

Startup engagement: a strategy framework for established companies

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Abstract

Purpose – Established companies often engage with startups as a way to improve their innovation performance. While there has been extensive discussion on the reasons, modes, and expected outcomes of these initiatives, there is still a need to understand more about how corporate engagements with startups (CEwS) evolve and how they can enhance a company's innovation capability. This study proposes a framework of engagement strategies, discussing their purposes and implications to understand the subject better.

Design/methodology/approach – This study involved managers from twelve large, established companies across various sectors. The authors used a multicase approach to analyze their experiences and offer a framework for corporate-startup engagement.

Findings – The framework for corporate-startup engagement consists of four main strategies: (1) innovative improvement, (2) R&D expansion, (3) more value to corporate venture capital and (4) ecosystem articulation. The authors found that ecosystem articulation, which combines the potentials of the other three strategies, is the most sophisticated approach.

Originality/value – This study offers a systematic view of the CEwS phenomenon, identifying the various modes of engagement, the reasons for adopting each one and potential ways to advance and improve them. For managers, the study reveals the CEwS as a lever to build innovation capabilities over time.

Keywords Corporate engagements with startups, Open innovation, Innovation management

Paper type Research paper

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Erratum: It has come to the attention of the publisher that the article, Bagno, R.B., O'Connor, G.C., Salerno, M.S. and de Melo, J.C.F. (2023), "Startup engagement: a strategy framework for established companies", *Innovation & Management Review*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/INMR-07-2022-0093>, was published without including the article's associate editor, Leonardo Gomes. This error was introduced in the production process and has now been corrected in the online version. The publisher sincerely apologises for this error and for any inconvenience caused.



1. Introduction

Corporate engagements with startups (CEwS) is the practice of established companies connecting and working with startups to improve innovation performance. Corporations engage with startups to develop new products, explore market opportunities or share technology and talent to solve business challenges (Kohler, 2016). For a startup, a large corporation can be an essential partner to assess its product–market fit, scale operations, support distribution, enhance options for fundraising or even attract more credibility to the nascent business, leaning on a well-established brand (Corvello, Steiber, & Alänge, 2021; Kohler, 2016; Simon, Harms, & Schiele, 2019).

These partnerships have grown dramatically in recent years (Freytag, 2019; Innovation Leader, 2021). Following this tendency, scholarly interest in this topic has also grown (Enkel & Sagmeister, 2020; Gonthier & Chirita, 2019; Kötting, 2019; Kruff & Kock, 2019; Kurjuweit, Wagner, & Choi, 2021; Onetti, 2021; Prashantham & Kumar, 2019; Steiber & Alänge, 2020; Wikhamn & Styhre, 2019).

Previous studies on startup engagement have mainly focused on certain aspects, such as describing the processes and modes of engagement (Kohler, 2016; Kruff & Kock, 2019; Weiblen & Chesbrough, 2015), how to choose partners (Allmendinger & Berger, 2020; Freytag, 2019; Prashantham & Birkinshaw, 2008) or the ways to succeed in a particular mode of engagement (Gonthier & Chirita, 2019; Kötting, 2019; Shankar & Shepherd, 2018). Additionally, most of these studies have focused on technology-based companies (such as digital companies) rather than a more generalizable industry base. Even though the relationship between startups and the corporations is crucially important, there is a gap in how corporate entities strategize to achieve growth and renewal through their relationships with startups over time. Examining only one form of engagement or a single industry does not provide a complete understanding of the effort that established organizations put into engaging with startups. Companies may adopt multiple forms of engagement, and these initiatives evolve dynamically from one experience to another, along with other internal innovation efforts.

In a recent study, Prashantham (2021) dealt with the debate of startup partnering strategies. However, the research focuses on global strategies followed by multinational corporations to engage with startups, taking coordination efforts and search costs as central variables of interest to design distinct strategies for each global region. Our study offers a conceptual framework of the possible strategies underpinning CEwS, exploring their different purposes and implications for the companies. To do so, we developed a multicase approach based on the experience of managers from twelve large established companies of several sectors.

2. Open innovation: from single inbound projects to ecosystems approach

Open innovation (OI)'s main idea is that partnerships with other companies, research institutes, customers and suppliers can boost a company's innovation process (Brunswick & Chesbrough, 2018; Chesbrough, 2019; Melo, Salerno, Freitas, Bagno, & Brasil, 2021). Firms look for OI to improve their innovation capability (Enkel & Sagmeister, 2020; Mortara & Minshall, 2011), which requires management skills to cope with different networks to fit different purposes (Huizingh, 2011). In this journey, companies should increase the number of partners and the depth of each relationship (Brunswick & Chesbrough, 2018; Hsieh & Tidd, 2012; Huizingh, 2011).

Since Chesbrough's seminal work on the subject (Chesbrough, 2003), the practice of OI has been evolving. Initially, it involved mainly inbound product development projects of large manufacturing companies. However, it has expanded to include a broader set of partners and network configurations. Various researchers have highlighted the subject, including Alam, Rooney, and Taylor (2022), Chesbrough (2017, 2019), Huizingh (2011), Mortara and Minshall (2011) and Nambisan and Sawhney (2011). Chesbrough (2017, p. 35) states that "the future of

open innovation is more extensive, more collaborative, and more engaged with a wider variety of participants.” Therefore, companies need to “engage deeply and extensively with external knowledge networks and communities” (Chesbrough, 2019, p. 40).

Recently, the field of OI has expanded to include the concept of ecosystems. Pustovrh *et al.* (2020) associate the OI paradigm with the development of entrepreneurial ecosystems, focusing on the role of accelerators, which have become integral actors in these environments (Veit, Kramer, Kanbach, & Stubner, 2021). Fasnacht (2018) considers OI to be an iterative model that can create an ecosystem, while Costa and Matias (2020) affirm that OI can boost innovation ecosystems.

The term “ecosystem” has been used in a number of fields, such as in innovation and management studies coupled with many complements, such as business, entrepreneurial, ecosystem of partners and others. However, in this study, we define an innovation ecosystem as a collaborative environment where interconnected but interdependent actors, such as the focal firm, customers, suppliers, startups and other organizations work together to create value. Startups, established companies, investors and academic institutions play a vital role (Adner, 2017; Amann, Granström, Frishammar, & Elfsberg, 2022). Therefore, collaborative arrangements emerge among participants to aid value creation for each stakeholder (Adner, 2006; Gomes, Facin, Salerno, & Ikenami, 2018; Granstrand & Holgersson, 2019).

