Startup spawning: background and formative processes

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Abstract

Purpose – This study aims to analyze the phenomenon of entrepreneurial spawning in the new context of software startups, revisiting theory and identifying patterns within the emergence of startups/spin-offs in Brazil.

Design/methodology/approach – A study of two cases of startups recognized for generating several spin-offs founded by former employees. The authors based the data collection on the following triangulation: 11 in-depth interviews, systematic analysis of 33 resumes from entrepreneurs in spawned firms and document analysis.

Findings – Six skills developed in startups were identified: (1) structuring a company, (2) people management, (3) strategic/operational planning, (4) commercial/sales, (5) product development, and (6) behavioral traits. In addition, points of contradiction concerning the literature were found, such as the absence of the location effect, different professional experiences and new local agents to support startups.

Research limitations/implications – The present study covers only two cases in the context of software startups, which requires caution and discretion in extrapolating to other contexts.

Practical implications – The understanding of the phenomenon may reflect in: university programs focused on internships in startups, corporate training programs for entrepreneurs and the design of public policies based on entrepreneurial spawning.

Originality/value – The present study stands out for its access to data from high-impact startups in Brazil, in addition to revisiting the literature bringing a new perspective to the specificities of high-growth software companies.

Keywords Startups, Entrepreneurial spawning, Regional development, Entrepreneurship ecosystems

Paper type Research paper

1. Introduction

The development of the literature on entrepreneurial spawning arises from understanding the role of breeding new entrepreneurs for economic growth (Acs, Audretsch, & Lehmann, 2013). Silicon Valley is a corollary example of growth through companies spawning other

new companies. Saxenian (1990) demonstrates how the region's trajectory was built from a complex web of relationships, with the mobility of people between companies a fundamental pillar for constructing this network of customers, partners and suppliers among others. The mobility of people in the Saxenian model, also present in the studies by Hervas-Oliver, Lleo, and Cervello (2017) and Mawdsley and Somaya (2016), implies phenomena such as (1) successful entrepreneurs are investing in new businesses, (2) employees are leaving the companies to set up their own companies and (3) there is a transition of people between companies. Examples of this movement are the companies created by Fairchild semiconductors (nicknamed "Fairchildren"), which represented more than 30% of the semiconductor companies that started Silicon Valley (Garrett, Miao, Qian, & Bae, 2017).

Hence, researchers sought to understand the formative experiences most associated with the subsequent creation of a new business (Elfenbein, Hamilton, & Zenger, 2010; Garret *et al.*, 2017). They also sought to understand the environmental characteristics (of the region or the workplace) which led to a higher volume of spawned companies (Furlan & Cainelli, 2020; Gompers, Lerner, & Scharfstein, 2005; Hervas-Oliver *et al.*, 2017; Pinho & Thompson, 2016; Saxenian, 1990).

Due to the distinct nature of software startups, it is necessary to review the phenomenon in which fundamental studies have focused on nascent companies linked to hardware – such as semiconductors – (Saxenian, 1990; Gompers *et al.*, 2005). Software startups are characterized by their dynamic environment, cloud infrastructure and distributed work, often remote-based (Devadiga, 2017; Gralha, Damian, Wasserman, Goulão, & Araújo, 2018). Such characteristics may imply changes in the analysis variables of the phenomenon, that is, the geographical distance of the spawned firm between suppliers and the headquarters (Gompers *et al.*, 2005).

Complementing the need to review entrepreneurial spawning models, the recent relevance of the current phenomenon in Brazil stands out. The last few years have been marked by startups generating dozens of other spin-offs or spawned firms (Endeavor Brasil, 2020; Wolf & Capelas, 2020), a gap that characterizes a distinct opportunity for research on the subject.

