

## **DRIVERS, BARRIERS AND SUCCESS FACTORS FOR CREATING ACADEMIC SPIN-OFFS**

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## **1. INTRODUCTION**

The role played by universities in the context of society is one of the issues that has gained prominence in recent years' academic debate. The perspective that the knowledge generated within universities must be transmitted to, and subsequently absorbed, by the society of a certain location has completely changed the way in which these institutions are positioning themselves before the population. By offering greater autonomy to the institution and adopting a more creative approach to social and business development, the university is moving toward a format that transcends its traditional missions, while continuing to respond to government and industry expectations (ETZKOWITZ, 2016).

Before the emergence of the consolidated triple helix model (university-industry-government) universities essentially focused on the transfer of knowledge through teaching and on the advancement of science through basic research. Currently, however, a third role is being played by the initiatives of entrepreneurial universities, which are those that develop activities with the goal of improving economic performance at regional or national level (PHILPOTT et al., 2011). Among the different ways of trading the intellectual property and technological innovations generated within the university, licensing has been a dominant route. The creation of new ventures for the commercialization of technologies has been increasingly accepted by policy makers and decision makers (LOCKETT et al., 2005). In this context, the creation of academic spin-offs has gained considerable relevance in the optimization of the technology transfer process.

It is worth mentioning that there are several definitions for academic spin-offs (ASO), also called university spin-offs (USO). These ventures are formed to commercialize technologies from publicly funded research institutions, with the objective of effectively contributing to economic prosperity and job creation (LOCKETT et al., 2005).

Among other possible benefits, academic spin-offs have the potential for generating employment, income, and regional development, whether in the form of technology commercialization or tax collection, by disseminating the technologies developed through academic research, or transferring the knowledge of universities to society, thus supporting the third mission established by Etzkowitz (ETZKOWITZ, 2016).

The recent increase in the number of publications in renowned journals involving the phenomenon investigated here, in addition to the fragmentation of the works found in literature, were the motivating factors for the development of this research.

For improved organization and clarity, this article was divided as follows: Section 1 presents a brief contextualization of the studied phenomenon, as well as the relevance of the theme discussed; Section 2 describes the research problem, objective and methodology; Section 3 presents the theoretical framework of the research; the main results are presented and discussed in Section 4; the final considerations are presented in Section 5; and the bibliographic references are listed in Section 6.

## **2. RESEARCH PROBLEM AND OBJECTIVE**

The objective of this work was to answer the following questions based on a systematic literature review: What are the main barriers commonly faced during the process of creating academic spin-offs? What are the main drivers and success factors that foster the creation of spin-offs?

The gathering of contents from literature and the way such contents were addressed in this review were based on the steps proposed by Tranfield, Denyer and Smart (2003) and the applications made by Hossinger, Chen and Werner (2020), starting from the presentation of descriptive details. Considering the proposed theme: “Drivers, barriers and success factors for the creation of academic spin-offs”, this work sought to answer the following questions:

- What are the main journals that publish on this topic?
- What methods are used in the articles?
- Are there theoretical frameworks, fundamental theories or models applied to existing research? Which ones?
- What inferences can be drawn from existing research on drivers, barriers and success factors?

The search results were compiled and analyzed to allow an understanding of the stance of their authors concerning the crucial issues surrounding the researched phenomenon.

The research included articles discussing the main drivers, barriers and success factors specifically related to academic spin-offs, and was performed against three databases: Scopus, Web of Science and Engineering Village. The following keywords were used in the database searches: (“academic spin-off” OR “university spin-off” OR “academic spin\*” OR “university

spin\*” OR “university entrepreneur”) AND (“entrepreneurial intention” OR “entrepreneurial motivation” OR “entrepreneurial inclination” OR “determinant” OR “success” OR “performance” OR “obstacle” OR “barrier” OR “inhibitor”). In total, 691 articles were found, being 302 from the Web of Science, 307 from Scopus and 82 from the Engineering Village database. After removing duplicate articles and applying the inclusion and exclusion criteria, 96 articles remained for analysis.

The information was extracted as recommended by Tranfield, Denyer and Smart (2003) and applied by Hossinger, Chen and Werner (2020) and Mathisen and Rasmusen (2019): a) Source and complete reference; b) Authors, their institutions and countries; c) Research method used; d) Theoretical structure and basic theories used; e) Main topic area; f) Summary of the study, main research questions and their answers.

