



BIBLIOMETRIC ANALYSIS OF THE LITERATURE ON STARTUPS AND STRATEGIC ALLIANCES

Bruno Ribas Silveira

brunooribas@hotmail.com
Federal University of Santa
Catarina – UFSC, Florianópolis,
Santa Catarina, Brazil.

**Rogério Tadeu de Oliveira
Lacerda**

rogerlacerda@gmail.com
Federal University of Santa
Catarina – UFSC, Florianópolis,
Santa Catarina, Brazil.

ABSTRACT

The present study aims to select a bibliographic portfolio of relevant articles on two main axes: startups and strategic alliances, with the purpose of performing bibliometric analyzes of the articles and their references, authors and periodicals relevant to the theme published in the period between 2013 and 2018. The selection of this portfolio aims at forming the core of a bibliographical reference referring to the subjects in question. As an intervention tool to select the articles, the tool named ProKnow-C was used. The process identified 16 relevant articles that were aligned with the study context. After the selection of the articles, a bibliometric analysis of this portfolio was carried out, evidencing the most relevant articles, the authors and the periodicals that published the most on the two axes studied. In the same way, the bibliometric analysis of the references of the selected final portfolio was also carried out. With the results, this research may be useful for academics and practitioners who wish to develop their theoretical frameworks on articles, authors and journals that stand out in this area and in the context in question.

Keywords: Startups; Strategic Alliances; Partnerships.



1. INTRODUCTION

Over the last few years, corporate efforts to reach the startups ecosystem have been increasing as they are an important source of innovation as they employ emerging technologies to invent products and reinvent business models (Kohler, 2016). Thus the production of disruptive innovation by startups is often described as the only way to compete successfully in today's globalized economy (Weiblen; Chesbrough, 2015).

A startup is considered to be a temporary organization seeking a scalable, recurring, and profitable business model; their creation, business model, context and execution are very different from traditional organizations, since the former operates in a dynamic environment with a high level of uncertainty (Blank; Dorf, 2014).

Established corporations, in turn, have other challenges, such as managing resources, scale, power, and the routines they need to run their business model efficiently, while startups often hold promising ideas, organizational agility, willingness to take risks, and fast-growing aspirations (Weiblen; Chesbrough, 2015).

In this sense, as Barney (1991) explains, the sustainable competitive advantage in an organization is based on the possession of a single value, that is, in the creation of resources that cannot be imitated or replaced. To achieve superior performance, companies may need varied resources, at least some of which they may not have (Pangarkar; Wu, 2013). Thus, strategic alliances formed by startups can be useful tools for accessing key resources controlled by their partners (Pangarkar; Wu, 2013).

In addition, with the globalization of the present day, the Internet can provide a series of facilities, making daily work of managers easier to perform the most diverse tasks and becoming a powerful tool for data generation (Cardoso, Lavarda, 2016), which can be useful, also, for the decision-making process in the management of the strategic alliances. Thus, it is important for companies to expand their competencies to make available information and individual knowledge into interlinked actions (Gerônimo et al., 2018).

However, a strategic alliance formed without a coherent strategy may not be sufficient (Gomes-Casseres, 1998) due to: (i) the fact that startups are limited in terms of resources and experience to successfully implement a comprehensive alliance strategy, and to the (ii) risk of exposing themselves to the opportunism of their partners (Pangarkar, 2009; Pangarkar; Klein, 2001).

In the academic community, there is a lack of universally accepted definitions of what constitutes a strategic alliance.

Some authors, such as Dussauge and Garrette (1995; 1997) and Garai (1999) adopt a more restrictive view, that is, they do not consider certain intercompany relationships such as mergers and acquisitions as a strategic alliance.

On the other hand, the authors Teece (1992), Hagedoorn and Narula (1996), Lorange and Roos (1996), Vapola et al. (2010); Wassmer (2010), Pangarkar and Wu (2013) and Gesing et al. (2015) assume a broader position, classifying various forms of cooperation and partnership agreements between companies as a strategic alliance.

In this paper, the strategic alliances are understood by Mohr and Spekman (1994) and Ireland (2002), who point out strategic alliances as intentional relations between companies that share compatible objectives and aim at mutual benefits.

In view of the above, it is interesting to explore the activities related to the management of relationship with partners in startups with their strategic allies, in a research perspective oriented to the operationalization of alliance management processes.

Such partnerships are taking on greater importance in corporate strategy and, regardless of the institutional context, startups must define their alliance strategy carefully in order to improve their performance (Pangarkar; Wu, 2013). It is therefore necessary to note that the advantages of a partnership can only be achieved if both partners complement efforts to achieve a common goal (Dyer; Singh, 1998; Duschek, 2004).

Thus, this article aims to support research on the topics of startups and strategic alliances, and aims to select a bibliographic portfolio of relevant articles on the two axes and perform bibliometric analyzes on the articles and their references, authors and relevant journals to the theme.

This study uses the process known as ProKnow-C (Knowledge Development Process – Constructivist) (Ensslin et al., 2010) to achieve the proposed goal, which begins with the researcher's interest in a given theme, its delimitations and restrictions inherent to academic context in order to build the knowledge of researchers, offering theoretical background legitimized so that they can initiate a scientific research aligned to the chosen subject.

The article is organized from this introduction, so the methodological framework was approached, followed by the database research process and bibliometrics. Then the procedures performed to achieve the goal of the research and its results are presented. And, in the last section, are the bibliographical references used throughout the text.



2. METHODOLOGY

In this section, the aspects related to the methodological framework of the research and the intervention instrument used (ProKnow-C) are discussed. Figure 1 aims to explain the assumptions that have been made from planning to achieving results.

The intervention tool used in this study was the ProKnow-C (Knowledge Development Process - Constructivist), proposed by Ensslin and Ensslin (2007) and Ensslin et al. (2010), which is composed of four stages: (1) selection of a portfolio of articles on the research theme; (2) bibliometric analysis of the portfolio; (3) systemic analysis; and (4) definition of the research question and the research objective. In this study, the first two stages of the process were used, that is, the selection of the portfolio of articles on the subject of the research and its bibliometric analysis.

The first stage of portfolio formation allows researchers to accumulate a set of articles related to the research topic and in line with their imposed perceptions and delimitations. In this step three phases are performed: (a) the selection of articles in the databases that make up the Gross Articles Bank; (b) the filtering of the selected articles based on the alignment of the research and (c) the representativeness test of the bibliographic portfolio. The end result of this procedure is the set of articles that researchers consider relevant and in line with their research (Ensslin et al., 2013).

Bibliometrics is defined in the second step, in which parameters are analyzed, as in these examples: articles, authors, journals of more prominence in the selected works, and keywords to quantify existing information and providing characteristics of the selected publications (Ensslin et al., 2013).

3. SELECTION OF THE BIBLIOGRAPHIC PORTFOLIO

Research Chronology

The procedures described here were performed between November and December 2018. The time period established was five years prior to the survey (2013-2018) of papers published only in periodicals.

