



THE RELATIONSHIPS BETWEEN ENTREPRENEURIAL ORIENTATION AND BUSINESS STRUCTURING IN THE PROCESS OF INCUBATION¹

 **Daiane Tretto Da Rocha²**

 **Cristina Dai Prá Martens³**

Cite as – American Psychological Association (APA)

Rocha, D. T., & Martens, C. D. P. (2023, Sept./Dec.). The relationships between entrepreneurial orientation and business structuring in the process of incubation. *International Journal of Innovation - IJI*, São Paulo, 11(3), 1-30, e25118. <https://doi.org/10.5585/2023.25118>

Abstract

Study Objective: The aim of this study is to examine the relationships between Entrepreneurial Orientation (EO) and the structuring of business in the incubation process.

Methodology/ Approach: A theoretical-conceptual approach was adopted, based on a systematic literature review (SLR) in the Web of Science and SCOPUS databases, using the string “Entrepreneurial Orientation” AND Incubat*. A total of 32 articles were selected for the full reading phase with the support of Atlas Ti software.

Originality/Relevance: It indicates that the development and strengthening of entrepreneurial culture in nascent companies occur through the articulation of EO applied to incubation strategy.

Main Results: As result, it was possible to develop a conceptual framework regarding the mediating antecedents and consequences of the relationships between EO and business incubation, as well as to rise propositions based on the research findings.

Theoretical/Methodological Contributions: This study advances the theory of EO by addressing it in the context of business incubation, a growing field with few studies from the EO-Incubation perspective.

Social/Administrative Contributions: Relevant reflections are presented for institutional policymakers, universities, technology parks, governments, and other institutions interested in strengthening an entrepreneurship-oriented culture.

Keywords: Entrepreneurial Orientation, incubators, incubation, new business structuring, systematic literature review.

¹ Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Finance Code 001

² Ph.D. candidate in Business Administration – PPGA/UNINOVE. Professor at the Federal University of Roraima. Boa Vista (RR) / Brazil

³ Doctor of Business Administration. Professor at PPGA and PPGP/UNINOVE. São Paulo, SP / Brazil

AS RELAÇÕES ENTRE ORIENTAÇÃO EMPREENDEDORA E A ESTRUTURAÇÃO DE NEGÓCIOS EM PROCESSO DE INCUBAÇÃO

Resumo

Objetivo do estudo: O objetivo deste estudo é examinar as relações entre Orientação Empreendedora (OE) e a estruturação de negócios em processo de incubação.

Metodologia/abordagem: Adotou-se uma abordagem teórico-conceitual, com base em uma revisão sistemática da literatura (RSL) nas bases de dados Web of Science e SCOPUS, utilizando a *string* "Entrepreneurial Orientation" AND Incubat*. Um total de 32 artigos foram selecionados para a fase de leitura completa com apoio do software Atlas Ti.

Originalidade/Relevância: Aponta que o desenvolvimento e o fortalecimento da cultura empreendedora nas empresas nascentes ocorrem por meio da articulação da OE aplicada à estratégia de incubação.

Principais resultados: Como resultado foi possível elaborar um framework conceitual conforme antecedentes, mediadores e consequentes das relações entre OE e incubação de empresas, bem como levantar proposições baseadas nos achados da pesquisa.

Contribuições teóricas/metodológicas: Este estudo apresenta avanços para teoria da OE ao abordá-la em um contexto de incubação de empresas, campo em crescimento, porém com poucos estudos sob a ótica da díade OE-Incubação.

Contribuições sociais/administrativas: São apresentadas reflexões relevantes para os formuladores de políticas institucionais, universidades, parques tecnológicos, governos e demais instituições interessadas no fortalecimento de uma cultura voltada ao empreendedorismo.

Palavras-chave: Orientação empreendedora, incubadoras, incubação, estruturação de novos negócios, revisão sistemática da literatura.

LAS RELACIONES ENTRE LA ORIENTACIÓN EMPRENDEDORA Y LA ESTRUCTURACIÓN DE NEGOCIOS EN PROCESO DE INCUBACIÓN

Resumen

Objetivo de estudio: El objetivo de este estudio es examinar las relaciones entre la Orientación Emprendedora (OE) y la estructuración de negocios en proceso de incubación.

Metodología/Enfoque: Se adoptó un enfoque teórico-conceptual, basado en una revisión sistemática de la literatura (RSL) en las bases de datos Web of Science y SCOPUS, utilizando la cadena "Orientación Emprendedora" Y Incubat*. Se seleccionaron un total de 32 artículos para la fase de lectura completa con el apoyo del software Atlas Ti.

Originalidad/Relevancia: Señala que el desarrollo y fortalecimiento de la cultura emprendedora en las empresas emergentes ocurre a través de la articulación de la OE aplicada a la estrategia de incubación.

Principales resultados: Como resultado, fue posible elaborar un marco conceptual que abarca los antecedentes mediadores y consecuentes de las relaciones entre la OE y la incubación de empresas, así como planear proposiciones basadas en los hallazgos de la investigación.

Contribuciones teóricas/metodológicas: Este estudio presenta avances para la teoría de la OE al abordarla en un contexto de incubación de empresas, un campo en crecimiento pero con pocos estudios desde la perspectiva de la relación OE-Incubación.

Contribuciones sociales/administrativas: Se presentan reflexiones relevantes para los formuladores de políticas institucionales, universidades, parques tecnológicos, gobiernos y otras instituciones interesadas en fortalecer una cultura orientada al emprendimiento.

Palabras clave: Orientación Emprendedora, incubadoras, incubación, estructuración de nuevos negocios, revisión sistemática de la literatura.

INTRODUCTION

Entrepreneurial Orientation (EO) constitutes a variable that contributes to strategic positioning and organizational performance (Lumpkin & Dess, 1996; Sadreddin & Chan, 2023). EO refers to the decision-making processes, practices, and activities that lead to new entry (Carvalho et al., 2021; Lumpkin & Dess, 1996) and is related to how entrepreneurs implement entrepreneurship (Martens et al., 2010; Lita et al., 2020). The construct is composed of five dimensions: innovativeness, risk-taking, proactiveness, autonomy, and competitive aggressiveness (Lumpkin & Dess, 1996; Rakthai et al., 2019).

Vincent & KA (2021, p. 102) argue that "entrepreneurial orientation can be a significant antecedent of startup performance among incubated companies". Young and emerging companies find support for the process of developing new businesses in business incubators (Ayyash et al., 2022; Gerdri et al., 2021). Business incubators are environments that facilitate the creation of enterprises through resources (tangible) and capabilities (intangible) (Lindelöf & Hellberg, 2023).

One of the roles of incubators is to guide entrepreneurs in structuring their businesses (Lita et al., 2020), through a systematic method (Bøllingtoft, 2012; Hackett & Dilts, 2004), offering services, infrastructure, business support, and network development (Breivik-Meyer et al., 2020; Gerdri et al., 2021; Son et al., 2022; Vanderstraeten & Matthyssens, 2012). Although companies in an incubator (incubatees) receive similar services and use this condition to gain a competitive advantage (Hughes et al., 2007; Vincent & KA, 2021), they differ in their performance due to their EO (Wang, 2008; Wu et al., 2020), since incubatees may perform poorly due to a lack and/or improper configuration of EO (Hughes & Morgan, 2007). Thus, the degree of EO of the incubatees impacts the entrepreneurs' ability to recognize opportunities, mobilize resources, and act in networks (Millette et al., 2020).

Therefore, EO plays a fundamental and characteristic role in distinguishing the entrepreneurial process, understood as the journey of a new venture from its inception to the completion of its creation (Shane & Venkataraman, 2000; Wei et al., 2023), defined as the stage where it sustains itself in the market (Davidsson & Gruenhagen, 2021). This phase of a business is achieved through structures and processes that lead to the development of products and/or services that promote the organization's sustainability in the market.

The behavioral patterns that define entrepreneurship for a business (Covin & Lumpkin, 2011) are present in the venture's actions from the creation phase (Na-Allah & Ahmad, 2022). With this, EO becomes significantly important for the performance of emerging businesses

(Rauch et al., 2009; Wei et al., 2023). This support for new businesses, considering EO in the process, is pointed out as a condition for their survival and performance (Huynh et al., 2017; Wu et al., 2020).

