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Changing with the time: New ventures' quest for innovation

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ABSTRACT

New ventures are often based on new ideas and innovation. For creating and improving the innovation new ventures can draw on internal and external resources, to which they often have limited access. Our study analyses how new ventures can improve their innovation search by entering collaborative workspaces, so-called co-working spaces. In our qualitative study, we use participative observation and analyze 8 cases of new ventures operating in a coworking-space. Key findings are that forms of innovation search differ with respect to the venture's life cycle. The new ventures search focus alternates between internal and external search, depending on the current stage of the venture. In general, the co-location of ventures in collaborative workspaces offers rich opportunities for social interactions, information exchange, and collaboration which are especially important for early-stage ventures.

Introduction

New ventures are known to suffer from liabilities of newness because they have limited internal resources and no established connections to external actors (Brunswicker & Vanhaverbeke, 2015; Ceci & Iubatti, 2012; Edwards, Delbridge, & Munday, 2005). These limitations affect their search for internal and external knowledge and information, which are essential for innovation (Owen-Smith & Powell, 2004) and build the foundation for new business models (Chesbrough, 2010).

Current literature emphasizes the importance of search in order to be innovative (Cohen & Levinthal, 1990; Katila, 2002; Leiponen & Helfat, 2010). Also suggesting that every additional external link to information sources benefits the potential innovation outcome (Love, Roper, & Vahter, 2014). A broad variety of external information sources increases the likelihood of innovation (Leiponen & Helfat, 2010; Roper, Du, & Love, 2008), by (1) increasing the flow of external knowledge and (2) increasing the chances of complementarities between external and internal knowledge. But there are limits to the usefulness of external knowledge (Katila, 2002; Rosenkopf & Nerkar, 2001). Broad external knowledge search leads to high opportunity costs as it takes away attention and resources from internal matters (Laursen & Salter, 2006). This is especially problematic for new ventures with limited resources. Therefore, extensive amounts of external search might cripple their capacities.

Although facing limitations new ventures are known to be the drivers of innovation and industry change due to their often innovative and creative solutions (Acs & Audretsch, 1987; Kraus, Roig-Tierno, & Bouncken, 2019). The reasons are unique advantages such as high flexibility regarding new usees of existing resources and the lack of limiting structures (Katila & Shane, 2005). The concept of innovation search has so far focused on established companies (Dahlander & Gann, 2010; Lakhani, Jeppesen, Lohse, & Panetta, 2007; Laursen & Salter, 2006) or small and medium-sized enterprises (Vahter, Love, & Roper, 2014), neglecting new ventures. New ventures build on social capital and the exist-

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ing networks of the entrepreneurs (Konsti-Laakso, Pihkala, & Kraus, 2012; Zhang & Li, 2010;).

Our study empirically investigates new ventures dealing with the challenge of generating innovations from a limited resource base. We answer the following research questions: How do new ventures generate innovations using internal and external sources for innovation? What role do coworking spaces play in the process?

We chose the setting of a local coworking-space (CWS) for our study. In CWS entrepreneurs share office spaces with other businesses (Bouncken & Reuschl, 2018; Gandini, 2015). Entrepreneurs can easily build relationships and seek knowledge and information on different topics from various actors (Bouncken & Aslam, 2019). They can further learn from their competition (Bouncken, Laudien, Fredrich, & Görmar, 2018) and become part of the local community (Garrett, Spreitzer, & Bacevice, 2017). We conducted a two-stage qualitative research, starting with two months of participative observation in a local Chinese CWS. During this time we realized that the ventures could be grouped into two distinctive subgroups. We chose four ventures for each group and conducted eight semi-structured interviews. We investigated how the ventures used external and internal resources to generate innovations.

Our results indicate that there are different stages of innovation seeking in new ventures. We find that nascent ventures seek innovation resources through serendipitous connections in an open process. Growing ventures focus on restricted external sources and internal development in organizational evolution. Established ventures gain allocable resources to seek opportunities both internally and externally. The effects of CWS on the ventures' innovation search strategy changes according to the venture's stage. And cover a range from radical to incremental with ambiguous outcomes at the established stage.