Data base

In this paper, three databases were selected for collecting articles: ISI Web of Science, Scopus and Proquest, which index the main areas of knowledge considered relevant for research. In addition, the Web of Science (or ISI) is the basis for the JCR (Journal Citation Report), that is, the impact factor of journals (Lacerda et al., 2012).

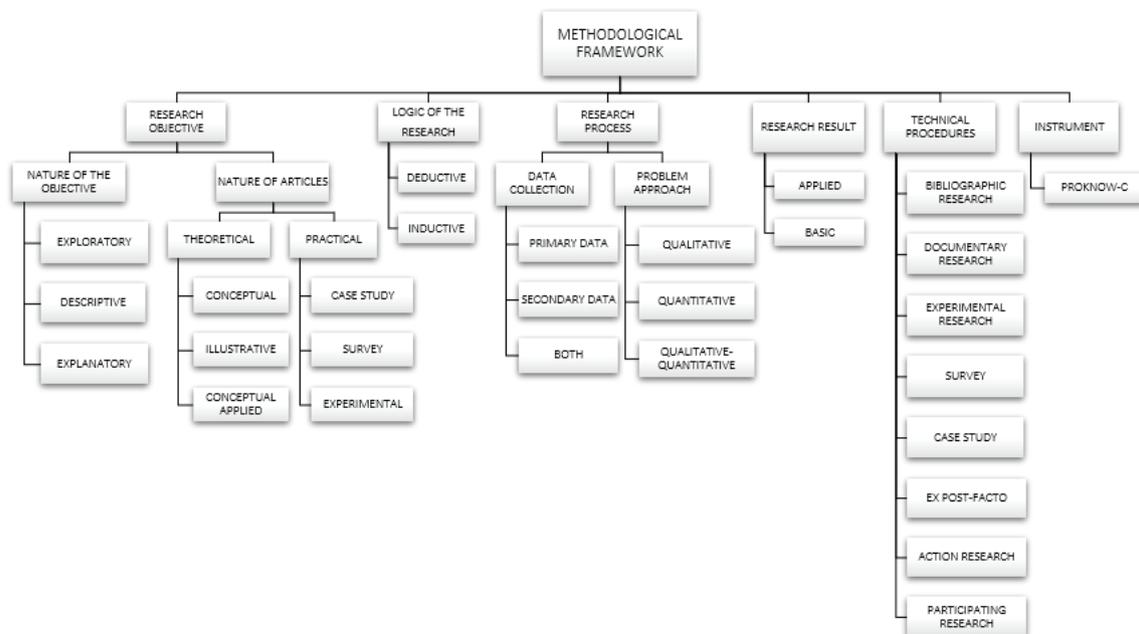


Figure 1. Methodological framework adopted by this Article

Source: (Lacerda et al., 2012)



About Keywords

With the definition of the databases, the search process of the publications was initiated, by means of combinations of the keywords defined for each research axis, delimited to the fields of article titles, keywords and abstracts. Taking into account that this article has as its first line of research the line that deals with Startups, the researchers determined a priori the following keywords: "Startups", "B2B", "Ventures", "Scalability", "Large Firms", "Seed Capital", "Open Innovation" and "Venture Capital".

For the second research theme, which is Strategic Alliances, the keywords related to the theme were: "Alliance Strategy", "Partner", "Partnerships", and "Collaborative Innovation". Figure 2 shows in a visual form the combinations used with the keywords of each axis.

	AXIS 1	AXIS 2
01 02	Startups B2B	Alliance strategy
03 04	Ventures Scalability	Partner
05 06	Large firms Seed capital	Partnerships
07 08	Open Innovation Venture Capital	Collaborative innovation

Figure 2. Keywords of each axis

Source: The authors themselves

Before the definition of the keywords of axis 2, it was decided to perform a test of adherence with five other keywords, in order to determine if a set of data came from a certain distribution or not, as follows: Asymmetric Partnerships, Partner Diversity, Learning Alliance, Alliance Capability, Strategic Alliance Management. However, none of them returned results when combined with axis 1.

It is important to emphasize that the keywords defined in axes 1 and 2 in this study were chosen through previous readings of other articles related to the line of research on startups and strategic alliances, including the words that were used in the adherence test. Thus, no new keywords were added.

Selection of articles for the research portfolio

With the keywords and the characterization of the research field defined, the process of selecting the articles that were part of the portfolio for the construction of the theoretical reference of the research in question began. In this process, EndNote X7 software was used for effective

management of these references. Thus, the search returned a total volume of 824 references, according to Figure 3.

DATABASE	ARTICLES
Scopus	708
ISI	105
ProQuest	11
Total	824

Figure 3. Number of references per database

Source: The authors themselves

After the collection of the references, the identification of duplicate articles was carried out with the help of the software, of which 210 were eliminated from the sample. Once these exclusions were made, the article library was composed of 614 references, up to that point in the selection process.

In the next step of the methodology, the reading of titles of all 614 references was performed to observe their alignment with the present research. Therefore, this analysis resulted in the exclusion of 497 references because they were not aligned with the research, according to the researchers' perception. This leaves 117 references to be analyzed for their scientific recognition since its publication.

To perform the analysis of the 117 references, the number of citations was consulted in the Google Scholar tool and then these were sorted in descending order. With this information, the authors of the present study established a cutoff value for the most cited articles that represent the majority of scientific recognition. This value represents the selection of the most cited references until their quotations represent a value greater than 85% of all citations obtained by the 117 articles analyzed so far. This process reflects the postulate of Pareto (1986), in which a small minority of the population represents the greater part of the effect.

Summing up all the citations of the 117 articles analyzed, the number of 1867 citations was obtained. Thus, articles that individually were cited 12 times or more represented 1609 citations, or 86.2% of all quotations from the 117 references previously selected. Thus, the cut-off point for approving articles, with regard to scientific recognition, was identified as 12 citations or more.

With this identification of the cutoff value, 43 articles were selected by the number of citations, as shown in Figure 4. It is worth mentioning that the 74 less cited articles still underwent a process of analysis under other criteria, for which they could still be part of the final portfolio of articles.



Once the articles with the highest scientific recognition were selected, they were analyzed for the alignment of their abstract to the focus of the research in question. Of the 43 abstracts analyzed, 31 were excluded due to lack of alignment with the research object.

Thus, there are 12 articles that make up Repository A and: (i) are aligned with the title and abstract reading; (ii) have a relevant citation volume; and (iii) have accessible abstract. Therefore, these articles with scientific recognition and aligned with the research theme were designed to form the basis of the theoretical reference on startups and strategic alliances.

However, a further analysis was necessary before definitively excluding the 74 articles with fewer quotations, since they could still be part of the final portfolio of articles. To this end, the process defined two possible conditions: (a) articles published less than two years after the analysis, since they did not have the opportunity to receive further citations; (b) when the articles have been published for more than two years, they must be authored by some researcher already present in the set of 12 articles aligned in the summary and with scientific relevance.