Indeed, as technology evolves, complementary technologies have required that organizations engage in many relationships, such as customers, suppliers and other partners (e.g. Chesbrough *et al.*, 2014; Rohrbeck, Hölzle, & Gemünden, 2009; Wikhamn & Styhre, 2019). The consequence for the focal firm is that managing OI activities has grown increasingly complex. Thus, in the era of OI, established companies face numerous challenges to perform effectively. Amann *et al.* (2022) have identified two challenges: the Not-Invented-Here and Not-Sold-Here problems. These problems are associated with negative attitudes towards absorbing external knowledge or sharing internal knowledge externally. As a result, OI initiatives become “innovation theatres” rather than effective engines of renewal. On the other hand, Rigtering and Behrens (2021) have highlighted various factors that can hinder renewal through innovating with partners. These factors include structural barriers (rigid processes, organizational complexity, hierarchy); cultural barriers (risk aversion, lack of entrepreneurial culture); and small, nonmature or centralized innovation department.

Considering the above context, redefining the governance models, program operations and mechanisms to select and attract new actors when it comes to OI strategies within firms becomes imperative. In such a scenario, a focal company plays a crucial role in building new cooperative relationships among the ecosystem’s participants and expanding its role. In turn, it facilitates the dynamics of interactions (Jiang, Hu, & Wang, 2019).

3. Corporate engagements with startups (CEwS)

CEwS is a form of OI where established large companies collaborate with startups to enhance their innovation performance. These corporations engage with startups to create new products, explore market opportunities or exchange technology and talent to tackle business challenges. Companies may use CEwS strategies to become more entrepreneurial or to reinvigorate their organizational culture and working practices (Rigtering & Behrens, 2021). Collaborating with a corporation can be highly beneficial for startups. This partnership can help the startup to test its product–market fit, scale up operations, support distribution, enhance options for fundraising and even attract more credibility to the nascent business by relying on the reputation of a well-established brand. According to Corvello *et al.* (2021), Kohler (2016) and Simon *et al.* (2019), such collaborations can be highly advantageous for startups. Furthermore, Alänge *et al.* (2022) state that governments acknowledge the

importance of collaborations between large companies and startups for it helps startups grow and established companies revitalize themselves. It also promotes job creation and the development of innovative ecosystems.

The importance of partnerships between startups and large companies has increased significantly in the OI field. This increase is due primarily to the recent advancements in digital technologies, which have impacted almost all business fields (Enkel & Sagmeister, 2020; Prashantham & Kumar, 2019; Steiber & Alänge, 2020). These partnerships offer a growing opportunity to gain a competitive edge in science-intense fields such as biotech and materials science, which are collectively known as deep techs. Thus, CEWS has become increasingly important in many industries where startups can be a valuable source of technology (Bagno, Salerno, Souza Junior, & O'Connor, 2020; Portincaso *et al.*, 2019; Schuh, Studerus, & Rohmann, 2022).

There are many ways for a company to engage with startups, and no single method can cover all possibilities. This wide range of options makes researching this field challenging (Kruft & Kock, 2019). Collaboration models are often seen as discrete solutions, as Corvello *et al.* (2021) noted, but no “best” model for engaging with startups exists. Instead, companies need to choose a model that aligns with their characteristics and goals (Onetti, 2021; Weiblen & Chesbrough, 2015). Nonetheless, some of the most popular forms of engagement include corporate venture capital (CVC) investments, corporate incubators, corporate acceleration programs, innovation bootcamps, entrepreneurs’ sponsorships, direct cooperation with startups, corporate hackathons, startup-as-supplier initiatives, among many others (Kohler, 2016; Kurpjuweit *et al.*, 2021).

Scholars have proposed several different typologies from this growing list to frame how large corporations and startups engage with each other (e.g. Kruft & Kock, 2019; Onetti, 2021; Shankar & Shepherd, 2018). These frameworks generally rely on dimensions such as the objectives for engagement, paths to meet the desired results, the involvement of equity, localization of the initiative’s head office (internal to the company’s site or offsite) or the level of commitment between partners. Weiblen and Chesbrough’s (2015) typology is the most well-cited of these. It unfolds along with two primary dimensions: equity involvement (present or absent) and the innovation flow (outside-in or inside-out). Thus, four different engagement modes emerge: (1) corporate venturing, which mainly involves CVC, (2) corporate incubation or inside-out programs, which provide internal innovation teams with a startup-like environment to develop their businesses, (3) outside-in, where companies open a problem to the assessment of and propositions from external startups, and (4) platform, or inside-outs, where startups create new products and services over a company’s product/technology platform. In his research, Prashantham (2021) argues that there is a Silicon Valley-centered perspective on startup partnerships, which is limiting. Exploring variables such as institutional strength, sectors or entrepreneurial dynamics in different contexts could add new insights to the understanding of companies’ CEWS strategies.

4. Research method

For this research, multiple case studies were chosen as the methodological strategy. This required a purposive sampling approach instead of random sampling method, which is typical for deductive studies. Similar to other studies in the CEWS field, such as Corvello *et al.* (2021) and Rigtering and Behrens (2021), the multiple case approach was adopted for several reasons (1) to increase the external validity of the findings, (2) to mitigate observer bias, (3) to obtain enough variation which leads to greater generalizability of results and (4) to increase the likelihood of identifying different engagement strategies by observing the phenomenon in distinct industries.

As a part of our research, we selected cases that could help us create a better theory-building by studying similarities and differences (Eisenhardt, 1989, 2021). To be considered,

the organization had to be a large and established company that had implemented at least one identifiable CEwS initiative. Our study used inductive logic, which means that a single case cannot provide a complete understanding of the phenomenon. Instead, we identified patterns within and across cases to develop a more comprehensive understanding. Therefore, theory-building comes from (1) categorizing data collected in each case to enable comparisons and (2) identifying convergences, divergences or complementarities among cases (Eisenhardt, 2021; Eisenhardt & Graebner, 2007). To guide our data collection, we reviewed existing theories not to generate potential testable explanations of the phenomenon but to provide appropriate starting points for our research.

As we mentioned earlier, the industrial sector is a significant element of analysis. We contacted managers from companies trying to reach enough diversity in industrial sectors to gain better insights into the contingencies that potentially emerge from the technology/knowledge basis and industry dynamics. To capture a range of experiences, we included companies from different sectors, including base industry, manufacturing-intensive, science-intensive, information processing and business services. For this purpose, we used the lenses of Pavitt's (1984) sectoral taxonomy and classic concepts of production systems.