Our results add to the literature on innovation seeking (Cohen & Levinthal, 1990; Dahlander, O'Mahony, & Gann, 2016; Katila, 2002; Leiponen & Helfat, 2010), by displaying, that new ventures begin their external search with a broad unstructured approach to innovation search. They look for serendipitous connections and resources, which build the basis for innovation. In the second stage, the focus changes to a deeper search with limited but close external partners. This process opens up after the venture reaches a stage of establishment. We thereby reveal that the search strategy of ventures follows the organizational life cycle (Chandler, 1962). We further find that the co-location of entrepreneurs in collaborative workspaces offers a multitude of connection possibilities which are highly important for early-stage ventures.

Theoretical Background

External Search for Knowledge, Information, and Innovation

The term 'innovation' in entrepreneurial ventures describes a problem-solving activity of ventures in which they solve identified problems through the combination of knowledge elements to create new products, solutions or business models (Katila, 2002). Innovation search can take place in internal sectors (e.g. knowledge created within the venture) and external sectors (e.g. knowledge created by others) (Katila, 2002; Rosenkopf & Nerkar, 2001). The search for knowledge and new ideas within the internal sector is limited and is often less likely to generate new technological solutions (Rosenkopf & Nerkar, 2001; Dearborn & Simon, 1958). Previous research suggests that only exposure to diverse sources of information (e.g., Owen-Smith & Powell, 2004; Powell, Koput, & Smith-Doerr, 1996) provides the required variety of knowledge and ideas needed to create innovation. Solutions and discoveries are usually reached when a unique breadth of knowledge and experience is combined with the ability to draw knowledge from seemingly unrelated areas (Maggitti, Smith, & Katila, 2013).

Innovation search in the external sector has been further differentiated according to the breadth and depth of the search (Katila & Ahuja, 2002; Laursen & Salter, 2006). External search breadth relates to the variety of different knowledge sources outside of the venture. Search depth is related to the intensity with which each source is penetrated (Katila & Ahuja, 2002). Various studies demonstrate that the breadth and depth of external search have positive effects on innovation performance (Foss, Lyngsie, & Zahra, 2013; Rosenkopf & Nerkar, 2001). A broad search for innovation increases the likelihood of a successful payoff given the risk and uncertainty associated with innovation endeavors (Joshi & Anand, 2018; Leiponen & Helfat, 2011). This idea is known as the variance hypothesis. According to Gouldner (1957) individuals who are in contact with a broad external network will gain greater knowledge and excel at taking advantage of it. These individuals benefit from the expertise generated from external ties. Research also highlights that a diverse range of expertise excels the application of solutions from the old to new domains. This enhances the efficiency of the innovation search (Gruber, Harhoff, & Hoisl, 2013; Singh & Fleming, 2010). A broad search approach goes along with access to unique information and knowledge resulting in a broader vision. It can be used for innovation of products, processes and business models (Bouncken, Kraus, & Roig-Tierno, 2019).

A broad external search scope can benefit ventures in three major ways. First, in order to innovate ventures require a huge amount of information. Information regarding other firms' product offerings and innovation activities can make opportunities more visible to new ventures (Ahuja, 2000). Second, a broadened external search scope can enrich a new venture's knowledge pool and provide more choices for the venture. This enables the venture to solve problems in new ways (Katila & Ahuja, 2002). There is a limit to the number of innovations that can be created by using the same set of knowledge elements. Search with a broad scope can increase a venture's innovation scope adding new elements to its knowledge pool. This improves the possibility for the venture to find new useful combinations of elements (Katila & Ahuja, 2002). Third, a broadened external search scope can help new ventures locate external complementary resources and capabilities that are critical for their innovation (Porter, 1998; Wolpert, 2002).

However, external search for knowledge and information does have its limits. It is recognized, that broad and deep external innovation search goes along with opportunity cost as it takes attention away from other activities relevant to the firm (Dahlander et al., 2016). This is especially limiting for new ventures who lack the depth of resources.

Challenges for New Ventures

New ventures have a short history and suffer from liabilities of newness (Mas-Tur & Soriano, 2014; Stinchcomb 1965), such as limited financial, organizational, or human resources (Williams Jr, Manley, Aaron, & Daniel, 2018). Their capacity for internal innovation search is limited and external search becomes more important (Brunswicker & Vanhaverbeke, 2015; Ceci & Iubatti, 2012; Edwards et al., 2005). Prior research suggests, that new ventures can greatly profit from external ties and resources when searching for innovation (Angelsberger, Kraus, Mas-Tur, & Roig-Tierno, 2017; Zhang & Li, 2010; Baker & Nelson, 2005; Starr & Siverson, 1990). Especially ties to established firms, research institutes or universities (Baum, Calabrese, & Silverman, 2000; Shan, Walker, & Kogut, 1994) have positive impacts on their innovations.