Thus, the present article aims to analyze in depth the phenomenon of Brazilian software startups that generate spin-offs and seeks to analyze the trajectory of founders of spawned firms, the environment of the headquarters and other contextual characteristics, such as previous work experience and location. The authors based the study on the Multiple Case Study method and collected data through in-depth interviews, document analysis and systematic analysis of curricula. Addressing the two gaps presented—entrepreneurial spawning in the context of software startups and the emergence of the phenomenon in Brazil—the results identify patterns in which a previous experience in startups contributed to the entrepreneurial spawning such as (1) a continuous change in the scope of work, (2) proximity to the founding team and its decisions, (3) experience in operations positions, and (4) an environment conducive to entrepreneurship. The study also contributes by presenting unexpected findings, such as a minor role of location and of experiences in commercial/sales positions, two elements regarding entrepreneurial spawning previously defended by several authors (Elfenbein *et al.*, 2010; Gompers *et al.*, 2005; Grichnik, Brinckmann, Singh, & Manigart, 2014; Saxenian, 1990).

2. Theoretical background

To organize the theoretical framework systematically, the authors carried out a bibliographic analysis on the Scopus platform focused on two terms: "entrepreneurial spawning" or "small firm effect." The result generated 117 articles, with only one duplicate article. As finance and investment areas also explore the small firm effect concept, results from this sub-area of knowledge were excluded, thus totaling 32 articles considered for the research. Considering the scarcity of studies in the area – reflected in the scarcity of articles with the specified terms – studies cited within the studies were also considered. After selecting studies

consistent with the proposed theme (for example, the exclusion of studies that analyze the spawning of R&D centers or academic spin-offs), the authors organized the theoretical foundation into two themes: (1) background and factors related to entrepreneurial spawning and (2) the role of the environment in developing entrepreneurial skills.

2.1 Background and factors related to entrepreneurial spawning

According to the current literature, one of the main factors identified for spawning is the small firm effect (Elfenbein *et al.*, 2010; Garret *et al.*, 2017; Gast, Werner, & Kraus, 2017; Kacperczyk & Marx, 2016). According to the authors, as mentioned above, it is argued that smaller companies are more effective in germinating new businesses, with a greater volume of employees who set up their own companies after their experience at the headquarters. In this sense, it is not only the entrepreneurial predisposition of the founder of the spawned firm which plays a role in the impulse to start a business but also the context in which he/she is inserted (Acs *et al.*, 2013; Grichnick *et al.*, 2014).

Concerning previous professional experience, a common factor is the wide range of functions performed at headquarters, given the skills required to start a business, which usually involve being a jack of all trades (Cumming, Walz, & Werth, 2016; Garrett *et al.*, 2017; Gompers *et al.*, 2005; Hyytinen & Maliranta, 2008; Lazear, 2005). Elfenbein *et al.* (2010) and Grichnik *et al.* (2014) also point to the experience in commercial/sales activities in the head office, given the development of skills related to negotiation and persuasion. In addition to specific areas, leadership roles or management positions are highlighted as growth factors for entrepreneurs based on previous professional experiences (Alnahedh & Alsanousi, 2020; Dobrev & Barnett, 2005; Garret *et al.*, 2017; Grichnik *et al.*, 2014).

As for environmental factors that precede germination, Gompers *et al.* (2005), Grichnik *et al.* (2014) and Saxenian (1990) argue that entrepreneurial environments such as Silicon Valley are distinguished by the emergence of a network of suppliers, customers and investors who know how to deal with the context of nascent businesses. These diverse mechanisms, often presented under the term ecosystem, ensure more accessible access to resources and accelerate the development of innovations (Santos, Zen, & Bittencourt, 2021). For Saxenian (1990) and Gompers *et al.* (2005), the role of regional resources is reflected in the proximity between spawned firms and headquarters. Regarding ecosystems, several articles have already been produced showing a positive association between a vibrant local atmosphere – universities, investment mechanisms, and public policies, among others – and the proliferation of new startups. New startups proliferation happens, usually due to the comprehensive access to resources such as talent, venture capital, growing consumer market and knowledge (Audretsch & Fritsch, 1994; Audretsch, Keilbach, & Lehmann, 2006; Garret *et al.*, 2017; Hervas-Oliver *et al.*, 2017; Lougui & Broström, 2021; Saxenian, 1990).

