An Updated Systematic Review of Business Accelerators: Functions, Operation, and Gaps in the Existing Literature

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Abstract: Business accelerators have emerged as an important innovation intermediary, with their primary role identified as stimulating premature startups through mentorship and training programs. However, despite significant improvement and 17 years of working history, there are still gaps in working behavior, business accelerator forms, organizational structure, operations, and outcomes. This systematic review aims to boost the understanding of seed accelerators in innovation and entrepreneurial activities. The Context, Intervention, Mechanism, and Outcome (CIMO) framework was used to collect data from the 53 articles published in the last 17 years. In this current systematic review of applying a CIMO analysis to business accelerators, we retrieved 53 articles for further detailed studies, out of which 21 articles were assessed for the risk of bias analysis. The current review highlights that by providing learning opportunities, idea validation, increased access to growth, and innovation, startup accelerators achieved their goals. Moreover, the study also identified gaps in the literature and opportunities for cohort-based, short-term mentorship programs. The outcomes of the present study will provide suggestions for policymakers, entrepreneurs, managers, and investors.

Keywords: business accelerators; innovation accelerators; mechanisms; initial startups

1. Introduction

In today's economy, startups are considered a major source of innovation, as they implement new technologies to reinvent business models and produce innovative products [1]. This ability has made startups very attractive in the world economy, as they are seen as major contributors to the entrepreneurial infrastructure [2], and have helped economies to recover from the last economic crisis [3]. A business accelerator framework is a program that provides business training and direction to startup enterprises in their early stages. Startup accelerators help new firms succeed by providing them with funding, training, and mentoring [4]. Business incubation is the most effective way of assisting entrepreneurs in their new venture creation [5]. Companies who enroll in accelerator programs go through a quick, comprehensive, and intense education process aimed at accelerating the lifespan of successful companies by teaching them in a matter of months what would have taken them years of trial and error [3–5]. Accelerators are flourishing all over the world, from the first one founded in 2005 with the founding of Y Combinator, to more than 500 in 2015 [6]. Business accelerators have grown as an important tool in the entrepreneurial ecosystem [7,8]. They are growing widely, increasing startups' demand for acceleration programs, and drawing corporations' and governments' attention [8]. Goswami, Gutstein, and Brem observed that the number of business accelerators that provide entrepreneurial capital rather than financial investments had increased dramatically over the last 17 years [9,10]. Entrepreneurial capital is a critical element, particularly for startup businesses [11,12].

The emphasis on entrepreneurial capital rather than financial capital has been highlighted as a key differentiator between business accelerators and incubators [12]. Furthermore, accelerators often do not offer financial resources like office space or operating costs. Entrepreneurial capital, which includes market research, concept creation, and investor

connection management, is prioritized by business accelerators [13,14]. Accelerators are recognized as a different organizational form with a unique set of attributes based on the products they offer to their startup consumers [15], which is contrary to some research that views them as a specific type of incubator [15]. Additionally, accelerators differ from incubators in that their support programs last for a much shorter period [16]. They are not intended to supply companies with material assets or office space over an extended length of time, place less emphasis on investment firms [17] as the next source of funding, and promote business growth by offering intensive, time-limited assistance [18].

There are about 8000 business accelerators worldwide; more than half of them were founded between 2014 and 2020 [19], indicating a rise in interest in business accelerators [4]. Business accelerator-related investment has grown by 900 percent over the last five years [8], from less than $5 billion in 2014 to $50 billion in 2018 [8]. Y Combinator is the most well-known startup accelerator [12]. Since its inception, Y Combinator has invested in over 1800 companies, resulting in over $40 billion in investment [18]. Although the field of startup accelerators is new, there is still a lot of literature available on various aspects of accelerators [20]. In the midst of the last financial crisis, accelerators emerged and evolved to be key players in the early-stage entrepreneurial ecosystem [21]. Furthermore, understanding the different roles accelerators play and the efficiency of such programs would be of great value to practitioners and policymakers, especially considering the benefits these programs have to the entrepreneurial ecosystem and economy [22].

However, there is also a greater understanding that more systematic research is necessary to fully comprehend what accelerators are, how they function, and what role they play in assisting the growth of the startups they participate in, as well as more generally in defining the technology of the entrepreneurial terrain. Therefore, due to the importance of entrepreneurial activities for economic growth, the specific objectives of the research are to assess accelerators' efficiency in Europe, compare the different types of accelerators, and later on investigate how accelerators are contributing to the Fintech phenomena for the reason that evidence of their efficiency and role are limited [23,24]. The current systematic review is a comprehensive study (i) to fully understand the structure, manifesto, and function of startup accelerators and to know how they operate, (ii) to assess all the studies conducted on business accelerators under the risk of biasness assessment tool, and (iii) to identify the gaps in the existing literature to fill them with reliable information.

2. Materials and Methods

2.1. Literature Examination Approach

The review was carried out in accordance with the typical reporting standards for systemic reviews. All the conditions suggested by Xiao and Watson for conducting a review were followed in this study, which included planning, conducting, and reporting [22]. The search took place between July 15 to August 15, 2022. The Context, Intervention, Mechanism, and Outcome (CIMO) framework was used to collect data from the 53 articles published in the last 17 years. The data was collected from June 2004 to May 2022 through a rigorous searching process. Additionally, we considered the retrieved papers' references while attempting to find additional possibly acceptable publications. The titles and abstracts of the results used to filter the findings. Duplicate articles were removed. The database query utilized the keywords formulated from the preliminary search. Several keywords were utilized, including

"business accelerator", "venture accelerator", "technology accelerator", "start-up accelerator", "entrepreneurial accelerator", "seed accelerator", "success accelerator", and "innovation accelerator".