Although external ties and knowledge search are important for new ventures, they may face difficulties building up connections with established organizations. The reason lies in their short history, lack of proven performance record, limited financial and human resources, limited legitimacy and status (Stinchcombe, 1965). This often leads to limited trust (Massaro, Moro, Aschauer, & Fink, 2017). They, therefore, tend to have a narrow external search scope because they typically have limited external contacts (Stinchcombe, 1965). These ventures rely upon their immediate and often personal networks for identifying opportunities (Baker & Nelson, 2005; Starr & Siverson, 1990). New ventures can further be handicapped in external innovation search by increasing search costs. Even modest external search can be too costly for ventures in terms of financial and organizational resources as well as time consumption.

While facing many disadvantages new ventures have unique advantages in benefiting from an external innovation search. New ventures do not have existing specialized structures and routines allowing them to use existing resources in new ways (Katila & Shane, 2005). They are therefore often able to integrate and recombine various forms of external knowledge to create innovations, implement them and create new forms of value (Bouncken, Fredrich, & Kraus, 2019).

Method

We applied a two-step qualitative approach for which we selected the setting of a CWS. CWS are specifically designed to cater to the needs of entrepreneurs and new ventures, who are trying to generate innovations (Bouncken & Reuschl, 2018). These hubs also provide technical, financial, and networking services that new ventures usually cannot afford individually (Saxenian, 1990). They further build on a wide network of linkages facilitating the flow of knowledge and information. Thus, entrepreneurial firms located in a CWS provide a unique realm to examine the impact on external innovation search. We selected a single CWS to minimize the influence of distinct contextual factors and focus on the research question.

Research Settings

New ventures need to focus on external knowledge sources and information and need relationships and collaborations. We believe that collaborative workspaces (e.g., accelerators, CWS or innovation hubs) where entrepreneurs share office spaces with other businesses (Gandini, 2015), are a great starting point for our study. Entrepreneurs can easily build relationships and seek knowledge and information on various topics (Bouncken, Laudien, et al., 2018). They can interact and collaborate with external partners and can employ external knowledge and resources and become part of a community (Garrett et al., 2017). Increasing and improving entrepreneurship is a major motivation for users of CWS (Fuzi, 2015).

The location was DeltaHub the biggest innovation hub in China which embraces diverse entrepreneurial ventures rather than focus on one field, DeltaHub is further famous

for its efficient resource integration and influential entrepreneurial activities and events. This environment allows for an active search for external innovation.

Data Collection

We conducted a two-month field study observing how users work in the CWS, participating in their events and workshops, and talking with users. Aiming to describe processes of ongoing impacts from external actors. We selected a research design including participant observation, semi-structured interviews, and secondary data analysis.

Participant observation. Two researchers started the observation within DeltaHub, from August 2018 through to October 2018. They worked as observers who witnessed and recorded all daily activities. They did not reveal their role as researchers to not bias the interaction. Only the hub coordinators knew about their role and supported them by inviting them to join all the events and public meetings, as well as providing basic information about all the entrepreneurial teams in the hub, including team size, founding date, directions of their current projects. The researchers tried to minimize the influence of their presence by doing nothing except watching and recording (Edmondson & McManus, 2007).

One researcher worked in the open space and recorded each interaction between team members, among teams, and with external actors (out of DeltaHub). Due to the open-plan and loft design of the innovation hub, all the activities could be tracked. The other researcher recorded interactions in workshops and events. After one month of observation and ongoing analysis of the records more than 100 pages of field notes were generated and a substantial difference in practices between entrepreneurial teams began to emerge: Early ventures, who are looking for ideas, were constantly interacting and discussing with other team members while entrepreneurial teams which already had a business focus and structured organization mostly focused on communication within the team and to resources outside of the innovation hub. Records from workshops, meetings, and events consolidate this finding.