With these two arguments defined, of the 74 articles analyzed in the recapture, 61 articles were published in 2017, 2016 or 2015. Of the 13 articles that were published before the year 2015, no article is of authors present in the portfolio of the articles already selected.

Thus, of the 61 articles selected for the reanalysis process, four articles were selected after reading their abstracts to compose Repository B, given the alignment regarding the research object. Figure 5 illustrates the reanalysis process and makes explicit the number of articles that went through each activity of the article selection process.

The four articles selected in the recapping process were then incorporated into the group of 12 previously selected articles, forming Repository C, with a total of 16 articles for the final portfolio. Thus, as a final procedure, the availability of the articles and their reading were verified in their entirety. From this analysis, a study was excluded due to misalignment of the research theme, leaving a total of 15 articles for the final bibliographic portfolio. Figure 6 graphically explains the final procedures of this step.

Test of the representativeness of the bibliographic portfolio

After the formation of the group of 15 articles that compose the Repository C, it was necessary to execute the representative test of this bibliographic portfolio. This analysis consisted in determining in the tool Google Scholar the number of citations of the articles of the references of Repository C and to order them in descending order of citation. In this sense, of the 15 articles analyzed, 108 references published in the time period established in the survey of five previous years were identified.

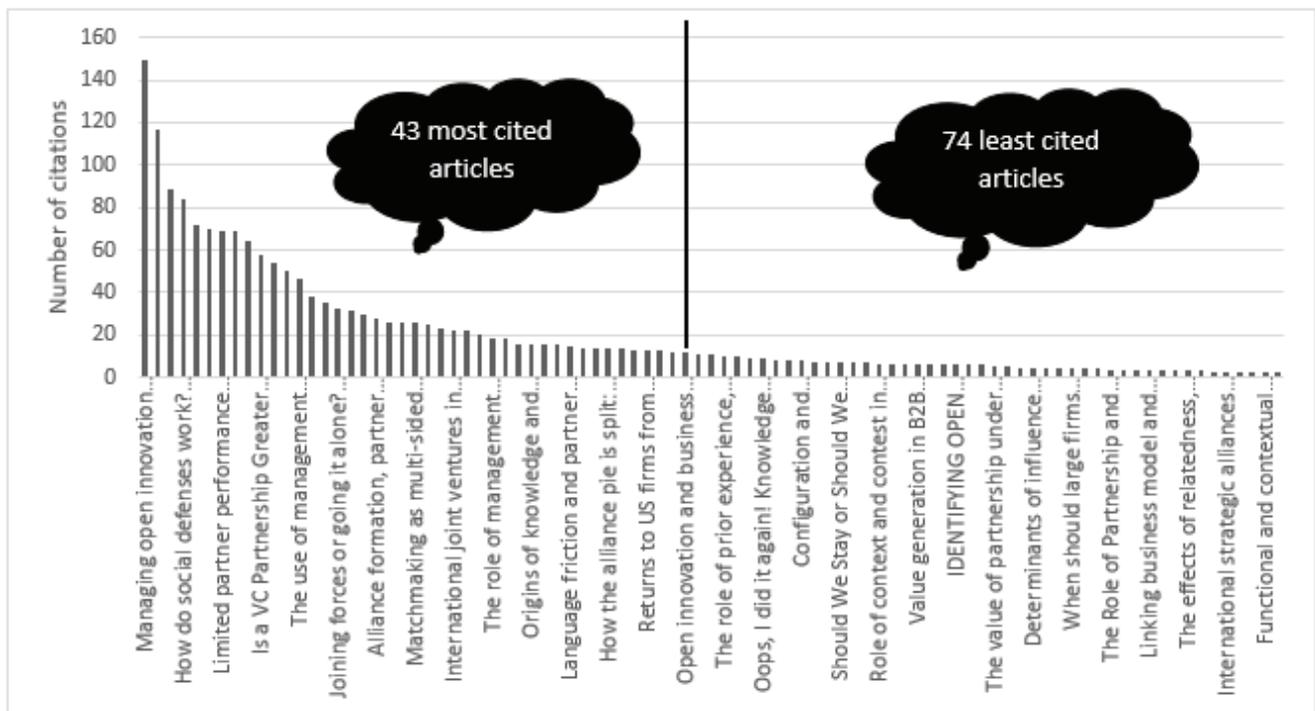


Figure 4. Evidence of cut-off value according to their citations

Source: The authors themselves

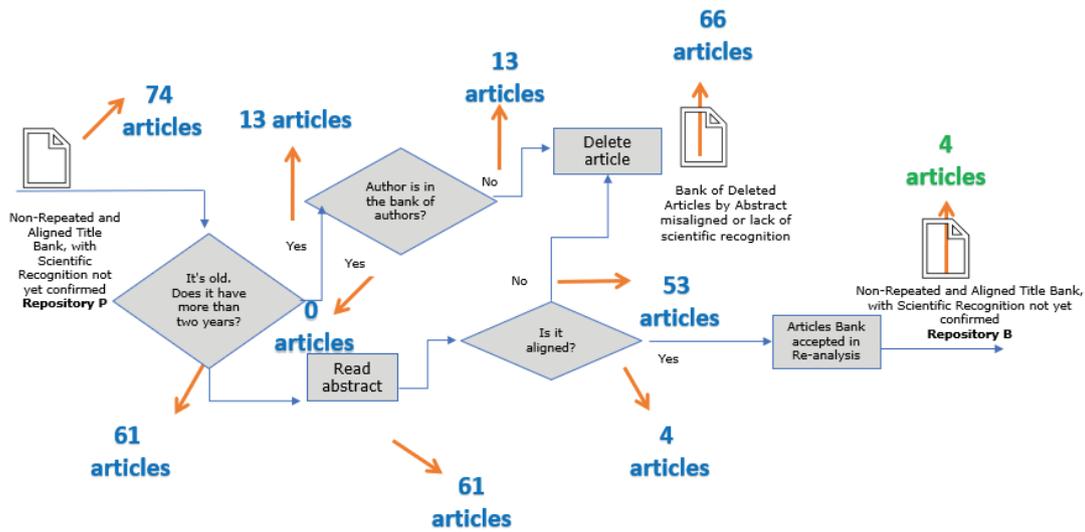


Figure 5. Process for reanalysis of articles.