### **3. THEORETICAL FRAMEWORK**

#### **3.1. Systematic literature review and academic spin-offs creation**

The Systematic Literature Review is a procedure that follows a pre-established protocol to perform an in-depth search about a certain phenomenon, providing a broad perspective to the theme. According to Hossinger, Chen and Werner (2020), the systematic approach to a literature review enables researchers to access a considerable amount of the information available, ensuring strong support and enhanced reliability to an academic research.

It is important to differentiate a traditional literature review from a systematic literature review. Several authors criticize specific points of the traditional review, stressing the lack of a formal methodology and the consequent impairment in academic rigor and transparency, thus hindering the traceability and ability to replicate a research (JESSON; MATHESON; LACEY, 2011).

Some of the advantages and benefits arising from the development of systematic literature reviews are mentioned below (TRANFIELD; DENYER; SMART, 2003): Clear definition of a problem and of the inclusion and exclusion criteria; Well-designed search strategy; Pre-established criteria for evaluating studies; Data extraction from previously defined databases; and Greater robustness to a research.

Over the years, the main role played by universities has undergone changes and incorporated new functions, a phenomenon referred to in the literature as “academic revolutions”. According to Papagiannidis et al. (2009), in the so-called first revolution, the focus of the university was the preservation and dissemination of knowledge. In the second revolution, teaching and

research activities gained more relevance and rose to a prominent position. In the current-day scenario, it has become essential that the production derived from research and other activities developed at universities is able to benefit society through socioeconomic development (ETZKOWITZ, 2016).

In this context, transferring the technology developed by universities to the population has become a major challenge and, accordingly, the transfer methods have become a fundamental theme in academic discussions. There are multiple ways of transferring technology, including patenting and licensing – which are key processes, though not in the scope of this article – as well as university-company collaborations, consultancy, and the creation of spin-offs (WRIGHT; BIRLEY; MOSEY, 2004).

The various existing definitions for spin-offs may be grouped into two general categories: academic spin-offs and corporate spin-offs. ASOs are those originated from research projects carried out in laboratories or at the premises of universities or research centers, with the objective of transferring technology, and whose founding team has a leading researcher affiliated to a research institution (AGARWAL; FRANCO, 2004). The need for an academic on the team is not unanimous in the literature because, according to O’Shea, Chugh and Allen (2008), the central purpose of an ASO is the transfer of technology itself, not the existence of academics or faculty members in the research team.

Corporate spin-offs are formed through investments made by the private sector, such as the cooperation between universities and companies for research and development (R&D) projects (FELDMAN, 2015). This article addresses the phenomena related to academic spin-offs.

The creation of an ASO involves several stages, some of which are pointed out by Ndonzuau, Pirnay and Surlemont (2002): a. Research results; b. Business ideas; c. New enterprising projects; d. Spin off; and e. Economic value. In this research, the unit of analysis occurs mainly in the investigation of variables that add up to the phenomenon of creating ASOs, with a focus on stage “d”.

Understanding the main drivers, barriers and success factors related to stage “d”, that is, the creation of an ASO, is essential to the development of actions that can promote ASOs and ensure that the benefits arising from these ventures will be felt by the regional development and local society.

#### **4. RESULTS**

In order to facilitate an instructional and responsive analysis of the results, the content was divided into two main fronts: the first one presents descriptive statistics of the evaluated articles

in relation to the main journals in which the topic is most frequently published, as well as the methods used by the authors and the geographic distribution of articles. In the second, the results are examined in detail to provide a more thorough coverage of the content presented in this review.

#### 4.1. Description of publications

##### 4.1.1. Analysis Unit

The initial surveys revealed a significant increase in the number of publications from the middle of 2005. The results point to, of the 96 articles composing the analyzed sample, 57 (59.4%) focused on the drivers related to creating ASOs, 38 (39.5%) focused on success factors, and 11 (11.5%) approached the main barriers faced in the process of creating an ASO. It should be noted that some articles addressed more than one issue.