The distinct attitudes toward resources in the CWS and external resources imply their different business logic as well as various effects derived from external sources. To further analyze how these distinct groups of ventures applied external innovation search strategies we purposefully selected 8 cases and conducted semi-structured interviews with key informants.

Semi-structured interviews. We followed suggestions from case study literature and selected 8 case teams in DeltaHub (Miles & Huberman, 1994), 4 cases in the early entrepreneurial phases and 4 for the later phase. To fulfill the study's objective to study external innovation search, we selected the 8 cases based on four criteria:1) it was an entrepreneurial team or venture project. 2) the team/firm had resided in DeltaHub for no less than 6 months. 3) the team/firm took advantage of the shared space by approaching experts or taking part in activities. 4) there should be an equal number of cases representing each entrepreneurial phase. More details on the 8 cases are provided in Table 1.

We conducted interviews with the founders of each case team because they have the most comprehensive view of their business and innovation strategy (Eisenhardt, 1989). To ensure interview data captured the concept of searching for external sources of innovation, we develop our guideline based on prior literature with similar research context or research objects. All interviews were conducted in October 2018 by two researchers at DeltaHub and lasted about 75 minutes on average. A combination of all the recorded data implies that the entrepreneurial teams and DeltaHub frequently interacted with some big firms in multiple ways. For example, big firms initiated some events, collaborated with entrepreneurial teams or invested in some new ventures. This allowed us to understand how big companies leverage innovation hubs as external sources for knowledge and information.

Archival data. Additionally, we identified and analyzed websites and 4 online video interviews of case teams. For those early entrepreneurial teams which had not been reported by media yet, we were granted to access their documents and data collected by coordinators of DeltaHub as they regularly recorded status and needs of each team.

Data Analysis

The full data-set consists of more than 300 pages of interview transcripts and field notes. We managed this data using MAXQDA 12. We started analyzing the data during the collection and observation process, as advised by Strauss and Corbin (1998). We follow a grounded theory approach indicating important and interesting quotes (Corbin & Strauss, 1990).

We started by writing down all our field notes and carefully transcribing the interviews, sending the finished transcript to the interviewees for confirmation. Next, we analyzed the data by building individual case studies for early and later stage new ventures going back and forth between interviews, field notes, and secondary data once new insights regarding innovation search emerged. As suggested

Table 1
Description of interviewees and case firms

Start-Up Team	Industry/ Domain Focus	Stage	Team Size*	Background of the Founder/ CEO**
ES1	Big data and medical technology	Start-up	3	• Worked in an innovative sector of state-owned company • Worked at home when the project just set up • Move to CWS since Febrary 2018
ES2	Data collection and processing	Start-up	1	• Worked in a company • Started his own project in 2016
ES3	Online overseas shopping platform	Start-up	3	• Have tried 4 start-up projects in the CWS • Now is working on the fifth one
ES4	Application development	Start-up	2	• Worked in a company as a software developer • Worked in several other CWS before move to wespace
IS1	Network service system	Growth	5	• Worked in an international company as an engineer • Now is developing a new system with her teammates
IS2	Professional image management and education	Growth	6	• Was a professor in a university • Had rented a traditional office for 1 year • Moved to wespace since january 2018
IS3	Online jewellery store	Growth	6	• Worked in a big company • Moved to wespace for a start-up project
IS4	Online media businesses	Growth	8	• Worked in a big company as a journalist • Started up his own project and moved to Wespace since 2016

* At time of interviews ** Type of office/place worked in

by Eisenhardt (1989) we conducted a cross-case analysis, which helped us gain retrospective insights of the development and unique patterns of each case and also facilitates a comparison of influence among cases with distinct features. We compared the cases to find common challenges and refine unique aspects of each case. From the comparison, an initial logic started to emerge, which we followed up on in an iterative process to develop our results.

Results

When analyzing the interviews and research notes it became evident that entrepreneurial teams in different stages hold distinct opinions. We discern three disparate impacts that external resources exert on the entrepreneurial process. We structure these in the following section and discuss more intensively towards theory development afterward.

Nascent Ventures Seek Innovation Resources through Serendipitous Connections

At the very beginning of venture projects, entrepreneurs face the problem of limited immediate resources, including network, information, sources of ideas, which are important for shaping their business logic. As ES2, who has rich experience in several start-up projects, stated,

ES2: "Since we have only a few team members, we are eager to share our workspace with other companies, so that we can have business interactions with other companies and get connected to the market."

