

# **The role of marketing for startups: a literature review based on data mining keywords**

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## **ABSTRACT**

*In a world where startups are becoming more relevant to the global economy, it is important to study the role of marketing in the performance of these ventures. While much literature can be found about marketing for startups, no clear consensus has been found. Aiming to understand the role of marketing for startups, a study through the data mining of scientific articles has been made to detect certain keywords that potentially would give a better understanding of this relationship. Our study has proven that this data mining tool can be useful, forming a framework that highlights the role of marketing for startups. The keyword duo found in the process are: market orientation, competitive advantage and value creation. Therefore, the literature and role of marketing for startups has been based on these terms. This role is to proactively research the market in order to take advantage of circumstantial opportunities, having focus on market orientation, in order to seek a sustainable competitive advantage by creating value for customers. This article combines literature and gives a better understanding to the marketing role for startups but also to the use of data mining for gathering useful information. The practical implication can be observed in the methodology section since it is explained in as much detail as possible as the process was carried out in order to make it repeatable.*

## **Keywords**

*Startups, entrepreneurship, marketing, data mining, literature review, market orientation, value creation, competitive advantage.*

## **The author's point of view: Why this topic?**

*Mainly motivated by the inclusion of information technology in the research and marketing process. On the other hand, the author is interested in marketing literature for startups, so filling the gap that exists is another motivation factor. This research is the perfect opportunity to combine what has been learned in the master course of Advance Topics in Digital Marketing at the University of Twente.*

## Introduction

In a world that is increasingly more technological, there are many processes that are affected or are getting affected by technology. One of these processes is marketing, which must be constantly adapted according to technological advances (Rust, R. T., & Espinoza, F., 2006). Along with the rapid technological increase and its improvement, the number of startups has also increased<sup>1</sup>. Startup is defined as a young company which seeks for a repeatable, sustainable and scalable business model (Blank 2013). The Marketing Science Institute (MSI) has expressed that the study of the organization of marketing in startups is priority for the years 2018-2020<sup>2</sup>. Therefore, we can assume that there is a gap in the literature that has to be filled. This research tries to find an answer to the following research question:

*What is the role of marketing for start-ups?*

By answering this research question, the goal is to contribute to a more extensive understanding of how startups can manage marketing activities. The practical purpose of this research is to help startups to better understand how to manage marketing activities in a competitive market.

This literature review will be based on the outcome of keywords extracted from 236 scientific articles related to marketing and startups, through the use of the data mining technique. Data mining is defined as: “*a process of nontrivial extraction of implicit, previously unknown, and potentially useful information from the data stored in a database* (Neaga, E. I., & Harding\*, J. A. 2005). This tool has proven to be useful to gain knowledge through the analysis of information (Fayyad, U. M., Piatetsky-Shapiro, G., Smyth, P., & Uthurusamy, R. 1996). Researchers are using data mining in various contexts such as: customer relations management, customer segmentation, market basket analysis, forecasting, among many others. Nevertheless, no literature review based on this technique has been found. Therefore, this research tries to find an answer the following sub question:

*How feasible is gathering relevant information out of data mining the keywords in scientific articles for writing a literature review?*

By answering this sub question, the intention is to provide a better understanding of how the process of mining scientific articles works and if it is feasible. Depending on the outcome, the practical goal is to optimize the search for scientific articles and make this process as objective as possible.

In the first section of this paper, the methodology for the literature selection and its data mining process will be discussed. In the second section, the results of the data mining process will be analyzed. In the third section, a brief literature review based on the results of the data mining process will be presented. Finally, answers to the research question and the sub question will be discussed. This will be followed by the limitations of this study and recommendations for future research.

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<sup>1</sup> Florida, R., & Hathaway, I., (2018). *How the geography of startups and innovation is changing*. Retrieved from: <https://hbr.org/2018/11/how-the-geography-of-startups-and-innovation-is-changing>

<sup>2</sup> Marketing Science Institute (2018). *Research Priorities 2018-2020*. Retrieved from: <https://www.msi.org/research/2018-2020-research-priorities/>

