial ecosystems is needed. In this fashion, this research aims at analyzing the various definitions given to entrepreneurial ecosystems and related concepts and proposes a synthesized conceptualization of definition, elements, and research opportunities. To tackle it, this study adopts a hybrid methodology combining bibliometric and content analysis in a sample of articles about the entrepreneurial ecosystem, published in the main journals recently.

The structure is as follows. Section 2 refers to research methods and explains the methodological aspects adopted in this literature review. Section 3 brings the main findings and lists the entrepreneurial ecosystem's definitions. In the final section, the conclusion, limitations, and future avenues for research are presented.

2. Research methods

Similar to the systematic review done by Gomes, Facin, Salermo and Ikenami (2018), this study investigates the entrepreneurial ecosystem in two phases: a bibliometric analysis and a content analysis. Considering the high amount of scientific research (Iizuka et al., 2016), bibliometric studies serve as a tool to quantify the written communication process and to establish important scientific papers through their citation count (Gomes et al., 2018). On the other hand, the content analysis serves as a qualitative investigation of the chosen research field (Iizuka et al., 2016). The combination of both analysis occurs on Scopus database, which offers over 40 000 documents from an array of fields, such as Agricultural and Biological Sciences, Arts And Humanities, Biochemistry, Business, Management And Accounting, Economics, Econometrics And Finance, Social Sciences, and so on (Elsevier, 2020).

2.1 Description of the sample

The bibliometric database was extracted from Elsevier's Scopus, which has the largest database of abstracts and citations in the literature with peer review (Elsevier, 2020). Firstly, it was selected due to its metadata collection features, such as abstracts, authors, number of citations, journal impact factor, among others (Gomes et al., 2018). Secondly, Mongeon and Paul-Hus (2016) states that Scopus offers a better choice when compared to Web of Science, since Scopus has a larger scientific journal coverage, providing a greater comprehensiveness. Thus, Scopus stands as essential for carrying out a bibliometric analysis.

Literature uses a sort of variations to refer to the entrepreneurship phenomenon, like: entrepreneurial ecosystem (Mason & Brown, 2014; Miller & Acs, 2017), entrepreneurship ecosystem (Isenberg, 2011; Stam, 2014), entrepreneurship ecosystems (Sheriff & Muffatto, 2015; Spigel & Harrison, 2018) and entrepreneurial ecosystems (Alvedalen & Boschma, 2017; Spigel & Harrison, 2018), so in order to englobe all alternatives, “entrepreneur* PRE/2 ecosystem*” was searched as a keyword and title in the database. In addition, the Boolean operator “PRE/n” stands for “precedes by”, which means the first term must be preceded by the second one in the query by a number of two terms (Elsevier, 2020). Therefore, the research query followed the scope of research and ensured proper data collection (Zhang & Guan, 2017).

The search query resulted in 327 documents in Scopus, categorized by different research areas, languages, year, document types, and so on. From this initial sample, we used the following filters to refine the results: (i) Articles were selected as “Document Types” since they reflect current study level of a research field (Zhang & Guan, 2017); (ii) English and Portuguese were selected as “Languages”, considering authors’ languages domains; (iii) Final was selected in “Publication Stage” to ensure full document availability; and (iv) only publications since 2011 were considered. Once results were refined, the sample resulted in 220 studies.

Following our research objective, further refinement is still needed. Citation analysis was performed since “highly influential documents or publications by influential players (authors, institutes, countries, etc.) [...] can facilitate an understanding of the structure of the research field and the relationships between concepts, documents, or authors” (Zhao & Strotmann, 2015, p. 28), as well as (i) assist in the discovery of new knowledge; (ii) map research fields to study their intellectual structures and (iii) track knowledge flows and the diffusion of ideas (Zhao & Strotmann, 2015). The newest and highly cited research query resulted in 68 articles, which represented the final sample. The sample refinement is demonstrated in the figure below.