It is considered relevant to examine whether and to what extent incubators are capable of influencing the EO of the incubated companies (Clausen & Korneliussen, 2012; Na-Allah & Ahmad, 2022; Wu et al., 2020), as well as to understand the scientific production on EO in emerging business contexts (Martens et al., 2016), such as business incubators. In this context, a systematic literature review (SLR) is conducted, questioning: How does Entrepreneurial Orientation relate to the structuring of businesses in incubation processes? Accordingly, the research was conducted with the objective of examining the relationships between Entrepreneurial Orientation (EO) and business structuring in the process of incubation.

The results facilitate the understanding of the current state of knowledge, as well as the methodological and theoretical patterns found in existing studies. Previous reviews have investigated the incubation process and the mechanisms used to shape specific outcomes (Sohail et al., 2023), models of virtual business incubators (Vaz et al., 2022), and common critical factors for the performance of business incubators (Pattanasak et al., 2022). However, no reviews were identified that considered the relationship between EO and incubation, highlighting the relevance of this research that addresses EO in the context of business structuring in the process of business incubation.

The study contributes to academia through the main results of the systematization that presents antecedents, mediators, and consequences of the relationship between business incubation and EO. For the advancement of EO theory, the study makes contributions by indicating that the development and strengthening of the entrepreneurial culture in nascent companies occur through the articulation of EO applied to the incubation strategy, which favors internal (among the incubated) and external relations, including the network of relationships in the entrepreneurial ecosystem. Finally, it contributes with the synthesis of evidence from the SLR, aiding practitioners in reflecting on the support for the structuring activities of enterprises in incubators through the presented propositions.

METHOD

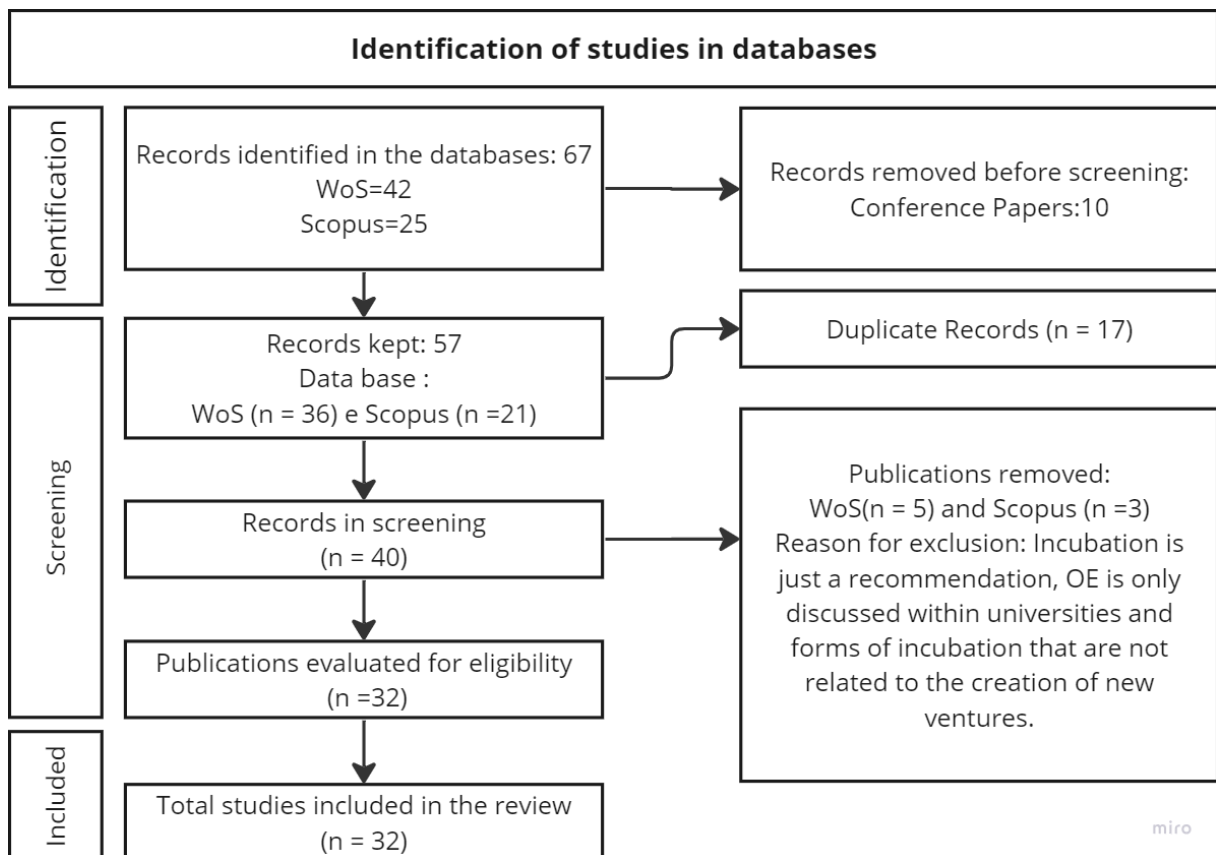
This study adopted the systematic literature review (SLR) as its method. The premise of an SLR is to conduct a reproducible search for evidence on a research question (Tranfield et al., 2003). The steps recommended by Tranfield et al. (2003) were followed. In the first phase, planning was carried out with the assessment of the study's importance and the formulation of

the research objective. Thus, planning was done through the exploratory analysis of the theme, specification of content approach, selection of search and inclusion criteria, and development of the search protocol.

In the stage of conducting the review (Tranfield et al., 2003), searches were performed in the Web of Science (WoS) and SCOPUS databases up to the year 2022, in title, abstract, and keywords using the string "Entrepreneurial orientation" AND incubat*. The publication type was defined as articles in any language, without restriction of area. At the time of screening the articles, the following inclusion criteria were adopted: articles that discuss the relationship between EO and business incubation, and that the incubation process is associated with the creation of new ventures. Additional information is presented in Figure 1, with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), a methodological tool that can be used as a guideline for conducting systematic research.

Figure 1

PRISMA flow diagram



Source: Prepared by the authors.

In the final phase of an SLR, as recommended by Tranfield et al. (2003), the results are presented. After being analyzed in defined categories, the information and elements should be grouped, concluding with discussions about the findings. The results found in the databases were exported to the StArt software. There was no time restriction, and it was identified that the works available in the databases combining EO and incubation represent a recent field of study (Campbell & Allen, 1987; Covin & Lumpkin, 2011; Hackett & Dilts, 2004; Martens et al, 2016; Mian et al., 2016; Mian, 1997).

The stage of full-text reading of the 32 articles was then conducted, with the support of Atlas Ti software. Initially, the identification data of the studies were mapped according to the year of publication, journal, methodological approach, and theoretical perspective adopted. In the second round of analysis, the articles were coded based on the factors emerging in the study results, the field of application of the research, conclusions, and recommendations for future studies.