2.2. Inclusion and Exclusion Criteria

The Web of science categories of economics, management, interdisciplinary science, finance, planning, operations research, management science, social concerns, and development were used to concentrate the returned findings. Articles in engineering, medicine, and

physics were eliminated. A total of 169 articles were retrieved, out of which 53 appropriate articles were selected for descriptive analysis (Figure 1 and Table 1). The chosen papers had to be on business accelerators and their theoretical or conceptual models. Publications presenting distinct accelerator concepts or equipment were found and omitted from fusion. As a result, the papers' full texts were obtained. The final list of studies was decided upon after carefully reviewing the papers and cross-referencing their reference lists.
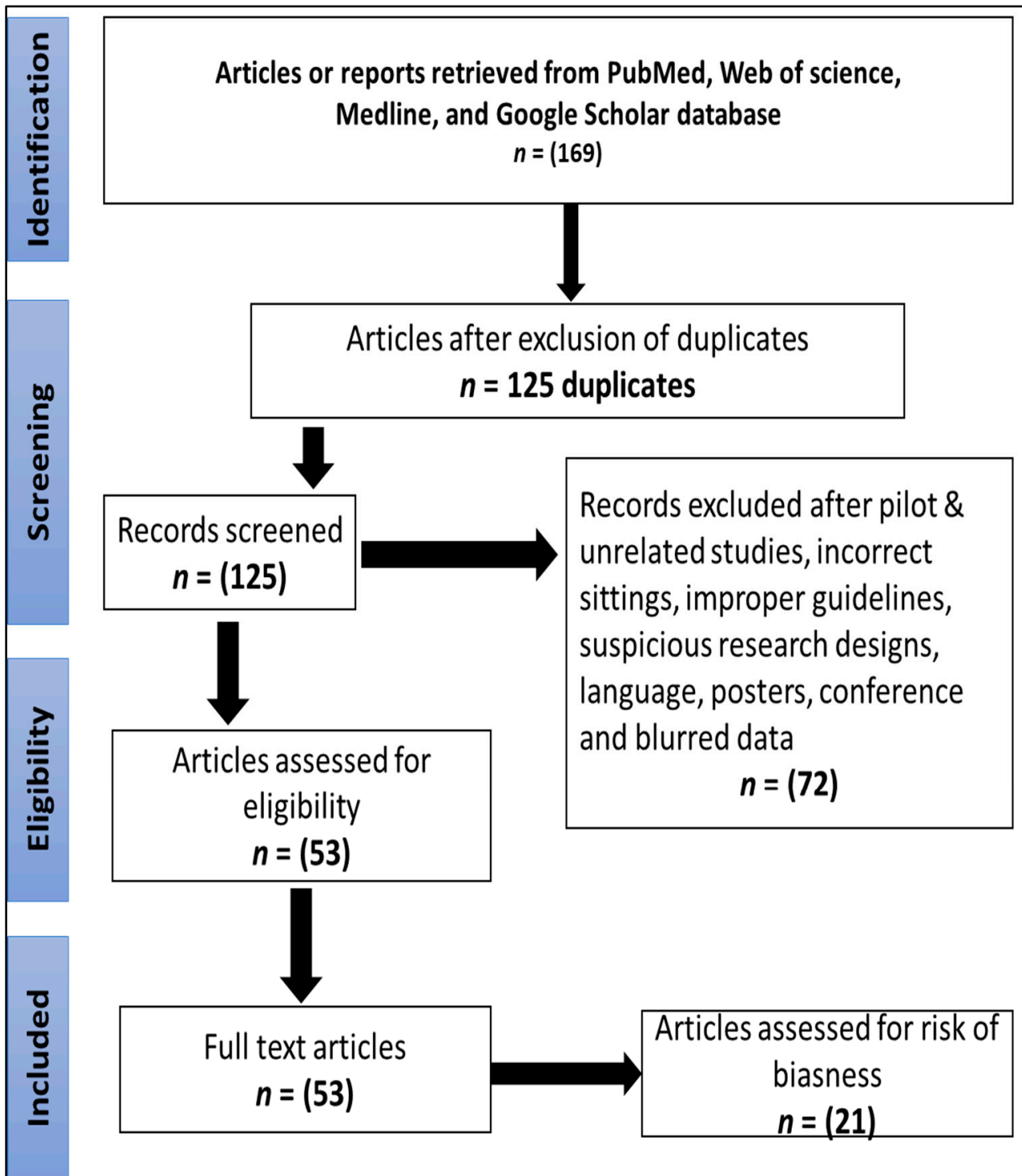
Figure 1. Flow diagram for the utilized search strategy.

Table 1. Details of study included in the systematic review.

References	Source	Definition	Inclusion	Mechanism
(Aloulou, 2021) [14]	Journal	ND	Yes	Innovation
(Askarzadeh et al., 2021) [4]	Journal	OD	Yes	Access and growth
(Bendickson, 2021) [16]	Journal	CD	Yes	Learning and validation
(Blank, 2021) [1]	Journal	CD	Yes	Learning and validation
(Chen & He, 2021) [18]	Journal	OD	Yes	Access and growth
(Davidson, 2021) [19]	Journal	OD	Yes	Learning and validation
(Ermilina et al., 2021) [4]	Journal	CD, OD	Yes	Access and growth
(Gavrilenko, 2021) [20]	Thesis	CD	Yes	Innovation
(Gikabu, 2020) [21]	Thesis	ND	Yes	Learning, validation, access, and growth
(González-Uribe & Reyes, 2021) [11]	Journal	CD	No	Undefined
(Hawari-Latter et al., 2021) [22]	Journal	ND	Yes	learning
(Hirvonen et al., 2021) [23]	Book chapter	CD, OD	Yes	Learning
(Alpenidze et al., 2019) [24]	Journal	(OD)	Yes	Access and growth
(Aragon et al., 2017) [25]	Journal	ND	Yes	Innovation
(Assudani et al., 2017) [15]	Journal	(CD)	Yes	Learning and innovation
(Battistella et al., 2017) [26]	Journal	CD	Yes	Access and growth
(Bauer et al., 2016) [27]	Conference	CD	No	Undefined
(Bernthal, 2015) [17]	Journal	CD	Yes	Learning
(Clarysse et al., 2016) [28]	Report	CD, OD	Yes	Multiple mechanisms
(Clayton et al., 2018) [29]	Journal	CD	No	Undefined
(Mohammadi & Sakhteh, 2022) [30]	Journal	CD, OD	No	Undefined
(Del Sarto et al., 2022) [31]	Journal	OD	Yes	Innovation
(Cohen et al., 2019) [32]	Journal	CD	Yes	Access and growth
(Colombo et al., 2018) [2]	Book chapter	CD	No	Undefined
(Connolly et al., 2018) [33]	Journal	Other source definition OSD	Yes	Innovation
(Coste & Gatzke, 2017) [34]	Journal	ND	Yes	Innovation
(Gligor et al., 2019) [35]	Journal	CD	No	Undefined
(Pattanasak et al., 2022) [36]	Journal	CD	Yes	Access, and growth
(Drori & Wright, 2018) [7]	Chapter	CD	Yes	Innovation. Access
(Drover et al., 2017) [3]	Journal	OSD	No	Undefined
(Dushnitsky & Sarkar, 2018) [37]	Conference	CD	Yes	Undefined
(Fernandes et al., 2016) [38]	Journal	CD	Yes	Innovation
(Fraiberg, 2017) [39]	Journal	OD	Yes	Access and growth
(Frimodig & Torkkeli, 2017 [5])	Journal	CD	No	Undefined
(Gabrielsson et al., 2018 [6])	Journal	ND	Yes	Innovation
(Gardner & Webster, 2017 [12])	Journal	ND	Yes	Innovation