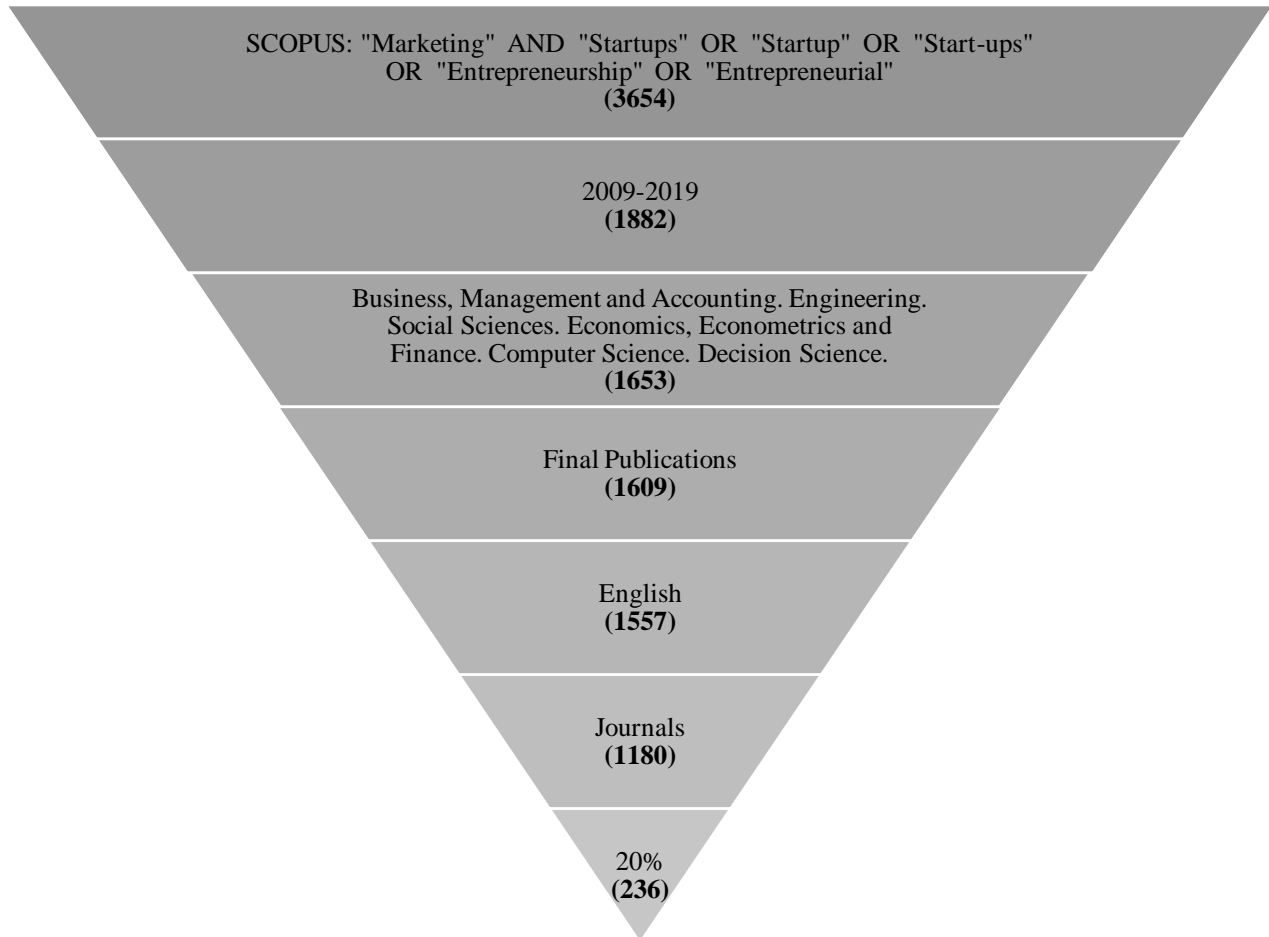
## **Methodology**

As mentioned above, the literature review that will be presented in this article has been based on the detection of certain keywords through the data mining technique. The main objective of the methodology section is to explain the process as clearly and transparently as possible so that it can potentially be replicated by researchers. This process has been carried out using the RStudio tool, which is an open-source tool that allows the use of R programming language for new users, since its user-friendly interface, but also offers great productivity for advanced users (Allaire, J., 2012). The search for scientific articles has been made through the Scopus website (Elsevier's abstract and citation database). This database website has been selected because it contains the most peer reviewed content presented in journals (Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G., 2008). This section has five sub sections: (1) literature selection, (2) document transformation, (3) coding the data using RStudio, (4) re-coding the data by filtering specific words, and finally (5) working the outcome in MS Excel.

### **Scientific articles selection**

The selection of literature is based on the two keywords "marketing" and "startups" (or "start-up"). However, "startups" has "entrepreneurships" as a synonym. For both terms it was necessary to consider its singular version: "startup" and "entrepreneurship". Therefore, the keyword "entrepreneurial" was also included in the search. The search for these keywords, using the Boolean logic, yielded 3654 results. Due to the rapid technological advances, this study is limited to the last ten years, including articles from 2009 to 2019. This resulted in 1882 articles. To avoid "contaminating" the information with terms not related to business, only the next subject areas have been considered: Business, Management and Accounting; Engineering; Social Sciences; Economics, Econometrics and Finance; Computer Science; Decision Science. This filter delivered 1653 articles. Only final publications have been considered, leaving the search in 1609 matching results. Since as a result of the data mining it is sought to analyze keywords in English, this search has been limited also to articles exclusively in this language, delivering 1557 articles. Articles exclusively from Journals have been selected, because they have been peer reviewed. After applying this filter, it resulted in a total of 1180 resulting matches. Finally, due to time limitations, only 20% of the most cited articles of each year have been taken into account, as it can be seen in Appendix I. The general process of the selection of scientific articles can be seen in Figure 1.

When the selection process of the 20% began, a series of problems have been detected. The first was that a high percentage of articles that still belong to other areas (chemical, education, etc.) have been found. The term entrepreneurial orientation interfered in the results since it includes the terms "marketing" and "entrepreneurial", but it does not always refer to a start-up. The last problem was with the term SME (small and medium enterprises) because it is sometimes considered as a startup and sometimes not. According to a study conducted by Shah, Perez-Iratxeta, Bork, and Andrade (2003), the abstract of scientific articles contains the highest ratio of keywords. Therefore, scanning the abstract of around 50% of the 1180 articles was needed in order to select relevant articles. The complete list of the selected articles with their respective ID, authors and number of citations in Scopus can be found in the Appendix II.



**Figure 1. Scientific articles selection method.**

### **Documents transformation**

After selecting and downloading the 236 documents in ".pdf" format, transforming them to ".txt" was necessary. This process was carried out with the objective of facilitating the reading of documents for use in RStudio, since when they are transformed, all the factors that are not text (images) are eliminated, the files are lighter, and the text is standardized. To make this process more expeditious, a free online tool PDF to Text converter has been used.

### **Coding (data mining)**

As mentioned above, the programming software that has been used is RStudio. The (simplified) process of coding in order to gather the keywords out of the existent literature consists of the next six steps:

- (1) Install the necessary packages.
- (2) Import the 236 documents.
- (3) Organize them in a frame.

- (4) Clean the information by removing unwanted characters (numbers, punctuation, “stop words”, etc.), transform it to lowercase, among others. Stop words were eliminated because they have a very high presence which diminishes the impact of less common words (El-Khair, I. A., 2006). A list of the eliminated stop words can be found in Appendix III.
- (5) Create a term document matrix.
- (6) Retrieve the results using an Excel table and a “word cloud”, which has proven to be an effective tool for analyzing texts (Heimerl, F., Lohmann, S., Lange, S., & Ertl, T., 2014).

This process was carried out two times: first to find the result of the word (only one) more frequent, second to find the two unified words that were used more frequently.

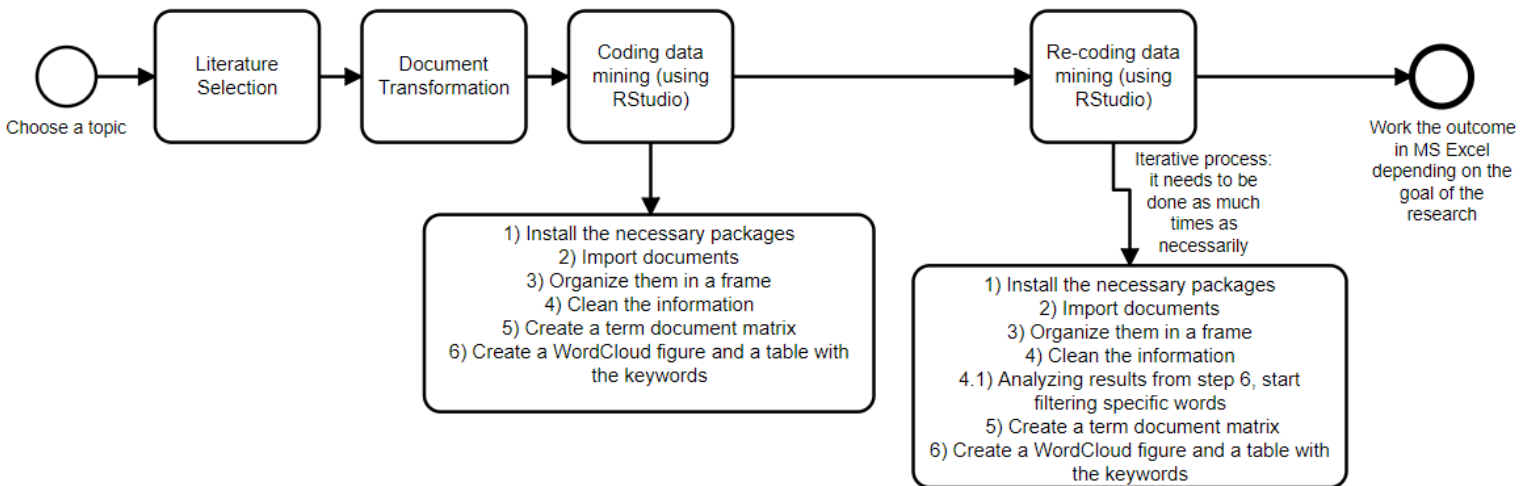
**Re-coding (data mining)**

When obtaining the results of the most frequent words, many of the outcome words can be considered irrelevant for the purpose of gaining knowledge through the information. To avoid this, adding a filter for certain words was necessary. Due to this, this process will be carried out only with two terms (keywords duo). Because of this, a seventh step will be added to the six steps mentioned above:

- (7) Adding a specific word filter.

