



Accelerators as drivers of coopetition among early-stage startups

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ABSTRACT

Business accelerators are a phenomenon of increasing popularity in practice, but their specific value-added for the participating startups has been understudied thus far. Our study addresses this research gap by investigating how participating in a business accelerator program supports startups to forge relationships with other startups, helping them to overcome their early-stage needs. We use an in-depth exploratory qualitative research approach based on a multiple embedded case study design by studying 23 startups within six accelerators in Germany.

We find evidence that startups in accelerators forge specific types of relationships, including both cooperative and competitive elements, characterizing their early-stage needs. They *cooperate* through joint projects and exchange and *compete* on the firm level for internal and external resources and on the individual level for reputation, which makes these relationships overall coopetitive. Our findings indicate the importance of accelerators in driving the startups' relationships, as accelerators trigger "coopetitive" behavior among startups through their available tools, including events, communication and the coworking space.

This study contributes to literature on business accelerators and coopetition. Additionally, this study offers implications for startups, accelerators and policy makers.

1. Introduction

In recent years, business accelerators have garnered increasing interest among practitioners, researchers and, in particular, politicians as a new way to improve a country's entrepreneurial landscape. Accelerators are organizations that are focused on supporting startups in their growth path. Accelerators offer innovative technology firms in their early stages a fixed-term, cohort-based program. During the program, they offer non-financial support such as networking, mentoring and educational workshops, culminating in a (semi-)public event during which the startups pitch their business model in front of potential investors and partners (Cohen 2013; Cohen and Hochberg 2014; Naulin and Moritz, in press). Due to this specific business model, accelerators provide value-added in addition to financial support (Block et al., 2017). However, besides their direct support, accelerators also provide an ecosystem where close contact with other startups is facilitated due to their physical proximity in coworking spaces (Isabelle and Del Sarto 2020; Naulin and Moritz, in press). So far, we do not know how startups interact with each other within the accelerator and whether there are

additional benefits created through these interactions. Therefore, our study aims to answer these questions and investigates the formation process and characteristics of relationships among early-stage startups in business accelerators. Specifically, we examine the research questions: *How do startups establish and practice (cooperative) relationships in accelerators? What role does the accelerator play in this relationship?* By answering these questions, we aim to provide an in-depth understanding of how participation in accelerator programs can help startups to accelerate their early-stage development by fostering distinct relationships with their peers.

Close relationships with other firms have been argued to be important, particularly for startups, as they can compensate for missing resources (Baum et al., 2000). In particular, in today's increasingly complex markets, establishing close, cooperative relationships with different partners is becoming a critical factor for success (Gnyawali and Park 2009). Specifically, for startups it has been shown that cooperation is related to startups' survival, performance and innovation (Baum et al., 2000; Dobliger et al., 2019; Neyens et al., 2010; Pangarkar and Wu 2013). In particular, it has been found that cooperation between firms is

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even more important for high-tech SMEs, where technological battles challenge the companies due to shrinking life cycles, rising R&D costs as well as high risks and uncertainties (Gnyawali and Park 2009).

Based on these prior findings, we argue that cooperative relationships between startups should have a positive effect on startup development, and therefore we investigate if and how accelerator programs are a suitable environment for startups to develop these relationships. More specifically, we argue that accelerators are an appropriate context to study startups' cooperation behavior due to the close physical proximity of startups through the coworking aspect of accelerator programs. Also, the startups are organized in cohorts, offering a joint experience in the accelerator. Hence, accelerators provide an environment where cooperative relationships between startups are likely to occur. Based on the advantages of cooperative relationships, this could help startups to gain a competitive advantage over startups not supported by an accelerator. However, at the same time, startups in accelerators might compete for the same resources (e.g., mentoring and financing). Therefore, the question of whether and how startups cooperate with their competitors is not trivial and needs further investigation. To answer our research questions, we use a multiple case study approach. This methodology has been used in the past to answer similar research questions (Coviello and Munro 1997; Gnyawali et al., 2016), as case studies allow an in-depth analysis of real-world behavior in complex social settings (Hisrich et al., 2007; Yin 2018). We investigate six accelerators in Germany and 23 startups by using multiple sources of evidence (Eisenhardt 1989) in order to develop a clear understanding of startups' relationships in accelerators.