Source: The authors themselves

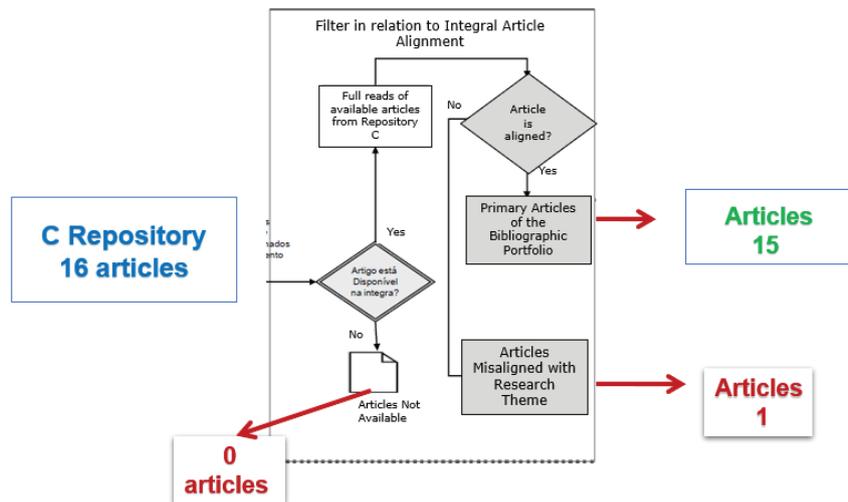


Figure 6. Final procedures of the article selection stage.

Source: Adapted from Ensslin et al. (2010)

In the next step, the 108 references were submitted to Pareto analysis; with a cutoff point for the most cited references, the stipulated value corresponds to 85%, that is, this value represents the selection of the most cited references.

Thus, the analysis resulted in 40 articles that were individually cited 89 times or more, which represent 11,353 citations, that is, 85.11% of all citations from the 108 references. The remaining 68 less cited articles reflect 14.36% of the

citations. Thus, in the 40 most cited articles, only one that was aligned with the theme according to the researchers' perception was identified. This article was incorporated into the final portfolio, totaling 16 articles. Figure 7 demonstrates the process performed for the representativeness test.

The 16 articles selected to compose the final portfolio of this research are named in alphabetical order by the first author in Figure 8.

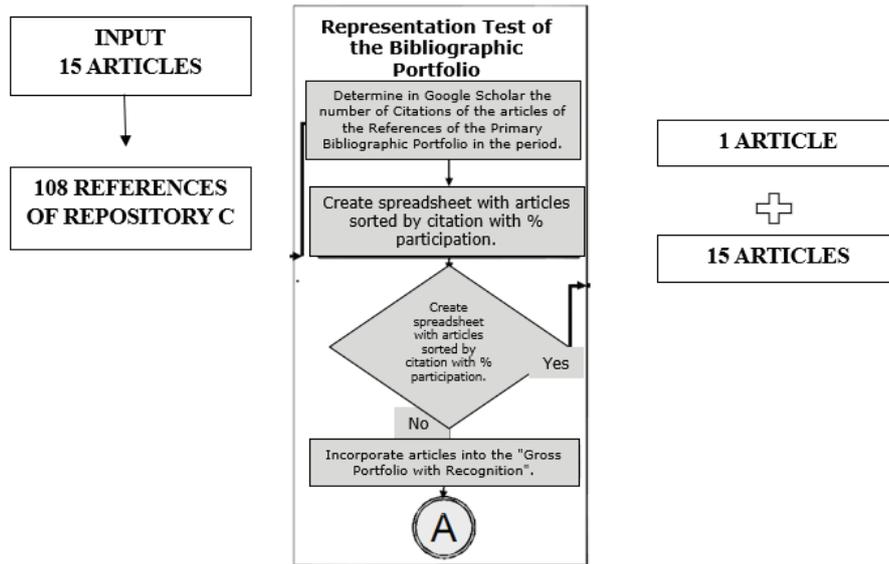


Figure 7. Proof of the representativeness of the Bibliographic Portfolio.

Source: Adapted from Ensslin et al. (2010)

Adams, F. G.; Graham, K. W. (2017). "Integration, knowledge creation and B2B governance: The role of resource hierarchies in financial performance." <i>Industrial Marketing Management</i> 63: 179 - 191.
Agarwal, A.; Singh, D.; Agariya, A. K. (2017). "What Really Leads to Partner Relationship Management? A Review of Literature." <i>Journal of Relationship Marketing</i> 16(4): 245 - 285.
Albers, S.; Wohlgezogen, F.; Zajac, E. J. (2016). "Strategic Alliance Structures: An Organization Design Perspective." <i>Journal of Management</i> 42(3): 582-614.
Allen, T. J.; Gloor, P. A.; Fronzetti Colladon, A.; Woerner, S. L.; Raz, O. (2016). "The power of reciprocal knowledge sharing relationships for startup success." <i>Journal of Small Business and Enterprise Development</i> 23(3): 636 - 651.
Barac, D.; Ratkovic-Zivanovic, V.; Labus, M.; Milinovic, S.; Labus, A. (2017). "Fostering partner relationship management in B2B ecosystems of electronic media." <i>Journal of Business & Industrial Marketing</i> 32(8):1203-1216.
De Falco, S. E.; Renzi, A.; Orlando, B.; Cucari, N. (2017). "Open collaborative innovation and digital platforms." <i>Production Planning & Control</i> 28(16): 1344-1353.
Du, J.; Leten, B.; Vanhaverbeke, W. (2014). "Managing open innovation projects with science-based and market-based partners." <i>Research Policy</i> 43 (2014) 828–840.
Gesing, J.; Antons, D.; Piening, E. P.; Rese, M.; Salge, T. O. (2015). "Joining forces or going it alone? On the interplay among external collaboration partner types, interfirm governance modes, and internal R&D." <i>Journal of Product Innovation Management</i> 32(3): 424-440.
Gomes, E.; Barnes, B. R.; Mahmood, T. (2016). "A 22 year review of strategic alliance research in the leading management journals." <i>International Business Review</i> 25(1): 15-27.
Hahn, R.; Gold, S. (2014). "Resources and governance in "base of the pyramid"-partnerships: Assessing collaborations between businesses and non-business actors." <i>Journal of Business Research</i> 67(7): 1321-1333.
Hagen, B.; Zucchella, A. (2014). "Born Global or Born to Run? The Long-Term Growth of Born Global Firms." <i>Management International Review</i> 54(4): 497–525.
Holzmann, T.; Sailer, K.; Katzy, B. R. (2014). "Matchmaking as multi-sided market for open innovation." <i>Technology Analysis and Strategic Management</i> 26(6): 601-615.
Kohler, T. (2016). "Corporate accelerators: Building bridges between corporations and startups." <i>Business Horizons</i> 59(3): 347-357.
Love, J. H., S. Roper, and P. Vahter. (2013). "Learning from openness: The dynamics of breadth in external innovation linkages." <i>Strategic Management Journal</i> 35: 1703–1716
Pangarkar, N.; Wu, J. (2013). "Alliance formation, partner diversity, and performance of Singapore startups." <i>Asia Pacific Journal of Management</i> 30(3): 791- 807.
Weiblen, T.; Chesbrough, H. W. (2015). "Engaging with startups to enhance corporate innovation." <i>California Management Review</i> 57(2): 66-90.

Figure 8. Articles that form the bibliographic portfolio to compose the theoretical reference on startups and strategic alliances.