However, we also selected three cases from the same industry (steel) to gain insights into differences in the CEwS approach in contexts that were supposed to be more similar. At last, twelve companies participated in the research. We assigned fictitious names to the cases that refer to their sectors of activity. Table 1 summarizes the main characteristics of the companies and their CEwS initiatives. A more detailed table about the cases is available in Supplementary Material.

Regarding the interviews, we mainly contacted CEwS program manager or former manager if their experience was still recent (two years or newer). However, we also spoke with managers from third parties, such as innovation intermediaries like consulting companies, who led CEwS implementations on the company's behalf. Before each interview, we examined the company's data from public sources to understand its general trajectory and innovation initiatives. We also reviewed the CEwS manager's professional profile on social networks like LinkedIn. As a result, we synthesized the preliminary information into a document that summed up 7k words.

We conducted the interviews on a semi-structured protocol according to the following groups of questions: (1) The history of the initiative, including when it began, the motivations behind it, and how it was initially structured; (2) any changes in the objectives and purposes for engaging with startups; (3) the process/methods by which the startups were identified and selected, and for how long the subsequent collaborations were instituted and managed; (4) internal organization for engaging with startups: people, structure, support and resources; (5) the main challenges and results so far; and finally, (6) perspectives for the future. The interviews lasted between one and two hours. All of them were recorded and totalized 15.5h.

Following the interviews, we analyzed each case's data considering the protocol building blocks. We created a table with columns representing each data category to ensure we covered all topics with each case. This step allowed us to identify gaps in the topics covered and look for answers. Then, we compared topic areas across all the cases.

Through cross-case comparisons, we were able to gain valuable insights. For instance, we observed that different companies had varied objectives in their engagement programs, which impacted the nature of the collaborations. This scenario allowed us to analyze data and refine our understanding of each case. To ensure the accuracy of our interpretations, we sent each interviewee the individual case narrative of their managed CEwS initiative, along with the previous versions of Figure 1 that contained anonymized cases (except their own). We also briefly explained the framework and encouraged the interviewees to share the material with others on the CEwS program team to gain new perspectives. In addition to the secondary data we have collected, this material sharing helped us to improve triangulation. We then

| Id | Sector | The company and CEwS initiative | Main interviewee |
|-----------|-------------------------------------|---|---------------------|
| Steel.gl | Steel | The Brazilian subsidiary of a large industrial conglomerate of steel companies. Although a well-established R&D structure exists globally, the studied unit pioneers the experience with CEwS. The initiative was one year old and, till then, had involved about 20 OI projects (with startups and other partners) | Third-party |
| Teleco | Telecommunications | The Brazilian subsidiary of a global telecommunications company. The CEwS initiative was one year old and, till then, had involved about 30 innovation projects, including startups and other partners (e.g. universities) | Third-party |
| Log | Railway logistics | A spin-out of logistics operations from a 70-year-old mining company in Brazil. The CEwS initiative was two years old and ran about 15 startup projects inside the CEwS initiative, but other areas engaged with startups directly when needed | CEwS Manager |
| Steel.br | Steel | A large Brazilian-based global steel company intensely involved in digital transformation efforts. The CEwS initiative was 1,5-year-old and, on average, engaged with four startups per open challenge | Third-Party |
| Infonews | Press | One of the largest communication groups in Brazil, it is about 90 years old and entered the digital world about 25 years ago. The CEwS initiative was 2,5 years old and had eight incubated startups | Third-Party |
| Bank | Banking | A prominent Brazilian financial company, more than 70 years old. Engagements with startups had been done for at least six years. Many innovation sub-initiatives were conducted in parallel, but the acceleration workforce had ten startups, and the Venture Capital one had three at the time of the study | Former CEwS Manager |
| Steel.us | Steel | US-based steel company firmly committed to digital transformation and environmental sustainability topics. The CEwS initiative was three years old and had ten projects running with startups | CEwS Manager |
| Congoods | Consumer goods | A century-old industrial conglomerate with a global R&D structure. The CEwS initiative was 1,5-year-old and ran 70 projects worldwide, distributed in 10 different platforms (e.g. analytics, machine learning, process automation, IT Systems) | CEwS Manager |
| Buildmats | Construction materials | Century-old North American company of construction materials and related businesses. The CEwS initiative was three years old and ran in one of the company's research labs. It engaged with about ten startups per year | CEwS Manager |
| Elect | Origins in electrical equip. sector | Originally from the electric devices sector, it is a global industrial conglomerate comprising business units in many industries. It has well-established R&D and technology centers worldwide. The CEwS initiative studied was a 6-year-old corporate-level CVC (extended) arm in the US, having engaged with more than 100 new ventures in various modalities | Former CEwS Manager |

*(continued)***Table 1.**
The cases

| Id | Sector | The company and CEwS initiative | Main interviewee |
|--------|----------------------------------|---|---------------------|
| Autom | Automation and equip. management | A global centenary company of automation. The CEwS initiative, based in the US, was one year old and counted on six startups, including internal ventures. Other 3 to 5 startups were about to come in from a partnership with a local external incubator | CEwS Manager |
| Pharma | Pharmaceutical | A global large independent Pharma company. It is about 40 years old, and the CEwS initiative was six years old, based in the US. At least two early-stage ventures ran as residents in an external incubator per year, and the CVC portfolio included more than 15 invested companies | Former CEwS Manager |

Table 1. Source(s): Table by authors

asked each interviewee to review all the information about their case and how we placed it in the figure, sending us back any observations for us to consider.

We sought saturation criteria, but it took work to ensure. Thus, during the validation cycle and even some months after we concluded the formal research project, we shared our results with dozens of scholars and practitioners at academic and business events and through intentional interviews when appropriate. In these opportunities, people involved in CEwS localized their experiences in our framework and shared ideas, reinforcing the consistency and explanation power of the proposed model. After reviewing all the feedback gotten, we finalized our framework.

5. A strategy framework for CEwS

The framework used for comparative analysis of the twelve studied cases is illustrated in [Figure 1](#). The figure highlights three primary startup engagement strategies, which are A – innovative improvement, B – R&D expansion and C – more value to CVC. Each strategy has distinctions regarding companies' connection points, basic assumptions and primary purpose. At the bottom of the figure, strategy D – ecosystem articulation – comes as a combination of the above strategies that has matured over time. Here, the term “strategy” primarily refers to the use of one or a combination of startup engagement modes over time to achieve a specific purpose. Often, this purpose is not identifiable when focusing solely on the engagement modes in isolation or connection practices.