2.2 The role of the environment in the development of entrepreneurial skills

Entrepreneurial environments are also pointed out, in the literature, as participants in specific processes of formation and training for entrepreneurs, not limited to the wide offer of local resources. In particular, a favorable environment has educational institutions and entrepreneurs in the role of mentors who assist new entrepreneurs in their training and skills development (Pittaway & Thorpe, 2012).

As for the role of educational institutions, the literature presents universities as participants in the development of entrepreneurs in startups, offering experiences such as (1) entrepreneurship courses or technology projects (Lockett, Quesada-Pallarès, Williams-Middleton, Padilla-Meléndez, & Jack, 2017; Toutain, Fayolle, Pittaway, & Politis, 2017), (2) leadership of the student organizations that stimulate skills related to business creation – such as junior companies and entrepreneurship leagues (Moraes, Iizuka, Rocha, & Diaféria,

2021; Padilla-Angulo, 2017), (3) development of technical knowledge from extracurricular experiences (Cançado, Reisel, & Walker, 2018), (4) expansion of the worldview through exchange programs (Breznitz & Zhang, 2020; Sandes-Guimaraes, Ribeiro, Axel-Berg, Manços, & Plonski, 2019) and others.

When interacting with entrepreneurs, especially those in startups, interacting with role models is a crucial element in the intention and willingness to start a business, according to the literature (Bosma, Hessels, Schutjens, Van Praag, & Verheul, 2012; Hoffmann, Junge, & Malchow-Møller, 2015; Pittaway & Thorpe, 2012; Zozimo, Jack, & Hamilton, 2017).

Thus, exposure to a vibrant environment, either through direct relationships with entrepreneurs or through training mechanisms that encourage entrepreneurial traits, positively affects self-efficacy, the predisposition to set up a company and the identification of opportunities (Gast *et al.*, 2017; Grichnik *et al.*, 2014).

The authors organized the structure below into constructs based on the bibliographic analysis.

Construct 1. Performing a broad scope of functions in the parent company has a positive effect on the development of entrepreneurs (Garrett *et al.*, 2017; Gompers *et al.*, 2005; Hyytinen & Maliranta, 2008; Lazear, 2005).

Construct 2. Working in commercial/sales activities or areas positively affects the development of entrepreneurs (Elfenbein *et al.*, 2010; Grichnik *et al.*, 2014).

Construct 3. Having work experience in leadership or management positions has a positive effect on the development of entrepreneurs (Dobrev & Barnett, 2005; Garret *et al.*, 2017; Grichnik *et al.*, 2014).

Construct 4. Working in startups exposes people to processes related to the initial stage of setting up a business, which positively affects the development of entrepreneurs (Grichnik *et al.*, 2014).

Construct 5. Being in entrepreneurial environments and being close to entrepreneurs has a positive effect on the development of entrepreneurs, as well as on motivation to set up a company (Gompers *et al.*, 2005; Zozimo *et al.*, 2017).

Construct 6. Working in startups exposes people to a network of suppliers, customers and investors, which has a positive effect on the development of entrepreneurs (Gompers *et al.*, 2005; Grichnik *et al.*, 2014; Saxenian, 1990).

Construct 7. Vibrant local environment has a positive effect both on the development of entrepreneurs and on access to employees and other resources (Audretsch & Fritsch, 1994; Audretsch *et al.*, 2006; Garret *et al.*, 2017; Hervas-Oliver *et al.*, 2017; Saxenian, 1990).

Construct 8. Building startups in regions close to the startups where the current entrepreneur previously worked brings benefits to business performance such as access to suppliers, partners and customers (Gompers *et al.*, 2005; Saxenian, 1990).