Source: The authors themselves



4. BIBLIOMETRIC ANALYSIS OF THE PORTFOLIO OF SELECTED ARTICLES

With the bibliographic portfolio formed, the second stage of analysis of this research was initiated. At this stage, bibliometrics was defined as an information identification process with the objective of quantifying existing data and providing characteristics of the selected publications (Ensslin et al., 2013). This stage was divided into three phases: (i) bibliometric analysis of selected articles; (ii) bibliometric analysis of the references of the selected articles; and (iii) classification of articles of academic relevance in the sample.

Bibliometric analysis of selected articles

From the bibliometric analysis performed in the selected articles, four aspects were evaluated: (a) scientific recognition by the number of citations; (b) number of articles per

newspaper; (c) number of articles per author; and (d) number of featured keywords.

Scientific recognition by number of citations

Figure 9 shows the articles selected for the bibliographic portfolio with journal titles, article titles, year of the publications and the number of citations received at the time of the research.

Number of articles per periodical

This analysis resulted in only one article per periodical, that is, all 16 articles in the bibliographic portfolio belong to different journals. In this way, the graph presentation is unnecessary, as they are arranged in Table 2.

Journal	Title	Year	No. of Citations
Research Policy	Managing open innovation projects with science-based and market-based partners	2014	175
Strategic Management Journal	Learning from openness: The dynamics of breadth in external innovation linkages	2013	159
California Management Review	Engaging with startups to enhance corporate innovation	2015	151
Journal of Management Business Horizons	Strategic Alliance Structures: An Organization Design Perspective	2016	110
Management International Review	Corporate accelerators: Building bridges between corporations and startups	2016	104
Journal of Business Research	Born Global or Born to Run? The Long-Term Growth of Born Global Firms	2014	92
International Business Review	Resources and governance in "base of the pyramid"-partnerships: Assessing collaborations between businesses and non-business actors	2014	73
Journal of Product Innovation Management	A 22-year review of strategic alliance research in the leading management journals	2016	65
Technology Analysis and Strategic Management	Joining forces or going it alone? On the interplay among external collaboration partner types, interfirm governance modes, and internal R&D	2015	41
Asia Pacific Journal of Management	Matchmaking as multi-sided market for open innovation	2014	30
Journal of Small Business and Enterprise Development	Alliance formation, partner diversity, and performance of Singapore startups	2013	29
Industrial Marketing Management	The power of reciprocal knowledge sharing relationships for startup success	2016	21
Journal of Business & Industrial Marketing	Integration, knowledge creation and B2B governance: The role of resource hierarchies in financial performance	2017	9
Production Planning & Control	Fostering partner relationship management in B2B ecosystems of electronic media	2017	4
Journal of Relationship Marketing	Open collaborative innovation and digital platforms	2017	3
	What Really Leads to Partner Relationship Management? A Review of Literature	2017	3

Figure 9. Number of quotes from portfolio articles.

Source: The authors themselves



Number of articles by author

In the bibliographic portfolio selected, each author has only one referenced article. The authors' names and the title of their publications are visible in Figure 10.

Featured Keywords in the portfolio

With regard to the keywords used by the articles selected in the portfolio, Figure 11 was obtained, which brought out the words Startups and Open Innovation, present in four articles each.

5. BIBLIOMETRIC ANALYSIS OF THE REFERENCES OF THE SELECTED ARTICLES

In order to identify authors, articles and periodicals in the scope of the present research, 1,182 references were cataloged

in the 16 articles that compose the final portfolio. After that, the references published in the time period established in the research were selected, leaving 108 references that were analyzed in the following aspects: (i) prominent journals of the publications; (b) prominent authors, and (iii) most cited articles in Google Scholar at the time of the research.

In Figure 12, it is possible to visualize the main journals that stood out in the references of the bibliographic portfolio: the Industrial Marketing Management journal, with 18 articles published followed by the Journal of Business Research, with eight articles and the Journal of Product Innovation Management, with six articles.

As for the authors who published the most, it is possible to highlight the contributions of Henry William Chesbrough and Stephen L. Vargo, as shown in Figure 13.

Finally, in Figure 14 one can see the articles that stood out in the references of the bibliographic portfolio by their

Authors	Publication Title
Du, J.; Leten, B.; Vanhaverbeke, W.	Managing open innovation projects with science-based and market-based partners
Love, J. H., Roper, S., e Vahter, P.	Learning from openness: The dynamics of breadth in external innovation linkages
Weiblen, T.; Chesbrough, H. W.	Engaging with startups to enhance corporate innovation
Albers, S.; Wohlgezogen, F.; Zajac, E. J.	Strategic Alliance Structures: An Organization Design Perspective
Kohler, T.	Corporate accelerators: Building bridges between corporations and startups
Hagen, B.; Zucchella, A.	Born Global or Born to Run? The Long-Term Growth of Born Global Firms
Hahn, R.; Gold, S.	Resources and governance in "base of the pyramid"-partnerships: Assessing collaborations between businesses and non-business actors
Gomes, E.; Barnes, B. R.; Mahmood, T.	A 22 year review of strategic alliance research in the leading management journals
Gesing, J.; Antons, D.; Piening, E. P.; Rese, M.; Salge, T. O.	Joining forces or going it alone? On the interplay among external collaboration partner types, interfirm governance modes, and internal R&D
Holzmann, T.; Sailer, K.; Katzy, B. R.	Matchmaking as multi-sided market for open innovation
Pangarkar, N.; Wu, J.	Alliance formation, partner diversity, and performance of Singapore startups
Allen, T. J.; Gloor, P. A.; Fronzetti Colladon, A.; Woerner, S. L.; Raz, O.	The power of reciprocal knowledge sharing relationships for startup success
Adams, F. G.; Graham, K. W.	Integration, knowledge creation and B2B governance: The role of resource hierarchies in financial performance
Barac, D.; Ratkovic-Zivanovic, V.; Labus, M.; Milinovic, S.; Labus, A.	Fostering partner relationship management in B2B ecosystems of electronic media
De Falco, S. E.; Renzi, A.; Orlando, B.; Cucari, N.	Open collaborative innovation and digital platforms
Agarwal, A.; Singh, D.; Agariya, A. K.	What Really Leads to Partner Relationship Management? A Review of Literature