Many early ventures are like ES2 and put emphasis on broadening their connection with external actors, in order to seek complementarities for their initially limited resources and accumulate social capital for the development of their business. In CWS, the geographic assemblage of entrepreneurs with various backgrounds offers them an excellent platform to search for sources of knowledge and innovation. For instance, an entrepreneur who just started a project said,

ES3: "In fact, entrepreneurs bear tremendous stress, but starting in these hubs may be easier because entrepreneurial teams gather here doing various business. You won't fear how small your team is because you can always ask them for help. And when facing some troubles, it is also possible to ask others because they might have experienced the issue you are struggling with."

Expanding their initial business network through physical assemblage with other entrepreneurial teams is a strategy many interviewees mentioned. They can efficiently get in contact with like-minded people and gain awareness of potential partners as ES2 stated: "It is really helpful to know each other and know other peoples' business". ES1, ES2, and ES4 mentioned that it is an essential driver for the establishment of their business to communicate and interact with other teams with similar backgrounds.

ES1: "We are so different from big firms since we have less communication with our team or even strangers, which makes you socially isolated. But it's different here (in the CWS). You can meet different people with some greetings and chats, and then you have the sense of what they are doing, and you can follow up with the latest information from them."

ES3: "The most important thing is the interaction with each other. You are never smart enough to know all the opportunities, and you are always the one who can't recognize the weakness of your ideas."

ES4: "It's good for entrepreneurs to improve their knowledge, develop their mind, and learn from each other by communication, helping each other and talking about the status of this industry."

While broadening the breadth of their external search, entrepreneurs at a nascent stage described their practice to strategically construct their network or build up connections with certain organizations in their ecosystem. The development of their entrepreneurial projects asks for resources relating to certain areas, but the constraint of initial and internal resources is not able to cover all of them, so they have to seek certain sources out of the sphere of their teams.

ES4: "I knew ABC company usually holds some entrepreneurial roadshows and it is one of the reasons I chose their space. I told their operation team yesterday to deliver my wish of meeting their VCs because we need more funds though we already got financing once."

ES1: "We found there are various companies in this space like companies doing program writing. We may have more interactions with them to outsource part of our projects. In that case, we can easily communicate and share knowledge with each other during daily work, for we are in the same space."

The accumulated external resources may finally impact the business logic of entrepreneurial projects. From one side, some entrepreneurs internalize externalities and adjust their business ideas accordingly, which could further affect their internal innovation. An entrepreneur stated:

ES2: "Here (in the CWS) when I talked with people about the application I am developing, they gave me some feedbacks like our price is too low, and they also told me their demand in using this type of APP. These comments are really supporting us as a nascent team!"

From the other side, the increasing number of ties with multiple external actors also raises the possibility of collaboration with other organizations, which is an essential factor in their business model development. All of the nascent entrepreneurial teams we interviewed realized the substantial impacts of external resources. As one of them told us,

ES4: "It's useful for us to get the others to know about your business because it possibly bridges you and a chance to cooperate with a partner. This is still a matter of communication."

Also, entrepreneurs who have been through this process, when talking about the initial stage of their projects, also admitted the importance of connecting with external resources. IS4 described

> "For novices who have never been a CEO, it is crucial to working together with people outside of the team. The network they build up and investors they know will play an important role in the later stages."

Growing Ventures Focus on Restricted External Sources and Internal Development

The interviewees in growing teams emphasized that they already have an established and clear business goal, as well as a substantial connection with organizations in their ecosystem. So, for them, it is not as important to expand their external resource sphere. A founder of a start-up project with 5 members stated:

IS1: "When I first started up a project, this (looking for external resources) can be quite helpful, with the information you can get from others, workshops where you can learn knowledge for running a project and activities to build up your network. But for me now, since I have already experienced all of them, and now it is quite clear for our team about what to do and how to handle most of the problems, it

is not as valuable for me as those beginners."