Table 1. *Cont.*

References	Source	Definition	Inclusion	Mechanism
(Gliedt et al., 2018) [8]	Journal	ND	No	Undefined
(Glinik, 2019) [40]	Journal	ND	Yes	Learning
(Gonzalez-Uribe & Leatherbee, 2018) [41]	Journal	CD, OD	Yes	Learning
(Goswami et al., 2018) [9]	Journal	CD	Yes	Access and growth
(Lall et al., 2020) [42]	Conference	CD	Yes	Innovation
(Gutmann, 2019) [43]	Journal	ND	No	Undefined
(Gutstein & Brem, 2018) [10]	Journal	ND	Yes	Validation
(Haines, 2014) [44]	Conference	CD	Yes	Innovation
(Hallen et al., 2020) [13]	Journal	OD	Yes	Learning
(Harima et al., 2019) [45]	Journal	ND	Yes	Access and growth
(Tobiassen et al., 2018) [46]	Conference	CD	Yes	Growth
(Uhm et al., 2018) [47]	Journal	CD	Yes	Access and growth
(Wright et al., 2017) [48]	Journal	CD	Yes	Learning
(Yang et al., 2019) [49]	Journal	CD	No	Undefined
(Yin & Luo, 2018) [50]	Journal	CD	Yes	Access and growth

2.3. Data Extraction and Quality Assessment Tool

The authors, title, type of work, region covered, year of publication, and journal of the article published were extracted from each study. Following data extraction, a descriptive analysis was carried out using the CIMO framework. The CIMO framework was chosen because there was a need to examine the processes used by business accelerators and the impact of their setting and interventions on the outcomes attained. Consequently, the full-text papers were retrieved. As a result, the articles with full-text were fetched. The risk of a bias assessment tool, called ROBVIS-2, was used to check the quality of each article. The categories for the judgment included high, low, and unclear. The program generated weighted bar plots showing the distribution of risk-of-bias judgments within each bias domain, as well as "traffic light" plots of the website verdicts for each study.

3. Results and Discussion

3.1. Demographic Details of the Study

Despite a tremendous increase in accelerator research, it still needs to be determined how various types of accelerators function and what effects they have in various circumstances. The CIMO analysis detected 169 articles on business accelerators over 17 years from 2004 to 2022. After excluding the duplicates and using exclusion criteria, a total of 53 full-text articles were included in this review. The chosen time range facilitated assessment of the evolution of business accelerators in terms of definition, contexts, interventions, methods, and outcomes. Schätzlein and his colleagues also assessed 204 research articles between 1998 and 2021 to bridge the knowledge gaps. In our study, most of the retrieved articles (n = 132) were peer-reviewed academic articles, followed by conference papers (7) (n = 14), dissertations (n = 10), books (n = 8), and business reports (n = 5). The findings reported in this part include: (i) recommended definitions of business analysis; (ii) CIMO analysis; and (iii) knowledge gaps identified through review investigations. The literature revealed an enormous increase in the number of publications about growing interest in business accelerators and their differentiation from incubators over the last ten years. Crisan retrieved 98 peer review research publications accepted between 2004 to 2019 [51,52]. His review identified four mechanisms to explain how accelerators work and the part they play in fostering innovation and entrepreneurship. The outcomes also