##### 4.1.2. Research method

Regarding the most frequently used research methods, Figure 1 shows a slight predominance of qualitative methods over quantitative or mixed approaches between years 2000 and 2010. From 2010 to 2020, however, quantitative studies increased exponentially, mainly regarding hypothesis testing, data collection surveys, modeling and structural equations mainly aimed at hypothesis testing. To this date, mixed methods have not been widely disseminated.

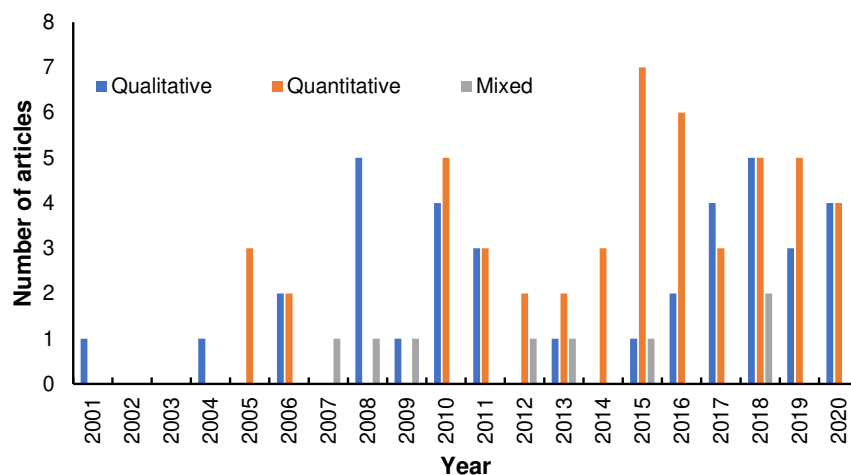


Figure 1. Distribution of articles according to research method.

##### 4.1.3. Geographic distribution

The 96 articles analyzed originated in 27 different countries, as shown in Figure 3, demonstrating that the phenomenon is of global interest. Amongst the countries that most publish on the topic,

Italy leads with 17 (16.32%) published articles, followed by the United States, 10 (9.6%), Spain, 10 (9.6%) and the United Kingdom, 9 (8.64%).

#### 4.1.4. Main journals

The journals that most published on the subject are: Journal of Technology Transfer (18 articles), Technovation (8 articles), Reserarch Policy (8 articles), R&D Management (4 articles) and International Entrepreneurship and Management Journal (4 articles). Figure 4 displays the list of publications and the impact factor of the main journals.

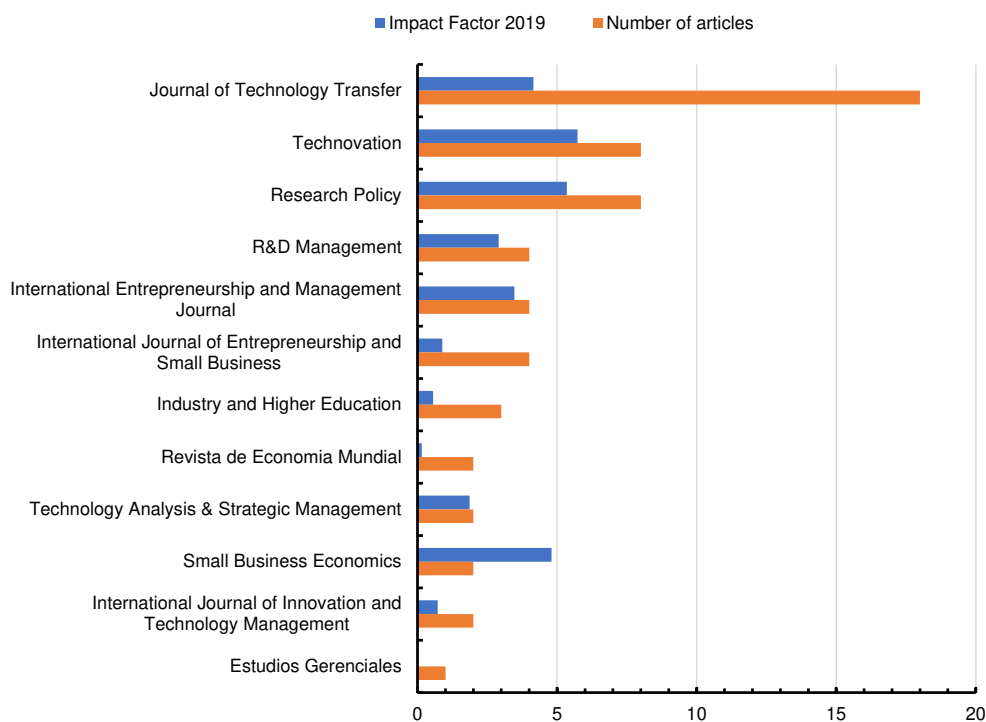


Figure 2. Distribution of reviewed articles according to the journal of publication.