Figure 10. Number of articles by author

Source: The authors themselves

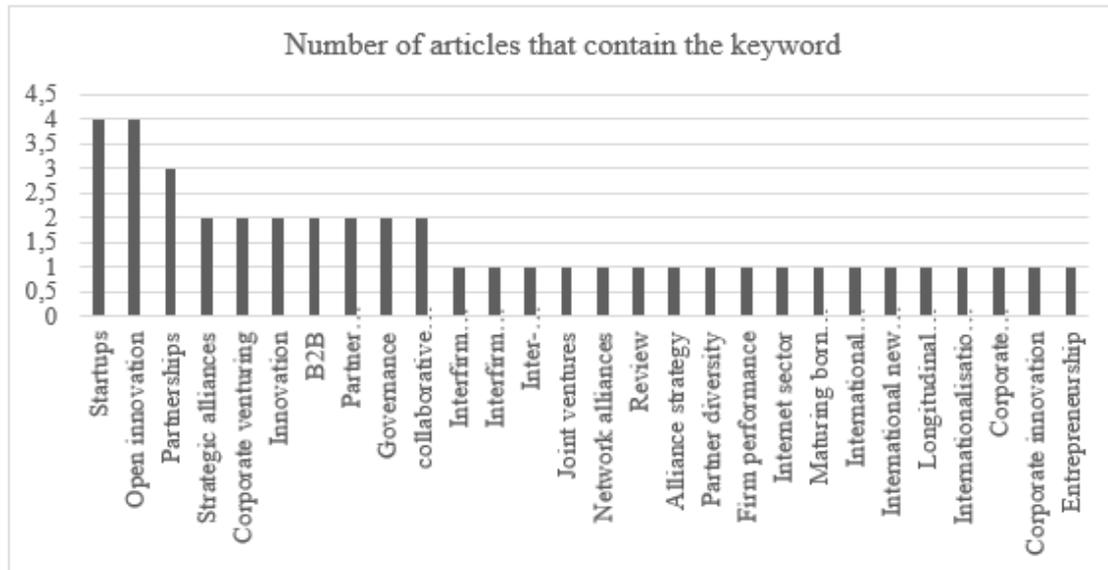


Figure 11. Highlighted keywords.

Source: The authors themselves

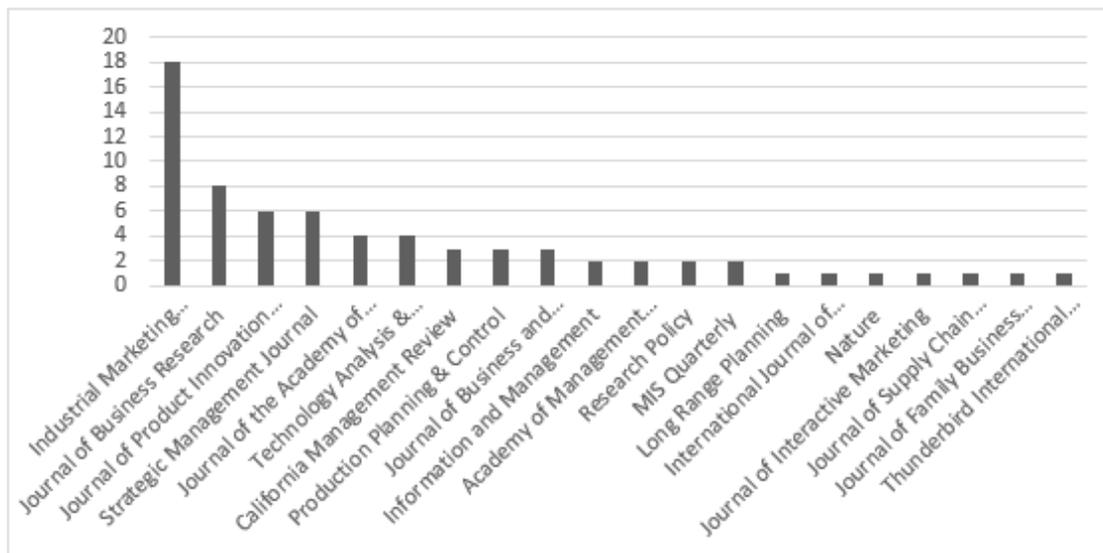


Figure 12. Featured journals in portfolio references.

Source: The authors themselves

number of citations. The most cited was the so-called “Digital Business Strategy: Toward a Next Generation of Insights” with 888 citations, the following article, entitled “Leveraging external sources of innovation: A review of research on open innovation” appears with 809 citations.

As a result of these analyzes, it was possible to construct Figure 15 with two defined dimensions to classify the articles according to their academic relevance and the articles that stand out in this analysis.

6. CONCLUSION

Due to its relevance in the development of academic researches focused on the theme of startups and strategic alliances, the objective of this study was to select a bibliographic portfolio of articles that approached the two axes to compose a theoretical reference about the researched context.

In the section that deals with the methodology, the intervention tool used in the article was presented as the basis for selection of bibliographic references, which corresponds to the ProKnow-C tool. The process began with a total of 824

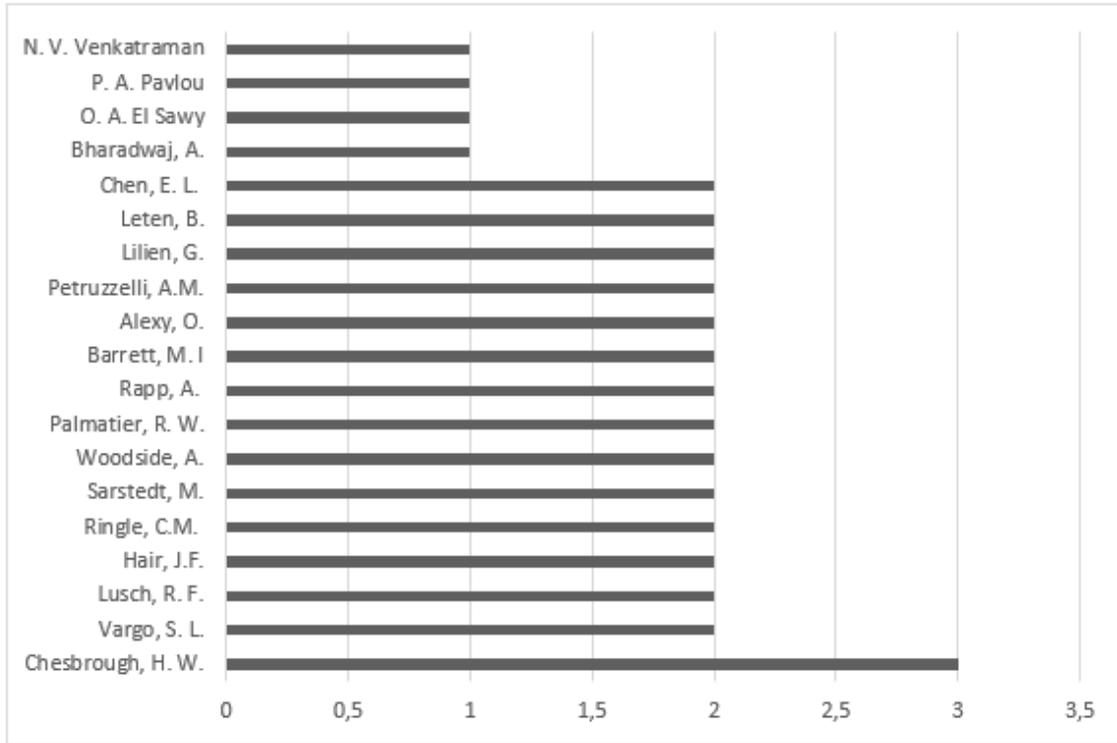


Figure 13. Highlighted authors in the references of the bibliographic portfolio.
 Source: The authors themselves