Our findings show that startups in accelerators indeed establish cooperative relationships, which support the startups' development in several regards. These relationships seem, however, to be not only cooperative but, at the same time, competitive. Subsequently, coope- tition – cooperating while simultaneously competing – plays a vital role in accelerators and seems to have positive effects on the startups' development. Hence, accelerators act as a driver of coope- titive relationships among the startups.

Our study makes a number of theoretical contributions. First, we contribute to the literature on accelerators. Prior empirical assessments of accelerators can be divided into accelerators' impact on the ecosystem (e.g., Fehder and Hochberg 2015, 2018; Goswami et al., 2018) and their impact on the startups' development (e.g. Cohen et al., 2019; Cohen et al., 2018; Del Sarto et al., 2020; Hallen et al., 2019; Naulin and Moritz, in press; Yu 2020). Our study combines both perspectives by critically investigating the role of accelerators' ecosystems in the formation of relationships among startups. We find that accelerators enable coope- tition among startups, which positively affects startups' development. Second, we add to existing research on coope- tition specifically in the field of entrepreneurship (Lechner and Dowling 2003; Lechner et al., 2006; Soppe et al., 2014). We show that startups in accelerators enter not only cooperative but also competitive – so called “coope- titive” – relationships already in very early stages of their business development. Moreover, we contribute to the coope- tition formation literature (Mariani 2007; Mariani et al., 2009), as we show that the external environment of firms can trigger coope- tition. More specifically, we find that accelerators can induce coope- titive behavior among startups through their available tools, including different events, communication tools and the coworking space. Finally, we add to literature on outcomes of coope- tition (Bengtsson and Raza-Ullah 2016; Bouncken and Fredrich 2012; Lechner et al., 2016; Luo et al., 2006; Park et al., 2014b) by finding that coope- titive relationships among startups in accelerators can positively influence the startups' development.

Our study is also of practical relevance specifically for accelerator managers, startups and policy makers. For accelerators, the study demonstrates the importance of their role in the startups' development. They not only provide direct value-added effects for the startups (Naulin and Moritz, in press), but they can also actively support cooperation and competition among startups by using appropriate tools and establish a

supporting entrepreneurial culture. For startups, we underline coope- tition as an advantageous strategy and motivate them to actively establish and exploit coope- titive relationships. The startups can proactively initiate cooperative relationships with other startups while simulta- neously allowing for competition. For policy makers, our findings sug- gest that accelerator programs seem to have a positive effect for startups, which justifies their public support. Coope- tition can support startups' growth in highly complex and fast-moving environments, which sup- ports the development of the entrepreneurial landscape in a region and country.

2. Prior research on accelerators

2.1. Characteristics of accelerators

Accelerators are defined as a “fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day” (Cohen and Hochberg 2014, p. 4). The idea of accelerators is to create an environment to stimulate entrepre- neurship by supporting cohorts of entrepreneurial firms through an intense, time-limited program offering mentoring, networking and coworking (Drori and Wright 2018), which often leads to close physical proximity and interaction opportunities among the participating start- ups (Cohen 2013). Accelerators originated from incubators (Hoffman and Radojevich-Kelly 2012) and are called “a new generation incubation model” (Pauwels et al., 2016). Nevertheless, besides their similarities, accelerators differ from incubators in key characteristics including their cohort- and program-based structure, limited duration, high intensity, equity investment, intense educational program with mentorship and seminars, and a final pitching event called “demo day” (Cohen 2013; Cohen and Hochberg 2014). Unlike incubators, which nurture startups over a longer period, accelerators' intent is to support new innovative firms to survive, scale up and grow (Mian et al., 2016) or otherwise to fail fast (Caley and Kula 2013; Holstein 2015; Kohler 2016). Therefore, existing findings from research on incubators cannot simply be trans- ferred to accelerators, even though similarities in some areas might exist.