3. Methodology
3.1 Multiple cases method
The authors based the present study on the multiple-case studies design method, following Eisenhardt's premises (1989). The study involved the triangulation of three data sources: (1) in-depth interviews, (2) systematic analysis of professional trajectories and (3) analysis of complementary documents/materials about the companies involved. The authors selected

the cases for convenience—the easy access to two startups recognized by many spawned firms. According to Yin (2001), a case study benefits from the privileged position of the researcher when he has access to strategic people in data collection, which is the case in the present study. The first case is a startup with an application in the mobility and payment sector renowned by having dozens of former employees creating more than 20 spawned firms. It also configures itself as a "unicorn" company, whose market value reached one billion dollars (Damasceno *et al.*, 2021). The second case is a software and applications development company focused mainly on the digital retail market, with also a substantial number of former employees who had started their own businesses (more than ten spawned firms).

3.2 Data collection
Since this is a study with data triangulation, the present subsection shows the procedures used for data collection. Figure 1 summarizes the procedures performed to triangulate the results.

The selection of interviewees started with mapping all spawned firms from the two analyzed companies. Since the study focuses on the experience that founders had in the parent companies and the consequent process of creating the company itself, the authors decided to interview only company founders – prioritizing the quality of information to the detriment of the volume of respondents. This way, messages were sent directly to the founders, either through the personal network, calls made by the founders of the parent companies or through cold approaches in professional social networks. The three methods of contact were successful, and, in total, nine founders of spawned firms agreed to participate in the study. In addition to the two interviews with the founders of the two parent companies, the authors conducted eleven semi-structured interviews. Table 1 below presents, in detail, the data from the interviews, which lasted an average of 45 minutes.

The systematic research of professional trajectories used the content analysis of the resumes of entrepreneurs of the spawned firms. The procedures followed coding and code quantification
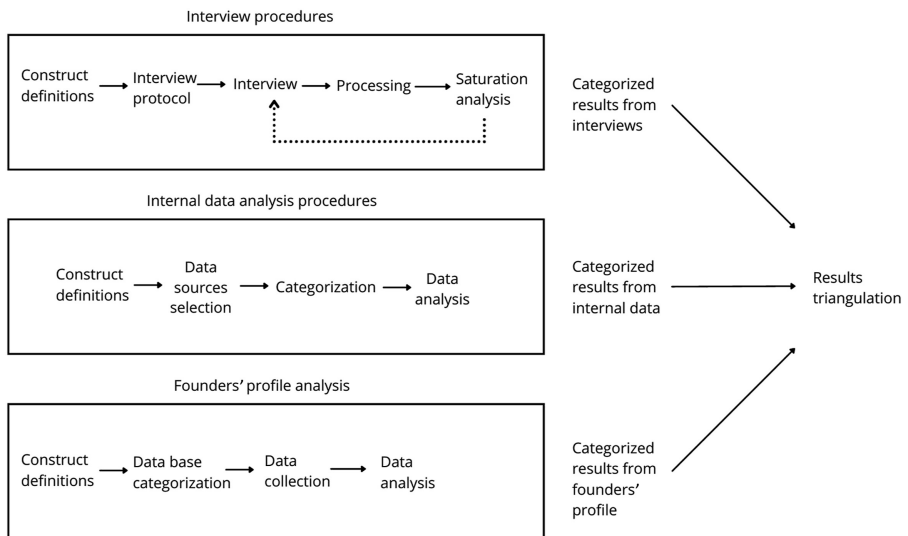
Figure 1.
Methodological procedures performed to triangulate the results

Source(s): The authors

Identification	Initials	Original organization	Size (employees)	Founding year
Interviewee 1	R.F.	Founder – Parent Company 1	2000–3000	2012
Interviewee 2	E.M.	Founder – Parent Company 2	150–200	2011
Interviewee 3	J.P.T	Parent Company 1	10–50	2020
Interviewee 4	F.A.S.	Parent Company 1	10–50	2014
Interviewee 5	P.S.	Parent Company 1	50–100	2018
Interviewee 6	T.W.	Parent Company 1	100–150	2019
Interviewee 7	A.B.A.	Parent Company 1	0–10	2020
Interviewee 8	R.I.G.	Parent Company 2	0–10	2011
Interviewee 9	V.O.	Parent Company 2	10–50	2012
Interviewee 10	L.B.	Parent Company 2	0–10	2019
Interviewee 11	R.T.	Parent Company 2	10–50	2017
Source(s): The authors				