observed that 42 articles were published in the last two years, and the peak studies (*n* = 29) were conducted in 2018 [53]. A variation was observed in the sources from which the literature was gathered. The highest percentage of 75.5% was reported for journals, followed by conference papers (9.4%), and the lowest data was collected from dissertations (3.8%) (Figure 2). A few literature reviews and systematic papers were also identified during the literature collection and validation process. These results were in line with the previously published review articles, which also observed that most of the published articles were research articles, followed by reports [54–56].
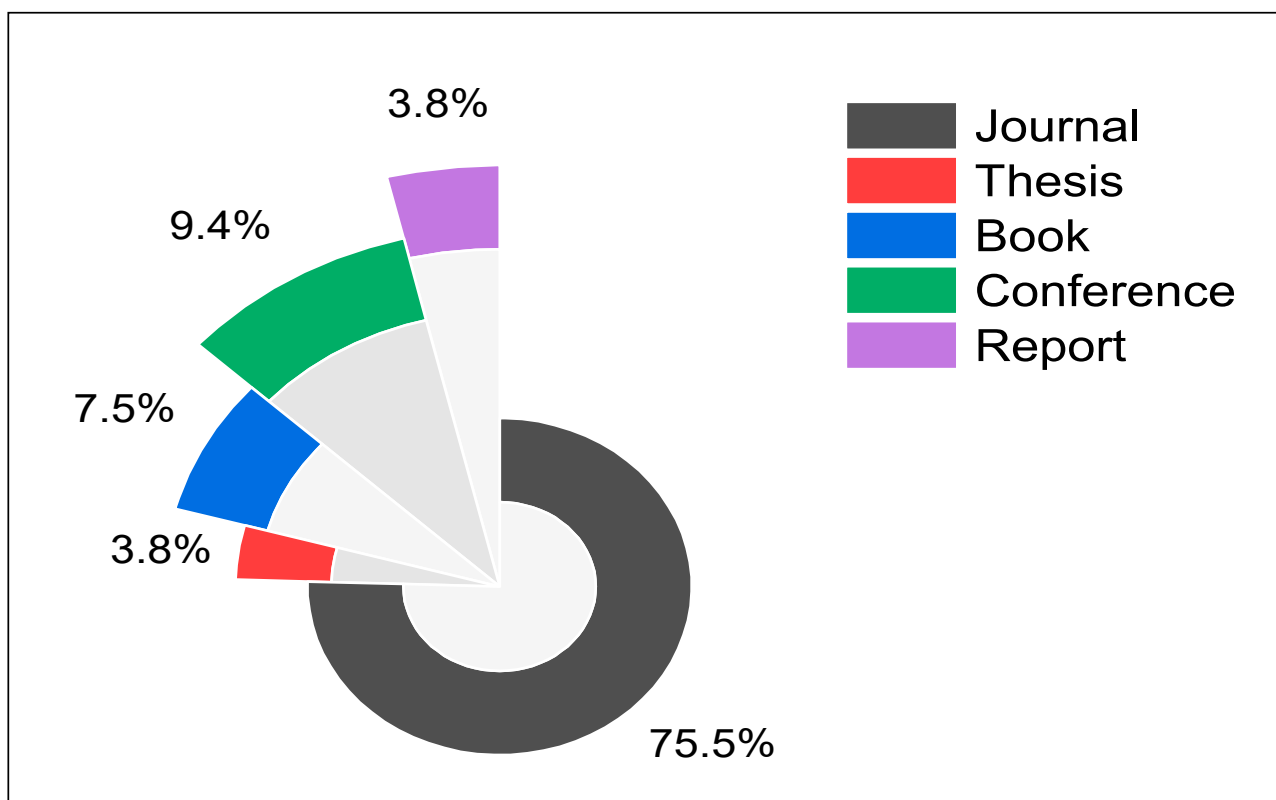
Figure 2. Distribution of the identified sources.

3.2. Context-Intervention-Mechanism-Outcome Framework

The internal and external environmental elements that affect behavioral decisions are referred to as the context [29]. The discovered articles were analyzed in this part using the CIMO framework as previously defined in the methodology. By linking the environment of accelerators with their desired treatments, the CIMO framework makes it easier to identify the produced outcomes [26] and facilitates identifying the produced outcomes [30]. This analysis aims to provide a better understanding of the functions of business accelerators. Startup accelerators are the primary tool to boost the development of alliances with technology [57]. Accelerators connect start-ups with companies by acting as a bridge between them and offering them multifaceted assistance, care, and knowledge. As a result, they assist startups in developing novel and creative solutions by providing them with clients [13]. Accelerators are referred to as "a new incubation model" [32], "a new form of rapid business incubation" [33], "a type of entrepreneurial context that are involved with enticing, assisting, and introducing new ventures" ([34], and "an emerging incubation-like model" in studies that classify them as an incubation model").

3.3. Accelerator Context

All the internal and external environmental factors that affect behavioral change are known as context. Based on the descriptive analysis, 19 studies had multiple locations,

followed by Western Europe, which had 12 articles, Asia (7), Latin America (4), and New Zealand (3) studies(Figure 3). This systematic review indicated a lack of African-based studies as a potential cause of knowledge gaps in the identified literature and a potential target for future research. Business accelerators have resorted to implementing prolonged interventions (*n* = 53) due to an increased requirement to encourage startup success. Figure 4 disclosed that 15 startups had to produce funding, followed by validation and market success. The lowest frequency was reported for access to business investors, which was 2. While all environments had the same fundamental purpose of encouraging innovation, each type of business accelerator had its own set of characteristics and expected goals [58]. Further research linked accelerator interventions to the idea of product screening and validation. Idea validation was strongly linked to business accelerators that provided specific services, such as virtual coaching and intensive, time-limited boot camps and seminars [59,60]. The participant has the highest frequency of 13, followed by applicants, jobs, and Investments, which were each at 7, respectively (Figure 5). This means business accelerators were found to improve access to networking possibilities for participating startups. Accelerators were linked to enhanced network access to both domestic and foreign partners, which predisposed companies to capital funding and cross-industry mentorship. Results from the studies conducted by Shao et al., (2018) and Shankar & Shepherd 2019 were also in line with our results about specific networking results, such as greater access to corporate clients, suppliers, and advisors [37,50]. The effects of networking with international corporate clients and investors were critical to startups' development into global markets [27,61].