Prior research on accelerators focuses on providing an understanding of accelerators and points out their differences from incubators (Cohen 2013; Cohen and Hochberg 2014). Isabelle (2013) investigates which factors are relevant to startups' decision to seek support from accel- erators rather than incubators and found the venture's stage, investor's mission, policies, services and network to be particularly important. Additionally, previous studies highlight the heterogeneity among ac- celerators (Cohen et al., 2019; Drori and Wright 2018; Malek et al., 2014; Pauwels et al., 2016). Pauwels et al. (2016) find five design ele- ments of accelerators, including program package, strategic focus, se- lection process, funding structure and alumni relations. Furthermore, accelerators can have different design themes, i.e., they can be ecosystem builders, deal-flow makers or welfare stimulators (Pauwels et al., 2016).

2.2. Accelerators' impact on startups' development and on the wider ecosystem

Additionally, insight has been made on accelerators' influence on the participating startups. In particular, participating in top accelerators seems to reduce the startups' time to exit and follow-up funding (Win- ston-Smith and Hannigan 2015). Also, Hallen et al. (2019) indicate that some accelerators support ventures' development in terms of superior outcomes related to funding, web traffic and employee growth. Like- wise, Gonzalez-Urbe and Leatherbee (2017) show that accelerators' education program combined with basic services can significantly enhance new venture performance. Furthermore, Stayton and Man- gematin (2019) propose that accelerators help under-resourced and inexperienced startups to catch up with more experienced ones through

resources, networks and mentoring. Moreover, [Yu \(2020\)](#) suggests that accelerators help reduce startups' uncertainty regarding their quality, thereby enabling them to make early decisions on funding and exit. Also, [Cohen et al. \(2018\)](#) provide first evidence on the relationship between accelerators' specific design choices and startups' development. Specifically, they find that fostering privacy in accelerators is associated with lower startup performance, whereas supporting transparency and interaction evokes higher startup performance. Likewise, [Cohen et al. \(2019\)](#) study the influence of specific design parameters of accelerators, such as the program's duration, on startups' performance and find that longer program duration is linked to higher startup performance. On top of that, [Naulin and Moritz \(in press\)](#) find that accelerators add value to startups by providing value-adding inputs which lead to value-added outcomes. This includes the entrepreneur's individual level, such as individual learning, motivation and satisfaction, as well as the startup's organizational level, including organizational learning, enhanced performance and networks. Furthermore, [Chan et al. \(2020\)](#) provide evidence that differences among accelerators can explain differences in the performance of accelerated startups.

In regard to accelerators' wider effects on the ecosystem, it has been found that accelerators increase the overall volume of VC deals in the region, indicating accelerators' positive effects in the regional ecosystem ([Fehder and Hochberg 2015, 2018](#)). Also, accelerators play an intermediary role in regional entrepreneurial ecosystems by interacting on different levels of the ecosystem through their expertise ([Goswami et al., 2018](#)).

2.3. Relationships among startups in accelerators

Even though prior literature has expanded our knowledge of accelerators, the specific relationships among early-stage startups in accelerators have, to the best of our knowledge, not yet been investigated. However, the specific setting of accelerators offers a fitting environment for early-stage startups to collaborate and gain important experience for managing alliances outside of the accelerator ([Ireland et al., 2002](#)). First, accelerators usually offer coworking, a place for joint working ([Cohen 2013](#)), which allows startups that often work in stealth mode on their own to get together ([Cohen et al., 2018](#)). Moreover, startups in accelerators are structured in cohorts, which allows peer startups go through a challenging phase in their development together ([Cohen and Hochberg 2014](#)). However, on the other hand, this situation might also lead to competition among startups, as they might compete for the accelerator's resources, such as mentoring, and follow-up financing. Altogether, it is not clear if startups in accelerators work together and how this relationship can be characterized. Furthermore, prior research has not investigated if and how accelerators support startups in forging relationships and how this is reflected in their development. However, these questions are important to answer, as they provide a deeper understanding of how participation in accelerator programs can help startups to accelerate their early-stage development.

3. Method

3.1. Research design

We use an in-depth qualitative research approach that is consistent with our research goal of investigating the formation process and characteristics of relationships among startups. Specifically, we deploy a multiple case study design that allows us to examine a complex social phenomenon in its real-life setting ([Yin 2018](#)). This approach is suitable to understand the complex interrelations involved in cooperation between startups in accelerators and has been used in the past to investigate similar research questions ([Coviello and Munro 1997](#); [Gnyawali et al., 2016](#)). According to [Eisenhardt \(1989\)](#), four to ten cases are recommended for multiple case studies depending on the specific research questions. In our study, we investigated six accelerators (details

see [Table 1](#)) in the form of an embedded case study design by studying 23 subunits ([Yin 2018](#)) in terms of "startups" within six accelerators.

