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Cooperation between large companies and start-ups: An overview of the current state of research

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ABSTRACT

Collaboration between large companies and start-ups presents unique characteristics that distinguish them from other forms of partnership and can effectively drive innovation for both entities. To enhance the understanding of this phenomenon, this study systematically examines the relevant literature on the subject. By analyzing and synthesizing 103 articles from peer-reviewed journals, a comprehensive framework is developed, elucidating the pertinent antecedents, mediators, and outcomes of such collaborations. Furthermore, fundamental gaps in research content are identified, including 1) the influence of individual and organizational factors on partnership dynamics and performance, 2) the effectiveness of such collaborations in different types of innovation pursuits, and 3) the negative consequences for partners in the event of collaborative project failure. Based on these defined concepts and identified gaps, an agenda for future research is proposed in terms of theoretical, content-related, and methodological directions.

1. Introduction

Start-ups and large companies are complementary organizations (Rothaermel 2001a; 2001b). Large companies possess greater resources but show slower responsiveness to environmental changes (Weiblen & Chesbrough, 2015), whereas start-ups are inherently agile but face resource limitations in managing growth challenges (Braune et al., 2019; Riepe & Uhl, 2020). Thus, recent studies have proposed that partnerships between large companies and start-ups can address these dilemmas (Kurpjuweit & Wagner, 2020a; Weiblen & Chesbrough, 2015). From this perspective, large companies seek collaborations with new ventures to accelerate their innovation (Allmendinger & Berger, 2020), enhance their innovativeness (Simon et al., 2019), increase their agility (Weiblen & Chesbrough, 2015), or digitally transform themselves (Steiber et al., 2020). Meanwhile, start-ups seek collaborations with large companies to access funding and other complementary assets (Simon et al., 2019). Large companies have experimented with various collaboration forms, including accelerators, incubators, the venture client model, and innovation hubs (Steiber et al., 2020; Weiblen &

Chesbrough, 2015).

Partnerships between start-ups and large companies fall within the interorganizational partnership literature as collaborations where parties maintain autonomy but are mutually dependent (Williamson, 1991). However, start-ups possess unique characteristics, such as transitory organizational forms, undefined products and services, a lack of economic self-sufficiency, and high entrepreneurial and innovation capacity, making these partnerships highly asymmetric (Allmendinger & Berger, 2020). Thus, extending or adapting existing theories is necessary to capture the nuances of collaboration between large companies and start-ups.

However, the research in this domain remains fragmented, with diverse treatments of similar concepts leading to ambiguous and conflicting results. Much of the literature emphasizes optimistic assumptions of the positive aspects of partnerships between large companies and start-ups (e.g., Berczeki, 2019; Hora et al., 2017; Urbaniec & Zur, 2020). Such fragmentation and ambiguity limit researchers studying this phenomenon, as well as managers and entrepreneurs operating in such partnerships.

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Accordingly, this article aims to conduct a systematic review (Kraus et al., 2020, 2023) of the research on collaboration between large companies and start-ups. Responding to the call by Alegre et al. (2023) for theory-driven reviews, our review provides a framework encompassing the dimensions of this concept and its antecedents and consequences. Specifically, our work contributes to the literature by offering a research map of collaboration between large enterprises and start-ups, as well as a comprehensive framework highlighting key variables including antecedents, mediators, outcomes, and their relationships, thereby laying the groundwork for a theory of collaboration between start-ups and large companies. Based on these findings, we propose a research agenda to further advance this field.

This study holds a twofold relevance. First, it benefits researchers by summarizing the literature, defining key concepts, and hypothesizing causal relations. It helps scholars understand the theoretical gaps and frame future research questions and approaches according to, for example, dynamic capabilities, the resource-based view, and transaction costs. Second, it benefits corporations and start-ups by shedding light on the positive and negative effects of collaboration and illuminating strategies for implementing interorganizational partnerships. It can deepen their understanding of the phenomenon with regard to the type of innovation generated, the necessary changes in start-ups for successful collaborations with large organizations, the compatibility of large companies and start-ups, individuals' motivations and skills, and start-up acquisition by large companies.

2. Theoretical foundations of collaboration/cooperation research

Interorganizational activities among firms are a ubiquitous phenomenon and indispensable for many organizations (Berends & Sydow, 2019; Oliveira & Lumineau, 2019). Collaboration and cooperation are at the core of interorganizational activities (Castañer & Oliveira, 2020), which include alliances, joint ventures, networks, buyer-supplier relationships, cross-sector partnerships, and cooptation (Barringer & Harrison, 2000; Bouncken et al., 2016; Bouncken et al., 2015; Todeva & Knoke, 2005; Berends & Sydow, 2019). The significance of collaboration and cooperation stems from the fact that businesses are seldom self-sufficient in terms of resources and knowledge (Freel, 2003). In other words, as resources, capabilities and knowledge are not diffused equally among firms (Enberg, 2012), whereby they seek to leverage these missing but valuable assets beyond firm boundaries through interorganizational activities (Bouncken et al., 2014; Bouncken et al., 2023; De Faria et al., 2010), relying on collaboration and cooperation with other firms. These exchange mechanisms are vital for firm performance (Bouncken et al., 2021).

Collaboration (originating from the Latin phrase *cum laborare*) is used as an umbrella term for any situation in which two or more persons are somehow "working together with others"; however, *cooperation* (originating from the Latin phrase *cum operare*) means "operating together with others, thus helping, contributing to the accomplishment of a common goal" (Salvato et al., 2017, p. 963). As such, cooperation as *cum operare* is a consequence of an intrinsic motivation that results from participants sharing goals, aligning interests, or developing a shared identity (Hardy et al., 2005; Lindenberg & Foss, 2011).

Both, collaborative *cum laborare* and cooperative *cum operare* endeavors can be a fruitful source of competitive advantage through their combination of complementary resources and capabilities, as well as development of knowledge-sharing routines (Dyer & Singh, 1998; Salvato et al., 2017), which can lead to innovation (Bouncken & Fredrich, 2016). The former enables partners to tap into previously unavailable complementary resources and capabilities (Dyer & Singh, 1998; Mesquita et al., 2017; Salvato et al., 2017). The latter allows the creation of development routines that facilitate knowledge synergies and spillovers of complementary knowledge (Dyer & Singh, 1998; Hipp & Bouncken, 2009; Tojeiro-Rivero & Moreno, 2019), leading to *(in)learning*

(Bouncken & Kraus, 2013; Powell, 1996)—that is, the leveraging of absorbed knowledge through learning from external sources (Simonin, 1999). Furthermore, actively working together (*cum laborare*) and operating (*cum operare*) with a partner can reduce costs and risks, as well as increase market power, market access, product quality, and innovation (e.g., Frydinger et al., 2019; Bouncken, Fredrich, & Guderhan, 2022; Bouncken, Gast, Kraus, & Bogers, 2015; De Faria, Lima, & Santos, 2010; Freire & Gonçalves, 2022).