Table 1.
Interview data

steps, as proposed by Bardin in his code frequency deduction method (Bardin, 1977). The authors identified 42 entrepreneurs from the two companies in the study. Authors organized their curricula based on elements of analysis such as previous experiences, time working at the headquarters, university attended (and graduation experiences), the spawned firm's market and the investment raised. The CVs were based on public information available on the LinkedIn and Crunchbase platforms, according to the method proposed by Banerji and Reimer (2019), and were systematically analyzed in search of patterns or relevant information. Coding was based on the analysis of resumes, including professional experiences and other details that appeared more frequently. Of the 42 entrepreneurs, nine results were excluded since their training and professional experience were mainly outside Brazil (mostly people born outside Brazil), with characteristics different from the focus of the present study. Thus, 33 curricula were analyzed, with 15 identified codes presented in Table 2.

Finally, desk research focused on the following:

(1) Internal materials, such as job descriptions;

Identified codes from data analysis	Sample %
Experience in management/leadership positions	79%
The similarity between professional experiences and the current target market	48%
Extracurricular activities during undergraduate years	39%
Experience with finance or financial markets	33%
Junior enterprises during undergraduate years	33%
Executive education or short-term educational programs	30%
Experience in operations positions	27%
Experience in strategy or related positions	24%
International exchange programs during undergraduate years	24%
Second-time founder (or more)	21%
Experience at consultancy companies	18%
Experience in marketing positions	18%
MBA	18%
Master's degree	15%
Experience in sales or similar positions	12%
Source(s): The authors	

Table 2.
Identified experiences
from curricula analysis

(2) A non-governmental organization study on one of the parent companies' founders roles in spawning, and

(3) A book about one of the company's trajectories.

The evidence found was crossed with codes generated both in the interviews and in the systematic analysis of resumes.

3.2.1 Procedures for the reliability of results. To improve the consistency of the present study, we sought to align the procedures with well-established quality expectations in the Social Sciences (Günther, 2006), such as (1) formulation of questions with clarity and alignment to the objective, questions and previously explained literature constructs, (2) explicit rules in methodological procedures and (3) present the results in light of theory, highlighting the contradictions, congruences, interpretation alternatives and theoretical and practical implications.

The first aspect regarding consistency was attention to the theoretical saturation of the in-depth interviews. The eleven interviews were sufficient for data saturation, a number considered adequate according to studies in the area (Guest, Bunce, & Johnson, 2006; Romney, Weller, & Batchelder, 1986). However, the theoretical saturation point may also depend on the authors' judgment (Damasceno *et al.*, 2021). The authors used Fontanella *et al*'s (2011) procedures in the theoretical saturation analysis. After compiling and recording the data, we sought to organize them into themes/codes according to the literature and its constructs. With the code table organized, we allocated the interviews' observations according to their theme. The authors evaluated the volume of aggregated information on each theme by each interview in another table. Thus, as Fontanella *et al.* (2011) pointed out, there is a better identification of the degree of novelty/addition of information brought by each new interview. Through this procedure, as seen in Table 3, it is possible to visualize the moment when theoretical saturation occurred—between the 10th and 11th interviews – in which a good part of the themes no longer presented significant additions of aggregated information.

The second aspect of the quest for study reliability was the decision on data sources and research conduct. The distinct nature of the sources – public nature (systematic trajectory analysis), private nature (documents and company materials) and in-depth data (interviews) – helped to ensure more reliability in the results. Additionally, some interviews had more than one interviewer to avoid individual biases. The results went through rounds of discussions with researchers external to the data collection, as guided by Eisenhardt (1989).