## 4.2. Main content

### 4.2.1. Drivers

In order to optimize the interpretation of the results obtained through database searches, the main drivers of data were analyzed, categorized and grouped in a similar way to what was proposed by Hossinger, Chen and Werner (2020). In this article, the characteristics related to a more comprehensive scope, that is, in the national or regional contexts, are referred to as "External characteristics - Third Layer".

According to Kroll and Liefner (2008), government actions significantly affect the creation of academic ASOs as a form of technology transfer. However, to reach the ideal model it was necessary to loosen restrictive regulations and improve the business training process.

In addition to these factors, the analyzed literature is unanimous in that the characteristics of the university, its entrepreneurial orientation and the support instruments that are offered to researchers (referred to in this work as “Institutional Characteristics - Second Layer”) can affect the degree to which the creation of ASOs is fostered.

The types of research performed, as well as the methodology and previous experiences in establishing cooperation projects with companies are important factors when creating an ASO (MATHISEN; RASMUSSEN, 2019; RASMUSSEN; WRIGHT, 2015). According to O’Shea et al. (2005), the possibility of generating an ASO is particularly increased in disciplines focused on the development of innovations, where the researcher understands the market potential involved. In addition, the environment becomes more conducive to the creation of new ventures when the academic prestige of the organization is recognized nationally and internationally, and when there is a solid availability of different resources, such as a well-structured technology transfer office, a business school, startup incubators, events, collaborations with companies, among other actions (ALGIERI; AQUINO; SUCCURRO, 2013; AVNIMELECH; FELDMAN, 2015; GÓMEZ GRAS et al., 2008; PRODAN; DRNOVSEK, 2010).

Initiatives such as the organization of lectures, workshops, conferences, congresses, and seminars can greatly contribute to the establishment and expansion of the entrepreneurial culture (HAYTER, 2011; HOSSINGER; CHEN; WERNER, 2020). However, Feola et al. (2019) highlight that the institution's departments must share a common intent of disseminating the entrepreneurial orientation. According to Parente and Feola (2013), corroborated by Civera et al. (2020), the possibility of conceiving ASOs is greater when the mobilization for such takes place at all levels of the institution, with a well-defined objective and continuous training.

Another fundamental driver found in literature is the support instruments, which are vital to providing the essential structure for the creation and maintenance of an ASO (RASMUSSEN; WRIGHT, 2015). Incubation, financial support, training and skill building, as well as a favorable regulatory environment in the institution, are capable of increasing the chances of success in the formation of ASO, especially when the idea is in its initial stages and has material chances of becoming an enterprise (FINI et al., 2011; LANDRY; AMARA; RHERRAD, 2006; MUSCIO; QUAGLIONE; RAMACIOTTI, 2016).

Finally, we come to the so-called “Behavioral characteristics - first layer”. This layer is composed of characteristics inherent to the entrepreneurial researcher. Even with government support (third layer), and a favorable institutional environment (second layer), it is unlikely that



an ASO will form if the researcher is not motivated or does not understand the market potential of the research (HAYTER, 2011; RAMACIOTTI; RIZZO, 2015)

Our research pointed out that the desire for independence, self-achievement and satisfaction with the benefits inherently provided by an ASO is among the strongest motivators to the generation of the enterprise (CIVERA et al., 2020; HAYTER, 2015). Academic benefits such as prestige, recognition, improved reputation, and financial rewards are factors that encourage academics to embark on entrepreneurial initiatives (HAYTER, 2011).

Table 1 summarizes the main drivers found in the search, their main variables, and the most representative articles in each segment.