It is important to note that the study found various engagement modes among the cases, and these initiatives evolved dynamically over time. Thus, each case represents the strategy that best aligns with the reported initiative at the time of data collection compared to the other cases, which underscores the inductive nature of the study. The following sections will delve into each strategy and explain how the cases support it.

5.1 The CEwS strategies

5.1.1 A – innovative improvement. The innovative improvement strategy addresses a company's need to adopt a rapidly diffusing general-purpose technology to remain competitive in the current business. Many of these are disruptive technologies that might be locally implemented not to foster broad transformations in the business but to offer distinctive leaps of improvement. The startup community is frequently at the forefront of developing specific technology applications and can help a large company in this journey.

Among our sample companies, the main driver of these CEwS initiatives is the alignment with some elements of the so-called Industry 4.0. This group comprises the cases of steel

| A-Innovative Improvement | B-R&D Expansion | C-More Value to CVC |
|---|---|--|
| <p>Central idea: Adopting general-purpose technology to get leaps of improvement in current operations mainly by framing operational problems and assigning them to startups.</p> <p>Typical points of connection: Process and background functions of the company, who hold the problems to be solved.</p> <p>Examples of engagement modes and practices: startup-as-supplier (venture client), open startup contests, screening-and-matching.</p> <p>Main issues: (i) Engagements highly depend on current procurement structure, tending to apply the same rules of mature suppliers; (ii) the model is best suited for scale-ups, with proven techs; (iii) focusing on old problems and incremental innovation may be a trap, not nurturing other innovations.</p> <p>Representative quote: "We are a Steel company, not Google; we have industrial plants, machinery, hardware. We do not change the business overnight" - Steel.us</p> <p>Support cases: Steel companies involved in startup contests (often supported by third parties and hubs) and screening-and-matching processes to solve process inefficiencies. Log bet on startups open calls to address industry 4.0 demands. Congoods focused CEOs on supply-chain modernization, from which specific challenges were drawn and shared with external hubs and incubators.</p> | <p>Central idea: Attracting startups to boost R&D projects (number/scope) and/or leveraging resources for product/service projects to navigate new markets and business models.</p> <p>Typical points of connection: R&D teams, people assigned to new service development, and business renewal.</p> <p>Examples of engagement modes and practices: A variety of possibilities emerges since it is adaptable to both early stage and mature startups. Corporate acceleration, open and collaborative projects were the main observed. Promising ventures may be considered to further investments or acquisitions.</p> <p>Main issues: Typical field of OI with Universities, but startups may be an alternative way to access academic tech. Since new tech, products or services are developed more collaboratively, IP, company's brand or connecting startup with clients and suppliers may represent risk points.</p> <p>Representative quote: "things tend to be very structured, too formal. We need to be more organic so that the desired interactions can occur more often, more horizontal, including more people" - Buildmats</p> <p>Support cases: Pharma invested continuously in acceleration hubs, sponsoring startups in line with its interests. Buildmats invested on accelerations and selected projects (or subprojects) to conduct openly. Telecto and Infonews expanded their portfolios by developing new products and services with startups' complementary technologies.</p> | <p>Central idea: Extend and reinforce the companies' CVCs by bringing internal BU resources (physical assets, business expertise...) to enrich the startup approach.</p> <p>Typical points of connection: Financial people, new business development. BU's managers get involved later.</p> <p>Examples of engagement modes and practices: The model runs under technical and business people from within the company.</p> <p>Main issues: The system is tuned to engage with mature startups, starved for larger capital amounts to propel a validated business model. The initiatives run from the corporate level and networking with other levels of the company, although necessary for this strategy, is the main challenge.</p> <p>Representative quotes: "we tried everything to innovate, but with no relevant results, now let's turn to the startups" - Automy; "the biggest challenge is to put innovation and the startup opportunities among the priorities of BU managers and get their attention" - Elect</p> <p>Support cases: Autom and Elect maintained regular CVC programs in the corporate level, bringing resources and business expertise (and related people from inside) to lower risks associated with startup investments and raise opportunities.</p> |
| <p>INTEGRATION</p> | | |
| <p>D-Ecosystem Articulation</p> | | |
| <p>Central idea: Establishing an environment of shared value creation together with a variety of startups and other partners, from which many stakeholders can benefit and develop opportunities in complex networks with or without participation of the articulating company. A core assumption is that a company's competitiveness and the healthiness of the communities around it are mutually dependent.</p> <p>Typical points of connection: many points of connection emerges since this strategy may combine other abovementioned ones. In our study, Bank developed a separated structure to host many sub-initiatives, although it also served to establish connectors with internal functions too.</p> <p>Examples of engagement modes and practices: Instead of cases that demonstrated to run different modes with weak connection among them and throughout the company, here many engagement modes complement each other in an integrative way and under the same broad governance. Open innovation efforts tend to occur under more complex, horizontal, and fluid connections.</p> <p>Main issues: This strategy requires consolidated experience with other strategies and a stronger open innovation capability, tenured along the years. Information-processing companies are in privileged position to go for it. It is not mandatory for all companies and a company might connect to other's ecosystems with no prejudice to its own predominant startup engagement strategy.</p> <p>Representative quote: "The final intent is making benefits and opportunities freely available in the ecosystem, which become fertile ground for high-value innovations for many networked partners." - Bank</p> <p>Support cases: Bank articulated a strong ecosystem, after an 8-year path coming from the R&D Expansion strategy and gradually adding new competencies and structures to deal with venture capital, open startup challenges, and a variety of other engagement modes. These initiatives run under the same governance, actions are highly interconnected, and interactions and outcomes often exceed the scope of the single firm.</p> | | |

Source(s): Figure by authors

Figure 1. A strategy framework for corporate engagements with startups

companies, Log and Congoods. The focus of the innovation projects, out of which the startup partnering responds for some, is on process innovation and operational efficiencies. As the interviewee of Steel.us once said, “Hey, we are a Steel company, not Google; we have industrial plants, machinery, hardware. We cannot change the business overnight.” In such a context, even though digital technologies like artificial intelligence and the Internet of Things are central to those interests, Steel.gl also engaged with deep tech startups.

The most common way of engaging with startups here is through the startup-as-supplier mode (Kurpjuweit *et al.*, 2021). It means that companies can use their existing procurement structure to work with startups. Companies seek support when they identify specific pain points and inefficiencies within the organization. By mapping out these challenges, companies can better understand where they most need to be helped and how startups can provide solutions.