Despite these potential benefits, interorganizational relationships, including collaborative *cum laborare* and cooperative *cum operare* efforts, can be exceedingly complex, hazardous, and challenging (Gulati et al., 2012), possibly resulting in detrimental outcomes, ill-intended behaviors, or unethical practices (Oliveira & Lumineau, 2019). The disadvantages of collaboration/cooperation are generally attributed to partners' diverging or misaligned interests (Gulati et al., 2012). As a result, noncooperative behaviors (Arend, 2009) may manifest, including *shirking* (i.e., underinvesting in the relationship) (Bouncken et al., 2020; Handley & Benton, 2012); *misappropriation* (Handley & Benton, 2012) (i.e., claiming more benefits than agreed upon) (Gulati et al., 2012); or *holdup* (Frydinger et al., 2019) (i.e., exploiting a superior negotiation position to obtain more favorable terms) (Gulati et al., 2012). The presence of *opportunism*, or "self-interest seeking with guile" (Williamson, 1975, p. 9), may worsen these issues (Gulati et al., 2012; Handley & Benton, 2012).

In prior literature, formal and relational governance structures are proposed as remedies for such collaboration/cooperation risks. Formal governance structures, including enforceable contracts, provide a collaborative framework (Gulati et al., 2012; Beuve & Saussier, 2012), whereas informal relational governance modes, including trust and social norms, safeguard cooperation success (Beuve & Saussier, 2012; Gulati, 1995; Powell, 1990). Traditionally, formal and relational governance have been seen as substitutes, rendering each other ineffective or risky (e.g., Granovetter, 1985; Sullivan & Peterson, 1982). However, recent evidence suggests that formal and relational governance mechanisms can coexist and complement each other in cooperative interfirm relationships (Poppo & Zenger, 2002; Ryall & Sampson, 2009).

The field of interorganizational collaboration/cooperation research has grown substantially since the 1980s in management, business, entrepreneurship, and economics (Berends & Sydow, 2019; Salvato et al., 2017). Yet no systematic examination of collaboration/cooperation research specifically among partners of different sizes and maturity, such as start-ups and large multinational companies, has been conducted. This research gap is noteworthy due to two factors. First, collaboration and cooperation between partners of diverse size and maturity have become increasingly common in today's dynamic business environment (Ching & Caetano, 2021). Second, partnerships between start-ups and large companies are often marked by tension due to the significant differences between these partners (Prashantham & Kumar, 2019). As Weiblen and Chesbrough (2015) state, "Each side has what the other one lacks. The corporation has resources, scale, power, and the routines needed to run a proven business model efficiently. The start-up has none of those, but typically has promising ideas, organizational agility, the willingness to take risk, and aspirations of rapid growth" (p. 66). These differences in resources, credibility, and organizational culture create complementarities that can benefit both types of firms (Ching & Caetano, 2021). However, their power and structural imbalances render these engagements particularly challenging for each party involved (Prashantham & Kumar, 2019).

3. Methodology

Systematic literature reviews are valuable for synthesizing existing research (Kraus et al., 2020, 2022, 2023; Sauer & Seuring, 2023) and generating new knowledge within a specific domain (Durach et al., 2017). Recent calls have emphasized the importance of theory-driven

reviews in enhancing the contributions of such studies (e.g., Bacq et al., 2021; Wong, 2021). Moreover, a literature review becomes theoretically relevant when it incorporates an integrative definition, a typology, or a framework that encompasses the focal concept's dimensions and its connections to related issues such as antecedents and consequences ((Tranfield et al., 2003); Alegre et al., 2023). In line with this perspective, we utilized the AMO (antecedents-mediators-outcomes) framework to analyze and synthesize the extant results, emphasizing the causal relationships among the identified variables (Zahoor et al., 2020). Our literature review is thus classified as framework-based, indicating that the analysis scheme for the sample was pre-established.

Following the multistep methodology of Denyer and Tranfield (2009), we 1) formulated the review questions; 2) determined the scope and boundaries of the review; 3) identified, screened, and selected relevant studies; and 4) analyzed and synthesized the contributions.

Using the search string (TITLE-ABS-KEY ("start-up*" OR "new firm" OR "young firm" OR "new enterprise" OR "young enterprise") AND TITLE-ABS-KEY ("collaborat*" OR "alliance" OR "network*" OR "partner*" OR "cooperat*" OR "open innovation") AND TITLE-ABS-KEY ("corporate" OR "corporation" OR "large firm" OR "large enterprise" OR "large company*" OR "mncs" OR "*national compan*" OR "incumben*")) in SCOPUS (categories "Business, Management and Accounting" and "Economics, Econometrics and Finance") and the Web of Science (categories "Business," "Business & Finance," "Economics," "Management") at the end of December 2022 yielded 309 and 152 results, respectively. After excluding duplicates, we obtained 321 articles.

We then selected the articles of real interest for our study, applying the inclusion and exclusion criteria shown in Table 1.

To better identify the boundaries of our search (Zahoor et al., 2020), we provided the definitions of the main concepts under study, reported in Table 1.

After excluding books, book chapters, and conference proceedings (Stumbitz et al., 2018), as well as studies in which the combination of our search terms was only arbitrary and not topic related, and papers that focused on noncollaborative phenomena (e.g., company acquisitions) or collaboration between nonautonomous entities (e.g., spin-offs), a final sample was derived (Table 2).

The analysis of results aimed to ensure transparency while allowing the authors the flexibility to integrate these findings in a coherent manner (Kraus et al., 2022). Narrative reviews are recognized for possessing these attributes (Zahoor et al., 2020). Each full paper underwent coding by a minimum of two authors, who then compared and refined their interpretations until reaching a consensus (Pittaway et al., 2004). The R-studio software app Biblioshiny (Aria & Cuccurullo, 2017) was utilized to analyze these full papers.

Table 1
Inclusion and exclusion criteria.

Description	Reason for Inclusion	Reason for Exclusion	Examples of Excluded Papers
Time period	– NA	– NA	
Conceptual boundaries	– <i>Start-ups</i> defined as companies that are 1) small or medium sized; 2) in the embryonic phase of their lifecycle; 3) engaged in the process of discovering, developing, or implementing a business model; and 4) have not yet reached an economic-financial condition that can guarantee their autonomy – <i>Large corporation</i> defined as companies that exceed a certain size threshold with respect to the number of employees, turnover, or both – <i>Collaboration</i> defined as short-, medium-, or even long-term collaborations in which the parties maintain autonomy but are bilaterally dependent to a nontrivial degree	– Articles focusing only on one type of organization (either start-ups or large corporations) – Noncollaborative arrangements (e.g., acquisitions) – Collaboration between nonautonomous entities (e.g., spin-offs)	– Chung (2004); Fabel et al. (2013)
Search terms	– Boolean logic with regard to start-ups, large companies, and collaboration	– Search terms are present in the title, abstract, or keywords but the paper does not fit in the conceptual boundaries of this study	– Duchesneau & Gartner (1990); Cohen & Muñoz (2017); Kim et al. (2018)
Database	– Scopus, Web of Science (ISI)	– NA	NA ^a
Quality criteria	– Empirical and theoretical articles published in peer-reviewed journals	– Books, book chapters, conference proceedings	NA ^a

^a The search methods ensure that articles not meeting the criteria do not appear in the results.

Table 2
Summary of the article selection process.