As mentioned in the context section, community and governmental accelerators are meant to affect change at the ecosystem level. Business accelerators at the ecosystem level were associated with increased network building in 12 studies, followed by innovation bubble and development in 8 studies (Figure 6). The minimum ecosystem outcomes were reported in employment opportunities having three articles.
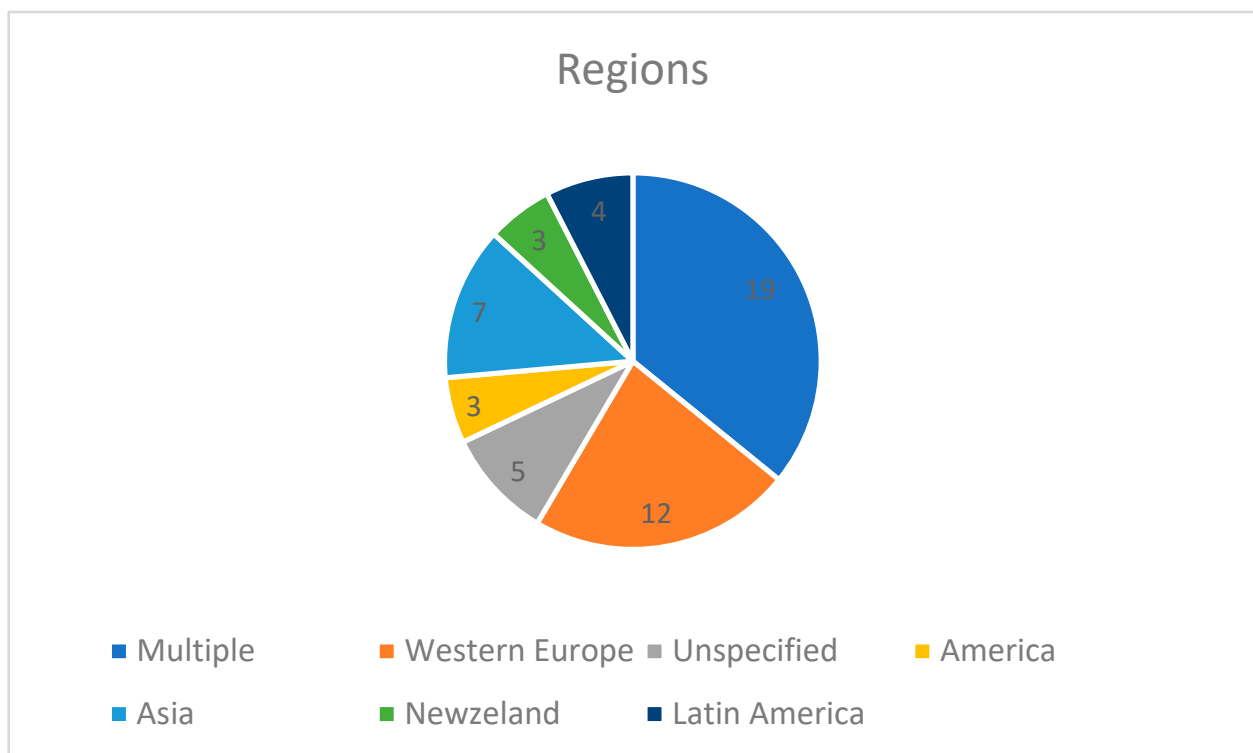
Figure 3. Descriptive analysis based on the area of focus.
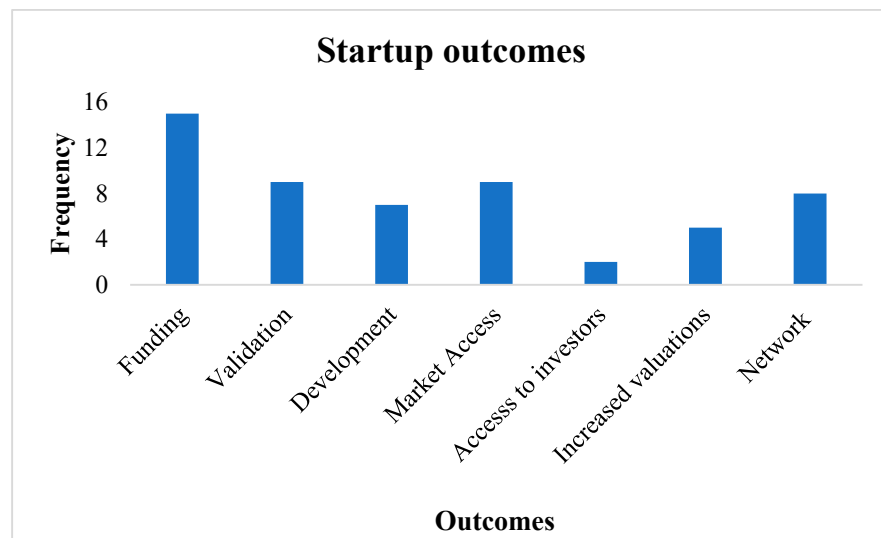
Figure 4. Graphical representation of startup-level outcomes.
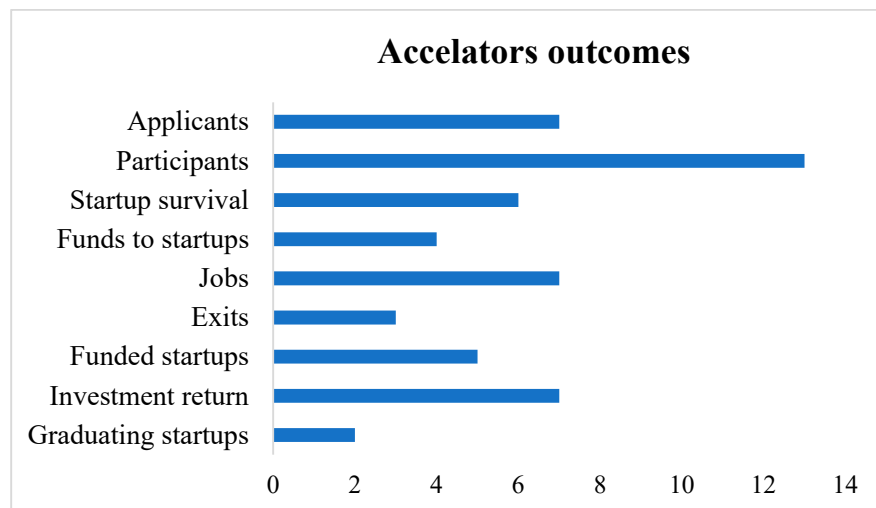
Figure 5. Outcomes at the accelerator level.
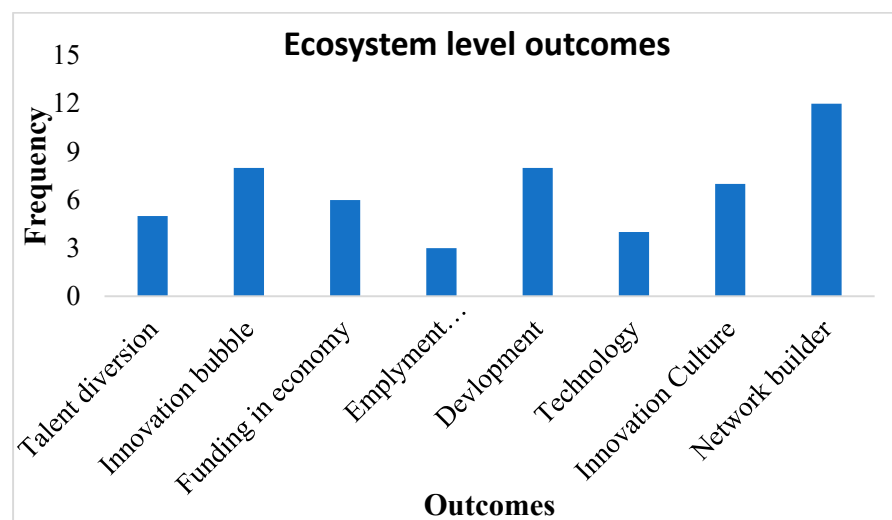
Figure 6. Outcomes at the ecosystem level.