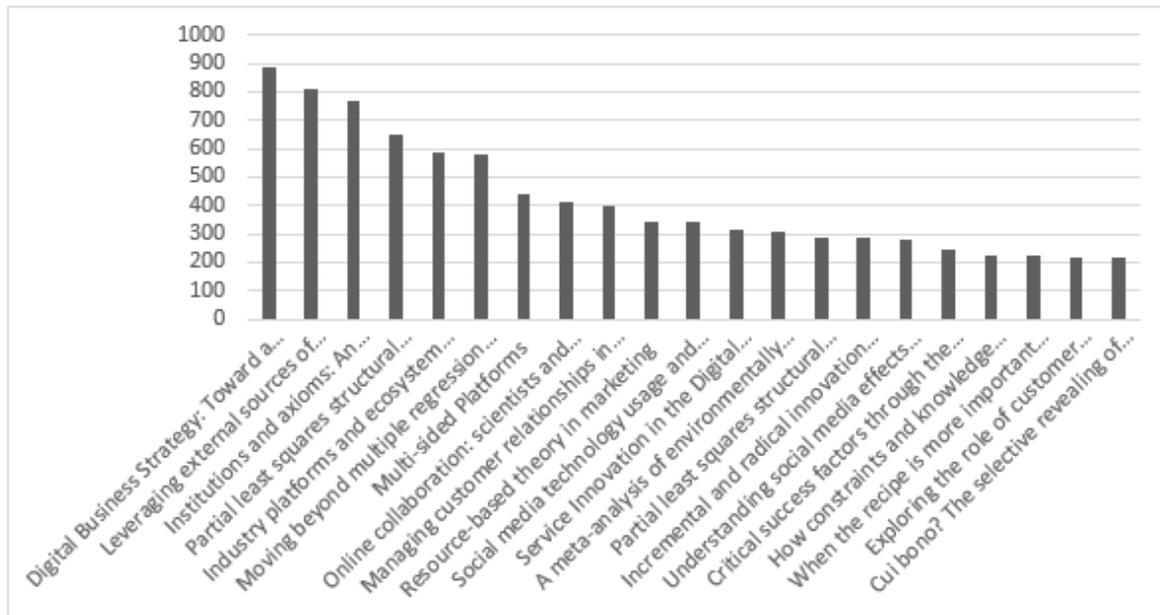


Figure 14. Featured articles in portfolio references.
 Source: The authors themselves

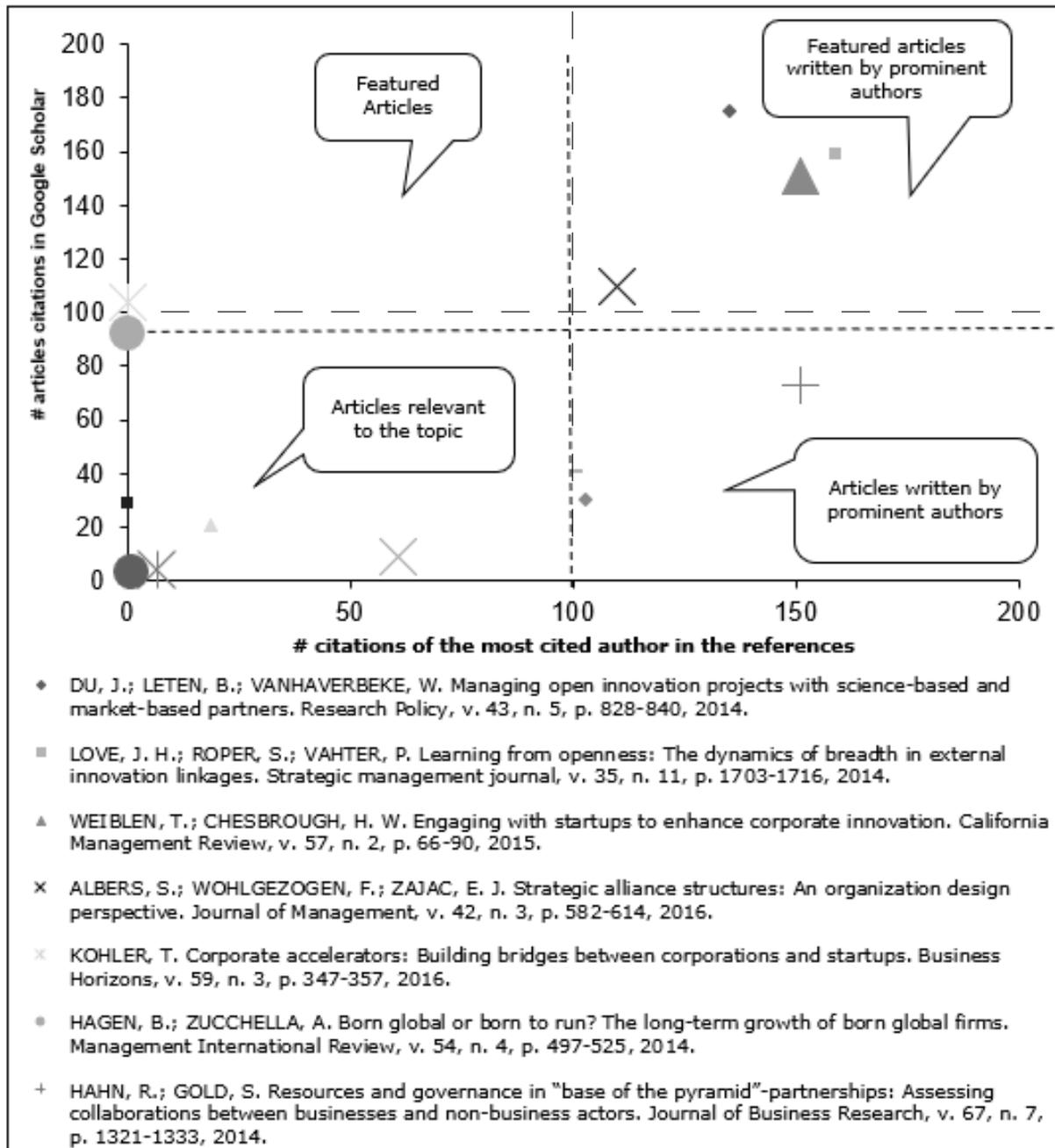


Figure 15. Classification of articles according to their academic relevance.

Source: Research Data

references and finished with a portfolio of 16 articles with representativeness and aligned with the proposed theme and context.