STEP 1	STEP 2	STEP 3
Identifying the study population using keywords and Boolean	Screening the population against quality criteria	Screening against fit-for-purpose criteria
Outcome	Outcome	Outcome (final sample)
279 records on Scopus 122 records on WoS 321 non-duplicated articles	192 articles	103 articles

4. Key trends in corporate/start-up collaboration literature

The selected articles show a peppered distribution across 61 international journals. The earliest appearance of a study on corporate/start-up collaboration dates to 1993 (Oakey, 1993). Over time, these publications constantly increased in number (Fig. 1). A total of 56.3% of these articles were published in the past 4 years, starting in 2019.

Regarding the methodological orientation of the selected articles, 84.5% (n = 87/103) are empirical works, whereas only 14.6% (n = 15/103) are theoretical studies. Specifically, conceptual papers comprise 9 out of 103 (8.7%) and reviews only 6 out of 103 (5.8%). Among the empirical studies, every fourth publication is a quantitative study (25.2%), whereas the qualitative studies comprise the lion's share (58.3%, n = 60/103). Finally, mixed methods are adopted in 2 out of 103 (2%). The empirical articles were initially oriented toward quantitative research, but in the past 5 years, from 2017 on, they have shifted to qualitative methods. Among the qualitative studies, there is a clear predominance (approximately 50%) of the multiple-case study approach.

The analysis of the selected articles then focused more specifically on the theories to which these studies referred. Of the 103 articles analyzed, only 45 expressly state that they refer to some general theory. This has led to the inevitable fragmentation of the literature, ambiguous uses of the relevant terms, and overlaps among the constructs used.

Seven papers declare that they refer to the theory of open innovation, considered by some scholars a real theory (e.g., Wang et al., 2015) and by others merely a managerial paradigm (e.g., Chiaroni et al., 2011). These seven studies are primarily qualitative, except for that of Hagedoorn and Wang (2012). In the various articles, there is not always homogeneity in terms of the use of theoretical concepts, nor is there any reference to consolidated relationships among variables. The authors of these articles thus have two main interests. On the one hand, they are concerned with what combination of internal and external resources makes it possible to perform innovation processes more efficiently and

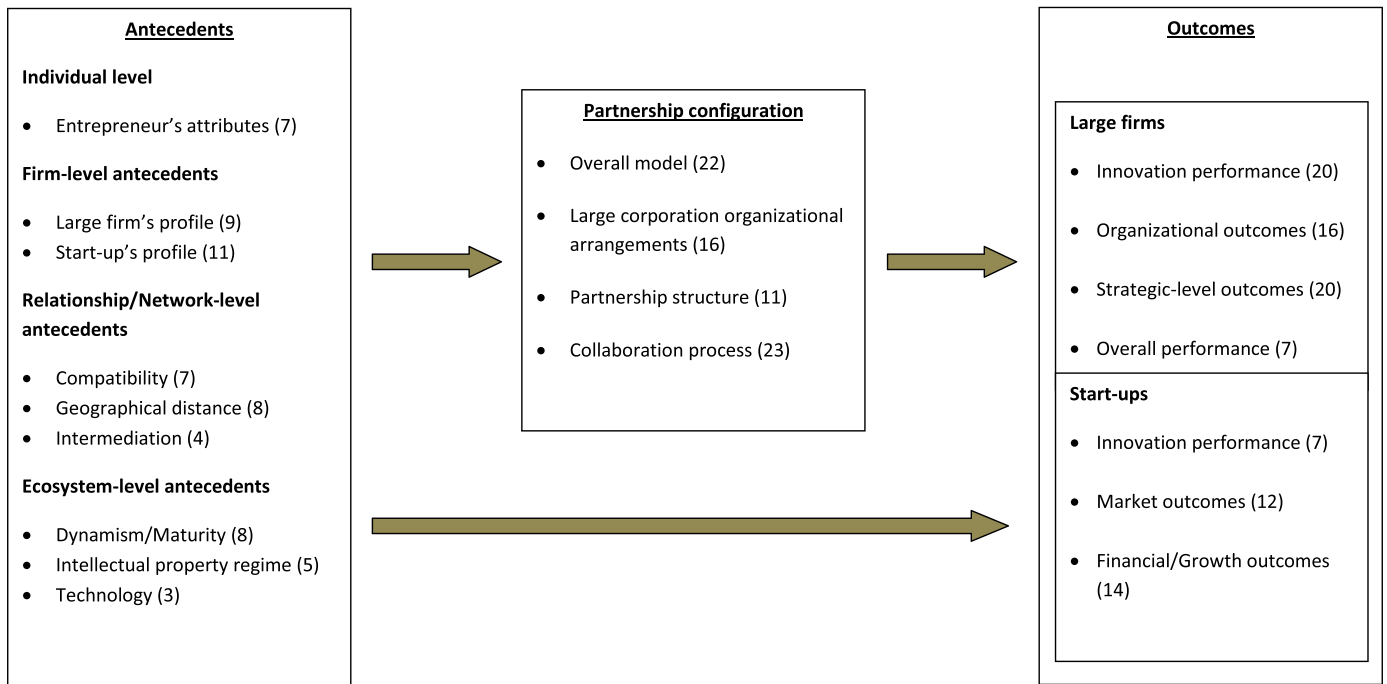


Fig. 1. Collaboration between large corporations and start-ups: an integrative framework. Note: The values in parentheses represent the number of articles that dealt with the topic.

effectively (e.g., Hagedoorn & Wang, 2012). On the other hand, they ask what configuration can render collaborative processes between partners more efficient (Homfeldt et al., 2017; Kohler, 2016).

In addition, six papers refer to intellectual capital theory, all published before 2015. Two are written by the same authors (Dushnitsky & Lenox, 2005a; 2005b). Focusing on the structural component of intellectual capital, these works analyze the conditions that allow large companies to learn effectively from start-ups, finding, in structural capital, an important and empirical antecedent for effective learning.

Dynamic capabilities are the theoretical framework of reference in four articles. The actual application of this concept varies. On the one hand, the presence of dynamic capabilities in large enterprises is considered a prerequisite for effective collaboration with start-ups (Enkel & Sagmeister, 2020b; Hernández-Chea et al., 2021; Hutter et al., 2020). On the other hand, the perspective is reversed, whereby

collaboration with start-ups is considered a way to generate dynamic capabilities (Enkel & Sagmeister, 2020a).

5. Corporate/start-up collaboration: A critical narrative

This section develops a narrative interpretation of the literature on large company/start-up collaboration, which is summarized in Fig. 2. The resulting framework describes the phenomenon of company/start-up collaboration in terms of its antecedents, configurations, outcomes, and mediators (Zahoor et al., 2020).