Additionally, we find entrepreneurs leading "on track" ventures hold a distinct attitude toward looking for external possibilities with those at previous stages; they exhibit the need to make a trade-off between external search and internal development. In other words, while entrepreneurial teams grow from identifying ideas to developing the idea into a business, they experience a switch of attention from external to internal. For instance, a founder who leads a team informed us:

IS2: "Even though I communicated a lot with other teams when I was in my nascent stage, I find it is not that useful now. Because getting your own business well done is of the highest importance, and then you can gain the potential to attract resources in your ecosystem. Attending too many workshops or activities is kind of meaningless because they are doing projects in various fields which is nothing to do with you. Socialization is a time-consuming practice, and I am trying to decrease my ineffective social activities."

IS2: further shared the reasons of this trade-off:

> "Maybe everyone has a limited time for various reasons. Since our team is still young and small, we can't manage to develop a deep contact with too many organizations. We have to focus on the development of existing projects."

For developing teams, the creation of a business logic and organization structure is a hard undertaking, which might involve some trial and error. So, this process asks for a substantial effort to focus on the internal implementation of their innovative ideas:

IS4: "Most of my teammates have only one purpose of handling their tasks in hands because everyone somewhat has more than one hat... I don't think we have much extra energy to interact with people here (in DeltaHub).

The switch of attention doesn't mean that growing teams are isolated from external organizations. Rather, the relatively established network changes their allocation of attention. When talking about the team's need for external search, IS4 further explained,

IS4: "Even if our marketing colleague may have such a need (of talking with external actors), they have already a targeted group of people… And for me (the CEO), effective communication is really important, I would prefer to decrease unproductive talks."

Therefore, we learned from IS4 that the reason for the shift from external search to internal development comes from two aspects, the need to shape their own business landscape and the accumulated accessible resources. This finding is also in line with the story of IS3, who has initiated an online jewelry store project,

IS3: "We've got in touch with many mature suppliers and design studios. We will first visit them to decide which designs have potential for sale… We also give them feedback about the defects and imperfections of their design. Benefited from the communications with them, we have more knowledge about the market, which can be more effective than just randomly talking with someone out of this field."

Starters who actively interacted with external parties also recognized the distinct demand for big teams and potential changes in the future after their projects develop and get mature. An entrepreneur working for his venture alone described,

ES2: "It's more appropriate for our tiny teams to have this cooperating relationship and interaction than to work alone. Obviously, that's not suitable for big teams with an established organization. Because they have much internal business and they don't need to worry about requirements, for the requirements they have are too much to be solved. When my project grows probably, I will face this shift."

Established Ventures Gain Allocable Resource to Seek Opportunities both Internally and Externally

From the conversations with the coordinators of DeltaHub we learned that established ventures who are residing outside of the CWS still keep in contact with the hub in order to search for ideas from new ventures. One entrepreneur told us about his earlier contact with CWS as he was still working for a state-owned company:

ES1: "I had contacts with several of these spaces, like SOHO in Wangjing, which offers services for designers and creative people, and Co-working Factory, which is mainly a business incubator and shared office. Because I was in an innovation department in that state-owned enterprise, which made me keep in touch with these spaces frequently."

Intensive conversations with the managers of the CWS also informed us that they are receiving many applications

from external companies and investors to come and host events for the new ventures working in the CWS. These external companies are often global players with their R&D or innovation units being in charge of external innovation search. Some companies are even considering letting their innovation units work in the CWS as a CWS employee told us:

> "The big companies are really interested in what we are doing, they want to host events on a regular basis, to get in touch with the startups. These events are good for both sides, as the entrepreneurs get access to established companies and might raise funding, and the established companies stay in touch with all the new ideas. Company X is also working on a plan to put their team into our location."

What ES4 told us also consolidates the statement of this coordinator as the roadshows and active Venture Captial activities were the key attraction of residing in this CWS. Therefore, another finding here is that big firms, in spite of the richness of their internal resources, are still expanding their external searching sphere. In order to dig into the impacts of external innovation search on big firms, we contacted a manager of company X. The manager told us a creative unit of company X is in a specific need to work in DeltaHub:

> "The unit is quite independent because their work is more creative rather than routine-based, and we have new customers in this city. We got to know DeltaHub from an event we held here and then thought about moving the unit here. At very first, we were attracted by the various activities here, because for us it is also a new market, we have to know more about it. Later, we found the CWS is filled with an entrepreneurial atmosphere, which matched the work of this unit… With a branch in this city, we are able to collect feedback from markets and new customers and transmit the information to our headquarters."