Nevertheless, as can be seen in Appendix IV, when doing data mining of singular terms, after filtering certain words, there are still many words with double meaning. For example, the word research can mean marketing research, or it can be part of the name of a journal or it can refer to the article itself.

After writing the code for filtering unwanted words, repeating the six-step process above is necessary. This resulting in an iterative process as shown in Figure 2. The base code used to perform the data mining for two unified words can be found in Appendix V.



**Figure 2. Scientific articles data mining process used in this study.**

### **Working the matrix on Microsoft Excel**

The outcome of the previous process gave the keywords that were most repeated in the 236 articles. Nevertheless, it was not clear in how many articles they were present. To avoid that the results are affected by the fact that certain keyword duos were repeated many times only in one or some articles, the result has been exported to an Excel matrix to facilitate the analysis in order to select the keyword duos that were mentioned in more articles. First, a “countif” function was necessary to detect the keywords that were present in more than one article. Then another “countif” function was performed with the previous result to count those keyword duos present in more than 47 articles (20% of 236), resulting in 1 in case of being more than 47 and 0 in case of being 47 or less. Finally, the function = IF (IE2> 0, COUNTIF (B2: IC2, "> 0"), "0") has been used so that if it is present in more than 47 articles, it counts in how many articles the keyword duo is present. A simplified version of this process can be found in Appendix VI.

### **Results**

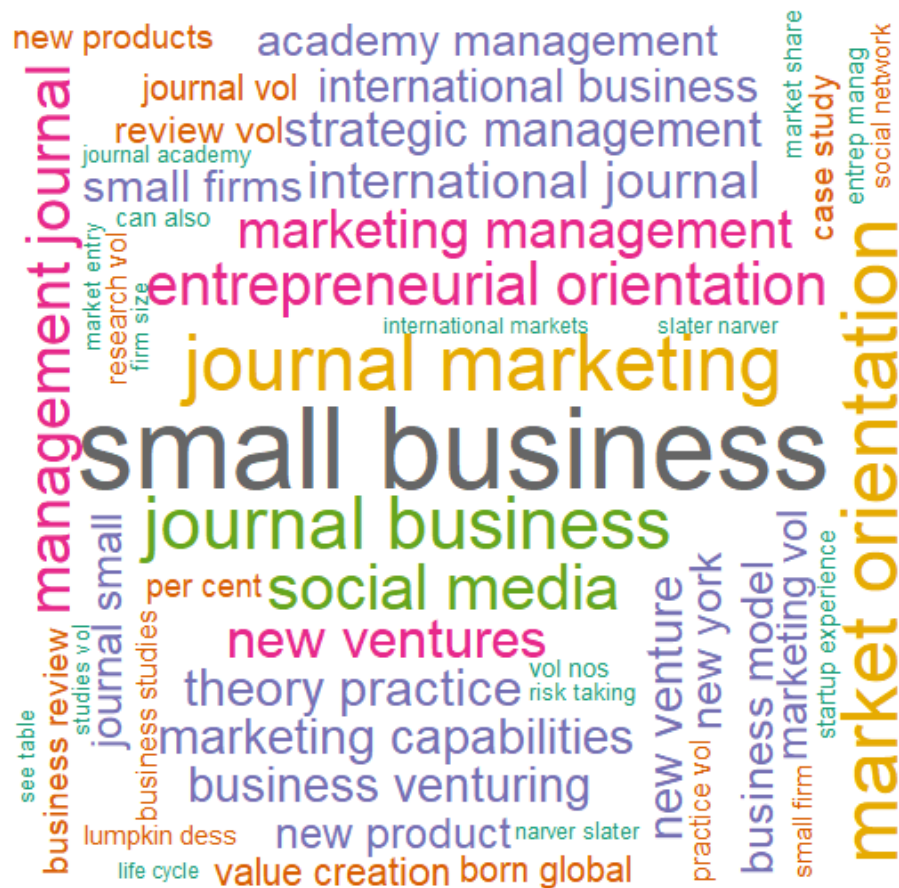
In this section the results of the process explained in the methodology will be presented. First, the results obtained with the first code will be presented. Subsequently, the results by eliminating the specific words will be discussed. Finally, the results that will be used as a basis to elaborate the literature review will be presented.

#### **First results**

As mentioned earlier, the first outcome of data mining does not provide much information. As can be seen in Table 1 and Figure 3, a large percentage of the keyword duos are generic terms, names of newspapers and magazines, cities, etc.

<b>Keyword's duo</b>	<b>Frequency</b>
small business	1484
entrepreneurial marketing	1267
market orientation	972
journal marketing	961
journal business	869
social media	748
entrepreneurial orientation	702
management journal	694
new ventures	602
marketing management	584
theory practice	556
international journal	551
marketing capabilities	529
strategic management	506
business venturing	505

**Table 1. The fifteen keyword duos with more mentions before applying specific words filter.**



**Figure 3. WordCloud keyword duos before applying specific words filter.**

### Results after filters

Howland and Park (2008) have recognized the importance of reducing the (unnecessary) information dimension when working with large amounts of data. Therefore, filtering certain words that do not contribute to this cause was necessary. For the selection of words to filter, observing and analyzing the WordCloud outcome was extremely useful. The following function shows the words that have been filtered in order to obtain clearer results:

```
mydocs<-tm_map(mydocs,removeWords,
c("aus","shown","school","england","can","used","lumpkin","states","jaworski","carson","knight","hills",
"covin","years","cent","see","doi","may","text","vol","john","show","slater","case","journal","small","lar
ge","entrepreneurial","venture","ventures","york","academy","small","review","vol","hardvard","february
","page"))).
```

As can be seen in Table 2 and Figure 4, elimination of a large amount of irrelevant data was possible. However, as mentioned in the methodology section, these results do not specify in how many articles each keyword duo was mentioned. Therefore, it is not possible yet to consider them for writing a literature review, because there is the possibility that only one article is influencing the result.