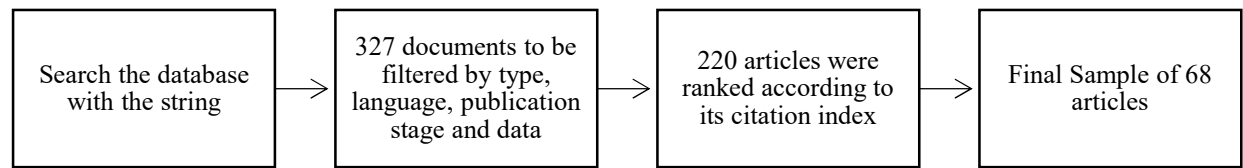


Figure 1. **Sample refinement process**

2.2 Methodological aspects

The bibliometric analysis was performed in two phases. First, SciVal was used for descriptive statistics regarding the 68 articles, encompassing citation analysis, field-impact, among others. SciVal is a web-based analytics solution, from Elsevier, able to process large amounts of data to generate analyses and visualization, according to demands, as well as visualize research performance, identify and analyze new, emerging research trends, and create uniquely tailored reports (SciVal, 2021). Second, Iramuteq was used to assess the listed author's keywords and the connection among them, since it allows statistical analysis on texts, tables, and characters through RStudio Software (Ratinaud, 2020).

Regarding the content analysis, all articles were read, and the following topics were considered for the content analysis: definition of entrepreneurial ecosystem by each author, entrepreneurial ecosystem elements and research opportunities in entrepreneurship ecosystem.

3. Main findings and discussion

This section is composed of bibliometric analysis and content analysis, with their respective subtopics.

3.1. Bibliometric analysis

3.1.1 Descriptive statistics

Elsevier's Scopus web-based analytics solution, SciVal, offers comprehensive access to the research performance of over 14,000 research institutions and their associated researchers from 230 nations worldwide (SciVal, 2021). All following descriptive analytics is based upon SciVal's statistics.

Even though entrepreneurial ecosystem literature dates to 1993's Moore article, publications only start to ascend in 2014, with a concentration of 23 documents in 2019, 18 in 2017 and 15 in 2018; which can infer that the knowledge flow and diffusion of ideas are still growing in this subject. In consonance, these studies have been cited over 3,000 times, with an average of 51 citations per publication and a 6.78 Field-Weighted Citation Impact (FWCI). Table 1 displays the 10 most-cited publications and its progression since 2017.

Table 1. Top 10 publications

Article Title	Authors	Publication Year	<2017	2017	2018	2019	2020	2021*	# Citations	% Citations
Entrepreneurial Ecosystems and Regional Policy: A Sympathetic Critique	Stam, E.	2015	11	42	66	112	134	117	471	13,60%
Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems	Autio, E., Nambisan, S., Thomas, L. D. W., Wright, M.	2018			14	40	76	91	221	6,38%
Entrepreneurial ecosystems in cities: establishing the framework conditions	Audretsch, D. B., Belitski, M.	2017	1	6	13	50	57	70	196	5,66%
Looking inside the spiky bits: a critical review and conceptualisation of entrepreneurial ecosystems	Brown, R., Mason, C.	2017		3	9	49	63	60	184	5,31%
A critical review of entrepreneurial ecosystems research: towards a future research agenda	Alvedalen, J., Boshcma, R.	2017		1	14	49	54	61	179	5,17%
The evolutionary dynamics of entrepreneurial ecosystems	Mack, E., Mayer, H.	2016	1	11	28	44	41	43	167	4,82%
Toward a process theory of entrepreneurial ecosystems	Spigel, B., Harrison, R.	2018			14	43	46	62	165	4,76%
The emergence of entrepreneurial ecosystems: A complex adaptive systems approach	Roundy, P.T., Bradshaw, M., Brockman, B.K.	2018			6	21	35	49	111	3,20%
The resilience of entrepreneurial ecosystems	Roundy, P.T., Brockman, B.K., Bradshaw, M.	2017			9	24	29	27	89	2,57%
Entrepreneurial ecosystem research: present debates and future directions	Cavallo, A., Ghezzi, A., Balocco, R.	2019				14	30	42	86	2,48%

Source: Based on SciVal (2021)

Note: *Only partial information available. Data contemplates up to July/2021.