Finding the proper startup requires broad communication with the startup community or performing a screening-and-matching process that actively scans the community in search of the startups best suited to solve each problem. Due to these reasons, this strategy privileges “mature” startups—or scale-ups. According to Log’s manager, “there are too high expectations about the startups, but when we look carefully, it is hard to find those that could offer both fast response and reliable solutions to test in our real operations.”

When a startup engages with a company through an innovative improvement strategy, it works closely with process and manufacturing teams, as well as other background functions of the company. This collaborative effort is crucial to progress with the proposed solutions and move towards the phase of pilot tests and proofs-of-concept.

5.1.2 B – R&D expansion. This strategy aims to improve the R&D performance of companies regarding the number of innovations, the scope of innovation projects and the expansion of the product or service portfolio. It enables firms to explore new markets and business models using their existing resources. In this sample, Pharma, Buildmats (R&D-Intensive companies), Infonews and Teleco (information-processing companies) form this group.

Finding and selecting the right startups primarily lies with R&D teams, people who work on new service development and business renewal. These teams are also the main points of contacts for advancing startup engagements. Several modes of engagement are applied, with corporate acceleration being one of the most popular options, which can be with or without equity (Kohler, 2016). Initially, Pharma tends to refrain from collaborating with startups on innovation projects due to the confidential nature of R&D information in this sector. However, an initial engagement with a startup could lead to a further investment or acquisition. On the other hand, Buildmats takes a different approach by selecting some R&D opportunities as open projects. Startups can then contribute modularly in an environment of resource sharing, such as tech labs. This approach may eventually involve Buildmats’ clients or key suppliers. However, “things tend to be too structured and formal in this process. We need to have a more organic and horizontal approach to encourage more interactions involving a larger group of people” (Buildmats interviewee). In both cases, the most sought startups are those that specialize in deep techs associated with the company’s knowledge base, which often require a long development cycle.

Teleco and Infonews, in this group, are information-processing companies that do not have R&D departments in the same sense that the previous cases mentioned. Despite this, these companies have a high level of modularity of their resource base and lower asset dependency, which makes them very prone to attaching startups’ complementary solutions and technologies (mostly Digitechs) to their current value propositions and service portfolios.

5.1.3 C – more value to corporate venture capital. The strategy here is to enhance the startup-engagement approach by expanding the arms of companies’ CVC. It involves combining various company’s resources, including physical assets and industry-specific

knowledge. Thus, CVC programs are still the primary means of searching for and connecting with startups. Elect and Autom are the companies that comprise this group. They have experienced business analysts on board who merge their skills with continuous efforts to provide operational and technical expertise. It helps engage business units downstream and collaborate with invested startups.

Companies often use this strategy to navigate uncertain domains where new technologies could disrupt existing markets or create entirely new ones. Additionally, this is used to motivate business units to focus on longer-term goals instead of becoming too fixated on short-term successes and minor improvements. As an Autom manager once said: “People from within tried everything to innovate, achieving no relevant results; now let’s turn out to the startups.” An interviewee at Elect also noted that “The biggest challenge is to put innovation and startup opportunities among the priorities of BU managers and get their attention.”

Startups aiming to comply with these initiatives often seek more than just funding and general advice. The real value lies in commercial, industrial and scaling expertise that larger companies can provide. While it is possible to work with early stage ventures, as seen with Autom, the focus should be on collaborating with mature startups that require significant capital to advance a proven business model.

5.1.4 D – ecosystem articulation. The ecosystem articulation strategy aims to create a collaborative environment with various startups and other partners where all parties can benefit and identify opportunities within complex networks—even if the orchestrating company is not directly involved in the process. The approach combines various engagement modes found in other strategies. The central assumption is that a company’s competitiveness is linked to the well-being of the surrounding community. Therefore, the focus shifts from managing innovation uncertainties at the firm level to addressing collective uncertainties faced by loosely coupled partners in ecosystems. In our sample, only the Bank case was seen to be distinctly following this strategy.

The CEwS initiative observed in Bank has gone through various stages of evolution. Initially, the company focused on closed innovation to boost its innovation portfolio. Eventually, startup engagement was added to the mix. Over the span of eight years, an R&D expansion strategy evolved with the addition of new competencies and structures to deal with venture capital, open startup challenges and various other engagement modes. What sets this case apart from others is its distinctiveness in terms of central points: (1) In some instances, multiple modes of engagement may be present, such as CVC and acceleration as observed in Congoods and Pharma, or startup-as-supplier and acceleration in Steel.br. On the other hand, in Bank, all activities fall under the same structure, with highly interconnected actions and (2) interactions and outcomes of these engagements extend beyond the scope of the single company, leading to complex collaborative arrangements among multiple entities that arise in the context of innovation projects.

As per the Bank’s interviewee, there are frequent direct interactions and innovation projects taking place among the Bank’s ecosystem partners, including corporate clients, startups, suppliers and others. These interactions occur with or without the Bank’s participation: “The final intent is to provide benefits and opportunities to all partners in the ecosystem, which can lead to high-value innovations for all networked partners.”

5.2 Discussion: articulating the strategies for CEwS

There is a growing interest in categorizing the relationships between established companies and startups. However, most studies only provide a descriptive analysis of the programs at an operational level. Furthermore, these studies are often limited to the experience of digital-born companies or just focus on one engagement mode in isolation. This approach fails to

consider the bigger picture of a company's overall approach to innovation, where CEwS plays a significant role. Based on our field research, we have observed that companies tend to engage with startups in multiple ways, and these initiatives evolve dynamically from one experience to another along with other innovation efforts. However, the systemic understanding of this phenomenon is often hindered. Our analysis of the research data and theoretical review suggest that each strategy adopted for engaging with startups has implications for several elements in both extra and intrafirm dimensions.

Observing the cases considering the framework shown in [Figure 1](#), we cannot point to a best CEwS strategy that every organization should pursue. Each company follows the strategy and engagement modes that best fit its needs, context and purpose. That said, discussing the implications of adopting specific strategies is essential.

Engaging with startups through innovative improvement can be very exciting. It all begins through consolidated processes for supplier integration. A company can decrease risks by utilizing operational deficiencies as a platform for startups' contribution. However, it is essential for the company to rely on something other than new technology for operational excellence as this may lead to missing out on the full potential of startup partnering and fall into an exploitation trap.