Keyword's duo	Frequency
market orientation	976
social media	748
international business	623
marketing management	587
theory practice	556
marketing capabilities	529
strategic management	506
business venturing	505
marketing entrepreneurship	486
competitive advantage	478
business model	444
new product	421
research marketing	406
international marketing	401
entrepreneurship theory	379

**Table 2.** The fifteen keyword duos with more mentions after applying specific words filter.



**Figure 4.** WordCloud keywords duo before applying specific words filter.



## Final results

Finally, keyword duos have been detected with the highest number of mentions in the largest number of articles. Table 3 shows the keywords with presence in more than 47 articles.

<b>Keyword duos</b>	<b>Times mentioned</b>
theory practice	165
competitive advantage	143
business venturing	141
marketing management	141
entrepreneurship theory	132
marketing research	128
future research	127
business management	124
marketing strategy	121
business research	120
international business	120
products services	120
strategic management	117
new products	114
market orientation	111
new product	107
research marketing	107
entrepreneurship marketing	105
marketing entrepreneurship	97
marketing science	97
firm performance	87
market research	86
value creation	84
international entrepreneurship	78
industrial marketing	77

**Table 3. The twenty-five most frequent terms in the largest number of articles.**

In order to select the relevant keywords for building a literature review about the role of marketing for startups, three business administration master students were consulted (see appendix VII). Each student was given the option to choose between three labels to each keyword duo in relation to the literature. The labels were: relevant, too broad and unclear. The three participants agreed on the relevance of three keyword duos, which can be seen in Table 4. By selecting these three keyword duos, the data mining process came to an end.

<b>Keyword duos</b>	<b>Present on</b>
competitive advantage	143
market orientation	111
value creation	84

**Table 4. Three relevant marketing keyword duos for startups.**

## **Literature review based on the outcome of data mining**

In this section, the three keyword duos extracted from data mining (Table 4), are used to build a literature about the role of marketing for startups. Finally, a framework that has been created by combining these keyword duos will be presented.

### **Market orientation**

The marketing literature has highlighted the importance of Market Orientation (MO) in order to improve a company's performance (Narver & Slater, 1990; Jaworski & Kohli, 1993). This term has been defined as *“the organization-wide generation of market intelligence pertaining to current and future needs of customers, dissemination of intelligence horizontally and vertically within the organization, and organization-wide action responsiveness to market intelligence”* (Kohli, A. K., & Jaworski, B. J., 1990). Via guiding companies to a superior marketplace performance, MO has proven to be a key resource for building competitive advantage (O'Cass, A., & Ngo, L. V., 2011). With an entrepreneurship-focused research, Munoz, Vicdan, and Saran (2013) emphasized the importance of MO, along with two additional variables: innovation (orientation) and dynamism (proactiveness). Nasution, Mavondo, Matanda, and Ndubisi (2011), through an empirical study using a structural equation model, affirm that MO is positively related to innovation and creation of value for the client.

During the search of literature and the data mining process, influence of the term Entrepreneurial Orientation has been found. Entrepreneurial orientation has been defined by Mueller and Thomas (2001) as *“internal locus of control combined with innovativeness”*. A recent study has empirically shown that the relationship between EO and business performance is positive only because it is directly affected by the variable MO that acts as a mediation variable (Vega-Vázquez, M., Cossío-Silva, F. J., & Revilla-Camacho, M. Á., 2016).

### **Value creation**

An important aspect for the role of marketing for startups is the creation of value. Value creation is defined in an entrepreneurial point of view as: *“processes and activities realized by the founders of small or medium-size business ventures, to identify, create and exploit market opportunities in a more effective and efficient way than other competing business organizations”* (Gurău, C., Lasch, F., & Dana, L. P., 2015). Both established companies and startups need to have a structure guided by innovation and proactivity in order to create and communicate value to customers (Kraus, S., Harms, R., & Fink, M., 2010). In 2003, Kotler discussed two ways to increase the creation of value: (1) increase the benefits that the product or service delivers (2) decrease the costs of the product or service. On the other hand, (Kurgun, H., Bagiran, D., Ozeren, E., & Maral, B., 2011) proposes that the creation of value, from an entrepreneurial marketing

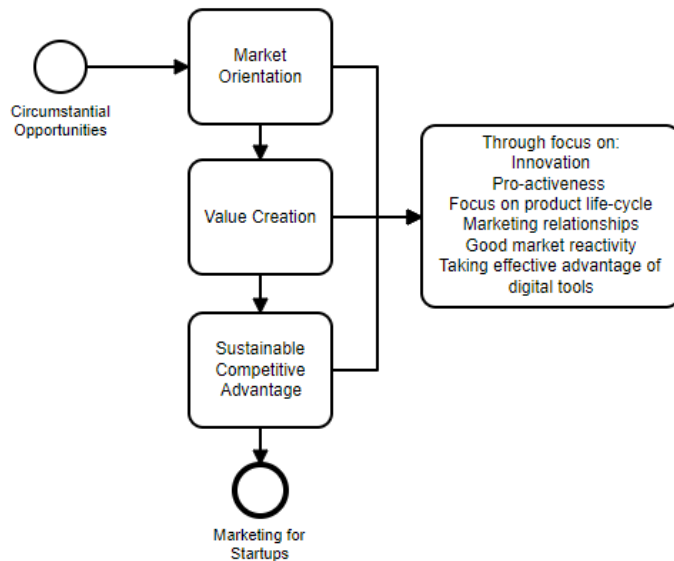
point of view, should be through the relationship with the client, alliances, resources management approaches and finally the marketing mix. With a less customer-centric point of view, Jones, Suoranta, and Rowley (2013) emphasized the importance of networks between the firm, its customers and stakeholder, when creating value. In their study they proposed the Strategic Network Marketing Model (See Appendix X), where they provided different insights generated in terms of the opportunities to create value that each type of network can offer. Subsequently, Gurău et al. confirmed the importance of innovation, where they remark to pay special attention to the lifecycle of the product (see Appendix VIII), and the marketing relationships as resources of creation of value. Adding to these two sources, they added a third one called circumstantial opportunities. By circumstantial opportunities they refer to taking advantage of imbalances between the market of demand and offer, where they also suggest constantly scanning the market in order to reach a good market reactivity. One of the objectives of creating value is to obtain a competitive advantage. To understand the factors that influence a competitive advantage, it is necessary first, to understand and analyze the sources of value creation (Dietl, H., Royer, S., & Stratmann, U., 2009).