5.1. Antecedents

5.1.1. Individual-level antecedents

The antecedents at the individual level are the attributes of managers

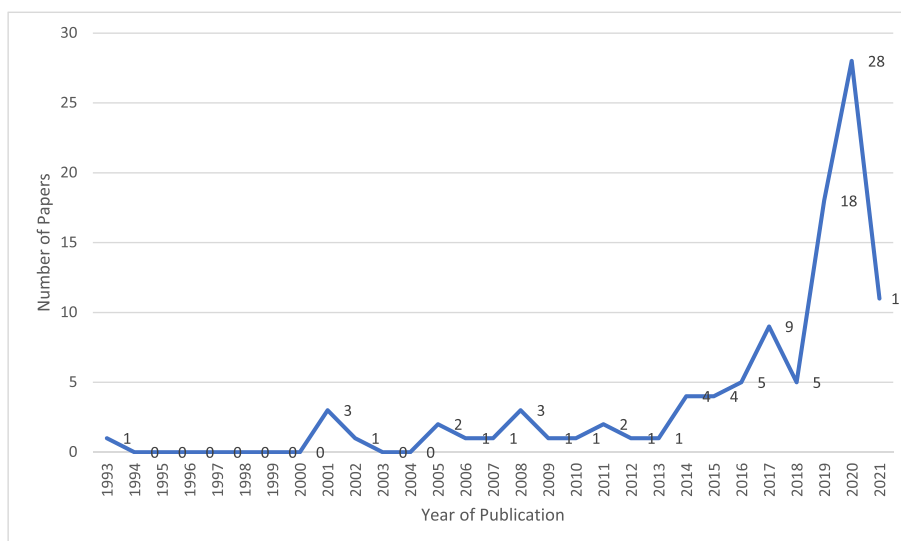


Fig. 2. Publications per year on corporate/start-up collaboration.

(in the corporation) or entrepreneurs (in the start-up) that exert an influence on the results of partnerships between firms and start-ups. These factors include age, education, industry experience, motivation, and commitment (e.g., De Groot & Backmann, 2020; Stern et al., 2014; Wójcik et al., 2020). The articles concerning this topic are often based on case studies and interviews and have an exploratory purpose (e.g., Hogenhuis et al., 2017; Urbaniec & Żur, 2020; Wójcik et al., 2020). In some cases, these variables are included in a statistically validated model, but they do not represent the focus of any study (Allmendinger & Berger, 2020; Prevezer, 2001).

Nevertheless, the scant available evidence suggests a direct effect of factors such as the level of training and industry experience of start-up founders on the success of collaboration in terms of the growth of their start-up (De Groot & Backmann, 2020; Kor & Misangyi, 2007). Among the relevant characteristics of managers of the corporation involved (particularly top managers), the most relevant are commitment to the partnership, which fosters both innovation (Hutter et al., 2020; Urbaniec & Żur, 2020) and cultural transformation (Hogenhuis et al., 2017) and motivation (Hogenhuis et al., 2017). Individual factors also impact the intention to cooperate. In other words, the formation of alliances is positively influenced by the reputation of start-uppers (Stern et al., 2014) and the commitment of top managers (De Groot & Backmann, 2020).

5.1.2. Firm-level antecedents

In the reviewed literature, the following characteristics of start-ups were considered variables capable of influencing the characteristics and outcomes of partnerships with large companies: maturity, experience, interpersonal skills, and the business model. The maturity of a start-up was considered both from a business and technological point of view. A start-up is mature from a business point of view when it uses professional methods to manage its processes (Kanbach & Stubner, 2016; Oakey, 1993; Simon et al., 2019). The technology of a start-up is considered mature when it is known and has been validated (Enkel & Sagmeister, 2020a; Minshall et al., 2010). In both cases, maturity seems to favor product innovation and the efficiency of innovative processes for large companies as well as start-ups, whereas collaboration with early-stage start-ups is a means for changing corporate culture (Rigtering & Behrens, 2021). According to Lin (2020), past experience in collaborations with large companies is a factor that positively influences the innovative results of start-ups. Similarly, Prashantham and Kumar (2011) have found that the relational capability of a start-up—that is, its capability of entering and maintaining relationships with external partners—favors its growth. The business model of a start-up, finally, affects their collaboration process: business-to-business start-ups look for connections to customers, whereas business-to-consumer start-ups are interested in improving their brand and in funding (Riepe & Uhl, 2020).

Regarding the antecedents at the large corporation level, corporate objectives such as those that accelerate innovation (Allmendinger & Berger, 2020), enhance innovativeness (Simon et al., 2019), increase agility (Weiblen & Cheesbrough, 2015), or change organizational culture (Steiber et al., 2020) are the most frequently mentioned. First, objectives influence the model of collaboration, determining an orientation toward the creation of ecosystems or product innovation or cultural change (Gutmann, 2019; Huang & Madhavan, 2019). The experience of a large company is another relevant antecedent: if the large company has more experience in the innovation process, a greater efficiency and impact of the partnership can be expected (Gutmann, 2019; Richter et al., 2017). In general, a greater absorption capacity of large companies, also developed through internal research and development, facilitates the formation and functioning of their partnerships (Dushnitsky & Lenox, 2005a, 2005b; Hagedoorn & Wang, 2012; Richter et al., 2017; Gutman et al., 2019). Finally, partnership formation is facilitated by a collaborative culture in a large corporation (Prevezer, 2001).

5.1.3. Relationship/network-level antecedents

The relationship/network-level antecedents include factors with a significant impact on the outcomes that cannot be traced back to one of the participants but characterize the relationships among two or more of them. The differences between the two types of actors in terms of motivations, expectations, and culture are often listed among the challenges that put the effective implementation of a collaboration program at risk (Hora et al., 2017; Hutter et al., 2020; Urbaniec & Żur, 2020). According to Jackson and Richter (2017), cognitive distance, which is the disparity in the ways of thinking of the people involved, is a particularly relevant obstacle in the context of accelerators. However, geographical distance is also cited as an obstacle (Dushnitsky & Lenox, 2005a, 2005b; Takey & Carvalho, 2016)—for example, it leads to the modification of the organizational model of a partnership (Amann et al., 2021; Decreton et al., 2021; Kim & Wu, 2019) through the use of intermediaries (Schepis, 2020). Symmetrically, partner compatibility is cited as a factor that favors the success of any partnership. However, there are conflicting opinions on what compatibility means. Some emphasize the importance of similarity from an organizational (De Groot & Backmann, 2020; Shankar & Shepherd, 2019) or technological point of view (Kim et al., 2019), whereas others suggest that partnerships with complementary partners are more successful (Rothaermel, 2001a; 2001b). Finally, Dehling et al. (2022) instead suggest that compatibility is an outcome rather than an antecedent of collaboration.

5.1.4. Ecosystem-level antecedents

The ecosystem-level antecedents are those relating to the overall ecosystem of partners—that is, the wide network of actors, tangible assets, and intangible assets that develops around a technological domain (Pushpanathan & Elmquist, 2022).

Dynamic ecosystems put pressure on large companies, pushing them to collaborate with start-ups to increase the productivity of their innovation processes (Basu et al., 2011; Dushnitsky & Lenox, 2005b; Joseph et al., 2021). In addition to dynamism, a feature of the ecosystem that influences partnerships between large companies and start-ups is the spread of open innovation practices (Svensson et al., 2019; Onetti, 2019). Therefore, the greater the experience of the players with this sector in this field is, the more common and easier their partnerships will be, allowing more standardized collaboration models (Prashantham, 2021). Hall (2015) observes that the maturity of this sector pushes large companies to seek collaboration with start-ups based on the acquisition of equity.