Out of the 3,464 citations found for the 68 articles, 53.95% are related to the 10 most-cited articles. Stam's work alone covers 13.6% of citations, which highlights the impact of Stam's work in the entrepreneurial ecosystem area, since citation counts measure the impact of a publication (Zhao & Strotmann, 2015). Regarding source metrics, CiteScore measures essentially the average annual number of citations of recent articles published in a journal, based on citations registered in the Scopus database (Elsevier, 2021), hence they are snapshots of a dynamic database. On Table 2, there are the 5 journals with highest CiteScore 2020 from the sample.

Table 2. Top 5 Journals

Source of Publication	CiteScore 2020
Small Business Economics	8,8
Journal Of Technology Transfer	8,8
International Entrepreneurship and Management Journal	7,5
European Planning Studies	4,6
Journal Of Enterprising Communities	3,6

Source: Based on SciVal (2021)

Since impact factors have advantages as well as drawbacks (CABS - Chartered Association of Business Schools, 2021), the Academic Journal Guide (AJG) 2021 will also be taken under consideration once it acts as a guide for business and management academic research towards quality journals, providing a rating system (from 1 to 4+) based on the four citation impact factors: JCR (Journal Citation Reports), SJR (SCImago Journal Rank), IPP (Impact Per Publication) SNIP (Source Normalized Impact Per Paper) (CABS - Chartered Association of Business Schools, 2021). Both Small Business Economics and Journal of

Technology Transfer rated 3 at AJD 2021 due to its original publication, well executed research papers and heavily refereed; in other words, they are both highly regarded journals, with good submission rates and solid selection in what they publish (CABS - Chartered Association of Business Schools, 2021).

3.1.2 Keywords and their network

Keywords are references to the full text articles (Zhao & Strotmann, 2015), since they provide simple words that represent the specificities of the text. The prevailing words are the most relevant ones; they help interpret data, quickly summarize large amounts of data, and disclose information underlying the data set (Ahuja & Shakeel, 2017). Figure 2 shows the network map of keywords used in the 68 articles, displayed with Fruchterman Reingold layout, with different manual adjustments related to communities. To highlight the most significant relationships, weak linkages with a co-occurrence frequency lower than 5 are not shown in the map, as well as the searched words at Scopus database (entrepreneurship, entrepreneurial and ecosystem). So, the keywords network map (figure 2) demonstrates the keywords grouping and distribution.