### **Competitive advantage**

In the business world, the term competitive advantage and its importance has been present for some decades and has been studied by experts such as Michael Porter or Jay Barney, among many others. The competitive advantage is the strategic advantages that a business achieves to differentiate and outperform competitors in an industry (Wu, J., & Chen, X., 2012). Competitive advantage is often accompanied by the term sustainable, referring to the importance that this advantage must be sustainable over time. The importance of building a sustainable competitive advantage is not tied to a certain type of company, that is to say, in the literature its relevance ranges from small to large companies and from ventures to companies that have been in the market for a long time. Nevertheless, the way to analyze and get this advantage depends on the size of the company. A large and established company probably has enough resources to allocate to a new product or service development where its survival is probably not at risk when a product or service fails, unlike new ventures that, in general, have more limited resources and risk its survival in its early stages (Song, L. Z., Di Benedetto, C., & Song, M., 2010). A study conducted by Arora and Nandkumar (2012) focused on entrepreneurships and they confirmed that a superior marketing ability is an important source of competitive advantage, which should translate into a more profitable company. A more recent study, in addition to confirming that a competitive advantage has a significant influence on performance, has proposed that innovation capabilities of an entrepreneurship is an important factor affecting the competitive advantage (Sulistyo, H., 2016). Innovation capabilities is defined as *"the firm's ability to develop new products and/or markets, through aligning strategic innovative orientation with innovative behaviors and processes"* (Wang, C. L., & Ahmed, P. K., 2007, p. 38). Unlike its beginnings, nowadays the construction of a competitive advantage must take into account the internet, since this is a very useful source of information. Effectively using social media as a channel to provide information and generate sales is of the utmost importance (Tiago, M. T. P. M. B., & Veríssimo, J. M. C., 2014).

## Marketing for Startups

By writing the literature based on mining the scientific articles, a framework (see Figure 5) has been created that highlights the role that marketing in startups should have. Startups should focus on market orientation, in order to seek a sustainable competitive advantage by creating value for customers. The literature highlights the importance of having an innovative orientation, strong marketing relationships, proactive with a good market reaction and recently taking advantage of digital tools.



**Figure 5. Role of marketing for startups framework.**

## Conclusion and discussion

Through the study of marketing literature for startups, there has been enough empirical and theoretical evidence that proves that marketing management is relevant to the performance of the company. The role of marketing for startups is crucial and has to be managed in the best way. This role is to proactively research the market in order to take advantage of circumstantial opportunities, having focus on market orientation, in order to seek a sustainable competitive advantage by creating value for customers.

By developing this research, the feasibility of the use of data mining as a tool for the analysis of scientific articles has been demonstrated with the aim of transforming information into knowledge. With less time constraints, an analysis of the most relevant keywords should cover all the most relevant points to build a complete framework. By using this tool, the logic would be achieving objective results since the process is quantitative. However, in several parts of the process a qualitative analysis (hence, more subjective to the author's preferences and beliefs) has been necessary. It can be considered more objective but not completely objective.

## **Limitations**

In the development of this article, three main limitations were found:

*Programing limitations:* Because the author is not an expert in programming, finding the perfect code to perform the desired function took more time than expected and in addition, the packages used in RStudio are constantly changing so many times the information and online tutorials are already expired.

*Software limitations:* At the time of moving from RStudio to Excel, the size of the database was extremely large, which sometimes caused critical errors as can be seen in Appendix IX.

*Time limitations:* Due to the two previous limitations, the time to dedicate explicitly to the literature review was less than expected. So, it can be considered that during the research process, the sub-question became more relevant than the research question.

## **Future research**

This research can be considered for startups in general, however, future researchers should focus their resources on researching different types of startups in different types of industries and contexts.

The mining of data could potentially be used for forecasting by using a linear regression model taking into account the variables number of mentions and the demand of a product or service.

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**Appendix I. Table explaining the number of selected articles per year.**

<b>Year</b>	<b>Articles</b>	<b>20%</b>	<b>Rounded</b>
2009	69	13.8	14
2010	78	15.6	16
2011	111	22.2	22
2012	116	23.2	23
2013	118	23.6	24
2014	107	21.4	21
2015	125	25	25
2016	129	25.8	26
2017	144	28.8	29
2018	166	33.2	33
2019	17	3.4	3
<b>Total</b>	1180	236	236



## Appendix II. List of scientific articles used for data mining.

ID	Name	Authors	Cited by	Year
doc00109	Marketing Under Uncertainty: The Logic of an Effectual Approach	Read, S., Dew, N., Sarasvathy, S.D., Song, M., Wiltbank, R.	182	2009
doc00209	Spawned with a silver spoon? Entrepreneurial performance and innovation in the medical device industry	Chatterji, A.K.	146	2009
doc00309	The internationalisation of born global and international new venture SMEs	Crick, D.	99	2009
doc00409	Examining the role of international entrepreneurship, innovation and international market performance in SME internationalisation	O'Casey, A., Weerawardena, J.	96	2009
doc00509	Social networks: The future of marketing for small business	Harris, L., Rae, A.	90	2009
doc00609	The effects of entrepreneurial marketing on born global performance	Kocak, A., Abimbola, T.	74	2009
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<b>doc17217</b>	Entrepreneurial marketing of international high-tech business-to-business new ventures: A decision-making process perspective	Yang, M., Gabrielsson, P.	16	2017
<b>doc17317</b>	Seeking funding in order to sell: Crowdfunding as a marketing tool	Brown, T.E., Boon, E., Pitt, L.F.	15	2017

<b>doc17417</b>	Technologies That Support Marketing and Market Development in SMEs—Evidence from Social Networks	Eggers, F., Hatak, I., Kraus, S., Niemand, T.	13	2017
<b>doc17517</b>	Marketing capabilities, positional advantage, and performance of born global firms: Contingent effect of ambidextrous innovation	Martin, S.L., Javalgi, R.G., Cavusgil, E.	10	2017
<b>doc17617</b>	Market, entrepreneurial, and technology orientations: impact on innovation and firm performance	Kocak, A., Carsrud, A., Oflazoglu, S.	9	2017
<b>doc17717</b>	Open accelerators for start-ups success: a case study	Battistella, C., De Toni, A.F., Pessot, E.	9	2017
<b>doc17817</b>	An investigation of marketing capabilities of informal microenterprises: A study of street food vending in Thailand	Khan, E.A.	7	2017
<b>doc17917</b>	Linking entrepreneurial orientation and small service firm performance through marketing resources and marketing capability: A moderated mediation model	Sok, P., Snell, L., Lee, W.J., Sok, K.M.	6	2017
<b>doc18017</b>	A Taxonomy of Strategic Postures of International SMEs	Hagen, B., Zucchella, A., Larimo, J., Dimitratos, P.	5	2017
<b>doc18117</b>	Entrepreneurship, Identity, and the Transformation of Marketing Systems: Medical Cannabis in California	Klein, K.	4	2017
<b>doc18217</b>	Heuristics and biases in entrepreneurial marketing: Some new insights	Nouri, P., Imanipour, N., Talebi, K., Zali, M.	2	2017
<b>doc18317</b>	4Cs of innovation: A conceptual framework for evaluating innovation strategy	Erzurumlu, S.S.	2	2017
<b>doc18417</b>	U.S. SMEs' corporate citizenship: collectivism, market orientation, and reciprocity	Park, J., Campbell, J.M.	2	2017
<b>doc18517</b>	The effect of psychological capital on start-up intention among young start-up entrepreneurs: A cross-cultural comparison	Jin, C.-H.	2	2017
<b>doc18617</b>	Emerging specialisations and software metropolitan clusters - a comparative network analysis on San Francisco, New York and London	Marra, A., Cassetta, E., Antonelli, P.	2	2017
<b>doc18717</b>	Follow for follow: marketing of a start-up company on Instagram	Virtanen, H., Björk, P., Sjöström, E.	2	2017
<b>doc18817</b>	Implications of uncertain patent rights for German start-ups' commercialisation activities and access to external capital	Heger, D., Hussinger, K.	1	2017
<b>doc18917</b>	Overcoming Institutional Voids in Subsistence Marketplaces: A Zimbabwean Entrepreneurial Case	Davies, I.A., Torrents, A.	1	2017