RESULTS

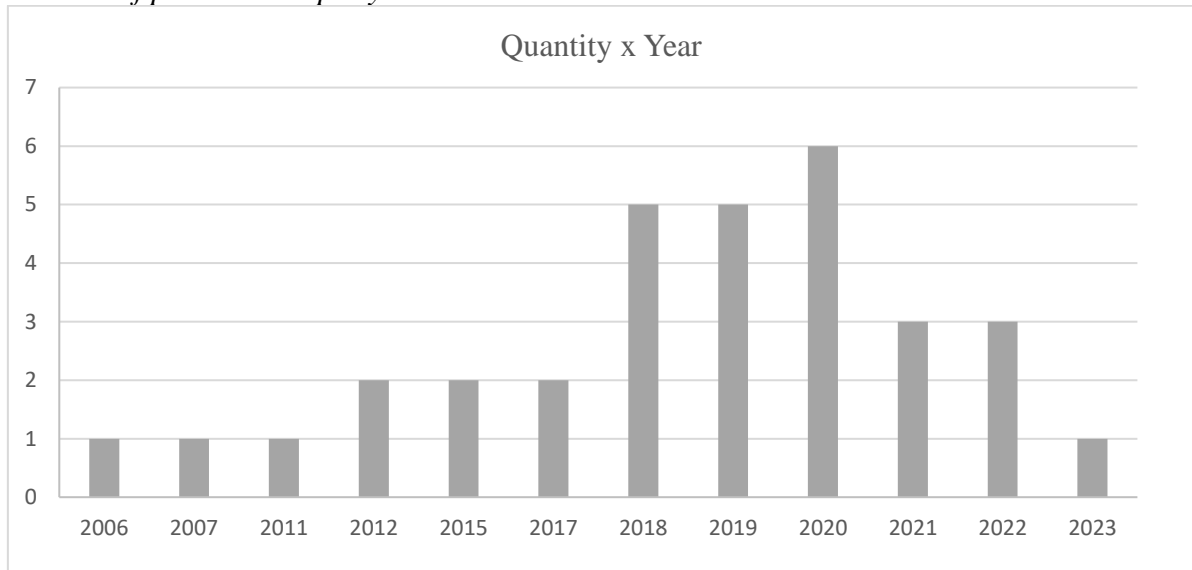
In this section, firstly, a characterization of the sample of 32 articles that made up the RSL is presented. Next, the results of the analysis between EO and the incubation of new ventures are explored.

Characterization of the Sample Studies

The publications that connect the themes of EO and incubator/incubation, selected to be part of this study, begin in 2006 (Figure 2). The majority of the sample studies are from the years 2018, 2019, and 2020. Although the data collection was done in 2022, it was possible to retrieve an article from February 2023.

Figure 2

Number of publications per year



Source: Prepared by the authors.

The international relevance of a journal is assigned according to its impact factor by the Scientific Journal Rankings (SJR) indicator, which classifies publications based on their prestige in quartiles (Q1, Q2, Q3, and Q4), with the highest impact in quartile 1. In this SLR, the distribution of the quartiles corresponds to 17 articles in quartile Q1, 10 in Q2, 3 in Q3, and 1 in Q4. One journal did not have an impact factor indicator and was represented by the acronym “NA” indicating not applicable. Table 1 presents the distribution of the journal quartiles.

Table 1

Identification of publications with quartile indication

Periodical	Number of publications	Quartile
<i>Asia Pacific Journal of Innovation and Entrepreneurship</i>	1	Q2
<i>British Journal of Management</i>	1	Q1
<i>Competitiveness Review</i>	1	Q2
<i>Environment and Planning C-Government and Policy</i>	1	Q2
<i>Expert Systems with Applications</i>	1	Q1
<i>Innovation-Organization & Management</i>	1	Q4
<i>International Journal of Entrepreneurship and Innovation Management</i>	1	Q2
<i>International Journal of Information Management</i>	1	Q1
<i>International Journal of Innovation and Learning</i>	1	Q3
<i>International Journal of Innovation and Technology Management</i>	1	Q3
<i>International Small Business Journal</i>	1	Q1
<i>Journal of Accounting & Organizational Change</i>	1	Q2
<i>Journal of Business Research</i>	1	Q1
<i>Journal of Cleaner Production.</i>	1	Q1
<i>Journal of Computer Information Systems</i>	1	Q1
<i>Journal of Entrepreneurship in Emerging Economies</i>	2	Q2
<i>Journal of Hospitality and Tourism Technology</i>	1	Q1
<i>Journal of Open Innovation: Technology, Market, and Complexity</i>	1	Q1
<i>Journal of Research in Marketing and Entrepreneurship</i>	1	Q2
<i>Journal of Small Business and Enterprise Development</i>	1	Q1
<i>Journal of Business Strategy</i>	1	Q2
<i>Journal Of Technology Transfer</i>	3	Q1
<i>New England Journal of Entrepreneurship</i>	1	NA
<i>Revista Brasileira de Gestão de Negócios (Brazilian Journal of Business Management)</i>	1	Q3
<i>Sustainability</i>	1	Q2
<i>Technological Forecasting & Social Change</i>	2	Q1
<i>Technovation</i>	2	Q1

Source: Prepared by the authors.

Regarding the methodological approach adopted in the studies, it was identified that 20 out of the 32 studies used the quantitative method, 9 were qualitative studies, and 3 adopted a mixed method. A total of 30 studies are of an empirical nature. Thus, there is a predominance of empirical and quantitative studies. The quantitative studies predominantly used multivariate statistics, especially regression analysis (Almeida et al., 2021; Breivik-Meyer et al., 2020; Chang et al., 2006; Chen et al., 2022; Clausen & Korneliusen, 2012; Fernández-Alles et al., 2015; Frare et al., 2022; Hughes et al., 2007; Huynh et al., 2017; Montiel-Campos, 2018; Na-Allah & Ahmad, 2022; Rakthai et al., 2019; Salvador, 2011; Soetanto & van Geenhuizen, 2019; Son et al., 2022; Vincent & KA, 2021; Wu et al., 2020) and structural equation modeling (Carvalho et al., 2021; Frare et al., 2022; Hughes et al., 2007; Huynh et al., 2017; Lita et al., 2020; Rakthai et al., 2019; Verbano et al., 2020).

There is no predominance of geographic regions in which the studies were conducted, with Asian, African, European, and American countries included in the sample. Regarding the

subjects of study, there are early-stage companies that are in the process of incubation or have already gone through it (graduated), referred to in various ways – startups, spin-offs, and high-tech companies. The studies are also divided among public, university, and private incubators. These details are presented in full in Table 2.

Table 2

Conceptual, methodological and geographic perspectives adopted in publications.
Performance of Incubators Quantitative Incubators

Central theme of the article	Country/Region of Research	Object of study	Methodological approach	Authors
Performance of Incubators	USA	Incubators	quantitative	Chen et al. (2022)
Performance, Business Intelligence, and Competitiveness	European Countries	Graduated Startups	quantitative	Caseiro e Coelho (2018)
Performance of Creative Industry Enterprises	Indonesia	Craft Sector Companies	quantitative	Lita et al. (2020)
Performance and Absorptive Capacity of Startups	India	Incubators and Startups	quantitative	Vincent e K.A., (2021)
Individual Performance of EO and Self-Efficacy	Nigeria	Startups	quantitative	Na-Allah e Ahmad (2022a)
Performance, Learning, Networking, Ambidexterity	United Kingdom	Emerging Companies	quantitative	Hughes et al. (2007)
Performance, Effects of Incubation on Crossing the Valley of Death (VoD)	Korea	Spin-offs	quantitative	Son et al. (2022)
Incubator Networks and Performance of New Ventures	China	Incubated	quantitative	Wu et al. (2020)
Innovative Capacity and Performance of Incubatees in University Incubators	Thailand	Graduated Companies from University Incubators	quantitative	Rakthai et al. (2019)
Absorptive capacity, dynamism and innovation	Brazil	Startups	quantitative	Carvalho et al. (2021)
Resources and Skills for Spin-off Development	Spain	Spin-offs	quantitative	Fernández-Alles et al. (2015)
Performance after incubation	Europe	Spin-offs	quantitative	Soetanto e van Geenhuizen (2019)
Innovation and Technology Transfer through Incubators	Taiwan	Universities	quantitative	Chang et al. (2006)
Multiple Methods of Assessing EO	The Netherlands	Startups	quantitative	Rezaei et al. (2012)