3.4. Accelerators Intervention

Accelerators have become a popular and distinctive new type of intermediary organization during the past 15 years by promoting entrepreneurial and innovative activities in crucial ways [2]. It may be because of the lack of agreement on a detailed definition of a business accelerator that it continues to be difficult to separate them from incubators [38]. A total of 53 studies were included in the table from 169 retrieved articles. The articles assessed were based on specific inclusion and exclusion criteria. The articles which passed the criteria were included in the study. The studies related the word acceleration to the brief incubation of business ideas, and to the clustering of teams who also supported the observation of accelerated incubators. Zuquetto et al., (2021) stated that seven years after its founding, Y Combinator made the first attempt to define business accelerators [24]. Business accelerators and incubators served similar purposes, but the organizations differed in five ways. According to the authors, the following criteria must be met: (a) an open and competitive registration procedure [62]; (b) a focus on teams rather than individuals [39]; (c) the supply of pre-seed funding [23]; (d) intense, time-limited mentoring [40]; and (e) the grouping of chosen teams into cohorts. [27]. Out of 53 studies, 12 articles have an unidentified mechanism, while the majority of the studies have access and growth experiences in their methodology. Accelerators are described in studies as an "incubation model [1]", "a new form of quick business incubation [16]", a type of incubation program that is concerned with attracting, nurturing, and growing new companies", and "an emerging incubation-like paradigm [41]", and business incubators are where many of the qualities of accelerators come from [42]. Following the classifications presented in earlier articles, further research differentiated business accelerators based on their context [15,29]. The selected papers in this systematic review addressed business accelerators grouped into four contexts: university, start-up, government, and industry. According to the following logic, CIMO analysis effectively produces prescriptive knowledge: if you wish to accomplish consequence O in context C, employ intervention type I. Some of the investigations carried out after 2015 [2,29,63] revealed the emergence of new terminologies associated with business accelerator contexts, including social, prescriptive, virtual, and ecosystem builder accelerators among the new terms. Only eight years ago, Miller and Bound (2011) published the first in-depth study on the development, advantages, and business models of accelerators and their programs [30]. This was the first attempt to define the term "accelerator". As scholars identified accelerators as a new type of organization that is different from incubators, this signaled the beginning of a new age for accelerator research [33,43,64].

An intervention may be described as an intentional effort aimed at achieving the desired result. There was no direct reference to deploy methods as interventions in the analyzed literature. The descriptive analysis classified interventions into three categories: narrow, typical, and extended business accelerator inputs [44,45]. Only a small number of the examined publications were business accelerators with limited interventions. According to the synthesized publications, narrow treatments included virtual mentoring programs, online lectures, case studies, legal services, seminars, and short-term boot camps [45]. Some business accelerators may also offer access to capital, where the innovators may be required to relinquish a portion of their ownership. Often, business accelerators that implement specific interventions provide similar services to a significant group of participants who may be organized into cohorts [31,65]. On the other hand, some business accelerators may customize these standard interventions to the needs of their members. In comparison to startups in other industries, engineering advances may necessitate more access to funding [46].

3.5. Accelerators Intervention Types and Examples

Crisan et al., (2021) stated the associated narrow interventions, such as workshops, boot camps, and coaching with soft outcomes, such as idea validation and improved entrepreneurial culture [66]. Similarly, long-term interventions, including product develop-

ment, legal and financial support, brand development, and media exposure, were linked to hard outcomes like exits, company valuation, and market access. Analyzing the executed interventions (narrow, typical, and extended) and the achieved outcomes (soft and hard) revealed four separate pathways. The discovered mechanisms interacted with the applied treatments, either directly or indirectly, to create the results. For example, limited and extended interventions are linked to higher levels of knowledge and innovation, respectively [31]. However, after a learning intervention is implemented, participating companies may engage in more excellent idea development and validation, leading to innovation. In this situation, the learning mechanism will have prompted validation and access, which will result in more innovation [32].