Categories *versus* interviews	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11
Founder's/company background	4	2	1	2	0	0	1	0	1	0	0
Entrepreneurial experiences/previous interest in entrepreneurship	4	3	3	2	2	1	3	1	1	0	0
Work routine at the parent company	3	5	3	1	2	2	0	0	2	1	0
The network developed at the parent company	4	4	2	2	2	1	1	1	0	1	0
Frustrations at the parent company	2	0	1	2	1	0	0	1	1	1	0
Self-efficacy/confidence to create a company and the relationship with parent company founders	5	2	2	1	0	1	0	1	2	2	1
Geographic location relationship between parent and spawned firm	3	1	0	0	1	0	0	1	0	0	0
Founders' motivations for entrepreneurship	2	1	0	0	0	0	0	1	0	0	0
Final sum for saturation	*27*	*18*	*12*	*10*	*8*	*5*	*5*	*6*	*7*	*5*	*1*

Source(s): The authors

Table 3.
Theoretical saturation – new findings according to each interview

4. Results and discussion

4.1 Effects of working in the parent company

The first construct points to the positive relationship between a broad scope of work and the development of entrepreneurs (Garrett *et al.*, 2017; Gompers *et al.*, 2005; Hyytinen & Maliranta, 2008; Lazear, 2005), which the present study confirmed. According to the interviewees, the rapid growth of a *software* startup implies a continuous change of areas assuming different functions and ascending to leadership and management positions. It also confirms the third construct of the present study – the positive relationship between management/leadership positions and entrepreneurs' development (Dobrev & Barnett, 2005; Garret *et al.*, 2017; Grichnik *et al.*, 2014). Answers like *"After the founder, I was the person who changed areas the most in the parent company."*; *"In the parent company, I could never really explain what my scope of work was—it was too broad. Have you identified a big problem in the company? Raise your hand and try to solve it."* These answers were frequent and confirmed the literature. Furthermore, one can understand that, in addition to developing skills related to the areas in which the person worked and leadership traits, such experiences strengthen the construction of a professional network in several areas. It also helps construct trusting relationships with leaders who may join/support the spawned firms – reinforcing the chances of success in a subsequent venture.

The second construct – the positive relationship between commercial/sales areas and the development of entrepreneurs (Elfenbein *et al.*, 2010; Grichnik *et al.*, 2014) – still needs to be confirmed. The authors found little evidence regarding commercial/sales roles in interviews and resume analysis. However, the operations area showed to be prominent. While in only 12% of the CVs, it was possible to identify professional experience in commercial/sales areas, the authors identified professional experience in the operations area in 27% of the CVs. In the in-depth interviews, of the nine interviews with entrepreneurs of spawned firms, seven identified working in operations or similar areas. Interviewees highlighted the role of the operational team in convincing people (users, suppliers, partners, public agents and more) to scale the company with activities such as commercial/sales and the integration of the operations team with marketing, product and strategy. In the documentary analysis, a professional record of one of the first employees in the operations area showed the importance of his role. He was responsible for the national expansion of applications—registering new suppliers, communicating with local authorities and hiring people—which also refers to the broad scope of work. Corroborating the document, one of the founders of the parent company highlighted:

> The operations area was the most important, along with the technology area. It involved proactivity, invention and determination. It was about thinking through the process from beginning to end and making the company grow. The area of operations dictated the pace of growth (of the parent company). (Interviewee R. F.)

The profile associated with "expanding operations" seems to replace commercial traits in the analyzed companies' experience, allowing a review of the current literature. In addition, the authors noticed that such behavioral traits were also present in job advertisements, which may indicate self-selection effects (Elfenbein *et al.*, 2010) – people were hired and promoted for entrepreneurial traits.

Finally, regarding construct 4 – exposure to the initial processes of opening a business and positive association with the development of entrepreneurs (Grichnik *et al.*, 2014) – proximity to the founders proved to be effective as it offers an understanding of priorities and decision-making processes in nascent companies. The authors confirmed the construct through interviews and highlighted the tangibility of the necessary activities for the first days of a company. By carefully observing the founders' actions, respondents realized that "*creating a company was possible and real.*" Table 4 presents the main competencies highlighted during the interviews and their main themes.