With the final composite portfolio, an analysis was performed to ascertain the main works, authors, periodicals and keywords that were published on the two themes studied here. Thus, as a result of the analysis process, all 16 articles selected to compose the final portfolio were published by different journals, that is, there was no periodical highlighted in this stage. As for the authors, the process evidenced

that, in the bibliographic portfolio selected, each author has only one referenced article. The key words that stood out in the portfolio were Startups and Open Innovation, present in four articles each.

In addition, it was also possible to identify the leading articles in the portfolio, that is, with more citations in the Google Scholar tool, which are: (i) Managing open innovation projects with science-based and market-based partners; and (ii) Learning from openness: The dynamics of breadth in external innovation linkages.



In the second stage of the process, the bibliographical references present in the 16 articles of the final portfolio were analyzed, highlighting the periodical *Industrial Marketing Management*. As for the authors' analysis, the contributions of Henry William Chesbrough, who stands out in the classification of academic relevance from the perspective of the most cited author in the bibliographical references of the articles selected in the final portfolio, were highlighted.

And finally, there were two articles that stood out as most cited in the Google Scholar tool: (i) *Digital Business Strategy: Towards a Next Generation of Insights*; and (ii) *Leveraging external sources of innovation: A review of research on open innovation*.

In this sense, this work does not attempt to construct a closed theoretical framework in itself, but aims to contribute to future studies about the context being studied in a structured process of selection and disclosure of the most relevant articles, authors and periodicals in the area. Thus, as a suggestion for possible future research, the systemic analysis of the selected portfolio is recommended, in order to find research opportunities through content analysis of the works.

As a limitation of this research, the sampling field is pointed out, since, although it covers three renowned databases, only those articles that were available in its integral format were collected by the CAPES system of periodicals between November and December of 2018.

REFERENCES

- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, Vol. 17, No. 1, pp. 99-120.
- Blank, S.; Dorf, B. (2014). *Startup: Manual do Empreendedor o guia passo a passo para construir uma grande companhia*. Altas Books, Rio de Janeiro.
- Cardoso, F. E.; Lavarda, R. A. B. (2016). O uso da internet como prática estratégica na tomada de decisão pelo middle manager. *Sistemas & Gestão*, Vol. 11, No. 4, pp. 342-354.
- Duschek, S. (2004). Inter-firm resources and sustained competitive advantage. *Management Revue*, Vol. 15, No. 1, pp. 53-73.
- Dussauge, P.; Garrette, B. (1995). Determinants of success in international strategic alliances: Evidence from the global aerospace industry. *Journal of International Business Studies*, Vol. 26, No. 3, pp. 505-530.
- Dussauge, P.; Garrette, B. (1997). Anticipating the evolutions and outcomes of strategic alliances between rival firms. *International Studies of Management & Organization*, Vol. 27, No. 4, pp. 104-126.
- Dyer, J. H.; Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, Vol. 23, No. 4, pp. 660-679.
- Ensslin, L. et al. (2010). ProKnow-C, knowledge development process-constructivist. *Processo técnico com patente de registro pendente junto ao INPI*. Brasil.
- Ensslin, L. et al. (2013). *Processo de investigação e Análise bibliométrica: Avaliação da Qualidade dos Serviços Bancários*. *Revista de Administração Contemporânea*, Vol. 17, No. 3, pp. 325-349.
- Ensslin, L.; Ensslin, S. R. (2007). *Orientações para elaboração dos artigos científicos do LabMCDA-C [Apostila da disciplina Avaliação de Desempenho do Programa de Pós-graduação em Engenharia de Produção da Universidade Federal de Santa Catarina]*. Florianópolis. UFSC.
- Garai, G. (1999). Leveraging the rewards of strategic alliances. *Journal of Business Strategy*, Vol. 20, No. 2, pp. 40-41.
- Gerônimo, M. S. et al. (2018). O impacto de um sistema de informação nos processos produtivos: um estudo de caso em um laboratório de análises clínicas de uma instituição de ensino superior privada. *Sistemas & Gestão*, Vol. 13, No. 1, pp. 107-117.
- Gesing, J. et al. (2015). Joining Forces or Going It Alone? On the Interplay among External Collaboration Partner Types, Interfirm Governance Modes, and Internal R&D. *Journal of Product Innovation Management*, Vol. 32, No. 3, pp. 424-440.
- Hagedoorn, J.; Narula, R. (1996). Choosing organizational modes of strategic technology partnering: international and sectoral differences. *Journal of International Business Studies*, Vol. 27, No. 2, pp. 265-284.
- Ireland, R. D. (2002). Alliance management as a source of competitive advantage. *Journal of Management*, Vol. 28, pp. 413-446.
- Kohler, T. (2016). Corporate accelerators: Building bridges between corporations and startups. *Business Horizons*, Vol. 59, No. 3, pp. 347-357.
- Lacerda, R. T. O. et al. (2012). Uma análise bibliométrica da literatura sobre estratégia e avaliação de desempenho. *Gestão & Produção*, Vol. 19, No. 1, pp. 59-78.
- Lorange, P.; Roos, J. (1996). *Alianças estratégicas: formação, implementação e evolução*. Atlas, São Paulo.
- Mohr, J.; Spekman, R. (1994). Characteristics of partnership success: Partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal*, Vol. 15, pp. 135-152.



- Pangarkar, N. (2009). Do firms learn from alliance terminations? An empirical examination. *Journal of Management Studies*, Vol. 46, No. 6, pp. 982–1004.
- Pangarkar, N.; Klein, S. (2001). The impacts of alliance purpose and partner similarity on alliance governance. *British Journal of Management*, Vol. 12, No. 4, pp. 341–353.
- Pangarkar, N.; Wu, J. (2013). Alliance formation, partner diversity, and performance of Singapore startups. *Asia Pacific Journal of Management*, Vol. 30, No. 3, pp. 791- 807.
- Pareto, V. (1986). *Cours d'économie politique*. Volume 1. Lausanne: F. Rouge.
- Teece, D. J. (1992). Competition, cooperation, and innovation: Organizational arrangements for regimes of rapid technological progress. *Journal of Economic Behavior & Organization*, Vol. 18, No. 1, pp. 1-25.
- Vapola, T. J. et al. (2010). Portfolio management of strategic alliances: An international business perspective. *International Business Review*, Vol. 19, pp. 247–260.
- Wassmer, U. (2010). Alliance portfolios: A review and research agenda. *Journal of Management*, Vol. 36, pp. 141–171.
- Weiblen, T.; Chesbrough, H. W. (2015). Engaging with startups to enhance corporate innovation. *California Management Review*, Vol. 57, No. 2, pp. 66-90.

Received: 16 April, 2019

Approved: May 15, 2019

DOI: 10.20985/1980-5160.2019.v14n2.1527

How to cite: Silveira, B. R.; Lacerda, R. T. O. (2019), "Bibliometric analysis of the literature on startups and strategic alliances", *Sistemas & Gestão*, Vol. 14, No. 2, pp. 197-210, available from: <http://www.revistasg.uff.br/index.php/sg/article/view/1527> (access day month abbreviated year).