Another often cited variable at the ecosystem level is the intellectual property regime (Basu et al., 2015; Sears et al., 2020). Weak regimes seem to favor collaboration between large companies and start-ups (Dushnitsky & Lenox, 2005a; 2005b). However, Dushnitsky and Shaver (2009) indicate that this only happens if the start-up and corporation operate in different markets. If they operate in the same market, their collaboration is more likely under a strong intellectual property regime.

Finally, some studies explore the impact of the nature of the technology considered on the formation of partnerships between large companies and start-ups, as well as their outcomes. In particular, systemic technologies favor collaboration (Rosenkopf & Padula, 2008; Takey & Carvalho, 2016). However, Lechevalier et al. (2014), in their study of the robot industry in Japan, observe that in some sectors where innovation processes are characterized by the need to acquire knowledge from outside their industry, established firms are the main source of innovation and start-ups play only a minor role.

5.2. Collaboration configuration

The term *partnership configuration* describes the organization and management of resources and activities once a partnership between a start-up and a corporation has been formed. The literature review has highlighted three relevant topics in this regard: 1) the overall model of

collaboration, 2) the collaboration process and 3) the collaboration structure and corporate-level arrangements.

5.2.1. Overall model of collaboration

Some models of collaboration with start-ups, launched by one or a few large companies, have been imitated by others and have become institutionalized (Gutmann, 2019), such as corporate accelerators (e.g., Kanbach & Stubner, 2016; Crişan et al., 2019; Shankar & Shepherd, 2019), business incubators (Kohler, 2016), and the venture client model (Kурpjuweit & Wagner, 2020a; 2020b). A strand of the literature focuses on the differences in the implementation of such collaboration models, as contextual conditions vary (e.g., Park & Bae, 2018; Prexl et al., 2018; Shankar & Shepherd, 2019). An initial macroscopic distinction is drawn between corporate accelerators (Mahmoud-Jouini et al., 2018) and external accelerators (Hutter et al., 2020). The former are managed directly by large companies, and the latter are managed by third-party organizations that sell their services to several large companies (Moschner et al., 2019).

5.2.2. Collaboration process

Many articles have focused on the collaboration process, indicating the characteristics it should have to provide better performance (Corvello et al., 2021; Mahmoud-Jouini et al., 2018). Often, the collaboration process is organized into sequential phases (Kурpjuweit & Wagner, 2020a): setup (i.e., definition of the corporation's objectives) (Hogehuis et al., 2017); scouting of interesting start-ups (Das & He, 2006; Kурpjuweit & Wagner, 2020b; Shankar & Shepherd, 2019); and the alignment of the product of the start-up with the needs of the corporation and testing, which leads to the identification of potentially valuable solutions for the corporation (Steiber & Alange, 2020). Two successive phases are integration and scaling, which allow the innovative solution to be integrated into the business offer of the large company (Basu et al., 2015; Kурpjuweit & Wagner, 2020a).

Some authors argue that large companies in particular should develop an *acceleration capability*—that is, the ability to dynamically adapt the process of collaboration with start-ups to any specific situation (Mahmoud-Jouini et al., 2018; Prexl et al., 2018).

The *time horizon* of collaboration is also a variable on which to act that influences the outcome of a partnership. For example, Wouters et al. (2018) underline that start-ups are often interested in long-term relationships with a corporation. However, this does not seem to occur in all contexts. Boni and Joseph (2019), for example, argue that a shorter lifespan is welcomed by start-ups, which often do not want to bind themselves too strongly to their larger partner.

5.2.3. Collaboration structure and corporate-level arrangements

The collaboration process can involve a variable number of large companies and start-ups or even actors of a different nature, such as universities, financial institutions, or intermediaries (Prexl et al., 2018). By *collaboration structure*, we thus refer to the number and nature of the partners involved as well as the relationships among them. A key aspect is the presence or absence of intermediaries—that is, organizations specializing in facilitating collaboration between start-ups and large companies that sell their services mainly to large companies, whether individually or in consortia (Moschner et al., 2019; Boni & Joseph, 2019; Wang & Chen, 2022). Although much of the reviewed literature focuses on the formal relationships among these parties, some contributions analyze the importance of the structure of informal relationships in the governance of a partnership, underlining how informal relationships can help overcome barriers to collaboration (Prashantham & Kumar, 2011; Stern et al., 2014).

In addition, effective collaboration with start-ups requires the introduction of specific roles in large organizations, such as start-up advocates or relation managers who track the progress of interactions with start-ups across various phases (Kanbach & Stubner, 2016; Rosenkopf & Padula, 2008). These roles can be organized in a specialized

unit with the responsibility of tracking the collaboration programs together with external intermediaries (Basu et al., 2011; Wouters et al., 2018). Line organization also requires adaptation: departments such as purchasing, research and development, and legal affairs must be involved in the process (Homfeldt et al., 2017).

The level of resources invested and the commitment of top management are cited by several articles as critical success factors (Blanka & Traunmüller, 2020; De Groote & Backmann, 2020; Stern et al., 2014). Some research similarly highlights the importance of employee training (Enkel & Sagmeister, 2020a; Mahmoud-Jouini et al., 2018; Prexl et al., 2018).

A topic that has attracted considerable attention includes the geographical distances between and different territorial contexts of start-ups and large companies. In this case, it is useful to create corporate outposts capable of facilitating interactions with distant start-ups (Decreton et al., 2021; Prashantham, 2021).

5.3. Outcomes

The relevant outcomes are the results or consequences of the antecedents of and collaboration between large companies and start-ups (e.g., Hagedoorn & Wang, 2012; Hora et al., 2017; Minshall et al., 2010). They are often interpreted and evaluated differently according to the point of view that is adopted: the perspective of the large company (e.g., Enkel & Sagmeister, 2020a; Kohler, 2016; Weiblen & Chesbrough, 2015) or that of the start-up (e.g., Allmendinger & Berger, 2020; Riepe & Uhl, 2020).

5.3.1. Outcomes from the perspective of large companies

Innovation: In the reviewed literature, innovation outcomes have been conceptualized in different ways—for example, as the effects or results of a collaboration concerning the creation of new products, processes, technologies, and business models. Large companies frequently combine their internal innovative processes with their interorganizational processes involving start-ups (e.g., Hagedoorn & Wang, 2012; Rothaermel, 2001a, 2001b). In this vein, a distinction is made in regard to the outcomes of the innovative process between efficiency/productivity outcomes and effectiveness/impact outcomes (Amann et al., 2021; Hutter et al., 2020; Wadhwa et al., 2016). With reference to the productivity of the innovative process, for example, Hutter et al. (2020) find that collaboration with start-ups renders it more efficient. Concerning effectiveness and impact, collaboration with start-ups improves the innovative performance of large companies due to the greater creativity of the former, a skill that the latter seem to lack (Hora et al., 2017; Park & Bae, 2018; Richter et al., 2017). However, Cox Pahnke et al. (2015) take a critical stance toward the collaboration of start-ups with large companies and underline that it is less effective, for example, than the support of venture capital, as large companies are more rigid in providing start-ups access to their own resources. Other studies focus on the type of innovation that is best supported through partnerships with start-ups. In particular, much attention has been given to the distinction between exploitation and exploration. Such studies show that collaboration between large companies and start-ups generates positive results, especially in terms of exploitation (Rosenkopf & Padula, 2008; Rothaermel, 2001a, 2001b, 2002). Other authors suggest that partnerships can also have a great impact on exploration but that this requires a greater investment of resources and therefore is a less widespread phenomenon (Wadhwa & Basu, 2013; Enkel & Sagmeister, 2020b). Interestingly, although companies declare rather radical objectives when collaborating with start-ups (e.g., cultural transformation, disruptive innovation management, creation of new ecosystems), the results of exploitation-oriented collaborations are more valued than those of exploration-oriented ones (Rothaermel, 2001a; 2001b).