Performance control and management systems	Brazil	Startups	quantitative	Frare et al. (2022)
Ambidexterity in Exploratory and Exploitative Innovation	United Kingdom	Startups	quantitative	Hughes et al. (2021)
Performance of Incubated and Non-Incubated Companies	Portugal	Incubated and Non-Incubated	quantitative	Almeida et al. (2021)
Buffering Mechanism and Market Entry Speed	Norway	Incubators	quantitative	Clausen e Korneliussen (2012)
Interactions between Universities, Incubators, and Spin-offs	Latin America	Universities	quantitative	Montiel-Campos (2018)
Networks, spin-off and performance	Spain	Spin-offs	quantitative	Huynh et al. (2017)
spin-off performance	Italy	Startups	qualitativo	Verbano et al. (2020)
Framework for New Circular Economy Incubator Structures	USA	Circular Economy Incubators	qualitative	Millette et al. (2020)
Knowledge transfer and innovative practices	China	Startups	qualitative	Du e Wang (2019)
Dynamic performance and capacity	Canada	Incubator and incubated	qualitative	Sadreddin e Chan (2023)
Mechanisms to Accelerate and Enhance EO in Startups	USA	Startups	qualitative	Stayton e Mangematina (2019)
Incubation Policies and Dynamic Capabilities	United Kingdom	Companies and Public Policy Makers	qualitative	Brown e Mawson (2016)
Skunk Works, Innovation in Collective Ventures	-	Literature	qualitative	Larsson (2019)
Incubation Process and Performance	The Netherlands	Incubated	qualitative	Blok et al. (2017)
Dynamics of Startup Creation Among Founders with Different Functional Identities	Russia	Startups in the Incubation Process	qualitative	Karpinskaia (2022)
Influence of Incubators and Science Parks as Brands	Turin	Spin-offs	Mixed	Salvador (2011)
Development of the EO Scale in Social Entrepreneurs	India	Social Entrepreneurs	Mixed	Satar e Natasha (2019)
Performance, Influence of the Incubator; Buffering Mechanisms and Network	Norway	Incubators and Incubated	Mixed	Breivik-Meyer et al. (2020)

Source: Prepared by the authors.

In terms of the theories adopted to support the studies, it is possible to observe the prevalence of EO in 18 studies, followed by the Resource-Based View (RBV) in 4 studies, and Learning Theory in 3. The other theories are identified in only one study: Social Cognitive Career Theory (SCCT), Institutional Theory, Affordance Theory, Skunk Works, Imprinting Theory, Dynamic Capabilities, Identity Theory, and Absorptive Capacity (ACAP).

Analysis of the Relationship between EO and the Incubation of New Ventures

The analysis of the articles in the sample indicates that EO presents itself as an antecedent in the incubation process. Eight mediating factors of the mapped and interpreted relationships from the EO-Incubation link were identified: performance, network formation, innovation, ambidexterity, absorptive capacity, time to market, business creation dynamics, and buffering mechanisms. This influence is identified in both the strategies of the incubator and the incubation process, as well as in the outcomes of new ventures, analyzed in the context of incubation or post-incubation in empirical studies. The following are the results that enabled the development of a conceptual framework encompassing the antecedents, mediators, and consequences of the EO-Incubation dyad.

Antecedents

EO focuses on processes and strategies within companies and presents itself as the driving force of incubators' ability to accelerate products to market (Clausen & Korneliusen, 2012). Conceptualized as a driver of entrepreneurial intention (Na-Allah & Ahmad, 2022), EO explains the mechanism of how entry is achieved through behaviors, practices, decision-making styles, and processes (Lita et al., 2020). Studies adopt both the version of EO that considers the dimensions of innovativeness, risk-taking, and proactiveness (Caseiro & Coelho, 2018; Hughes et al., 2007; Lita et al., 2020; Na-Allah & Ahmad, 2022), and the version that considers the five dimensions of innovativeness, risk-taking, proactiveness, autonomy, and competitive aggressiveness (Rakthai et al., 2019; Vincent & K.A., 2021).

For Millette et al. (2020), the degree of EO impacts the ability of entrepreneurs admitted to the incubator to recognize opportunities, develop appropriate ideas, and mobilize the necessary resources. In line with this, results from studies indicate that EO is an “important antecedent for incubator startups” (Vincent & K.A., 2021, p.3) and positively influences the creation of university spin-offs (Montiel-Campos, 2018). This occurs in the context of early-

stage companies, without sales or revenue, considered the period when EO is most significant (Vincent & K.A., 2021).

The analyses on EO are carried out in the context of incubators, where the effects and mechanisms of EO are explored. The identified types of incubators include circular economy incubators (Millette et al., 2020), business incubators (Almeida et al., 2021; Blok et al., 2017; Breivik-Meyer et al., 2020; Brown & Mawson, 2016; Caseiro & Coelho, 2018; Hughes et al., 2007, 2021; Na-Allah & Ahmad, 2022b; Prima Lita et al., 2020; Vincent & K.A., 2021; Wu et al., 2020b), technology-based incubators (Carvalho et al., 2021; Frare, Cruz, et al., 2022) and academic incubators (Chen et al., 2022; Fernández-Alles et al., 2015; Montiel-Campos, 2018; Sadreddin & Chan, 2023; Soetanto & van Geenhuizen, 2019; Son et al., 2022; Verbano et al., 2020). Therefore, the role of these organizations is to provide tangible and intangible support to nascent ventures, with the orientation towards the adjustment of the EO strategy being one of the elements that strengthen new entries in various aspects, which are named in this study as mediators.

Mediation

Mediators are considered as factors that emerge as a result of the antecedents of EO and incubators. Eight mediators resulting from the relationship between EO and the structuring of businesses in the incubation process were identified, namely, performance, innovation, networks, absorptive capacity, time to market, ambidexterity, business creation dynamics, and buffering mechanisms

Performance is one of the most highlighted aspects in the studies. EO is presented as a driver of performance (Verbano et al., 2020), improving various aspects of new ventures such as business outcomes (Vincent & KA, 2021), environmental dynamism (Wu et al., 2020b), leadership orientation (Rakthai et al., 2019), performance in systems management (Frare et al., 2022), performance of hard and soft skills (Vincent & KA, 2021), and performance of student entrepreneurs (Chen et al., 2022). The relationship with the performance of student entrepreneurs is investigated from the perspective of internal locus of control, which impacts the relationships between the academic incubator and the business success of student entrepreneurs (Chen et al., 2022). The authors found that students with strong EO perform better in entrepreneurial decision-making in both good and bad times, that is, they have skills to deal with market seasonality.

Research comparing the outcomes of incubated and non-incubated companies (Blok et al., 2017), found superior performance in the first years of life of the incubated compared to the non-incubated. Indeed, the return on assets (ROA) is higher for incubated companies (Almeida et al., 2021), however, there are arguments that suggest the possibility of stifling the dynamic capabilities of incubated companies by making them dependent on the support offered by the incubator (Brown & Mawson, 2016). The findings of Soetanto and Van Geenhuizen (2019) suggest that commercial performance may decrease if the bond between new ventures in incubation and incubators is not minimized after the completion of the process.

Another relationship between EO and the incubation of new ventures pertains to **Network Formation**. These connections formed and facilitated by incubators expose emerging companies to a wealth of collaborative opportunities (Hughes et al., 2007). The research by Hughes et al. (2007) examines the benchmark achieved by incubated companies through the learning obtained from incubator networks, and the results of network learning are secure and immediate. However, they can also blind companies to the value of exploration and building long-term learning, which is more uncertain in its outcomes but promotes substantial gains (Hughes et al., 2007).

These strong relationships with networks are particularly important for the commercial success of ventures with liabilities of newness and, in some cases, the inexperience of entrepreneurs (Chen et al., 2022). Networks form links that favor the construction of knowledge and the promotion of a strong EO in new ventures (Vincent & KA, 2021). This critical role in assisting entrepreneurs (Chen et al., 2022), especially in expanding connections with networks (Blok et al., 2017; Breivik-Meyer et al., 2020; Hughes et al., 2007; Huynh et al., 2017; Rakthai et al., 2019; Wu et al., 2020), is pointed out as a survival imperative.

The lens of EO has been used to assess the **innovativeness** of universities and incubators through the generation and exploitation of intellectual property (Chang et al., 2006). The EO of universities is mainly influenced by university policies that reinforce or suppress academic entrepreneurship (Chang et al., 2006). The empirical results of Chang et al. (2006) show that university entrepreneurship policies are the most determining factors in the innovative performance of the university, not only in patenting and licensing but also in business incubation. Thus, Lita et al. (2020) connect EO and the organizational culture of institutions as factors that positively impact organizational innovation.