Topic	Specific competencies present in interviews
Structuring a company	"Seeing how a company works," "taxes, HR bureaucracies, and company organization," "matrix organizational structures," "knowing how to handle different areas of the organization," "finance," "knowing more about fundraising"
People management	"Interviewing and recruiting interns," "teamwork and management skills," "people management," "training people for scaling the company," "clarity in communication," "leadership," "culture building," "HR"
Strategic and operational planning	"Creating a business plan," "strategic vision – from strategy to tactics," "project management," "business vision and company management," "workload and task planning," "analytical skills for prioritization"
Commercial/sales	"Commercial," "Knowing how to handle customer meetings," "Negotiation," "Expectations management and customer negotiation"
Product development	"Conducting a UX research and ideation work," "product development"
Behavioral traits	"Ownership," "urgency," "proactivity," "dynamism and adaptation" "resilience"
Source(s): The authors	

Table 4.
Findings on
competency topics

4.2 The role of the environment in which the spawned firms were inserted
In dialog with construct 4, construct 5 deals with the positive effect of entrepreneurial environments/people on personal development and motivation (Gompers *et al.*, 2005; Zozimo *et al.*, 2017). In addition to understanding the activities and processes (construct 4), interviewees indicated that having proximity to the founders – which occurred in formal and informal environments (gym, nightlife and studies) – was fundamental to the desire to create a company, which is also present in the arguments of Zozimo *et al.* (2017). According to interviews, at least six people from the group of founders of spawned firms would not have created a company if they had not worked in a startup after a corporate career, reinforcing the effect of proximity to the founders on self-efficacy.

Regarding entrepreneurial environments, the authors noticed that universities with entrepreneurial environments helped to "*keep the flame burning*" of students with a previous interest in entrepreneurship. Here, it highlighted universities' role in offering motivating experiences, specific mentoring and networking opportunities with other people with similar motivations, while also offering support through coworking spaces and entrepreneurship societies. The availability of resources within the university also confirms Construct 7, which argues that a vibrant environment helps in the development of entrepreneurs and access to resources (Audretsch & Fritsch, 1994; Audretsch *et al.*, 2006; Garret *et al.*, 2017; Hervas-Oliver *et al.*, 2017; Saxenian, 1990). According to the results, in addition to the university's resources, it was possible to perceive regional effects through the availability of coworking spaces, investment funds and even basic transportation and food infrastructure.

Construct 6 – the positive relationship between the development of entrepreneurs and the connection with a network of suppliers, customers and investors when working in a startup (Gompers *et al.*, 2005; Grichnik *et al.*, 2014; Saxenian, 1990) – could also be confirmed. Thus, it is worth highlighting the role of the parent companies in direct support of the spawned firms. The interviews showed the parent company, or its founders, acting directly as an investor, mentor, customer referral and even customer (as is the example of a spawned firm that had the parent company as a significant customer for about two years). As the two cases analyzed stand out for their distinct financial success, future studies may focus on analyzing relationships between the financial success of the parent company and the spawning of new startups. The probable reasons for these relationships are: (1) the company's financial success may reflect on the financial success of employees who had stock options (as was the case of some of the spawned firms analyzed), (2) the financial success of the parent company's

founders may awaken the ambition of employees who closely followed their trajectory and (3) the company's financial success may reflect in the financial support for the spawned firms (such as the angel investment of the parent company's founders).

Finally, still within construct 6, the authors noticed the use of similar suppliers by spawned firms. However, unlike what is found in the literature and discussed in construct 8 – regional proximity between the parent company and spawned firm did not facilitated access to suppliers, partners and customers (Gompers *et al.*, 2005; Saxenian, 1990). According to the interviews, most of the sectoral networks developed by the spawned firms took place digitally/remotely. It is clear here that remote contracting service is a phenomenon of software startups, something to be updated in the literature and verified regarding the medium and long-term impacts. In this case, it is worth reflecting on future studies concerning the impact of a new remote reality on the effects of geographic location and regional policies – highlighting that entrepreneurs created the spawned firms of this study, for the most part, before the pandemic generated by the Coronavirus.