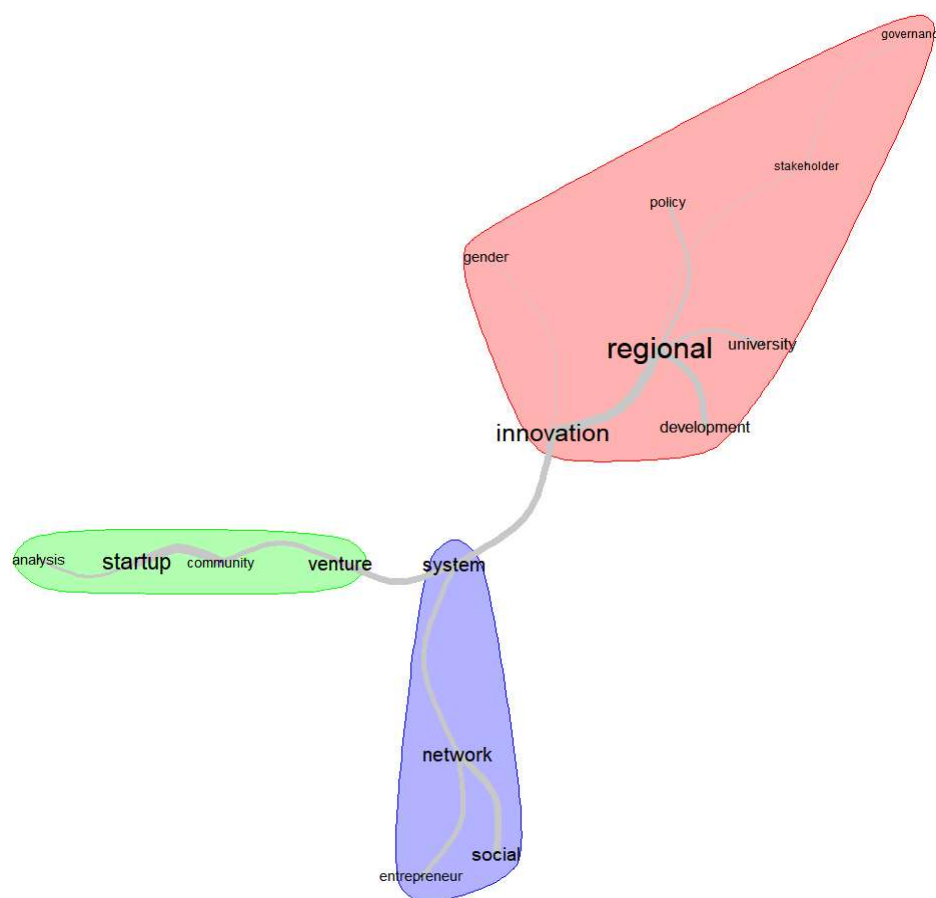


Figure 2. **Keywords network map for the 68 articles**

Note: The size of the words indicates keyword's frequency, the thickness of the lines displays the co-occurrence frequency of keyword pairs and the color blocks demonstrate the communities.

In this sense, 16 different words repeated themselves 136 times throughout the 68 articles, forming three communities. Innovation (12,5%), regional (11,76%), social (8,82%), startup (8.09%), venture (6,62%) and system (6,62%) collectively correspond to 54% of text representativeness, leaving 48% diffuse in the other 10 words. Interestingly, Regional and Innovation are in the same word community, along with development, university, gender, policy, stakeholder and governance. This may refer to the general agreement in the literature that ecosystems are spatially or regionally situated, and innovation is a goal and therefore an outcome of healthy ecosystems and can enhance the development of the region where it is located (Brown & Mason, 2017; Stam & Spigel, 2016). One important ecosystem stakeholder are universities, who play an important role in the creation and performance of entrepreneurial ecosystems (Rice et al., 2014). Another important and growing number of academic studies related to the ecosystem field is the gender differences when it comes to entrepreneurship and the role of public policies in supporting women's entrepreneurship (Brush et al., 2019; Hechavarría & Ingram, 2018; McAdam et al., 2018).

The second community is composed of the words system, network, social and entrepreneur. It is possible to assume that these refer to the case that the entrepreneurial ecosystem literature is presented through a systemic or network view, which through the complex social relationships of its diverse members allow entrepreneurs to perceive the rise and development of new entrepreneurial opportunities (Malecki, 2011; Cao & Shi, 2021; Hechavarría & Ingram, 2018). And the last community gathers the words venture, community, startup and analysis, which may infer that a growing research focus is on the investigation of the interactions between actors of an innovative startup community in which entrepreneurs need to lead the community to engage in high-risk ventures to contribute to the EE (Feld, 2012; Spigel, 2017).

3.2. Content analysis

This section is composed by: definition of entrepreneurial ecosystem, entrepreneurial ecosystem elements and research opportunities in entrepreneurship ecosystem

3.2.1. Definition of entrepreneurial ecosystem

There is a challenge in literature to integrate entrepreneurial ecosystem attributes or factors that brings it together (Spigel, 2019). Cohen's work was seminal to the use and broadcast of entrepreneurial ecosystem concepts. The author (2006, p. 3) defines it as "an interconnected group of actors in a local geographic community committed to sustainable development through

the support and facilitation of new sustainable ventures”. Later on, the concept was broadened by other works (e.g. Ács, Autio, & Szerb, 2014; Audretsch & Belitski, 2017; Isenberg, 2011; Mason & Brown, 2014; Spigel, 2017; Stam, 2015) by either adding components or different spheres to this interconnection of elements.