However, there is a counterpoint to the unanimity of EO as a driver of innovation (Larsson, 2019). The argument is based on the validity of Skunk Works as a more conducive

strategy for fostering innovation. This practice is based on the premise that by creating a habitat of innovative culture, the autonomy of innovators is stimulated through seven dimensions (Isolation, Customer Needs, Focus, Planning, Trustworthy Project Manager, Multifunctional Teams, and Exploitation of Overlaps) that 'co-vary and are all necessary to facilitate a Skunk Works environment' (Larsson, 2019, p. 42). In this sense, the author asserts that the dimensions of Skunk Works are more suitable for promoting innovation, as opposed to the dimensions of EO.

Ambidexterity is considered an essential factor in managing the knowledge acquired by incubated companies (Hughes et al., 2007). It emerges as a reconciler of exploration and exploitation learning, and depends on the mediation of EO to balance both (Hughes et al., 2007). An exploration approach provided by the incubator and networks can generate short-term knowledge gains. However, it can become a long-term trap by limiting exploitation learning, important for the competitiveness and innovation of emerging businesses (Hughes et al., 2007, 2021).

The studies of Hughes et al. (2007, 2021) emphasize the importance of working on EO in incubation processes. As a result of a study that examined exploratory learning and EO in 211 high-tech emerging companies located in incubators in 2007, and a study that examined the strategic behavior of 1,000 technology-based incubated companies in 2011, the authors point out that EO positively affects innovation through exploration and exploitation. EO was considered a means to manage the interfaces between both and serves as a unifying mechanism for innovation activities and supports their ambidexterity (Hughes et al., 2007, 2021).

Absorptive capacity is pointed out as a potential enhancer of the EO effect (Vincent & KA, 2021). This capacity enables the association between EO and the performance of new ventures in the context of incubation (Vincent & KA, 2021), increases the speed of innovation, and stimulates innovativeness (Carvalho et al., 2021). This especially favors emerging businesses that need to use knowledge absorption as a strategic mechanism to transform environmental changes into opportunities for the company (Carvalho et al., 2021; Vincent & KA, 2021). Incubators need to be careful not to stifle the dynamic capabilities of their incubated companies and their external experiences with their successes and failures, which can exponentially contribute to the absorptive capacity (Brown & Mawson, 2016).

Time to market is another aspect pointed out in studies as a result of EO (Clausen & Korneliussen, 2012; Karpinskaia, 2022). EO is related to the speed at which a new entry is made and has a statistically significant and positive effect on the speed of offering new products to consumers (Clausen & Korneliussen, 2012). These results indicate that the way a new entry is

sought during the incubation process will influence the pace of economic growth of companies at the beginning of commercialization.

Stayton and Mangematin (2019) indicate that new ventures have a sense of urgency to reach the market and generate revenue, which forces them to take risks and increase proactivity. Thus, the urgency mechanism causes the EO of the incubated companies to develop more quickly, assisting in market agility. Another way to contribute to speeding up market entry is pointed out by Salvador (2011), in which case, incubators and technology parks can provide greater agility through the brand effect for emerging companies, which would come in the form of an endorsement, occurring when a renowned incubator provides credibility to the potential of the incubated companies.

The **business creation dynamics** factor has a perspective similar to time to market, but it is focused on the entrepreneur's mindset. Karpinskaia (2022) theorizes about the perspective of the venture founder's role, following a classification of role identities that distinguishes the inventor entrepreneur, founder, and developer based on the taxonomy of entrepreneurial activities. This leads to a dynamic of startup creation represented in oscillation, deceleration, and acceleration, linked to the identity of the startup creator's role.

By linking each business development phase with the founder's identity, it is possible to identify adjustments and mismatches, which accelerated or decelerated the business creation process. These contributions are pointed out as significant for incubators, which have resources to assist founders in identifying their strength (role identity), as well as in forming a team with complementary identities where 'the weaknesses of one role identity can be neutralized by strengths related to another role identity to ensure smooth initial development' (Karpinskaia, 2022, p. 16).

The **buffering mechanism** examines the support relationship between incubators and their incubatees (Breivik-Meyer et al., 2020). This relationship involves the transfer of knowledge, capital, and external connections to promote the development of new businesses. The results of these authors' study indicate that buffering mechanisms contribute to the development of internal capacity and the acquisition of external resources for new ventures. The EO of incubator managers influences the development of the incubatees, and managers should plan strategies according to the resource needs of the companies (Breivik-Meyer et al., 2020).

In this context, Clausen and Korneliussen (2012) adopt the idea of hosting and building as two types of buffering mechanisms in the business incubation context. Their results indicate

that hosting is more significant in the incubator context. The services provided may vary, and their influence on development will depend on the extent to which companies utilize the available services. Therefore, the effectiveness of buffering also relies on the incubatees' absorption.

Consequences

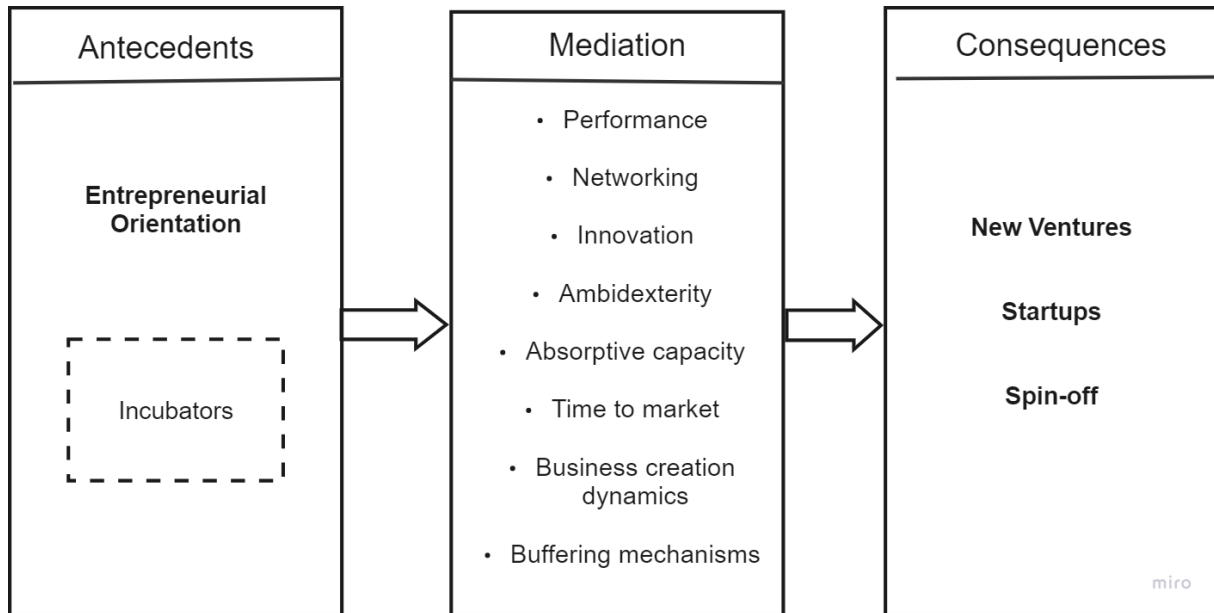
As a consequence of the antecedents and mediators identified in the relationship between EO and the structuring of businesses in the incubation process, different concepts emerge, presented in studies as outcomes of business incubation. Startups have predominated, which are companies that seek high growth through innovative, replicable, and scalable business models (Carvalho et al., 2021). As they are linked to technological advancements, they are exposed to a complex and highly volatile environment, demanding assimilation and competency development to deal with rapid changes (Vincent & K.A., 2021).

Spin-offs, another consequence, emerge in academic environments, usually as a result of research. They are considered an important mechanism for fostering university-industry relationships, job creation, and wealth, as well as a fundamental tool for valorizing research outcomes (Salvador, 2011). This research-incubation-spin-off flow is facilitated when the university shifts from its traditional orientation to an EO, thereby addressing regional economic and social needs (Montiel-Campos, 2018).