Discussion

Past research has revealed a trend among firms to pursue external innovation search in various forms, such as open innovation (Chesbrough, 2003). There is rich research on how the breadth and depth of external search improve ventures' innovation performance (Foss et al., 2013; Leiponen & Helfat, 2011; Rosenkopf & Nerkar, 2001), giving them more options and a variety of knowledge to use for their innovations. At the same time, Dahlander et al. (2016) demonstrate that external innovation search includes significant costs. People engaging in external search are only successful when they spent all their time on this task. They also show that internal innovation search can be very successful along with lower transaction costs.

Few studies such as Brunswicker and Vanhaverbeke (2015) or Vahter et al. (2014) investigated the innovation search process within small and medium-sized manufacturing firms. Zhang and Li (2010) show that network connection is of high importance for new ventures in technology clusters. Research has also studied the effects of entrepreneurial characteristics (Unger, Rauch, Frese, & Rosenbusch, 2011) and social capital (Baron & Tang, 2009) on the performance of new ventures. Additionally, literature suggests that new ventures need to focus on external innovation seeking (Ceci & Iubatti, 2012; Edwards et al., 2005). The literature though does not cover how the ventures are supposed to deal with external innovation search while facing restrictions due to limitations of smallness and newness.

Our results show, that new ventures go through different stages that influence which resources they apply to seek innovation. Dahlander et al. (2016) have shown, that internal innovation seeking has benefits for firms and external innovation seeking is only successful when pursued with high resources. In the following we discuss the insights we found in light of previous research, structure them and provide a matrix of our results.

Early-Stage Ventures

New ventures at a very early stage suffer from limitations of smallness and newness (Stinchcombe, 1965; Brunswicker & Vanhaverbeke, 2015; Ceci & Iubatti, 2012; Edwards et al., 2005). They can only rely to some extent on internal resources to generate innovations. Literature shows that, in general, they are better off seeking external innovations (Ceci & Iubatti, 2012; Edwards et al., 2005). Ties to established companies, service intermediaries or general network building demonstrate positive effects on new ventures' innovation performance (Mas-Verdú, Ribeiro-Soriano, & Roig-Tierno, 2015; Zhang & Li, 2010). New ventures whose business models are often not fully established and offer more flexibility towards change, new knowledge can often be the starting point for the creation of a completely new business model. Our results show a high breadth of innovation search for new ventures at this early stage. We demonstrate that ventures are trying to get in contact with as many external sources as possible. Thereby building their network and trying to find inspiration. The process appears

to be unstructured and the entrepreneurs stated that they were trying to talk to as many sources as possible. Our observation showed that this group was much more communicative, attending meetings and events, also actively contacting sources in the CWS. This stage indicates the biggest impact of external innovation search on the new ventures. According to the information and knowledge they gather and resources they can obtain, their business will change to fit the new resource base.

Growth Stage Ventures

When new ventures leave the first stage, they have accumulated additional resources and started an internalization process. The venture focusses on growth rather than expanding the breadth of external networks. For growing ventures with limited human resources, it is critical to balance the needs and costs of information search (Irwin, Gilstrap, Drnevich, & Tudor, 2019). Prior research indicates that opportunity costs are a downside of extensive external innovation search and can lead to disadvantages in the daily business (Laursen & Salter, 2006). With the information and network ventures cultivated in the initial phase of wide external innovation search, they have founded the basis to start a phase of productivity. At this stage, the time required to continue a broad innovation search and maintain close outside relationships increases significantly (Dahlander et al., 2016; Tushman & Nadler, 1978) and takes away time from earning money. We find that new ventures at this stage focus their attention and available resources on the ideas gathered from external resources and try to internally develop these ideas further, using a local innovation search strategy (Chebo & Kute, 2019; Hansen, 1999). We also find, that ventures at the growth stage hold contact to few specific external partners, whom they use for deep innovation search. This finding is supported by Adam, Strähle, and Freise (2018) who show that long-term relationships and external knowledge sources are essential for success. Our interviews and observations prove that a switch takes place from a broad and unstructured external innovation search to a structured, very restricted, deep external search. Further research indicates, that identified opportunities, accumulated social capital, the further development of a project and innovation need to be integrated into the firm to become functional (Dahlander et al., 2016). Second, the growth of an entrepreneurial team also requires the creation of some form of organizational structure and organizational processes which are a huge endeavor and take up a substantial proportion of limited resources (Stinchcomb 1965). At this stage the business model of the venture is stable and the input from deep and internal innovation search is used to incrementally develop current products and business.