<b>doc19017</b>	On the R&D/marketing interface in knowledge intensive entrepreneurial firms	Boles, J., Link, A.N.	1	2017
<b>doc19117</b>	The emergence of health technology firms through their sensegiving activities and competitive actions	Beaulieu, M., Lehoux, P.	1	2017
<b>doc19217</b>	Determinants of relationship marketing by women small business owners	Sharafizad, J., Standing, C.	1	2017
<b>doc19317</b>	Gender Entrepreneurship and Global Marketing	Ratten, V.	1	2017
<b>doc19417</b>	Assessment of the enterprise marketing performance	Korzh, M., Gaievskiy, A., Hurdzhyian, K.	1	2017
<b>doc19517</b>	Niche marketing potentials for farm entrepreneurs in Nigeria	Anzaku, T.A.K., Salau, E.S.	1	2017
<b>doc19617</b>	High-tech entrepreneurial content marketing for business model innovation: A conceptual framework	Mansour, D., Barandas, H.	1	2017
<b>doc19717</b>	What skills do nascent entrepreneurs need? The evidence from Thailand	Tripopsakul, S., Charupongsopon, W.	1	2017
<b>doc19817</b>	The entrepreneurial university: an exploration of “value-creation” in a non-management department	Madichie, N.O., Gbadamosi, A.	1	2017
<b>doc19917</b>	A market testing method based on crowd funding	Sheldon, R.C.	0	2017
<b>doc20017</b>	Longevity of SMMEs in Soweto: Does marketing play a role?	Strydom, J.W.	0	2017
<b>doc20118</b>	The impact of consulting services on small and medium enterprises: Evidence from a randomized trial in Mexico	Bruhn, M., Karlan, D., Schoar, A.	10	2018
<b>doc20218</b>	SMEs and Marketing: A Systematic Literature Review	Bocconcelli, R., Cioppi, M., Fortezza, F., (...), Savelli, E., Splendiani, S.	6	2018
<b>doc20318</b>	Reflections of entrepreneurs of small and medium-sized enterprises concerning the adoption of social media and its impact on performance outcomes: Evidence from the UAE	Ahmad, S.Z., Ahmad, N., Abu Bakar, A.R.	5	2018
<b>doc20418</b>	The facets, antecedents and consequences of cooptation: An entrepreneurial marketing perspective	Crick, J.M.	5	2018
<b>doc20518</b>	Exploring the multi-sided nature of crowdfunding campaign success	Lagazio, C., Querci, F.	4	2018
<b>doc20618</b>	Marketing Practices of Rural Micro and Small Businesses in Ghana: The Role of Public Policy	Blankson, C., Cowan, K., Darley, W.K.	4	2018
<b>doc20718</b>	Get the show on the road: Go-to-market strategies for e-innovations of start-ups	Kuester, S., Konya-Baumbach, E., Schuhmacher, M.C.	4	2018

<b>doc20818</b>	Assessment of techno-entrepreneurship projects by using Analytical Hierarchy Process (AHP)	Unutmaz Durmuşoğlu, Z.D.	3	2018
<b>doc20918</b>	Dimensional effects of Korean SME's entrepreneurial orientation on internationalization and performance: the mediating role of marketing capability	Jin, B., Jung, S., Jeong, S.W.	3	2018
<b>doc21018</b>	Entrepreneurial marketing and born global internationalisation in China	Andersson, S., Evers, N., Gliga, G.	3	2018
<b>doc21118</b>	Orientations and capabilities of born global firms from emerging markets	Falahat, M., Knight, G., Alon, I.	2	2018
<b>doc21218</b>	Entrepreneurial marketing and airline-cause sponsorship congruence: Passenger sponsorship response to US-based full-service airlines	Kim, J.J., Kim, I.	2	2018
<b>doc21318</b>	"Fake it until you make it": business model conceptualization in digital entrepreneurship	Standing, C., Mattsson, J.	2	2018
<b>doc21418</b>	Innovation pathway to profitability: the role of entrepreneurial orientation and marketing capabilities	Arunachalam, S., Ramaswami, S.N., Herrmann, P., Walker, D.	2	2018
<b>doc21518</b>	Facilitating dynamic marketing capabilities development for domestic and foreign firms in an emerging economy	Xu, H., Guo, H., Zhang, J., Dang, A.	2	2018
<b>doc21618</b>	"A Newcomer" versus "First Mover": Retail Location Strategy for Differentiation	Lee, J., Kim, Y.	2	2018
<b>doc21718</b>	Developing an authentic personal brand using impression management behaviours: Exploring female entrepreneurs' experiences	Thompson-Whiteside, H., Turnbull, S., Howe-Walsh, L.	2	2018
<b>doc21818</b>	Operational capabilities and entrepreneurial opportunities in emerging market firms: Explaining exporting SME growth	Miocevic, D., Morgan, R.E.	2	2018
<b>doc21918</b>	An exploration of the Business Plan Competition as a methodology for effective nascent entrepreneurial learning	Watson, K., McGowan, P., Cunningham, J.A.	2	2018
<b>doc22018</b>	Strategic use of digital promotion strategies among female emigrant entrepreneurs in UAE	Jose, S.	1	2018
<b>doc22118</b>	Bridging past and present entrepreneurial marketing research: A co-citation and bibliographic coupling analysis	Most, F., Conejo, F.J., Cunningham, L.F.	1	2018
<b>doc22218</b>	Basket Pitch 90: An Integrative Marketing and Finance Simulation	Hudson, M.L.	1	2018
<b>doc22318</b>	Theories of opportunity creation and effective entrepreneurial actions in opportunity creation context	Jamali, B., Mohammad Kazemi, R., Farsi, J.Y., Dehkordi, A.M.	1	2018