Based on this variety, this study gathered the most-cited and recent papers to provide a perspective of entrepreneurial ecosystem definitions. Thus, we firstly present the definitions provided by the 10 most-cited papers (Table below) and later, we highlight the common characteristics between the articles’ definitions.

Table 3. Definitions of entrepreneurial ecosystem adopted by the 10 most-cited papers

Authors	Definitions used
Stam E. (2015, p. 1765)	“The entrepreneurial ecosystem as a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship”
Autio, Nambisan, Thomas, and Wright (2018, p. 74)	“It is useful to view entrepreneurial ecosystems as a digital economy phenomenon that harnesses technological affordances to facilitate entrepreneurial opportunity pursuit by new ventures through radical business model innovation”.
Audretsch and Belitski (2017, p. 1033)	“We understand entrepreneurial ecosystem as a dynamic community of interdependent actors (entrepreneurs, suppliers, buyer, government, etc.) and system-level institutional, informational and socioeconomic contexts (Levie and Autio 2014; Wright 2014)”
Brown and Mason (2017, p. 12)	Entrepreneurial ecosystems are highly variegated, multi-actor and multi-scalar phenomena which therefore require bespoke policy interventions.
Alvedalen and Boschma (2017)	Used previous definitions (Zoltán J. Acs et al., 2014; Mason & Brown, 2014; Stam & Spigel, 2017)
Mack and Mayer (2016, p. 2118)	“Entrepreneurial ecosystems (EE) consist of interacting components, which foster new firm formation and associated regional entrepreneurial activities”.
Spigel and Harrison (2018, p. 151)	“A regional economic development strategy that is based around creating supportive environments that foster innovative start-ups”.
Roundy, Bradshaw and Brockman (2018, p. 1)	“The sets of actors, institutions, social networks, and cultural values that produce and sustain entrepreneurial activity”
Roundy, Brockman and Bradshaw M. (2017, p. 99)	“Communities of agents, social structures, institutions, and cultural values that produce entrepreneurial activity”
Cavallo, Ghezzi and Balocco (2019)	Used previous definition (Stam, 2015)

Entrepreneurial ecosystem has gained popularity throughout the years (Audretsch et al., 2019), which has led to a range of different definitions in literature. As stated by Brown and Mason (2017, p. 12) “entrepreneurial ecosystems are highly variegated, multi-actor and multi-scalar phenomena which require bespoke policy interventions”. It can simply be understood as “a set of interdependent actors and factors of a territory coordinated in such a way that enables entrepreneurship” (Corrente et al., 2019, p. 486) or it can be understood by its linkages (Cunningham et al., 2019; Sheriff & Muffatto, 2015), by its geographic boundaries (Kuckertz et al., 2020; Roundy, 2017), by its participants (Neumeyer et al., 2020; Sarma & Marszalek, 2019) or even by its results (Erina et al., 2017; Isenberg, 2016)

Based on the reviewed articles, it is implied that entrepreneurial ecosystem is formed by a sort of attributes (actors, pillars, agents,..) coordinated/combined to produce entrepreneurship (either being a simple venture creation or a high-intensive knowledge business), influenced by different factors (culture, policy, socioeconomic values,..), that may be limited to a geographic boundaries. (Isenberg, 2011; Mack & Mayer, 2016; Roundy, 2017; Roundy et al., 2017, 2018; Stam, 2015).

3.2.2. Entrepreneurial ecosystem elements

As aforementioned, the entrepreneurial ecosystem may be evaluated by several different aspects, which, in this study will be referred to as elements. Table 4 lists articles' establishment of entrepreneurial ecosystem's elements, distributed according to central themes.