Organizational transformation: Prior literature has revealed the internal transformations in corporations' organization that are induced by collaboration with start-ups. Collaboration with start-ups can transform

large companies' knowledge bases and culture (Boni & Joseph, 2019; Kamuriwo et al., 2017; Park & Bae, 2018). Since large companies may have outdated products, organizational structures, and processes, collaborating with start-ups may allow them to acquire new, complementary knowledge. Such knowledge often includes new technologies, new markets, or customer needs, as well as novel internal practices (Huang & Madhavan, 2020; Joseph et al., 2021; Minshall et al., 2008; Onetti, 2021). For example, Urbaniec and Žur (2020) find that through collaboration with start-ups, large companies can learn how new business models can be applied. Weiblen and Chesbrough (2015) hypothesize that some models of collaboration (particularly equity-based ones) are more suitable for acquiring market knowledge, whereas others that are not based on equity are more suitable for obtaining technical knowledge. Sixteen of the analyzed papers consider cultural change in large companies to be a key outcome of collaboration with start-ups (e.g., Boni & Joseph, 2019; Rigtering & Behrens, 2021; Urbaniec & Žur, 2020), fostering greater entrepreneurship in particular (Corvello et al., 2021; Gutmann, 2019; Wojcik et al., 2020). Nevertheless, despite the broad emphasis on this issue, empirical evidence for the effects of collaboration with start-ups on corporate culture remains limited, and the results remain ambiguous (Rigtering & Behrens, 2021; Steiber, 2020). Hutter et al. (2020), for example, note that this result may not be achieved due to barriers such as the lack of involvement of the corporation's managers. Similarly, Rigtering and Behrens (2021) suggest that cultural change requires that personnel in large companies are directly involved in the activities of the partnership for an appropriate period of time.

Strategic advantages: Collaboration with start-ups may help large companies improve their competitive position—that is, their relationship with their customers, competitors, or the environment in general (Basu et al., 2011; Kanbach & Stubner, 2016). The literature on corporate venture capital, for example, highlights how strategic advantages outweigh financial ones when a large company decides to invest in a young start-up (Gianfrate & Zazzanetti, 2008; Huang & Madhavan, 2020; Livieratos & Lepeniotis, 2017). Large companies can improve their image as an innovative company or their employer brand (Gutmann, 2019). In other words, they can “reserve the right to play” in an emerging market whose characteristics are still unclear. They can also learn the dynamics in sectors where they traditionally have not operated (Weiblen & Chesbrough, 2015). A rather often cited strategic advantage is the possibility—through partnerships with start-ups—to create links with a business ecosystem (e.g., Baloutsos et al., 2022; Decretton et al., 2021; Richter et al., 2017) or even influence its development (Joseph et al., 2021). Indeed, competition takes place among ecosystems rather than only companies, whereby occupying a strong position in a successful ecosystem is critical (Richter et al., 2017). Hence, Prexl et al. (2018) identify the “ecosystem builder accelerator” as a specific form of accelerator.

Overall performance: Some of the analyzed studies consider the impact of collaboration with start-ups on overall performance in large companies, particularly their financial performance (Gianfrate & Zazzanetti, 2008; Hutter et al., 2020). Some articles underline that the goal of generating profits through participation in a start-up's capital is of more than negligible importance (Gutmann, 2019). More frequently, however, it is observed that the primary objective of such collaboration is of a strategic rather than financial nature (Kanbach and Stubner, 2016; Galloway et al., 2017; Hutter et al., 2020).

5.3.2. Outcomes from the perspective of start-ups

Innovation: Collaboration with large companies can help start-ups improve their innovative output by allowing access to complementary assets (Lin, 2020; Rothaermel, 2002; Simon et al., 2019) and financial resources (e.g., Hall, 2015; Wadhwa et al., 2016); large companies provide technological knowledge (Kamuriwo et al., 2017) and market insight (Joseph et al., 2021), helping start-ups accelerate their new product development process (Boni & Joseph, 2019). For example,

Berczki (2019) find that by collaborating with large companies, start-ups are able to ensure continuity in their innovative process. Similar conclusions are reached by Lin (2020) regarding corporate venture capital. Park and Bae (2018) and Park et al. (2022) conclude that collaborations with large companies render start-ups more productive from an innovation point of view, whereas Kamuriwo et al. (2017), in their study of UK companies in the biotechnology sector, find that such collaboration leads to more radical innovations and favors the faster movement of start-up innovations to market. Some authors also suggest that collaborations with large companies can have negative effects on the innovative capacity of start-ups. Polidoro and Yang (2021), for instance, highlight how the start-ups that collaborate with large enterprises tend to meet their explicit requirements, focusing more on the logic of exploitation than exploration. In this way, however, they risk neglecting certain possible, more radical technological developments.

Market position: The possibility of engaging with the customers of large companies or, in general, with a market that incumbents know well is often cited as one of the main reasons for start-ups to initiate a partnership (e.g., Hernández-Chea et al., 2021; Huang & Madhavan, 2020; Riepe & Uhl, 2020). Another mechanism by which collaboration with large companies helps start-ups establish themselves on a market is the strengthening of reputation and brand: collaborating with a large company provides them with prestige and pushes other large players to seek their collaboration.

(Financial) growth: Several scholars highlight how start-ups seek paying customers when collaborating with large companies (Kurzjuweit & Wagner, 2020a, 2020b; Riepe & Uhl, 2020). The involvement of large companies in start-ups through equity investments is a characteristic of corporate venture capital (e.g., Enkel & Sagmeister, 2020a; Fredrich et al., 2022; Huang & Madhavan, 2020; Sears et al., 2020) and often manifests in collaborative forms, such as accelerators (Urbaniec & Žur, 2020). However, according to Riepe and Hul (2020), large companies primarily serve as financing sources for early-stage start-ups; more established firms tend to seek nonfinancial resources. Large companies can also indirectly enable access to funding sources by facilitating networking with venture capital firms (Braune et al., 2019; Riepe & Uhl, 2020). The performance of start-ups is thus commonly measured in terms of growth, particularly in revenue (Berczki, 2019; Boni & Joseph, 2019; Jackson & Richter, 2017; Oakey, 1993). For instance, Hora et al. (2017) have identified increased sales as one of the primary motivations for initiating partnerships.