Table 1: Main drivers related to the creation of ASOs

<b>Drivers</b>	<b>Perspective</b>	<b>Variables</b>	<b>Representative articles</b>
	Motivations	Desire for independence, achievement, skill enhance, automatic achievement, satisfaction, additional academic benefits, financial rewards, academic recognition, reputation and promotion	Hayter (2011), Fini et al (2017), Rizzo (2006), Hayter (2015), Civera et al (2020)
	Social/Human capital	Personal, professional and business network, previous experience in commercial and business actions, previous industrial experience, management and business experience	Mathisen et. al (2017), Krabel et al (2012), Hayter (2015), Clarysse et al (2018)
	Psychological factors and demographic characteristics	Business self-efficacy, cognitive perception, extraversion, emotional stability, experience, age, sex, career experience	Kolb and Wagner (2018), Krabel et al (2012)
<b>BEHAVIORAL CHARACTERISTICS – FIRST LAYER</b>			
	University characteristics	Applied research, experiences in industry cooperation, solid resource base, university reputation and prestige, skill set, specific disciplines	Rasmussen and Wright (2015), Mathisen et al (2019), O’Shea et al. (2005), Gómez Gras et al. (2008), Algieri et al. (2013), Avnimelech and Feldman (2015), Prodan and Drnovsek (2010)
	Entrepreneurial orientation	Entrepreneurial culture at the university and it’s departments	Hossinger et al (2019), Hayter (2011), Feola et al. (2019), Parente e Feola (2013), Civera et al (2020)
	Support instruments	University regulations, incubation services, financial support and entrepreneurial education	Rasmussen and Wright (2015), Landry et al. (2006), Fini et al. (2011), Algieri et al. (2013), Meoli et al. (2018), Muscio et al. (2016)
<b>INSTITUTIONAL CHARACTERISTICS – SECOND LAYER</b>			
	Regional context	Economic level, development, culture, geographical location and entrepreneurial environment	Fini et al. (2011), Conceição et al. (2017), Mathisen et al (2019)

National context	Government instruments, regulations and support programs	Hossinger et al (2019), Kroll and Liefner (2008), Mathisen e Rasmussen (2019)
<b>EXTERNAL CHARACTERISTICS – THIRD LAYER</b>		

#### 4.2.2. Barriers

This section analyzes and summarizes the main aspects that pose difficulties to the creation of an ASO. The classification follows the same model of layers presented in the previous section. From the analysis of the third layer, it is noticeable that the level of economic development interferes in the creation of ASOs. Factors such as education, number of research institutions, gross domestic product, and patenting/licensing rate affect the number of ASOs generated (NEVES; FRANCO, 2018). In fact, regions of lower economic development typically generate fewer academic ventures than more developed regions. This statement is corroborated by Figure 4, which shows the number of publications by geographic distribution, that is, most countries that publish on the topic are developed.

Another aggravating circumstance when generating ASOs is the government budget available for financing research institutions (KNOCKAERT; SPITHOVEN; CLARYSSE, 2010). Zhou et al. (2011) state that not only the amount of government resources, which is often limited, but the greater the investments made by private companies, the greater the chance of generating an ASO. Based on these arguments, it is possible to affirm that the amount of public and private investments is directly proportional to the chances of generating ASOs.

When analyzing the main obstacles to the creation of ASOs from the institutional perspective (second layer), it is noticeable that the management style adopted by the institution's decision makers is relevant (SU; SOHN, 2015). The more democratic and innovative the management, the more favorable elements to entrepreneurship will be implemented. On the other hand, the more conservative the management, the greater the difficulties encountered.

Moreover, when the absence of supporting elements such as incubators, training programs, and business schools adds to highly bureaucratic procedures and a weak entrepreneurial culture, the environment becomes highly unfavorable to the outset of new businesses (GIACOMETTI, 2001; NEVES; FRANCO, 2018).

From the perspective of behavioral characteristics, it is worth mentioning that in an extremely unfavorable context is formed when the academic system fails to encourage innovative research and devise ways to motivate the researcher, remaining focused only on the publication of articles and academic production (RASMUSSEN; WRIGHT, 2015). In this context, according to Rasmussen, Mosey and Wright (2014), conflicts of objectives make it even more difficult

for the researcher to perceive a business opportunity in a research, thus minimizing the possibilities of entrepreneurship.