4. Outcomes

In the context of an intervention, outcomes might be characterized as quantitative changes. When analyzing results, we distinguish between their nature and the stages at which they relate (participating firms, accelerators as an organization, and the broader ecosystem level). Increased network building at the ecosystem level was linked to business accelerators in 12 research studies, followed by the innovation bubble and development in 8 studies(Figure 6). The minimum system effects were given in three publications about employment opportunities. Different hard and soft outcomes were determined, such as funding, market access, better facilities for conducting research, as well as exits, key abilities, expertise, and validation. According to Wise & Valliere (2014), soft outcomes are non-economic outcomes that may be useful as a step toward reaching hard outcomes. Soft outcomes are non-economic results that may be significant as a preliminary step before obtaining hard outcomes, whereas hard outcomes are defined as economic advantages and results. The positive results of business accelerators were significantly represented in the assessed papers ($n = 53$). Negative consequences were substantially more prevalent at the startup level when compared to the accelerator and ecosystem levels. Validation, which refers to the approval of a product or business idea, is an implied outcome of participation in traditional accelerators. Still, it can also result from joining a virtual accelerator or attending a workshop [67–69]. The startup stage accounts for a sizable proportion of direct outcomes. The advantages include both soft and hard results. Funding, networking opportunities, and survival are examples of hard outcomes at the startup stage. Startups that participated in business accelerators had more access to capital funding, which contributed to their success. In terms of soft outcomes, the impact of business accelerators at the startup level included idea validation, access to expertise, and increased management abilities [69,70]. Figure 7 comprehensively highlights the organizational and industrial context with complete intervention and outcomes. By considering the situations in which they function, the intervention accelerators provide a range of services to their beginning users and their results in terms of their impact on pioneering activities. CIMO-causing economic factors that explain an occurrence in this case of how business incubators operate. Figure 8 shows how business accelerators work in the community. The whole life cycle from assurance to growth and outcomes was sketched. Our research suggests that accelerators serve as network builders by encouraging other organizations to develop the ecosystem, by ensuring new business relationships between startups and established corporations, and by improving the survival rate of startups. Based on our outcomes, we clearly state that accelerators foster an innovation culture, speed up the invention process, assist businesses in coming up with new ideas, test those ideas, and share the results. As a result, there is potential for research to focus on understudied industries, niche contexts like ecologically responsible industries, or specific application areas (like innovation management or technology for nice), as well as to analyze the incubator process in other contexts outside of the western world.
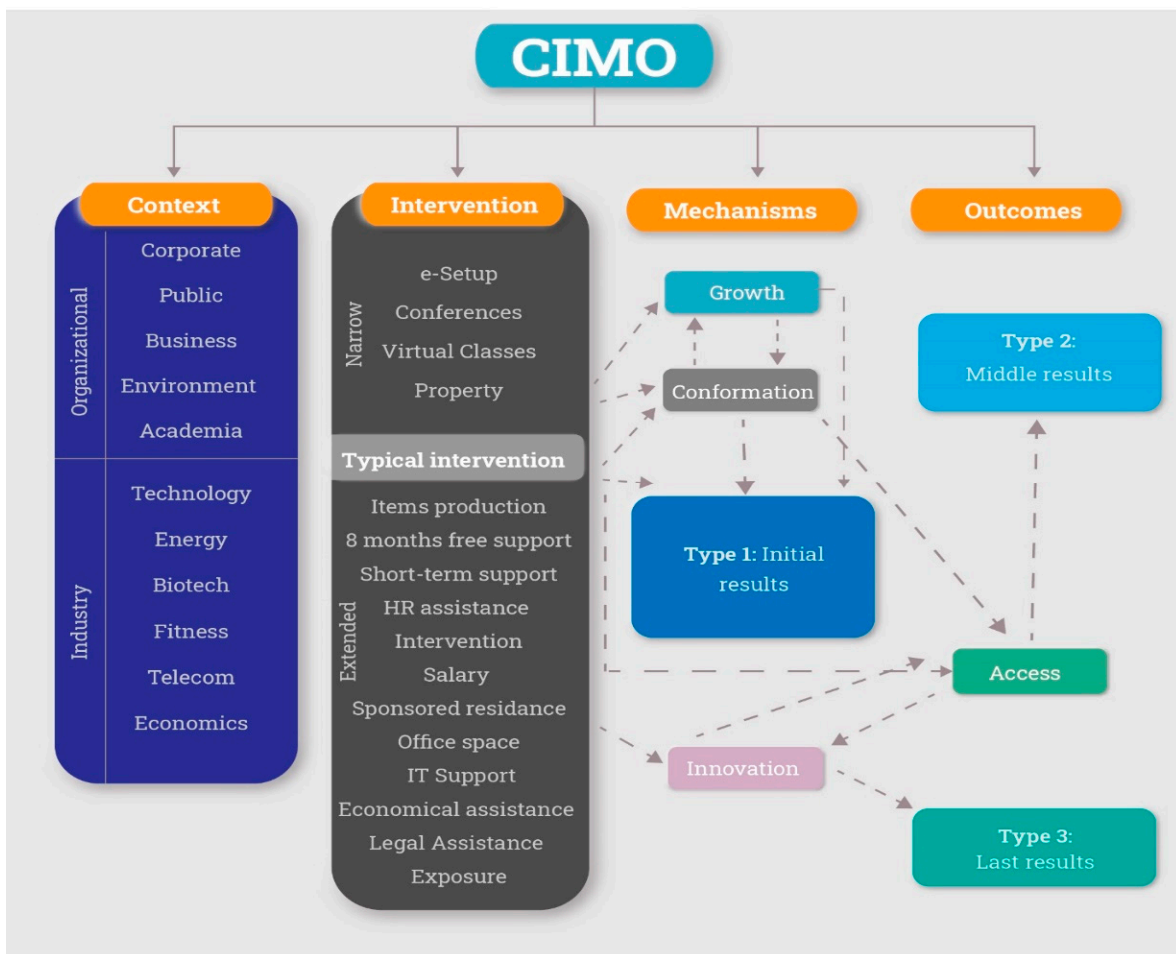
Figure 7. CIMO complete analysis with outcomes (Source: Constructed in Illustrator ver. 26.4).
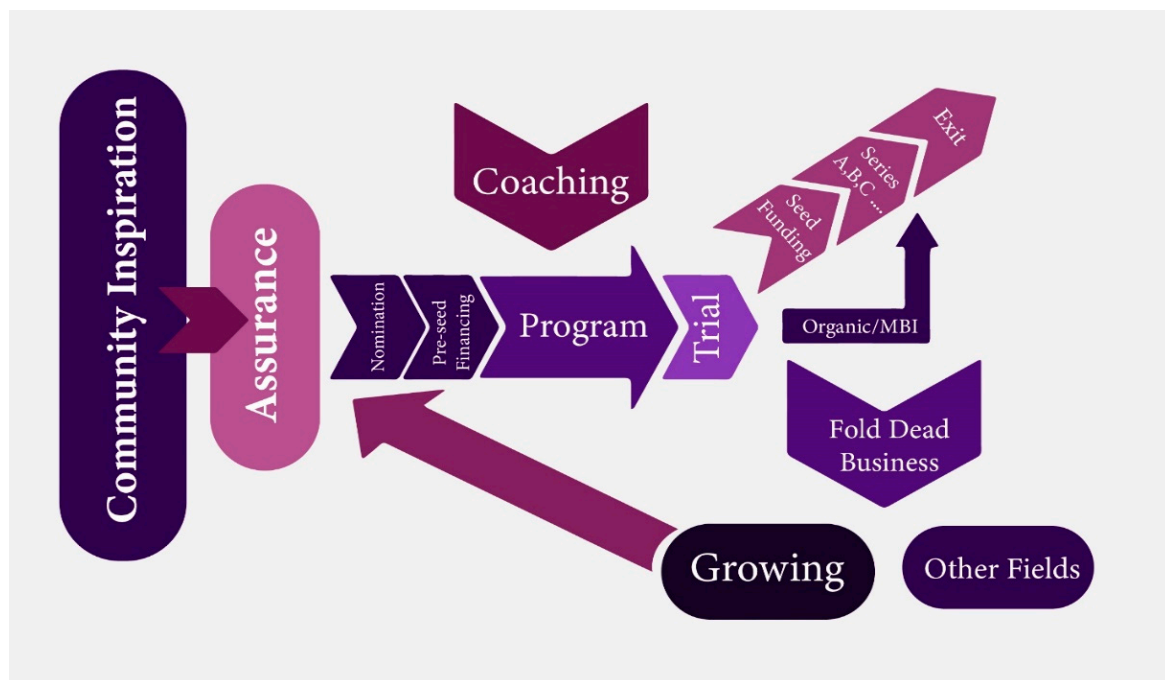
Figure 8. The complete cycle of startup accelerators (Source: Constructed in Illustrator ver. 26.4).