A crucial point concerns the way CEwS are integrated and managed in organizations. In particular, the CEwS initiatives most associated with the more value to CVC strategy took place at the corporate level (Autom, Elect) and presented networking within the company as one of the most complex challenges to overcome to interact with startups effectively. Initiatives like Congoods, Steel.br, Buildmats or Pharma have failed to integrate well with other innovation-related initiatives within the company. This lack of integration decreases the potential gains from expertise accumulation, resource sharing and the combination of different approaches, in line with [Enkel and Sagmeister \(2020\)](#). In general, problems of internal resistance to the new partnerships, mindset conflicts, inadequate organizational processes and lack of incentives for those who work with innovation were often reported during the interviews. Challenges in driving an R&D expansion strategy were also reported. Teleco's interviewee illustrates this: "I spend about 50% of my time trying to convince other parts of the organization about the initiative."

By turn, ecosystem articulation is the most sophisticated strategy that combines practices of other ones. [Steiber and Alänge \(2020\)](#) suggest that a company may need to implement a range of different startup collaboration initiatives to achieve and manage a holistic transformation of its business. [Enkel and Sagmeister \(2020\)](#) suggest that various forms of engagement may work together to improve capability development. It is aligned with the trend in OI to shift from bilateral to multiactor and from transactional to collaborative partnerships ([Brunswick & Chesbrough, 2018](#)).

Selecting the right startups is crucial to advancing CEwS efforts in a company, regardless of the strategy pursued. This task requires skilled personnel but can also be aided by an intermediary ([Corvello et al., 2021](#)). In addition to finding the right technology, the maturity of the startups also plays a role. Startups with market-ready technologies tend to prefer looser agreements while early-stage startups may seek closer collaborations, such as joint R&D projects or accelerator programs ([Corvello et al., 2021](#); [Simon et al., 2019](#)). In line with [Corvello et al. \(2021\)](#), structured processes led to successful startup-engagement cases. Only partnerships formed to achieve a specific objective showed regularity involving long-term interactions between the partners.

In engaging with startups organizations face challenges related to processes and management that have been identified by [Bagno et al. \(2020\)](#). For example, the CEwS initiative is often assigned to a skilled champion without setting up other internal elements. However, in our study, we have identified dedicated teams responsible for innovation activities (the so-called Innovation Function - [Bagno, Salerno, & Dias, 2017](#); [O'Connor,](#)

Corbett, & Peters, 2018), including CEwS as an essential part of it. These teams, whether as just starting or well-established, played a vital role in making connections between the CEwS initiative and the organization. They were responsible for designing processes, conducting internal connections and mediating conflicts instead of relying on a single champion.

At the ecosystem level of analysis, these organizational concerns tend to find even broader implications. Some companies established dedicated units such as hubs to connect with startups regularly and intentionally in this context. As part of the emerging assignments of these units, the configuration of ecosystem partnerships, value proposition deployment and governing ecosystem alignment are central. These are among the topics of a rapidly growing literature on ecosystem orchestration (e.g. Gomes *et al.*, 2022; Linde, Sjödin, Parida, & Wincent, 2021; Toigo, Wegner, Silva, & Zarpelon, 2021). These are promising new lands for getting rich perspectives for CEwS and systematic innovation studies.

6. Conclusion

This study has presented a conceptual framework that explores the possible strategies of CEwS, and the different purposes and implications for companies. We have investigated several cases of CEwS and their underlying management. Through engaging at the detailed level of qualitative, in-depth interview data and analysis, we gained insights into those partnership arrangements and their role within the broader innovation goals of these companies. It has become almost obligatory for companies to engage with startups to leverage innovation performance and reach digital transformation outcomes. However, it should be noted that startup engagement should only be a part of a company's overall innovation strategy, not the entirety of it. During our research, we could observe many companies that have attempted to adopt startup engagement practices without integrating them into their broader innovation efforts. However, those companies who looked for CEwS to supplement their internal innovation initiatives with startup engagements were the most successful.

As the main contributions, we provide a comprehensive understanding of the CEwS phenomenon through a systematic view. Our proposed framework for CEwS aims to bridge a significant gap by identifying the engagement strategies, the possible starting points and the paths to progress. This framework elucidates the hows and whys of CEwS, enabling a better understanding of the phenomenon and its potential for growth. As Alam *et al.* (2022) pointed out, "Open innovation is not an end state but a journey in which innovating firms orchestrate the crystallization of an ecosystem." For managers, the study serves as a map to understand the CEwS possibilities, the cautions when adopting certain forms of engagement and the most prominent practices.

Future research should focus on longitudinal cases to further enrich the ongoing debate on CEwS. This action will provide valuable insights into how to overcome implementation challenges and how one strategy can evolve into another. It would also be beneficial to gather the perspective of startups as there is a gap in our understanding of their objectives, processes and outcomes from corporate collaboration (Corvello *et al.*, 2021; Simon *et al.*, 2019). Additionally, taking an ecosystem perspective could offer a promising standpoint for investigating how companies can attract and orchestrate the contribution of diverse partners for value creation.

References

- Adner, R. (2006). Match your innovation strategy to your innovation ecosystem. *Harvard Business Review*, 84(4), 98.
- Adner, R. (2017). Ecosystem as structure: An actionable construct for strategy. *Journal of Management*, 43(1), 39–58. doi: [10.1177/0149206316678451](https://doi.org/10.1177/0149206316678451).