Established Ventures

Established ventures distinguish themselves from prior-stage ones by mature business logic and a structured organization (Teece, 2010). Our study indicates that residing in a network with rich sources and comprising more members, ventures compile more manageable resource which enables them to allocate attention between internal and external opportunities for innovation search. Thus, they are not restricted to a monolithic approach to search. Rather, organizations can adopt a distributed approach to seek possibilities in various domains (Fleming & Waguespack, 2007). Thus, they are able to develop their competitive advantages and simultaneously adjust innovation activities with dynamic demand from the external market. We found that established ventures who are residing outside of the CWS keep in contact with CWS in order to search for ideas from new ventures. Establish companies enter CWS by offering events or even placing part of their teams in them. Table 2 gives an overview of internal and external search efforts at the different stages.

Venture Life Cycle

We propose that the innovation search process follows the life cycle of the venture, with the early stage being characterized by broad and very open external search, the productivity stage by internal and deep, focussed external innovation search. The venture reentering a broad external search once it is established and can free up resources.

The idea of a life cycle describing the development and different stages of an organization was first introduced by Chandler (1962) who suggested that organizations evolve and change as they grow. The concept has had great influence with researchers giving evidence that managerial priorities (Smith, Mitchell, & Summer, 1985), indicators of organizational effectiveness (Quinn & Cameron, 1983), as well as organizational pressures, threats, and opportunities, vary with changes in life cycle stages (Anderson & Zeithaml, 1984; Dodge & Robbins, 1992). We now add that the stage of the life cycle has a significant influence on how new ventures engage in innovation search.

Our results further add to research on innovation seeking (Rosenkopf & Nerkar, 2001), by indicating, that depending on the stage the innovation seeking strategy differs and ventures set different foci according to the situation they find themselves in. We also demonstrate that restricted resources play a very important role in the choice of innovation search strategy as opportunity costs are a very

Table 2
Venture stages and search strategy

	Internal	External
New venture	• Internal brainstorming of ideas found externally	• Focus on external due to limited internal resources • Building relationships • Connecting to the network • Open for various ideas
New venture at the stage of productivity	• Focus on internal developments and productivity • Resources are bound internally • Very specific/restricted external search for innovation	• Restricted deep search in close cooperation with core partners
Established venture	• Local search using internal sources	• Offering events and funding to new ventures e.g. in CWS • Putting employees in charge of staying in contact with local CWS • Letting whole units work at the CWS • Search for new technology

important factor, especially for new ventures. We believe that the extended time required for external innovation search can only be afforded at later stages once the venture is established and is able to free up resources to apply to full-time external search. Balancing productivity and broad external search appear to be too much of a challenge for growing ventures and the entrepreneurs running them. We give a first answer to the question Klotz, Hmieleski, Bradley, and Busenitz (2014) raise regarding the extent to which new ventures build on social capital to substitute financial, human and psychological resources. We show that once the venture has secured the right resources and enters a phase of productivity, broad social capital is not as important as stable and deep connections.

Limitations and Future Research

Although our research did not focus on the effects of CWS or collaborative workspaces, we found that the co-location helps new ventures build important relationships, access knowledge, and ideas as well as secure resources. We believe that the study of collaborative workspaces as a mechanism, to broaden the search for innovation offers many potentials, especially to entrepreneurs and ventures. CWS further offer the opportunity to analyze the effects of socialization and trust (Pesch & Bouncken, 2018) on the innovation search.

Our study has some limitations which give directions for future research. The current research on innovation search mainly studies established and big firms, which have the resource capacity to make active decisions on which information sources to seek. Small and especially new ventures face different limitations and might not be aware of their search strategy as much as established ventures. The dynamic setting of CWS enables studying the effects of knowledge exchange with competition (Bouncken, Fredrich, Ritala, & Kraus, 2018) and the effects of shared identities (Bouncken & Barwinski, 2020) on the success of innovation search.

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