5. Risk of Bias Assessment

　　To check the quality, accuracy, randomization process, intended intervention, and outcomes of the articles, a total of 21 articles out of 52 were retrieved for the ROBVIS tool. The 21 peer review articles were selected based on their novelty, whether they were up-to-date, and data availability (Figure 9). A total of 13 articles had a low risk of biasness in their methodology, results, and outcomes. Five studies had a high risk of biasness, which means their studies did not have proper and accurate outcomes. Three studies lay in the middle, and we did not have a proper conclusion.

Study	Risk of bias domains					
	D1	D2	D3	D4	D5	Overall
(Aloulou, 2021)	+	+	+	+	+	+
(Askarzadeh et al., 2021)	–	+	+	+	+	+
(Bendickson, 2021)	?	+	–	+	+	–
(Blank, 2021)	+	+	✕	+	–	✕
(Chen & He, 2021)	✕	✕	+	+	–	+
(Davidson, 2021)	+	✕	–	+	+	–
(Ermilina et al., 2021)	+	–	–	✕	+	–
(González-Uribe & Reyes, 2021)	+	–	+	+	+	+
(Pattanasak et al., 2022)	+	+	+	+	+	+
(Alpenidze et al., 2019)	+	✕	✕	✕	–	✕
(Aragon et al., 2017)	+	+	+	+	+	+
(Mohammadi & Sakhteh, 2022)	✕	+	✕	+	+	+
(Battistella et al., 2017)	✕	+	+	+	–	✕
(Bernthal, 2015)	✕	+	✕	+	✕	✕
(Clayton et al., 2018)	–	+	+	+	+	+
(Cohen & Hochberg, 2014)	+	+	–	+	✕	+
(Cohen & Muñoz, 2015)	–	✕	+	+	+	+
(Cohen et al., 2019)	+	✕	+	+	✕	+
(Connolly et al., 2018)	+	+	+	+	✕	+
(oste & Gatzke, 2017)	+	✕	–	+	+	+
(Lingelbach, 2022)	–	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
✕ High
– Some concerns
+ Low
? No information

Figure 9. Risk of assessment for the articles published in journals (Source: ROBVIS tool, https://www.riskofbias.info/welcome/robvis-visualization-tool) (URL accessed on 15 September 2022). Mentioned references: [1,4,14,16–19,24–26,29,30,32–34,36,41,57,71,72].

6. Conclusions

This is the first comprehensive systematic review of CIMO analysis and business accelerators in which 53 articles were retrieved for further detailed studies, out of which 21 articles were assessed for the risk of bias analysis. All the articles were retrieved after a rigorous selection process. The review helps innovative practices by giving people access to resources, including connections, training, and coaching. Several research gaps in the literature were filled through this review, especially gaps in the information available on the working behaviors of business accelerators in communities. Since the introduction of the first business accelerator, Y Combinator, there has been an immediate increase in the number of innovation intermediates other than incubators.

The impact of business accelerators on the ecosystem has been demonstrated by a one-hundred percent growth in the number of registered intermediaries over the last five years. The publications included in this systematic review highlight progress in distinguishing between business accelerators and incubators. Initially, business accelerators were thought to be a subset of incubators. However, as this study emphasized, an increase in the number of studies that examined business accelerators gave sufficient literature to compare the two types of innovation intermediates. The use of CIMO analysis aided in evaluating business accelerators based on context, services provided, methods, and outcomes. As this analysis has indicated, a substantial portion of business accelerators resides in one of five contexts: university, startup, corporate, government, or community. The managerial implications of this study highlight the different context business accelerators operate in, the identification and differentiation of hard and soft outcomes, and what the outcomes are on a startup level, accelerator level, and ecosystem level, which can be of assistance in making managerial decisions. Finally, this systematic review aided in identifying knowledge gaps in the existing literature. We found gaps in the impact of organizational characteristics on the effectiveness of business accelerators. Accelerators in the same context using identical treatments must achieve different results. According to the CIMO analysis, the interplay of two mechanisms might result in unexpected consequences linked to organizational structure and strategy. As a result, the assessment of business accelerators was recognized as a knowledge gap that should be addressed in future research. Further investigation is required to clarify the specifics of incubation and acceleration structures and how they can influence success. There is a definite need for more research on the topic of business incubator specialization because the body of literature is so limited.

7. Limitations

The study was limited to the last 17 years only, and no reports were included in the research articles that were included. Another limitation is that the data covers several European countries where the European Union members share a continent and a market, but each country has a unique startup ecosystem. Europe is a unique market; hence running this on a different continent might have different results. Moreover, the EU is a developed economy with a healthy startup scene. The outcomes of this research cannot represent the case of emerging economies that have different startup scenes. Furthermore, another limitation of this research is that it does not differentiate between profit, non-profit accelerator, privately funded, or publicly funded accelerators. Moreover, there are several mislabeled or differently operating accelerators and incubators, which stress the fact of having certain conditions be met so each will be labeled in the right way that they should.

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