Other outcomes (graduated companies, emerging businesses, new enterprises, nascent ventures) are grouped here under the term 'new ventures'. According to Hughes et al. (2007), these new entrants face challenges due to novelty-related liabilities and limited knowledge, necessitating the maximization of EO gains. Thus, EO can be linked to incubators, the incubation process, and the creation of new ventures, as represented in Figure 3.

Figure 3

Conceptual model of relationships between EO and the structuring of new ventures in incubation



Source: Prepared by the authors.

Next, the results are discussed and related to the literature beyond the scope of this SLR. This facilitated the analysis of the state of the art regarding the relationship between EO and the structuring of new ventures and also pointed out future directions that can be explored.

DISCUSSION

The sample of studies in this systematic review identified eight relationship factors between EO and the incubation process of new ventures (Figure 3). The highest percentage of studies focused on the impact of EO on performance, a finding that aligns with previous research indicating a greater number of studies linking EO to performance (Martens et al., 2016). Other points indicate relationships with innovation, in the networks and connections developed during incubation, absorptive capacity, time to market, ambidexterity, business creation dynamics, and buffering mechanisms.

However, research on EO and incubation remains fragmented, lacking a substantial body of research to provide robustness for both researchers and incubator practitioners. There is a particular deficiency in the diversification of studies with approaches related to incubation programs and business models. For example, only one study addressed circular economy business incubation (Millette, Hull, et al., 2020), and one focused on social entrepreneurship

(Satar & Natasha, 2019). Regarding incubation programs, only two studies focused on virtual incubation (Blok et al., 2017; Sadreddin & Chan, 2023). Therefore, studies related to physical incubation and business models exclusively focused on the market predominate.

It was possible to identify the association of EO with other theories, with the Resource-Based View being the dominant one. Less frequent theoretical approaches include Learning Theory, Social Cognitive Career Theory, Institutional Theory, Affordance Theory, Skunk Works, Imprinting Theory, Dynamic Capabilities Theory, Identity Theory, and Absorptive Capacity Theory. This association is recommended by Miller (2011), who suggests adopting theories from sister disciplines in the study of EO to contribute to the understanding of how organizations operate.

Furthermore, the contributions of Miller (1983) through the dimensions of innovativeness, risk-taking, and proactiveness are more present in the structure of scales in quantitative studies within the sample. There is a predominance of scales based on Covin and Slevin (1989), which, in some cases, received adaptations by researchers (Clausen & Korneliussen, 2012; Hughes et al., 2021; Huynh et al., 2017; Rezaei et al., 2012; Soetanto & van Geenhuizen, 2019). Rauch et al. (2009) point out that studies addressing EO as a unidimensional construct prevail; however, few studies have made it clear whether the adopted approach is unidimensional or multidimensional.

As EO pertains to the methods, practices, and decision-making styles (Lumpkin & Dess, 1996), business management is directed towards an entrepreneurial mode of operation that results in performance. Beyond performance, this study identified that the results obtained with the inclusion of EO dimensions in incubation strategies facilitate knowledge management capability (Hughes et al., 2007, 2021; Vincent & KA, 2021), stimulate innovations (Carvalho et al., 2021; Casemiro & Coelho, 2018; Lita et al., 2020; Na-Allah & Ahmad, 2022; Satar & Natasha, 2019), reduce time, and increase the chances of success for new entrants (Clausen & Korneliussen, 2012).

However, the research in the sample did not determine whether all dimensions (Lumpkin & Dess, 1996) of EO are necessary for embryonic companies. This lack of unanimity can be considered a gap in incubation models, considering that this process occurs within a predetermined time frame set by the incubator (Stayton & Mangematin, 2019), during which the new venture will mature for self-sustained market operation (Vincent & K.A., 2021). Understanding the latent weaknesses in ventures before graduating them, whether due to the expiration of the predetermined time set by the incubator or established commercialization, is an aspect to be considered.

Another critical point highlighted in the literature concerns the inherent risk of overprotection by incubators and technology parks. This protection, acting as a "parent organization" (Lindelöf & Hellberg, 2023, p. 1), sometimes limits external experiences and the lack of contact with the realities of competitive markets, experiencing risks, mistakes, successes, and building networks independently. This "bubble effect" can be a barrier to the absorptive capacity of incubatees (Soetanto & van Geenhuizen, 2019).

The value of incubators for the survival, growth, and innovation of new entrants has been questioned (Soetanto & van Geenhuizen, 2019). Research indicates a slowdown in the performance of ventures after incubation (Almeida et al., 2021; Blok et al., 2017; Stayton & Mangematin, 2019). This raises doubts about the strategies adopted in incubation models, the added value of incubation, the resources invested by the incubator operators, the time and intellectual capital of stakeholders, as well as the role of these organizations as drivers of development within the entrepreneurial ecosystem (Anprotec, 2019; Lindelöf & Hellberg, 2023).

Therefore, focusing on the EO of incubatees during the incubation process is a way to promote performance and sustainability capacity of companies after incubation (Stayton & Mangematin, 2019). Along these lines, Blok et al. (2017) recommend research that investigates incubation processes through an understanding of incubator management practices. To generate high-performance returns, EO needs to be strongly configured (Hughes et al., 2007), and each dimension of EO can vary independently (Lumpkin & Dess, 1996). The incubator can assess the EO configuration of the new venture through admission criteria (Sadreddin & Chan, 2023) or during the incubation phases (Gerd Sri et al., 2021). In this context, the potential contribution of incubators in promoting EO is crucial, as they can reinforce strong dimensions and improve less developed dimensions, which will be necessary to sustain business performance after incubation.

Based on the results of the systematic literature review and the arguments presented in the discussion, the following propositions have been formulated:

P1: EO is a precursor for sustaining companies that have gone through business incubation.

P2: All dimensions of EO have the potential to be developed and/or strengthened in ventures during the incubation process in order to achieve better performance.

Finally, the analysis of the studies has allowed for the consolidation of a set of suggestions for future research in the connection between EO and incubators (Table 3).

Table 3

Suggestions for future research based on the sample authors

Suggestion	Authors
Explore other dimensions of EO and measure which ones are more influential in the relationship between the incubator and its business success.	Chen et al. (2022)
Examine whether and how universities promote entrepreneurship and discover differences in university EO between countries.	Verbano et al. (2020)
Explore the multidimensional nature of EO to attempt to determine which EO factor contributes most to the performance of incubated companies and how the effects of specific dimensions on absorptive capacity can be individually perceived by incubator managers for better performance.	Vincent e K.A. (2021)
Examine the impact of various characteristics of technology holding on university incubation performance, considering their influence on the growth and development of spin-offs.	Son et al. (2022)
Conduct qualitative research or combine qualitative and quantitative research to analyze the existence of reverse causality between internal and external network dynamics variables.	Wu et al. (2020)
Utilize longitudinal and/or qualitative approaches to enhance the understanding of how the design and implementation process of the management package can support the growth and performance of startups.	Frare et al. (2022)
Study the interactions between network capabilities and EO.	Stayton e Mangematin (2019)
Research EO and innovation ambidexterity with a specific focus on uncovering when and by what means strategic entrepreneurship benefits young technology-based companies.	Hughes et al. (2021)
Examine the performance of spin-offs and identify whether they indeed contribute to regional economic development. More research needs to be conducted in multilevel models, especially those involving EO factors, university-level, and national-level variables.	Montiel-Campos (2018)

Source: Prepared based on the sample of RSL studies.

The final considerations of this study are presented below.

FINAL CONSIDERATIONS

The systematization of this SLR has resulted in a conceptual model encompassing antecedents, mediators, and consequences between EO and business incubation. As an advancement for researchers in both fields, the development and strengthening of entrepreneurial culture in incubatees occur through the integration of EO into the incubators' incubation strategies. This first review on the identified constructs has highlighted the need to explore other dimensions of EO, not only the preceding ones of innovativeness, proactiveness, and risk-taking. The eight mediators identified in the literature contribute to the decision-

making of incubator managers and the actions of institutional policymakers, such as universities, technology parks, governments, and other entrepreneurship-supporting institutions aiming to reflect on entrepreneurial development strategies. This is especially important based on empirical studies that indicate the contribution of EO to strategic positioning and organizational performance.