In closing, without a doubt, one of the biggest barriers to the creation of ASOs mentioned in numerous articles is the lack or shortage of entrepreneurial skills, resources, knowledge and, primarily, application of acquired knowledge (KWIOTKOWSKA, 2018; RASMUSSEN, 2015; SOETANTO; VAN GEENHUIZEN, 2015).

It often happens that businesses are unable to advance because a researcher's academic excellence is not paired by sufficient knowledge in marketing, business, and finance, among other business skills (FRANCO-LEAL et al., 2020; ZHOU et al., 2011).

Table 2 summarizes the main barriers related to the creation of ASOS, as well as their variables and the main works that addressed the researched phenomenon.

Table 2: Main barriers related to the creation of ASOs

<b>Barriers</b>	<b>Perspective</b>	<b>Variables</b>	<b>Representative articles</b>
	Lack of entrepreneurial skills, resource and knowledge – lack of application knowledge	Knowledge in marketing, business skills, customer base and financial resources – Types of research – Fear of failure	Kwiatkowska (2018), Vohora et al. (2014), van Geenhuizen and Soetanto (2015), van Geenhuizen and Soetanto (2018), Zhou et al. (2011), Franco-Leal et al (2014); Neves and Franco (2016), Neves and Franco (2018); Hayter et al. (2017)
	Internal governance conflicts	Objectives conflicts	Vohora et al. (2014), Zhou et al. (2011), Neves and Franco (2016)
	Academic system	Focus on productivity of articles and publications	Sanchez-Barrioluengo (2019), Wright and Rasmussen (2015)
<b>BEHAVIORAL CHARACTERISTICS – FIRST LAYER</b>			
	Organizational characteristics – Bureaucracy	Weak business cultures, lack of incubation infrastructure and services - Bureaucracy procedures	Giacometti (2001), Zhou et al. (2011), Neves and Franco (2016), J. Su et al (2011)
	Internal governance issues	Conservative management level	J. Su et al (2011)
<b>INSTITUTIONAL CHARACTERISTICS – SECOND LAYER</b>			
	Financial support	Limited availability of public resources and sources of private finance	Knockaert et al. (2010), Zhou et al. (2011)
	National context	Economic development level	Neves and Franco (2016)
<b>EXTERNAL CHARACTERISTICS – THIRD LAYER</b>			

#### 4.2.3. Success factors

Concerning the external, nationwide characteristics (third layer) that influence the success factors in creating ASOs, Mathisen and Rasmussen (2019) emphasize that government policies and segment-specific financing programs are essential. At the regional level, aspects such as the degree of economic development, dissemination of entrepreneurial culture, and other aspects inherent to entrepreneurial culture are emphasized (FERNANDEZ-ALLES et al., 2014; HOSSINGER; CHEN; WERNER, 2020; KNOCKAERT; SPITHOVEN; CLARYSSE, 2010; SOETANTO; VAN GEENHUIZEN, 2015; STERNBERG, 2014)

As for the success factors related to institutional characteristics (second layer), Mathisen and Rasmussen (2019) make it clear that the philosophy of a research institution directly interferes with its ability to create ASOs. For instance, if researchers are qualified and trained to promote innovation, the chance of designing new ventures is greater. Otherwise, there may be a vicious cycle of academic productivity focused on publishing articles, not on transforming scientific knowledge into new technologies to the point of monetizing them (HOSSINGER; CHEN; WERNER, 2020).

Several articles that address the success factors in the creation of ASOs deal with the post-creation stage, that is, the development and maturity phases of the projects. Many articles discuss the degree and depth of the relationship between the ASO and the “mother” institution, that is, the one in which the research was developed before originating a de facto company (MATHISEN; RASMUSSEN, 2019).

Regarding the founding of an ASO specifically, three main factors are emphasized: the individual skills, the participating team, and the business objectives. Once the objectives are well defined, the strategies must be clearly outlined (SOETANTO; VAN GEENHUIZEN, 2015). When there is a detailed business plan listing the market potential and the returns involved, the chances of gaining access to credit lines and funding programs are greater (FRANCO-LEAL et al., 2020).