Table 4. Entrepreneurial Ecosystem's elements

Entrepreneurial Ecosystem Elements	Authors
Regulations	
Regional ecosystems: clusters, regional diversity, business networks, institutions, support. Regional policies: leadership, government, financial capital, norms.	Bhawe & Zahra, 2019; Colombelli & Paolucci, 2019; Cunningham et al., 2019; Erina et al., 2017; Kshetri, 2014; Schäfer & Henn, 2018; Sheriff & Muffatto, 2015; Stam, 2015
Natural ecosystems	
Adaptive system, organic creation.	Isenberg, 2016; Kuckertz, 2019; Roundy et al., 2018
Assortment of elements	
1. Market; 2. Finance; 3. Policy; 4. Supports; 5. Human Capital; 6. Culture	Auerswald & Dani, 2017; Brown & Mason, 2017; Cavallo et al., 2019; Kuratko, Fisher, Bloodgood, & Hornsby, 2017; Mack & Mayer, 2016; Nicotra, Romano, Del Giudice, & Schillaci, 2018; Roundy, 2017
1. Culture and norms 2. Formal institutions 3. Physical infrastructure and amenities 4. Information technologies and Internet 5. Diversity 6. Demand and workforce	Audretsch & Belitski, 2017; Audretsch et al., 2019; Corrente et al., 2019; Lehmann, Schenkenhofer, & Wirsching, 2019; Lux, Macau, & Brown, 2020; Neumeyer, Santos, & Morris, 2019
Others	
Digital affordances and spatial affordances (digital technologies and infrastructures combined with spatial affordances)	Autio et al., 2018
Resilience	Roundy et al., 2017
Sustainable, university, location-based innovative clusters for high growth.	Liguori, Bendickson, Solomon, & McDowell, 2019

The entrepreneurial ecosystem elements centered in the “assortment of elements”, which implies that most papers approached the ecosystem's elements, in its totality, trying to address the literature gap of a lack of clear analytical framework, as mentioned by Alvedalen and Boschma (2017). But there were also papers focused on specific lenses: regulations, digital affordances, resilience and innovative clusters for high-growth.

3.2.3. Research opportunities in entrepreneurship ecosystem

After carrying out the content analysis of all 68 articles on the Entrepreneurial Ecosystem focusing on each definition adopted, as well as the main elements of the entrepreneurial ecosystem, it was found that the content analysis performed can also provide guidance for research on determining under which circumstances the construction of the entrepreneurial ecosystem is most appropriate. Future research should investigate authors, author networks, expand sample size and establish a relationship between keywords and authors from entrepreneurial ecosystems. The analyzed articles also provided new insights and key opportunities for future research. In this specific context, the main networks of authors and topics on the entrepreneurial ecosystem is highlighted.

Authors such as Audretsch et al., 2019; Brown & Mason, 2017; Cavallo et al., 2019; Kuckertz, 2019; Mack & Mayer, 2016; Spigel & Harrison, 2018 conducted research on **Entrepreneurial Ecosystem theory development**. In this way, the studies provided a better and deeper understanding for future research highlighting that scholars need to further dissect, conceptualize, theorize and empirically examine this complex phenomenon much more closely to move the understanding forward. And focus on topics as: (1) The creation, governance, and sustainability of entrepreneurial ecosystems; (2) Replicability of entrepreneurial ecosystems across different sectoral, technology, geographic, regulatory and legal environments; and (3) Explore the entry and failure of firms in established entrepreneurial ecosystems. There are a few research questions suggested by these scholars to be answered: (1) How is an EE created? (2) How is the EE's growth nurtured? (3) How is the EE's sustainability ensured? (4) How should policymakers intervene to enable rather than regulate the entrepreneurial dynamics concerning the origins, growth and stability of new ventures? (5) How can the System Dynamics methodology support EE research? (6) Which critical EE sub-systems should policymakers give greater priority to? (7) How do critical EE sub-systems interact? (8) What are the key relations between critical sub-systems and between critical and non-critical subsystems in an EE? And (9) What are the factors that enable the growth of new digital ventures?