<b>doc22418</b>	Firms and internationalization: an approach based on the skills and the profile of the entrepreneur	Loué, C.	1	2018
<b>doc22518</b>	Innovation orientations, external partnerships, and start-ups' performance of low-carbon ventures	Gu, Y., Su, D.	1	2018
<b>doc22618</b>	Core entrepreneurial competencies of students in departments of electrical engineering and computer sciences (EECS) in universities	Chang, J.-C., Hsiao, Y.-D., Chen, S.-C., Tsung-Ta, Y.	1	2018
<b>doc22718</b>	The emergence of the ERP software market between product innovation and market shaping	Erkut, B.	1	2018
<b>doc22818</b>	"It's the Amazon World": Small-Scale Farmers on an Entrepreneurial Treadmill	McKee, E.	1	2018
<b>doc22918</b>	A case study of design-driven startup companies in South Korea	Kim, B., Kim, H.	1	2018
<b>doc23018</b>	Model based on qualitative criteria for internet marketing development	Limba, T., Kiškis, M., Gulevičiūtė, G., (...), Plėta, T., Juozapavičiūtė, I.	1	2018
<b>doc23118</b>	Opportunity discovery and creation as a duality: Evidence from small firms' foreign market entries	Chetty, S., Karami, M., Martín, O.M.	1	2018
<b>doc23218</b>	Walking on the light side: Investigating the world of ghost tour operators and entrepreneurial marketing	Krisjanous, J., Carruthers, J.	1	2018
<b>doc23318</b>	Transforming entrepreneurial posture into a superior first product market position via dynamic capabilities and TMT prior start-up experience	Ahmadi, H., O'Cass, A.	1	2018
<b>doc23419</b>	Social network analysis of wildlife tourism microentrepreneurial network	KC, B., Morais, D.B., Peterson, M.N., Seekamp, E., Smith, J.W.	1	2019
<b>doc23519</b>	Coping with uncertainty in the internationalisation strategy: An exploratory study on entrepreneurial firms	Magnani, G., Zucchella, A.	1	2019
<b>doc23619</b>	Entrepreneurial marketing dimensions and SMEs performance	Sadiku-Dushi, N., Dana, L.-P., Ramadani, V.	0	2019

### Appendix III. List of English stopwords.

```
> stopwords()
[1] "i" "me" "my" "myself" "we" "our" "ours" "ourselves" "you" "your"
[11] "yours" "yourself" "yourselves" "he" "him" "his" "himself" "she" "her" "hers"
[21] "herself" "it" "its" "itself" "they" "them" "their" "theirs" "themselves" "what"
[31] "which" "who" "whom" "this" "that" "these" "those" "am" "is" "are"
[41] "was" "were" "be" "been" "being" "have" "has" "had" "having" "do"
[51] "does" "did" "doing" "would" "should" "could" "ought" "i'm" "you're" "he's"
[61] "she's" "it's" "we're" "they're" "i've" "you've" "we've" "they've" "i'd" "you'd"
[71] "he'd" "she'd" "we'd" "they'd" "i'll" "you'll" "he'll" "she'll" "we'll" "they'll"
[81] "isn't" "aren't" "wasn't" "weren't" "hasn't" "haven't" "hadn't" "doesn't" "don't" "didn't"
[91] "won't" "wouldn't" "shan't" "shouldn't" "can't" "cannot" "couldn't" "mustn't" "let's" "that's"
[101] "who's" "what's" "here's" "there's" "when's" "where's" "why's" "how's" "a" "an"
[111] "the" "and" "but" "if" "or" "because" "as" "until" "while" "of"
[121] "at" "by" "for" "with" "about" "against" "between" "into" "through" "during"
[131] "before" "after" "above" "below" "to" "from" "up" "down" "in" "out"
[141] "on" "off" "over" "under" "again" "further" "then" "once" "here" "there"
[151] "when" "where" "why" "how" "all" "any" "both" "each" "few" "more"
[161] "most" "other" "some" "such" "no" "nor" "not" "only" "own" "same"
[171] "so" "than" "too" "very"
```

## Appendix IV. Table and WordCloud example of broad results.

word	freq
marketing	16239
business	10538
journal	8008
research	7626
entrepreneurial	6851
new	6723
market	6487
firms	6313
management	5830
entrepreneurship	5679
can	4825
small	4418
international	4393
social	4287
performance	4237
vol	4207
study	4129
also	3946
firm	3727
innovation	3722





## Appendix V. The code for data-mining the articles through RStudio.

```
install.packages("readr")
install.packages("tm")
install.packages("RWeka")
install.packages("SnowballC")
install.packages("wordcloud")
install.packages("wordcloud2")

library(readr)
library(tm)
library(RWeka)
library(SnowballC)
library(wordcloud)
library(wordcloud2)

doc00109<-read_file("doc00109.txt")
doc00209<-read_file("doc00209.txt")
(...)
doc23519<-read_file("doc23519.txt")
doc23619<-read_file("doc23619.txt")
doc.list<-list(doc00109,doc00209,...,doc23519,doc23619)
N.docs<-length(doc.list)
names(doc.list)<-paste0("doc",c(1:N.docs))
my.docs<-VectorSource(c(doc.list))
my.docs$Names <- c(names(doc.list))
mydocs <-Corpus(my.docs)
myextract<-data.frame(text = sapply(mydocs, as.character), stringsAsFactors = FALSE)
View(myextract)

removeSpecialChars <- function(x) gsub("[^a-zA-z0-9 ]", "",x)
mydocs<-tm_map(mydocs,removeSpecialChars)
mydocs<-tm_map(mydocs,removeNumbers)
mydocs<-tm_map(mydocs,content_transformer(tolower))
mydocs<-tm_map(mydocs,content_transformer(removePunctuation))
removeOneandTwo <- function(x) gsub(" *\\b(?<-)\\w{1,2}(?!-)\\b *", " ", x, perl=T)
```

```

mydocs<-tm_map(mydocs,removeOneandTwo)

mydocs<-tm_map(mydocs,removeWords,stopwords("en"))

stopwords()

mydocs<-tm_map(mydocs, removeWords,
c("aus","shown","school","england","can","used","lumpkin","states","jaworski","carson","knight","hills","covin","y
ears","cent","see","doi","may","text","vol","john","show","slater","case","journal","small","large","entrepreneurial",
"venture","ventures","york","academy","small","review","vol","hardvard","february","page"))

myextract<-data.frame(text = sapply(mydocs, as.character), stringsAsFactors = FALSE)

View(myextract)

df<-data.frame(doc_id=1:236,text=myextract$text, stringsAsFactors = F)

corpus<- VCorpus(DataframeSource(df))

Tokenizer <- function(x) NGramTokenizer(x, Weka_control(min = 2, max = 2))

dtm <- TermDocumentMatrix(corpus, control = list(tokenize = Tokenizer))

inspect(dtm)

BigramDF = as.data.frame( t(as.matrix( dtm )))

keywords<-colnames(BigramDF)

kw<-as.data.frame(keywords)

View(kw)

m <- as.matrix(dtm)

v <- sort(rowSums(m),decreasing=TRUE)

d <- data.frame(word = names(v),freq=v)

head(d, 25)

set.seed(1234)

wordcloud(words = d$word, freq = d$freq, min.freq = 1, max.words=200, random.order=FALSE, rot.per=0.36,
colors=brewer.pal(8, "Dark2"))

write.table(d, file="DM2TS.csv", sep=",")

write.csv(m,"DM2TSHeavyAnalysis.csv")