- Alam, M. A., Rooney, D., & Taylor, M. (2022). From ego-systems to open innovation ecosystems: A process model of inter-firm openness. *Journal of Product Innovation Management*, 39(2), 177–201. doi: [10.1111/jpim.12615](https://doi.org/10.1111/jpim.12615).
- Alänge, S., Steiber, A., & Corvello, V. (2022). Evaluating corporate-startup collaboration: A government perspective. *Evaluation and Program Planning*, 95, 102176. doi: [10.1016/j.evalprogplan.2022.102176](https://doi.org/10.1016/j.evalprogplan.2022.102176).
- Allmendinger, M. P., & Berger, E. S. C. (2020). Selecting corporate firms for collaborative innovation: Entrepreneurial decision making in asymmetric partnerships. *International Journal of Innovation Management*, 24(1), 2050003. doi: [10.1142/S1363919620500036](https://doi.org/10.1142/S1363919620500036).
- Amann, M., Granström, G., Frishammar, J., & Elfsberg, J. (2022). Mitigating not-invented-here and not-sold-here problems: The role of corporate innovation hubs. *Technovation*, 111, 102377. doi: [10.1016/j.technovation.2021.102377](https://doi.org/10.1016/j.technovation.2021.102377).
- Bagno, R. B., Salerno, M. S., & Dias, A. V. C. (2017). Innovation as a new organizational function: Evidence and characterization from large industrial companies in Brazil. *Production*, 27(0). doi: [10.1590/0103-6513.207316](https://doi.org/10.1590/0103-6513.207316).
- Bagno, R. B., Salerno, M. S., Souza Junior, W. C., & O'Connor, G. C. (2020). Corporate engagements with startups: Antecedents, models, and open questions for innovation management. *Product: Management and Development*, 18(1), 39–52. doi: [10.4322/pmd.2019.019](https://doi.org/10.4322/pmd.2019.019).
- Brunswick, S., & Chesbrough, H. (2018). The adoption of open innovation in large firms. *Research-Technology Management*, 61(1), 35–45. doi: [10.1080/08956308.2018.1399022](https://doi.org/10.1080/08956308.2018.1399022).
- Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Boston, MA: Harvard Business School Press.
- Chesbrough, H. (2017). The future of open innovation. *Research-Technology Management*, 60(1), 35–38. doi: [10.1080/08956308.2017.1255054](https://doi.org/10.1080/08956308.2017.1255054).
- Chesbrough, H. (2019). *Open innovation results: Going beyond the hype and getting down to business*. Oxford: Oxford University Press.
- Chesbrough, H., Kim, S., & Agogino, A. (2014). Chez Panisse: Building an open innovation ecosystem. *California Management Review*, 56(4), 144–171. doi: [10.1525/cm.2014.56.4.144](https://doi.org/10.1525/cm.2014.56.4.144).
- Corvello, V., Steiber, A., & Alänge, S. (2021). Antecedents, processes and outcomes of collaboration between corporates and start-ups. *Review of Managerial Science*, 17, 1–26. doi: [10.1007/s11846-021-00510-8](https://doi.org/10.1007/s11846-021-00510-8).
- Costa, J., & Matias, J. C. (2020). Open innovation 4.0 as an enhancer of sustainable innovation ecosystems. *Sustainability*, 12(19), 8112. doi: [10.3390/su12198112](https://doi.org/10.3390/su12198112).
- Eisenhardt, K. M. (1989). Building theories from case-study research. *Academy of Management Review*, 14(4), 532–550. doi: [10.5465/amr.1989.4308385](https://doi.org/10.5465/amr.1989.4308385).
- Eisenhardt, K. M. (2021). What is the Eisenhardt method, really?. *Strategic Organization*, 19(1), 147–160. doi: [10.1177/1476127020982866](https://doi.org/10.1177/1476127020982866).
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25–32. doi: [10.5465/amj.2007.24160888](https://doi.org/10.5465/amj.2007.24160888).
- Enkel, E., & Sagmeister, V. (2020). External corporate venturing modes as new way to develop dynamic capabilities. *Technovation*, 96, 102128. doi: [10.1016/j.technovation.2020.102128](https://doi.org/10.1016/j.technovation.2020.102128).
- Fasnacht, D. (2018). Open innovation ecosystems. In *Open Innovation Ecosystems* (pp. 131–172). Springer.
- Freytag, R. (2019). Strategic negotiations: Three essentials for successful partnerships with startups. *Strategy and Leadership*, 47(1), 19–25. doi: [10.1108/sl-11-2018-0115](https://doi.org/10.1108/sl-11-2018-0115).
- Gomes, L. A. V., Facin, A. L. F., Salerno, M. S., & Ikenami, R. K. (2018). Unpacking the innovation ecosystem construct: Evolution, gaps and trends. *Technological Forecasting and Social Change*, 136, 30–48. doi: [10.1016/j.techfore.2016.11.009](https://doi.org/10.1016/j.techfore.2016.11.009).

- Gomes, L. A. V., Facin, A. L. F., Leal, L. F., Zancul, E. S., Salerno, M. S., & Borini, F. M. (2022). The emergence of the ecosystem management function in B2B firms. *Industrial Marketing Management*, 102, 465–487. doi: [10.1016/j.indmarman.2021.12.015](https://doi.org/10.1016/j.indmarman.2021.12.015).
- Gonthier, J., & Chirita, G. M. (2019). The role of corporate incubators as invigorators of innovation capabilities in parent companies. *Journal of Innovation and Entrepreneurship*, 8(1), 8. doi: [10.1186/s13731-019-0104-0](https://doi.org/10.1186/s13731-019-0104-0).
- Granstrand, O., & Holgersson, M. (2019). Innovation ecosystems: A conceptual review and a new definition. *Technovation*, 90-91, 102098. doi: [10.1016/j.technovation.2019.102098](https://doi.org/10.1016/j.technovation.2019.102098).
- Hsieh, K.-N., & Tidd, J. (2012). Open versus closed new service development: The influences of project novelty. *Technovation*, 32(11), 600–608. doi: [10.1016/j.technovation.2012.07.002](https://doi.org/10.1016/j.technovation.2012.07.002).
- Huizingh, E. K. (2011). Open innovation: State of the art and future perspectives. *Technovation*, 31(1), 2–9. doi: [10.1016/j.technovation.2010.10.002](https://doi.org/10.1016/j.technovation.2010.10.002).
- Innovation Leader (2021). *The changing landscape of corporate-startup engagement (report excerpt)*. I. Leader, Available from: <https://ilp.mit.edu/sites/default/files/public-surveys/Corporate-Startup-Engagement-Excerpt-Q3-2021.pdf> (accessed 10 June 2022).
- Jiang, S., Hu, Y., & Wang, Z. (2019). Core firm based view on the mechanism of constructing an enterprise innovation ecosystem: A case study of Haier group. *Sustainability*, 11(11), 3108. doi: [10.3390/su11113108](https://doi.org/10.3390/su11113108).
- Kohler, T. (2016). Corporate accelerators: Building bridges between corporations and startups. *Business Horizons*, 59(3), 347–357. doi: [10.1016/j.bushor.2016.01.008](https://doi.org/10.1016/j.bushor.2016.01.008).
- Kötting, M. (2019). Corporate incubators as knowledge brokers between business units and ventures. *European Journal of Innovation Management*, 23(3), 474–499. doi: [10.1108/EJIM-12-2017-0201](https://doi.org/10.1108/EJIM-12-2017-0201).
- Kruft, T., & Kock, A. (2019). Towards a comprehensive categorization of corporate incubators: Evidence from cluster analysis. *International Journal of Innovation Management*, 23(8), 1940002. doi: [10.1142/S1363919619400024](https://doi.org/10.1142/S1363919619400024).
- Kurjuweit, S., Wagner, S. M., & Choi, T. Y. (2021). Selecting startups as suppliers: A typology of supplier selection archetypes. *Journal of Supply Chain Management*, 57(3), 25–49. doi: [10.1111/jscm.12230](https://doi.org/10.1111/jscm.12230).
- Linde, L., Sjödin, D., Parida, V., & Wincent, J. (2021). Dynamic capabilities for ecosystem orchestration A capability-based framework for smart city innovation initiatives. *Technological Forecasting and Social Change*, 166, 120614. doi: [10.1016/j.techfore.2021.120614](https://doi.org/10.1016/j.techfore.2021.120614).
- Melo, J. C. F., Salerno, M. S., Freitas, J. S., Bagno, R. B., & Brasil, V.C. (2021). Reprint of: From open innovation projects to open innovation project management capabilities: A process-based approach. *International Journal of Project Management*, 39(2), 170-182. doi: [10.1016/j.ijproman.2021.01.003](https://doi.org/10.1016/j.ijproman.2021.01.003).
- Mortara, L., & Minshall, T. (2011). How do large multinational companies implement open innovation?. *Technovation*, 31(10-11), 586–597. doi: [10.1016/j.technovation.2011.05.002](https://doi.org/10.1016/j.technovation.2011.05.002).
- Nambisan, S., & Sawhney, M. (2011). Orchestration processes in network-centric innovation: Evidence from the field. *Academy of Management Perspectives*, 25(3), 40–57. doi: [10.5465/amp.25.3.zo140](https://doi.org/10.5465/amp.25.3.zo140).
- O'Connor, G. C., Corbett, A. C., & Peters, L. S. (2018). *Beyond the champion: Institutionalizing innovation through people*. Stanford, CA: Stanford University Press.
- Onetti, A. (2021). Turning open innovation into practice: Trends in European corporates. *Journal of Business Strategy*, 42(1), 51–58. doi: [10.1108/JBS-07-2019-0138](https://doi.org/10.1108/JBS-07-2019-0138).
- Pavitt, K. (1984). Sectoral patterns of technical change: Towards a taxonomy and a theory. *Research Policy*, 13(6), 343–373. doi: [10.1016/0048-7333\(84\)90018-0](https://doi.org/10.1016/0048-7333(84)90018-0).
- Portincaso, M., Tour, A. D. L., & Soussan, P. (2019). The dawn of the deep tech ecosystem. Available from: <https://www.bcg.com/publications/2019/dawn-deep-tech-ecosystem.aspx> (accessed 02 April 2019).