5. Conclusions
From the present study, one can draw several conclusions. The first is that working in startups is beneficial training for those who want to create a company, as mentioned by Elfenbein *et al.* (2010) and Garret *et al.* (2017). That is due to the following factors: (1) the company accelerated growth allows employees to perform several different functions and have opportunities to assume leadership/management positions, (2) knowledge of processes and priorities in a startup's initial stage and the market or sector dynamics, (3) proximity to the founders removes myths associated with particular characteristics of entrepreneurs and (4) access to a network of startup-friendly partners, from suppliers to investors. When analyzing the skills for entrepreneurship developed when working in software startups, the six identified clusters below seem to be catalyzed by the intensity of living in a dynamic and rapidly growing environment. The clusters identified are (1) company structuring, (2) managing people, (3) strategic planning, (4) working in commercial/sales areas, (5) product development and (6) behavioral traits.

The authors also concluded that the local environment matters concerning the strength of available resources, such as people/universities, coworking, investment funds and transport infrastructure. However, proximity to suppliers/customers/partners, unlike during the Silicon Valley emergency, was not found. Finally, startup spawning can often be, as were the two cases analyzed, the result of the financial success of the parent companies, which generate both ambition/inspiration and access to financial resources of their own or those of the founders. Table 5 summarizes the study's main conclusions regarding the bibliographic analysis.

Three managerial implications stand out: (1) universities that seek to train more entrepreneurs can design internship programs in startups, complementing their academic training with the practical experiences highlighted in this study; of the nine spawned firms where the authors conducted the interviews, four of their founders started their careers at the parent company as interns, (2) companies interested in training entrepreneurs internally (whether to generate spin-offs or for innovation areas) can organize internal training programs whose practices involve job rotation, leadership experiences, proximity to entrepreneurial environments and even periods of part-time work in partner startups and (3) policymakers can, when designing policies for entrepreneurship, create incentive policies such as more flexible employment contracts, training/matchmaking platforms, and specific spaces to support startups, such as coworking and startup programs. It is worth emphasizing that the results of the present study, although guaranteeing more excellent reliability, present the limitation of being a study with only two cases in the context of software startups. Thus, extrapolations to other contexts may demand new studies and reflections on applicability.

Literature/construct	Findings
C1: Wide scope of roles in the parent company	Consistent. A broad scope of roles resulted from the startup's fast growth and a culture of autonomy and job rotation at the parent company
C2: Working in commercial/sales activities	Revision. Working in commercial/sales activities or areas was not especially present at interviews, although similar activities were present when working in operations areas
C3: Work experience in leadership or management positions	Consistent. Most of the interviewed founders had previous experiences in management or leadership
C4: Exposition and familiarity to processes related to the initial stage of business creation	Advancement. Beyond familiarity with the initial stages, the authors found that the connection with founders fostered behavioral traits, resilience, and passion
C5: Entrepreneurial environments and proximity to entrepreneurs	Advancement. Beyond working at startups and venture capital firms, working at financial markets or areas related to finance was consistently present
C6: Exposition to a network of suppliers, customers, and investors	Consistent. The authors found positive impacts on network building and a better understanding of market dynamics at the parent company
C7: Vibrant local environment, with access to talent, knowledge and venture capital	Advancement. Beyond knowledge centers and human/financial resources, specific mechanisms were found, such as coworking spaces and university entrepreneurship societies
C8: Geographic proximity benefiting operations and relationships with suppliers, parent company, partners and customers	Revision. It wasn't found any impact over geographic proximity, mainly due to the nature of software startups – with services and transactions happening mostly remotely

Source(s): The authors

Table 5.
The relationship between findings and the current literature (constructs)

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