It is essential to start with a competent and dedicated team. The team members, according to Knockaert, Spithoven and Clarysse (2010), must have experience in different segments with complementary characteristics. Huynh et al. (2017) argue that establishing the founding team is vital for ASO's subsequent success and continuity.

Table 3 summarizes the main success factors, with the perspectives, variables and main articles that discuss and gather essential information about the researched phenomenon.

Table 3: Main success factors related to the creation of ASOs

<b>Success factors</b>	<b>Perspective</b>	<b>Variables</b>	<b>Representative articles</b>
	Initial skills	Sufficient human, social and technological resources, knowledge and innovation capacity	Hossinger et al (2019), van Geenhuizen and Soetanto (2015), Hayter et al (2017), Franco-Leal et al (2014)
	Founder team	Team with diverse experiences balanced demographic characteristics	Knockaert et al. (2010), Hayter (2011), Ciuchta et al. (2016), Huynh et al. (2017), Ferretti et al. (2018), Hayter et al (2017)
	Firms objectives and strategies	Different financing strategies, collaborations and performance objectives	van Geenhuizen and Soetanto (2015), Peng (2006), Franco-Leal et al (2014)
<b>BEHAVIORAL CHARACTERISTICS – FIRST LAYER</b>			
	Relationship with a “parent” institution	Intensity and crane for involvement	Rasmussen (2019), van Geenhuizen and Soetanto (2015), Huynh (2017), Peng (2006)
	University competencies	Scientific productivity and innovation capacity	Jung and Kim (2018), Hayter et al (2017)
<b>INSTITUTIONAL CHARACTERISTICS – SECOND LAYER</b>			
	Regional context	Level of economic development, geographical location, entrepreneurial culture	Hossinger et al (2019), Sternberg (2014), Knockaert et al. (2010), van Geenhuizen and Soetanto (2015), Fernández-Alles et al. (2017)
	National context	Government policies and financing programs	Mathisen et al (2019), Hossinger et al (2019)
<b>EXTERNAL CHARACTERISTICS – THIRD LAYER</b>			

## 5. CONCLUSION

Our research analyzed the main variables that affect the creation of ASOs. Based on the model applied by Hossinger, Chen and Werner (2020), a literature review of the main works related to ASO-encouraging factors was carried out. Keywords were defined and used to search the Scopus, Web of Science, and Engineering Village databases.

The main results led to the understanding that the intersection of behavioral, institutional and external characteristics, through all the variables discussed in this research, favors the creation of ASOs and, consequently, the generation of socioeconomic benefits provided by these ventures. Many variables and articles were compatible with those found and listed by Hossinger, Chen and Werner (2020), although some articles mentioned by the authors did not fit the scope of this research.

It became evident that the perfect scenario for the creation of an ASO is one in which several factors are combined: government incentives associated to bureaucracy-reducing legislation on entrepreneurial initiatives; efforts by universities and research centers to promote the availability of support and resources; and entrepreneurial orientation, in addition to motivating

factors that enable a researcher to convert his research into innovation to the point of commercializing it.

The research questions were answered throughout the sections and enabled a prior analysis on the state of the art regarding the essential elements for fostering the creation of ASOs. To facilitate access to the subject by other researchers and institutions, we listed the most frequently used methods, as well as the geographic distribution of publications.

It should be noted that most of the articles analyzed make wide use of the theories of academic entrepreneurship, entrepreneurial behavior, and knowledge management and transfer.

The limitations of this research are related to the fact that only three databases were used. Extending the search to other databases could favor the achievement of even more comprehensive results. As this is a systematic literature review, the results, especially in the analysis and extraction stages, may vary according to the researcher's expertise, allowing the occurrence of a method bias. To minimize these biases, the research stages were frequently reviewed by peers.

As an agenda for future research, we suggest a more detailed investigation on the main barriers and the possible ways to deal with them. This work evaluated only the creation stage of ASOs, but there is an increasing trend towards investigating the success factors in the development and sustainability of ASOs, as well as the qualification of the ASO teams. Research of this nature has much to contribute to science.

In conclusion, this research contributes to the knowledge of academic entrepreneurship in the light of science, seeking to fill existing gaps and offering a foundation for the structured development of public policies in favor of academic entrepreneurship.

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