As limitations of the study, it should be noted that the research was conducted in two databases (Scopus and Web of Science), which reduces its scope. This limitation can be addressed with further research that includes grey literature and other databases. Future research could explore the influence and incorporation of each dimension of EO in the stages of the incubation process and how these dimensions can be combined and configured in incubator strategies. Additionally, gaps were identified regarding the challenges faced after incubation, in some cases with low performance and volatility due to the lack of incubator support. Research could investigate incubation methodology and the maturity of incubatees at the graduation stage, as well as relate the stages of the incubation process to EO. In addition to these suggestions, a research agenda was structured based on the recommendations of researchers, which benefits those interested in advancing studies on EO-Incubation.

AUTHORS´ CONTRIBUTIONS

Contribution	Rocha, D. T.	Martens, CDP
Contextualization	X	X
Methodology	X	X
Software	X	-----
Validation	X	X
Formal analysis	X	X
Investigation	X	-----
Resources	X	X
Data curation	X	-----
Original	X	X
Revision and editing	X	X
Viewing	X	X
Supervision	X	X
Project management	X	X
Obtaining funding	X	X

REFERENCES

- Anprotec. (2019). Associação Nacional de Entidades Promotoras de Empreendimentos Inovadores. Mapeamento dos mecanismos de geração de Empreendimentos Inovadores no Brasil. Brasília: Anprotec. 225p. ISBN: 978-85-37196-47-7
- Almeida, R., Pinto, A., & Henriques, C. (2021). The effect of incubation on business performance: A comparative study in the Centro region of Portugal. *Review of Business Management*, 127–140. <https://doi.org/10.7819/rbgn.v23i1.4089>
- Ayyash, S. A., McAdam, M., & OaGorman, C. (2022). Towards a New Perspective on the Heterogeneity of Business Incubator-Incubation Definitions. *IEEE Transactions on Engineering Management*, 69(4), 1738–1752. <https://doi.org/10.1109/TEM.2020.2984169>
- Blok, V., Thijssen, S., & Pascucci, S. (2017). Understanding Management Practices in Business Incubators: Empirical Evidence of the Factors Impacting the Incubation Process. *International Journal of Innovation and Technology Management*, 14(04), 1750023. <https://doi.org/10.1142/S0219877017500237>
- Bøllingtoft, A. (2012). The bottom-up business incubator: Leverage to networking and cooperation practices in a self-generated, entrepreneurial-enabled environment. *Technovation*, 32(5), 304–315. <https://doi.org/10.1016/j.technovation.2011.11.005>
- Breivik-Meyer, M., Arntzen-Nordqvist, M., & Alsos, G. A. (2020). The role of incubator support in new firms accumulation of resources and capabilities. *Innovation*, 22(3), 228–249. <https://doi.org/10.1080/14479338.2019.1684204>
- Brown, R., & Mawson, S. (2016). Targeted support for high growth firms: Theoretical constraints, unintended consequences and future policy challenges. *Environment and Planning C: Government and Policy*, 34(5), 816–836. <https://doi.org/10.1177/0263774X15614680>
- Campbell, C., & Allen, D. N. (1987). The Small Business Incubator Industry: Micro-Level Economic Development. *Economic Development Quarterly*, 1(2), 178–191. <https://doi.org/10.1177/089124248700100209>
- Carvalho, C. E., Rossetto, C. R., & Saraiva Piekas, A. A. (2021). Innovativeness in Brazilian startups: The effect of the absorptive capacity and environmental dynamism. *International Journal Of Innovation And Learning* (Vol. 29, Número 1, P. 1–17). Inderscience Enterprises Ltd.
- Caseiro, N., & Coelho, A. (2018). Business intelligence and competitiveness: The mediating role of entrepreneurial orientation. *Competitiveness Review: An International Business Journal*, 28(2), 213–226. <https://doi.org/10.1108/CR-09-2016-0054>
- Chang, Y., Chen, M., Hua, M., & Yang, P. (2006). Managing academic innovation in Taiwan: Towards a 'scientific-economic' framework. In *Technological Forecasting And Social Change* (Vol. 73, Número 2, P. 199–213). Elsevier Science Inc. <https://doi.org/10.1016/J.Techfore.2004.10.004>
- Chen, C., Ractham, P., & Kwak, M. (2022). Achieving Entrepreneurial Success for Student Ventures under Uncertainty. *Journal of Computer Information Systems*, 1–13. <https://doi.org/10.1080/08874417.2022.2108935>
- Clausen, T., & Korneliussen, T. (2012). The relationship between entrepreneurial orientation and speed to the market: The case of incubator firms in Norway. *Technovation*, 32(9–10), 560–567. <https://doi.org/10.1016/j.technovation.2012.05.004>
- Covin, J. G., & Lumpkin, G. T. (2011). Entrepreneurial Orientation Theory and Research: Reflections on a Needed Construct. *Entrepreneurship Theory and Practice*, 35(5), 855–872. <https://doi.org/10.1111/j.1540-6520.2011.00482.x>

- Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75–87. <https://doi.org/10.1002/smj.4250100107>
- Davidsson, P., & Gruenhagen, J. H. (2021). Fulfilling the Process Promise: A Review and Agenda for New Venture Creation Process Research. *Entrepreneurship Theory and Practice*, 45(5), 1083–1118. <https://doi.org/10.1177/1042258720930991>
- Du, J., & Wang, R. (2019). Knowledge transfer and boundary conditions: A study of SMEs in business incubation centers in China. *New England Journal of Entrepreneurship*, 22(1), 31–57. <https://doi.org/10.1108/NEJE-04-2019-0021>
- Fernández-Alles, M., Camelo-Ordaz, C., & Franco-Leal, N. (2015). Key resources and actors for the evolution of academic spin-offs. *The Journal of Technology Transfer*, 40(6), 976–1002. <https://doi.org/10.1007/s10961-014-9387-2>
- Frare, A. B., da Cruz, A. P. C., Lavarda, C. E. F., & Akroyd, C. (2022). Packages of management control systems, entrepreneurial orientation, and performance in Brazilian startups. In *Journal of Accounting And Organizational Change* (Vol. 18, Número 5, P. 643–665). Emerald Group Publishing Ltd. <https://doi.org/10.1108/JAOC-04-2021-0052>
- Gerd Sri, N., Iewwongcharoen, B., Rajchamaha, K., Manotungvorapun, N., Pongthanasawan, J., & Witthayaweerarak, W. (2021). Capability Assessment toward Sustainable Development of Business Incubators: Framework and Experience Sharing. *Sustainability*, 13(9), 4617. <https://doi.org/10.3390/su13094617>
- Hackett, S. M., & Dilts, D. M. (2004). A Systematic Review of Business Incubation Research. *The Journal of Technology Transfer*, 29(1), 55–82. <https://doi.org/10.1023/B:JOTT.0000011181.11952.0f>
- Hughes, M., Hughes, P., & Morgan, R. E. (2007). Exploitative Learning and Entrepreneurial Orientation Alignment in Emerging Young Firms: Implications for Market and Response Performance. *British Journal of Management*, 18(4), 359–375. <https://doi.org/10.1111/j.1467-8551.2007.00519.x>
- Hughes, M., Hughes, P., Morgan, R. E., Hodgkinson, I. R., & Lee, Y. (2021). Strategic entrepreneurship behaviour and the innovation ambidexterity of young technology-based firms in incubators. *International Small Business Journal-Researching Entrepreneurship* (Vol. 39, Número 3, P. 202–227). Sage Publications Ltd. <https://doi.org/10.1177/0266242620943776>
- Huynh, T., Patton, D., Arias-Aranda, D., & Molina-Fernández, L. M. (2017). University spin-off's performance: Capabilities and networks of founding teams at creation phase. *Journal of Business Research*, 78, 10–22. <https://doi.org/10.1016/j.jbusres.2017.04.015>
- Karpinskaia, E. (2022). Make me act rapidly: Identity perspective to the dynamics of start-up creation process. *Journal of Entrepreneurship in Emerging Economies*. <https://doi.org/10.1108/JEEE-11-2021-0450>
- Larsson, A. (2019). The seven dimensions of Skunk Works: A new approach and what makes it unique. *Journal of Research in Marketing and Entrepreneurship*, 21(1), 37–54. <https://doi.org/10.1108/JRME-09-2017-0038>