```

**Appendix VI. Simplified example of the process to find the number of articles in which each keyword duo was present on.**

<b>Keywords</b>	<b>Article 1</b>	<b>Article 2</b>	<b>Article 3</b>	<b>Article 4</b>	<b>Article 5</b>	<b>Repeated on more than one article</b>	<b>Repeated on at least 47 articles</b>	<b>If It present on more than 47 articles, then count in how many</b>
Keywords duo 1	#	#	#	#	#	=COUNTIF(B2:F2,">1")	=COUNTIF(G2,">47")	=IF(H2>0,COUNTIF(B2:F2,">0"),"0")
Keywords duo 2	#	#	#	#	#	=COUNTIF(B3:F3,">1")	=COUNTIF(G3,">47")	=IF(H3>0,COUNTIF(B3:F3,">0"),"0")
Keywords duo 3	#	#	#	#	#	=COUNTIF(B4:F4,">1")	=COUNTIF(G4,">47")	=IF(H4>0,COUNTIF(B4:F4,">0"),"0")
Keywords duo 4	#	#	#	#	#	=COUNTIF(B5:F5,">1")	=COUNTIF(G5,">47")	=IF(H5>0,COUNTIF(B5:F5,">0"),"0")
Keywords duo 5	#	#	#	#	#	=COUNTIF(B6:F6,">1")	=COUNTIF(G6,">47")	=IF(H6>0,COUNTIF(B6:F6,">0"),"0")
Keywords duo 6	#	#	#	#	#	=COUNTIF(B7:F7,">1")	=COUNTIF(G7,">47")	=IF(H7>0,COUNTIF(B7:F7,">0"),"0")
Keywords duo 7	#	#	#	#	#	=COUNTIF(B8:F8,">1")	=COUNTIF(G8,">47")	=IF(H8>0,COUNTIF(B8:F8,">0"),"0")
Keywords duo 8	#	#	#	#	#	=COUNTIF(B9:F9,">1")	=COUNTIF(G9,">47")	=IF(H9>0,COUNTIF(B9:F9,">0"),"0")
Keywords duo 9	#	#	#	#	#	=COUNTIF(B10:F10,">1")	=COUNTIF(G10,">47")	=IF(H10>0,COUNTIF(B10:F10,">0"),"0")
Keywords duo 10	#	#	#	#	#	=COUNTIF(B11:F11,">1")	=COUNTIF(G11,">47")	=IF(H11>0,COUNTIF(B11:F11,">0"),"0")

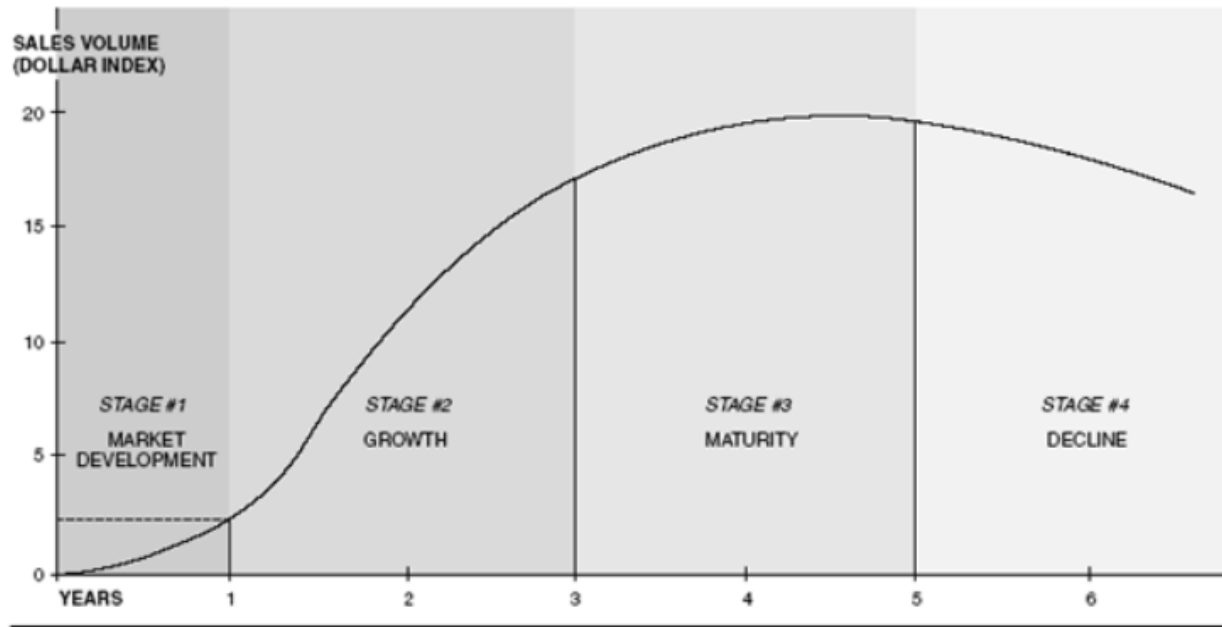
## Appendix VII. Master students reaction to the keyword duo.

	Participant 1	Participant 2	Participant 3
theory practice	Unclear	Unclear	Unclear
competitive advantage	<b>Relevant</b>	<b>Relevant</b>	<b>Relevant</b>
business venturing	Too broad	Too broad	Too broad
marketing management	Relevant	Unclear	Relevant
entrepreneurship theory	Too broad	Too broad	Too broad
marketing research	Too broad	Too broad	Relevant
future research	Too broad	Too broad	Too broad
business management	Too broad	Too broad	Too broad
marketing strategy	Relevant	Too broad	Relevant
business research	Too broad	Too broad	Too broad
international business	Too broad	Too broad	Too broad
products services	Unclear	Unclear	Too broad
strategic management	Too broad	Too broad	Too broad
new products	Unclear	Too broad	Too broad
market orientation	<b>Relevant</b>	<b>Relevant</b>	<b>Relevant</b>
new product	Unclear	Unclear	Unclear
research marketing	Too broad	Too broad	Too broad
entrepreneurship marketing	Too broad	Too broad	Too broad
marketing entrepreneurship	Too broad	Relevant	Relevant
marketing science	Too broad	Too broad	Too broad
firm performance	Too broad	Too broad	Too broad
market research	Too broad	Too broad	Too broad
value creation	<b>Relevant</b>	<b>Relevant</b>	<b>Relevant</b>
international entrepreneurship	Too broad	Too broad	Too broad
industrial marketing	Too broad	Too broad	Relevant

## Appendix VIII.: Product Life Cycle (Levitt, T., 1965)


### EXHIBIT I

Product Life Cycle—Entire Industry



Source: Levitt, T. (1965). Exploit the product life cycle. *Harvard business review*, 43, 81-94.

## Appendix IX. Software limitations.

 Microsoft Excel



There isn't enough memory to complete this action.  
Try using less data or closing other applications.  
To increase memory availability, consider using a 64-bit version of  
Microsoft Excel.

OK