5.4. Mediators

5.4.1. Overall model

Several contributions examine the advantages of utilizing collaborative formats, such as accelerators or incubators (e.g., Steiber et al., 2020; Gutmann & Lang, 2022; Martins et al., 2022). Among these formats, the accelerator model is frequently mentioned: Kohler (2016) identifies several benefits of accelerators for large companies, including closing innovation gaps, addressing business challenges, expanding into new markets, revitalizing corporate culture, and attracting and retaining talent. Another popular format, the venture client model, offers advantages such as start-ups becoming official suppliers or large corporations integrating innovative solutions and suppliers into their core business (Das & He, 2006; Homfeldt et al., 2017; Kurzjuweit & Wagner, 2020a, 2020b). These variables can play a mediating role between collaboration antecedents and outcomes. In other words, the objectives of start-ups and large companies influence their choice of collaboration model, which in turn affects their achieved results (Corvello et al., 2021; Gutmann et al., 2019). When the distance (Prashantham, 2021) or diversity (Jackson & Richter, 2017; Park & Bae, 2018) between start-ups and large companies increases, there is greater customization of the collaboration model, which leads to positive impacts on innovation outcomes.

5.4.2. Large corporation organizational arrangements

Corporate-level arrangements also have a mediating effect. Hence, the analyzed studies highlight how large companies must change their internal structure and functioning for partnerships to be successful. The presence of start-up advocates, relation managers (Kanbach & Stubner, 2016; Rosenkopf & Padula, 2008), or specialized start-up units (Basu et al., 2011; Wouters et al., 2018) in large companies has an impact on innovation outcomes. Early involvement in the process of line units such as purchasing, research and development, and legal affairs facilitates both the acquisition of new technology and product innovation (Basu et al., 2011; Prexl et al., 2018; Shankar & Shepherd, 2019). The level of resources invested and the commitment of top management are cited by several articles as critical success factors (Blanka & Traunmüller, 2020; De Groot & Backmann, 2020; Stern et al., 2014). Other studies highlight the importance of corporate employee training (Enkel & Sagemester, 2020b; Mahmoud-Jouini et al., 2018; Prexl et al., 2018). Finally, their distance from their start-ups of interest pushes large companies to create organizational outposts that, in turn, favor the positive results of such collaboration (Prashantham, 2021), especially product innovation, by realizing effective line interactions (Decreton et al., 2021; Steiber, 2020).

5.4.3. Partnership structure

Furthermore, the breadth, depth, and diversity of the network involved is a relevant factor in determining the outcomes of collaboration programs (Kupp et al., 2017; Rosenkopf & Padula, 2008; Wadhwa et al., 2016). In accelerators, intermediaries can make the scouting phases more efficient by achieving economies of scale while increasing effectiveness via their extensive network of partners (both on the start-up and large company side) (Moschner et al., 2017; Boni & Joseph, 2019). Venture capitalists can also act as intermediaries; when they do, they are able to protect start-ups from aggressive interlocutors (Park & Bae, 2018). They can also reduce the frictions deriving from the disparities between partners (Hernández-Chea et al., 2021; Rodríguez Ferrada et al., 2020; Schepis, 2020).

5.4.4. Collaboration process

As noted previously, the collaboration process can demonstrate variations with a significant impact on its outcomes. The breadth of initial research by large companies is one of the characteristics of the collaboration process that has a significant impact on their performance, particularly product innovation (Kanbach & Stubner, 2016; De Groot & Backmann, 2020).

There is a rather broad debate on the role that the acquisition of equity should play in collaboration between large companies and start-ups (Gianfrate & Zazzanetti, 2008; Weiblen & Chesbrough, 2015). The acquisition of equity by the start-up is considered useful in exploratory collaboration to maintain the “right to play” (Kanbach & Stubner, 2016; Weiblen & Chesbrough, 2015). The possibility of obtaining financing is of interest to many start-ups (e.g., Huang & Madhavan, 2020). However, the use of equity is not viewed positively by all authors. For example, Polidoro and Yang (2021) argue that investments by large companies tend to orient start-ups toward their own technological areas of interest, limiting the start-ups’ exploratory efforts.

Regarding the mediating role of this category of variables, the collaboration style of a corporation (facilitating rather than directive) plays a mediating role between the context of a start-up (evolved vs. less developed start-up ecosystems) and the innovation performance of the corporation (Prashantham, 2021). Programs that involve the purchase of solutions offered by start-ups have a positive effect on the innovation of corporate products, although only for mature start-ups (Homfeldt et al., 2017; Wouters et al., 2018; Onetti, 2021).

6. Discussion and conclusion

This study introduces a comprehensive integrative framework that

synthesizes the key determinants of collaboration between start-ups and large companies. This framework consolidates the prominent antecedents, configurations, and outcomes of such collaborations identified in previous research. By summarizing these factors, our framework serves as a valuable tool for comprehending and analyzing the dynamics of start-up and large company collaboration.

Regarding the antecedents of collaboration between start-ups and large companies, our findings align with the literature, emphasizing the importance of leveraging complementary resources and capabilities through collaboration (Dyer & Singh, 1998; Mesquita et al., 2017; Salvato et al., 2017). The divergent characteristics of firm size, organizational culture, and other factors render start-ups and large companies ideal partners in accessing untapped resources and capitalizing on synergies (Prashantham & Kumar, 2011; Allmendinger & Berger, 2020; Minshall et al., 2010).

In terms of configuration, the framework underscores the significance of the structure and process of collaboration between large companies and start-ups. Prior studies have highlighted the establishment of a well-defined structure and effective communication channels between these two entities (Kanbach & Stubner, 2016; Kurjuweit & Wagner, 2020a, 2020b; Shankar & Shepherd, 2019). This finding aligns with research that recognizes the challenges associated with interorganizational collaboration (Gulati, Wohlgezogen, & Zhelyazkov, 2012; Oliveira & Lumineau, 2019). The broader literature on cooperation also suggests the relevance of informal relationships or a combination of formal and informal structures (Poppo & Zenger, 2002; Ryall & Sampson, 2009). Hence, our results indicate the relevance of informal relationships (Prashantham & Kumar, 2011; Stern et al., 2014), which remain relatively understudied in the context of collaboration between large companies and start-ups; moreover, the impact of blending formal and informal relationships remains largely unexplored.

Regarding outcomes, our framework particularly emphasizes the role of collaboration as a driver of innovation. The literature supports this notion, indicating that collaboration between start-ups and large companies not only facilitates their exchange of resources and capabilities, thus enhancing their market power and market access (e.g., Bouncken et al., 2014; Bouncken et al., 2022; Faria et al., 2010; Freire & Gonçalves, 2022; Frydinger et al., 2019), but also fosters the development of knowledge-sharing routines (Dyer & Singh, 1998; Salvato et al., 2017). Such knowledge sharing and its associated (un)learning processes play a crucial role in driving innovation, particularly for firms facing limitations in internal resources and knowledge (Camiñon-Zornoza et al., 2004). Innovation, then, emerges as a key outcome of collaboration for both start-ups and large companies (e.g., Hagedoorn & Wang, 2012; Hutter et al., 2020; Rothaermel, 2001a, 2001b).

In summary, the integrative framework offers a visual representation of the antecedents, configurations, and outcomes of collaboration between start-ups and large companies. The insights presented in Fig. 2 align with the literature cited in the theoretical section, underscoring the manifold significance of collaboration between start-ups and large companies. This work highlights the key role of formal and informal relationships in such partnerships and the collaboration potential for accessing untapped resources and for innovating; however, it identifies fundamental gaps in terms of the individual and organizational factors, the types of innovation pursuits, and the consequences of failures that impact partnership dynamics and performance.