- Prashantham, S. (2021). Partnering with startups globally: Distinct strategies for different locations. *California Management Review*, 63(4), 123–145. doi: [10.1177/00081256211022743](https://doi.org/10.1177/00081256211022743).
- Prashantham, S., & Birkinshaw, J. (2008). Dancing with gorillas: How small companies can partner effectively with MNCs. *California Management Review*, 51(1), 6–23. doi: [10.2307/41166466](https://doi.org/10.2307/41166466).
- Prashantham, S., & Kumar, K. (2019). Engaging with startups: MNC perspectives. *IIMB Management Review*, 31(4), 407–417. doi: [10.1016/j.iimb.2019.01.003](https://doi.org/10.1016/j.iimb.2019.01.003).
- Pustovrh, A., Rangus, K., & Drnovšek, M. (2020). The role of open innovation in developing an entrepreneurial support ecosystem. *Technological Forecasting and Social Change*, 152, 119892. doi: [10.1016/j.techfore.2019.119892](https://doi.org/10.1016/j.techfore.2019.119892).
- Rigtering, J. C., & Behrens, M. A. (2021). The effect of corporate—start-up collaborations on corporate entrepreneurship. *Review of Managerial Science*, 15(8), 2427–2454. doi: [10.1007/s11846-021-00443-2](https://doi.org/10.1007/s11846-021-00443-2).
- Rohrbeck, R., Hölzle, K., & Gemünden, H. G. (2009). Opening up for competitive advantage—How Deutsche Telekom creates an open innovation ecosystem. *R&D Management*, 39(4), 420–430. doi: [10.1111/j.1467-9310.2009.00568.x](https://doi.org/10.1111/j.1467-9310.2009.00568.x).
- Schuh, G., Studer, B., & Rohmann, A. (2022). Description approach for the transfer of competencies and resources in collaborations between corporates and Deep Tech startups. *Journal of Production Systems and Logistics*, 2(7), 1–17. doi:[10.15488/11860](https://doi.org/10.15488/11860).
- Shankar, R. K., & Shepherd, D. A. (2018). Accelerating strategic fit or venture emergence: Different paths adopted by corporate accelerators. *Journal of Business Venturing*, 34(5), 105886. doi: [10.1016/j.jbusvent.2018.06.004](https://doi.org/10.1016/j.jbusvent.2018.06.004).
- Simon, F., Harms, R., & Schiele, H. (2019). Managing corporate-startup relationships: What matters for entrepreneurs?. *International Journal of Entrepreneurial Venturing*, 11(2), 164–186. doi: [10.1504/ijev.2019.098770](https://doi.org/10.1504/ijev.2019.098770).
- Steiber, A., & Alänge, S. (2020). Corporate-startup collaboration: Effects on large firms' business transformation. *European Journal of Innovation Management*, 24(2), 235–257. doi: [10.1108/EJIM-10-2019-0312](https://doi.org/10.1108/EJIM-10-2019-0312).
- Toigo, T., Wegner, D., Silva, S. B. D., & Zarpelon, F. D. M. (2021). Capabilities and skills to orchestrate innovation networks. *Innovation and Management Review*, 18(2), 129–144. doi: [10.1108/immr-10-2019-0126](https://doi.org/10.1108/immr-10-2019-0126).
- Veit, P., Kramer, A., Kanbach, D., & Stubner, S. (2021). Revising the taxonomy of corporate accelerators: Moving towards an evolutionary perspective. *International Journal of Entrepreneurial Venturing*, 13(6), 568–599. doi: [10.1504/ijev.2021.120427](https://doi.org/10.1504/ijev.2021.120427).
- Weiblen, T., & Chesbrough, H. W. (2015). Engaging with startups to enhance corporate innovation. *California Management Review*, 57(2), 66–90. doi: [10.1525/cm.2015.57.2.66](https://doi.org/10.1525/cm.2015.57.2.66).
- Wikhamn, B. R., & Styhre, A. (2019). Corporate hub as a governance structure for coupled open innovation in large firms. *Creativity and Innovation Management*, 28(4), 450–463. doi: [10.1111/caim.12338](https://doi.org/10.1111/caim.12338).

Supplementary material

The supplementary material for this article can be found online.

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