- Lindelöf, P., & Hellberg, R. (2023). Incubation—An evolutionary process. *Technovation*, 124, 102755. <https://doi.org/10.1016/j.technovation.2023.102755>
- Lita, R. P., Faisal, R. F., & Meuthia, M. (2020). Enhancing small and medium enterprises performance through innovation in Indonesia A framework for creative industries supporting tourism. Em *Journal Of Hospitality And Tourism Technology* (Vol. 11, Número 1, p. 155–176). Emerald Group Publishing Ltd. <https://doi.org/10.1108/JHTT-11-2017-0124>
- Lumpkin, G. T.; Dess, G. (1996). Clarifying The Entrepreneurial Orientation Construct And Linking It To Performance. *Academy of Management Review*, 39.
- Martens, C. D. P., Lacerda, F. M., Belfort, A. C., & Freitas, H. M. R. de. (2016). Research on entrepreneurial orientation: Current status and future agenda. *International Journal of Entrepreneurial Behavior & Research*, 22(4), 556–583. <https://doi.org/10.1108/IJEBR-08-2015-0183>
- Mian, S. A. (1997). Assessing and managing the university technology business incubator: An integrative framework. *Journal of Business Venturing*, 12(4), 251–285. [https://doi.org/10.1016/S0883-9026\(96\)00063-8](https://doi.org/10.1016/S0883-9026(96)00063-8)
- Mian, S., Lamine, W., & Fayolle, A. (2016). Technology Business Incubation: An overview of the state of knowledge. *Technovation*, 50–51, 1–12. <https://doi.org/10.1016/j.technovation.2016.02.005>
- Miller, D. (1983). The Correlates of Entrepreneurship in Three Types of Firms. *Management Science*, 29(7), 770–791. <https://doi.org/10.1287/mnsc.29.7.770>
- Miller, D. (2011). Miller (1983) Revisited: A Reflection on EO Research and Some Suggestions for the Future. *Entrepreneurship Theory and Practice*, 35(5), 873–894. <https://doi.org/10.1111/j.1540-6520.2011.00457.x>
- Millette, S., Eiríkur Hull, C., & Williams, E. (2020). Business incubators as effective tools for driving circular economy. *Journal of Cleaner Production*, 266, 121999. <https://doi.org/10.1016/j.jclepro.2020.121999>
- Montiel-Campos, H. (2018). University spin-offs creation in the Latin American region: An exploratory study. *Journal Of Entrepreneurship In Emerging Economies* (Vol. 10, Número 3, P. 386–408). Emerald Group Publishing Ltd. <https://doi.org/10.1108/JEEE-02-2018-0011>
- Na-Allah, S. R., & Ahmad, N. H. (2022). Entrepreneurial Orientation and Venture Creation in Nigerian Context: Assessing Mediating and Moderating Roles of Self-Efficacy and Entrepreneurial Support among Graduates. Em *SUSTAINABILITY* (Vol. 14, Número 9). MDPI. <https://doi.org/10.3390/su14094904>
- Pattanasak, P., Anantana, T., Paphawasit, B., & Wudhikarn, R. (2022). Critical Factors and Performance Measurement of Business Incubators: A Systematic Literature Review. *Sustainability*, 14(8), 4610. <https://doi.org/10.3390/su14084610>
- Rakthai, T., Aujirapongpan, S., & Suanpong, K. (2019). Innovative Capacity and the Performance of Businesses Incubated in University Incubator Units: Empirical Study from Universities in Thailand. *Journal of Open Innovation: Technology, Market, and Complexity*, 5(2), 33. <https://doi.org/10.3390/joitmc5020033>
- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial Orientation and Business Performance: An Assessment of past Research and Suggestions for the Future.

- Entrepreneurship Theory and Practice*, 33(3), 761–787. <https://doi.org/10.1111/j.1540-6520.2009.00308.x>
- Rezaei, J., Ortt, R., & Scholten, V. (2012). Measuring entrepreneurship: Expert-based vs. data-based methodologies. *Expert Systems with Applications*, 39(4), 4063–4074. <https://doi.org/10.1016/j.eswa.2011.09.091>
- Sadreddin, A., & Chan, Y. E. (2023). Pathways to developing information technology-enabled capabilities in born-digital new ventures. *Em International Journal of Information Management* (Vol. 68). Elsevier Sci Ltd. <https://doi.org/10.1016/j.ijinfomgt.2022.102572>
- Salvador, E. (2011). Are science parks and incubators good “brand names” for spin-offs? The case study of Turin. *The Journal of Technology Transfer*, 36(2), 203–232. <https://doi.org/10.1007/s10961-010-9152-0>
- Satar, M. S., & Natasha, S. (2019). Individual social entrepreneurship orientation: Towards development of a measurement scale. *Asia Pacific Journal of Innovation and Entrepreneurship*, 13(1), 49–72. <https://doi.org/10.1108/APJIE-09-2018-0052>
- Shane, S. & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25, 217–226.
- Soetanto, D., & van Geenhuizen, M. (2019). Life after incubation: The impact of entrepreneurial universities on the long-term performance of their spin-offs. *Technological Forecasting and Social Change*, 141, 263–276. <https://doi.org/10.1016/j.techfore.2018.10.021>
- Sohail, K., Belitski, M., & Castro Christiansen, L. (2023). Developing business incubation process frameworks: A systematic literature review. *Journal of Business Research*, 162, 113902. <https://doi.org/10.1016/j.jbusres.2023.113902>
- Son, H., Chung, Y., & Yoon, S. (2022). How can university technology holding companies bridge the Valley of Death? Evidence from Korea. *Technovation*, 109, 102158. <https://doi.org/10.1016/j.technovation.2020.102158>
- Stayton, J., & Mangematin, V. (2019). Seed accelerators and the speed of new venture creation. *The Journal of Technology Transfer*, 44(4), 1163–1187. <https://doi.org/10.1007/s10961-017-9646-0>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/10.1111/1467-8551.00375>
- Vanderstraeten, J., & Matthyssens, P. (2012). Service-based differentiation strategies for business incubators: Exploring external and internal alignment. *Technovation*, 32(12), 656–670. <https://doi.org/10.1016/j.technovation.2012.09.002>
- Vaz, R., De Carvalho, J. V., & Teixeira, S. F. (2022). Towards a Unified Virtual Business Incubator Model: A Systematic Literature Review and Bibliometric Analysis. *Sustainability*, 14(20), 13205. <https://doi.org/10.3390/su142013205>
- Verbano, C., Crema, M., & Scuotto, V. (2020). Adding the entrepreneurial orientation among the theoretical perspectives to analyse the development of research-based spin-offs. *The International Journal of Entrepreneurship and Innovation*, 21(2), 113–126. <https://doi.org/10.1177/1465750319874592>

- Vincent, V. Z., & K.A., Z. (2021). Entrepreneurial Orientation and Startup Performance in Technology Business Incubation: Mediating Role of Absorptive Capacity. *Journal of Small Business Strategy*, 31(5). <https://doi.org/10.53703/001c.29837>
- Wang, C. L. (2008). Entrepreneurial Orientation, Learning Orientation, and Firm Performance. *Entrepreneurship Theory and Practice*, 32(4), 635–657. <https://doi.org/10.1111/j.1540-6520.2008.00246.x>
- Wei, Z., Lee, M.-J., Jia, Z., & Roh, T. (2023). Do entrepreneurial resources drive startup activation? Mediating effect of entrepreneurial orientation. *Heliyon*, 9(4), e15603. <https://doi.org/10.1016/j.heliyon.2023.e15603>
- Wu, W., Wang, H., & Tsai, F.-S. (2020). Incubator networks and new venture performance: The roles of entrepreneurial orientation and environmental dynamism. *Journal of Small Business and Enterprise Development*, 27(5), 727–747. <https://doi.org/10.1108/JSBED-10-2019-0325>