Liguori et al., (2019); and Nicotra et al., (2018) developed studies specifically focused on **Entrepreneurial Ecosystem Measurement** establish main contents for future research insights into the measurement of eco-outcomes (such as creating jobs, commercializing new ideas and technologies, and realizing greater market efficiency through competitions) and eco-impact. Also, the best ways to measure the dynamics of the entrepreneurial ecosystem. It is

noted that these measures can be favorable to drive business, innovation and explain the factor structure for different participants of entrepreneurial ecosystems. With the focus on Entrepreneurial Ecosystem, attributes formed by researchers, actors, pillars, agents, professionals, together can create a safe and robust foundation, thus contributing to the subsequent stages of development of the empowering ecosystem.

Lux et al., 2020; Schäfer & Henn, 2018 investigated aspects related to **entrepreneurial ecosystem attributes**. As suggestions for future research there are the exploration of the relations within and between ecosystem components, as well as collecting multi-level data across several distinct ecosystems to examine potential cross-level interaction. Another group of authors, who developed the study on **Entrepreneurial Ecosystem elements**, offer guidance for future research in which they reiterate that the centrality of digitalization in the conceptualization of entrepreneurial ecosystems implies the need to further investigate the role of digital technologies and related affordances; and explore Entrepreneurial Ecosystem resilience (Autio et al., 2018; Roundy et al., 2017).

Some **Entrepreneurial Ecosystem factors** presented by Audretsch & Belitski, 2017; Bhawe & Zahra, 2019; Colombelli & Paolucci, 2019; Cunningham et al., 2019, provided aspects of further research such as: (i) Explore how internal and external social and economic changes affect the configuration and evolution of entrepreneurial ecosystems; (ii) Apply or refine the conceptual model to study different types of ecosystems in other regions/countries, or even cross-country programs, (iii) Future research on urban entrepreneurial ecosystems; and (iv) Investigate how different ecosystems develop the absorption capacity necessary to obtain the technology, marketing and organizational knowledge essential for the creation of new companies.

In short, research on the entrepreneurial ecosystem is still evolving (Acs et al., 2017). Consequently, the majority of papers have suggested, as future research, the further development of its theory, englobing, not only, concept development, framework, sustainability, possible measurements, attributes and relation among factors.

4. Conclusions, limitations, and further research

This research focused on analyzing the various definitions given to entrepreneurial ecosystems and related concepts, as well as propose a synthesized conceptualization of definition, elements and research opportunities. To this end, a systematic literature review with hybrid methodology (bibliometric analysis and content analysis) was performed using the Scopus database. Based on the 68 articles, this study understands that entrepreneurial ecosystem

is formed by a sort of attributes (actors, pillars, agents,..) coordinated/combined to produce entrepreneurship (either being a simple venture creation or a high-intensive knowledge business), influenced by different factors (culture, policy, socioeconomic values,..), that may be limited to a geographic boundaries. (Isenberg, 2011; Mack & Mayer, 2016; Roundy, 2017; Roundy et al., 2017, 2018; Stam, 2015). This fits as a theoretical contribution of this study.

Additionally, it's important to highlight that entrepreneurial ecosystem is a recent topic in literature, still gaining robustness; which can be perceived on the entrepreneurial ecosystem definition heterogeneity, since the research elements centered in the “assort of elements” (market; finance; policy; supports; human capital; and culture), which suggests that most papers approached the ecosystem’s elements, in its totality, trying to address the literature gap of a lack of clear analytical framework (Alvedalen & Boschma, 2017). In this sense, scholars have offered guidance for research on determining under which circumstance the entrepreneurial ecosystem construct is most appropriated, since the main research gaps were traced and it focused mainly on entrepreneurial ecosystem theory development, but also on how it may be measured, its attributes and elements, as well as its factors.

This study does not go without limitations. The bibliometric analysis stuck to the sample descriptive analysis and keywords and their network examination. Further research should also investigate authors, authors networks, and establish a relation between keywords and authors. Finally, the study mapped the main research opportunities mentioned in the selected articles, which may serve as avenues for future research.

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