6.1. Directions for future research

The results of our study highlight opportunities for future research in three areas: 1) underlying theories, 2) aspects investigated, and 3) research method.

From the point of view of the underlying theories, it has been noted that the studies examined earlier typically lack a solid theoretical foundation; they frequently rely on concepts derived from exploratory studies, speculative reasoning, or researchers’ personal experiences.

Consequently, these studies tend to lack depth and face challenges in achieving an organic framework. As a result, their field of investigation offers fragmented, overlapping, and occasionally ambiguous findings.

Several theoretical approaches hold promise for developing a comprehensive theory of collaboration between large companies and start-ups. For instance, the theory of dynamic capabilities, which frequently is employed in examinations of innovation processes (Danneels, 2002), has been utilized to explore ambidexterity as a dynamic capability (O'Reilly & Tushman, 2008), whereby the partnerships between large companies and start-ups are considered a means to foster ambidexterity (Hutter et al., 2020; Steiber et al., 2020). The resource-based view (Eisenhardt & Schoonhoven, 1996; Peng, 2001) and transaction cost theory (Oxley, 1997) have also been widely employed in alliance studies, and their explanatory power is expected to extend to the realm of corporate/start-up collaborations.

This field of investigation presents an opportune context for integrating entrepreneurship theories with innovation management theories. The literature on start-ups frequently underscores the professionalization of entrepreneurs (Noguti et al., 2021), whereas innovation management encourages additional entrepreneurial behaviors in management (Hutter et al., 2020). Thus, by combining the theoretical tools from these two disciplinary areas, a deeper understanding of the phenomenon can be achieved.

The application of organizational culture theories (Schein & Schein, 2019) can be highly valuable, particularly since one of the explicit objectives of collaborating with new businesses is to drive cultural change within large companies (Rigtering & Behrens, 2021; Steiber, 2020; Urbaniec & Żur, 2020). However, in the examined studies, the cultural aspect is predominantly addressed at the national or industry level (Lechevalier et al., 2014).

Institutional theory is another approach to consider. By analyzing “the interaction between actions, meanings, and actors” through which institutions emerge (Tiberius et al., 2020; Zilber, 2002), institutional theory is able to explain change in organizational and interorganizational contexts. In this sense, it is believed to be able to explain the evolution of innovation processes generated by the collaboration between large companies and start-ups.

Surprisingly, network theory has been largely overlooked in analyses of the focal problem. The network-based approach is commonly applied in studies on alliances and interorganizational collaboration (Baum et al., 2000) and could shed new light on various aspects related to collaboration between large companies and start-ups, such as the effectiveness of scouting activities by large companies or the likelihood of successful deal making.

Given the multilevel nature of collaboration with start-ups, encompassing the individual, group, organizational, and network levels (Douglas et al., 2020), the individual level notably has received relatively limited attention. A comprehensive investigation in this regard could benefit from theories on individual motivation (Stewart et al., 1999).

From the point of view of content, most of the examined works exhibit a predominantly positive perspective of collaboration between large companies and start-ups (e.g., Bereczki, 2019; Park & Bae, 2018; Urbaniec & Żur, 2020). However, certain works acknowledge the potential for joint activities to yield negative outcomes for either of their partners. For instance, collaboration with large companies may compel start-ups to curtail their exploratory efforts, thereby undermining their capacity for innovation (Polidoro & Yang, 2021). Alternatively, collaboration can result in resource depletion for the larger enterprise (Kurpjuweit & Wagner, 2020a). By exploring the dark side of collaboration between large companies and start-ups, a deeper understanding can be attained.

Discrepancies have also emerged between the anticipated outcomes of the collaboration process and the empirical evidence. The first discrepancy pertains to the type of innovation generated. Numerous articles suggest that collaborating with start-ups offers a pathway for

large companies to engage in radical change and disruptive innovation (e.g., Rothaermel, 2001b; Steiber, 2020), whereas other relevant studies indicate that the most successful results in such partnerships emerge in relation to incremental or complementary innovations (Hagedoorn & Wang, 2012; Rothaermel, 2001a, 2001b). To challenge preconceived notions on this subject, future research should systematically examine the outcomes of collaboration between large companies and start-ups in relation to various types of innovation (e.g., radical vs. incremental and systemic vs. autonomous).

Moreover, the integration phase is generally critical, but it has received limited attention in research (Kurpjuweit & Wagner, 2020a; 2020b). When considering start-ups, the research on the organizational changes required for collaboration with large companies is virtually nonexistent, representing an intriguing area for further investigation.

Research findings regarding the factors that enhance partner compatibility also remain ambiguous: some authors argue that partnerships between complementary firms yield superior outcomes (Rothaermel, 2001a; 2001b), whereas others contend that firm similarity between them is necessary for profitable collaboration (De Groot & Backmann, 2020; Kim et al., 2019; Shankar & Shepherd, 2019).

As mentioned previously, variables influencing collaboration between large companies and start-ups can be identified across various levels: individual, group, organizational, and environmental. Most studies concentrate on the organizational level; fewer examine environmental variables. However, the individual (De Groot & Backmann, 2020) and group levels remain largely unexplored. The role of individual traits, motivations, and skills of entrepreneurs and employees in collaboration processes warrants comprehensive analysis.

In addition, further reflection is needed on the role of capital acquisition by large companies in start-ups. Acquiring capital can enhance trust, incentivize start-ups, and alleviate their financial challenges, particularly in sectors characterized by extended development cycles where returns on investments require unrealistic timelines for new ventures (Park & Bae, 2018). Conversely, capital acquisition can restrict the freedom and exploratory potential of start-ups (Polidoro & Yang, 2021). The dynamics associated with capital acquisition in collaborative relationships therefore necessitate further investigation.

From the point of view of the method, it is observed that many studies are concentrated in Western countries, especially the United States and Germany. There are few studies comparing different countries. Therefore, studies conducted by international teams are needed to consider the variations between countries.

Furthermore, there are few longitudinal studies. In a phenomenon such as the collaboration between start-ups and large companies, the development of processes over time plays a fundamental role. For this reason, longitudinal studies—both qualitative and quantitative—are an interesting area of future research development.

Finally, systematic comparisons between different sectors are lacking in the studies analyzed. It is probable that the phenomenon in question occurs differently in service companies than in manufacturing ones. Studies that consider this aspect could help advance our knowledge.

6.2. Limitations

Akin to any research, our study has several limitations. First, to ensure the quality of our sources, we have focused solely on journal articles published in refereed journals. However, by excluding other sources such as conference proceedings, books, and working papers, we might have neglected valuable information. Nonetheless, we have analyzed a considerable number of articles (N = 103), arguably providing a rather comprehensive understanding of the topic. Furthermore, in defining the scope of our investigation, we excluded certain search terms that could potentially lead to relevant studies. For instance, we excluded literature on mergers and acquisitions, as the nature of the relationship between the parties in these cases is no longer collaborative.

However, notably, this literature may contain studies that could contribute to the subject matter in this review.

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