3.2. Data collection and sample

In line with the qualitative research approach, six information-rich cases¹ were selected through purposeful ([Curtis et al., 2000](#); [Miles et al., 2018](#); [Miles and Huberman 1994](#); [Patton 1990](#)) and theoretical sampling ([Eisenhardt and Graebner 2007](#)). We used a sampling technique called "criterion sampling," which is based on predetermined criteria ([Patton 1990](#)). Since there is much disagreement about the definition of accelerators ([Cohen and Hochberg 2014](#)), we only included accelerators in the study that fulfilled at least six out of the following seven main characteristics identified in the literature. An accelerator is (a) a program of limited duration (b) that helps cohorts of startups (c) by providing them with seed capital, (d) working space, (e) networking, (f) mentorship and education opportunities (g) and culminates in a final pitching event ([Cohen 2013](#)). Based on the abovementioned seven pre-defined criteria, 18 suitable accelerators in Germany were identified. After data collection and analysis of six cases, the patterns of the cases became repetitive and did not produce further unrevealed insights. Therefore, the researchers agreed that theoretical saturation was reached, since the marginal improvement of insights through additional cases became very small ([Eisenhardt 1989](#)). The cases included in the sample span various regions in Germany, are either private or corporate accelerators, and four out of the six sampled cases have a clear focus on innovative high-tech startups (see [Table 1](#)). We decided to permit a heterogeneity of accelerators, including corporate and private accelerators, to account for the differences between different accelerator business models.

For the purpose of triangulation, we used multiple sources of evidence ([Denzin et al., 1978](#); [Tracy 2010](#)), such as interviews, informal conversations and observations. Since interviews are an efficient way to gather rich empirical data ([Eisenhardt and Graebner 2007](#)), we used interviews² as the primary data source for our study. After the authors had pre-tested the interview guidelines for logic, clarity and feasibility with sample participants including academics, accelerator managers and startups, we conducted 34 interviews across the six cases with key participants within accelerators, including startup and accelerator team members. This approach allowed us to investigate both sides – the startups' view as an internal perspective and the accelerators' view as an outside perspective. This approach allows us to triangulate the data by assessing the congruence or differences of our findings across different study participants ([Denzin et al., 1978](#)) as part of the within-case analysis. The aim of the interviews was twofold: (1) gaining insight about relationships among startups in accelerators and (2) explaining the role of the accelerators in the startups' relationships. The interviews were based on a semi-structured interview guideline with open-ended questions to ensure the free expression of the participants' experiences and opinions. The interview guideline was developed from our knowledge from previous research and continuously adapted within the data collection process. Each of the 34 interviews (see [Table 2](#)), which ranged from 24 to 102 min, was audio-recorded and transcribed. We enriched the interview data with informal conversations with startups and accelerator members, and observations were conducted by the researchers in the field – for example, in the coworking area and at events such as demo days, pitching sessions or workshops – and recorded through field notes.

¹ The dataset collected for this study is the same as is used in [Naulin and Moritz \(in press\)](#) but has a completely different research focus.

² The interviews were conducted both in English and in German. The ones in German were translated into English.

Table 1
Characteristics of the six cases (accelerators).

Case/ Accelerator	Region in Germany	Year of foundation	Corporate vs. private accelerator	Program duration	No. of cohorts per year	No. of startups per cohort	Industry	Funding Services	Mentoring	Education	Networking	Coworking	Demo day
A	Lower Saxony	2016	Private	3–5 months	2	Approx. 3–5	Broad focus on software technology, e.g., e-commerce, fashion-tech, retail, VR/AI, IOT, food-tech & robotics	✓	✓	✓	✓	✓	✓
B	Hesse	2015	Corporate	3 months	2	Approx. 5– 10	Broad focus on health care, life science, performance materials, digital solutions	✓	✓	✓	✓	✓	✓
C	Hesse	2016	Private	4 months	2	8–10	Broad focus on Web-entrepreneurs, e.g., FinTech, cybersecurity, RegTech	x	✓	✓	✓	✓	✓
D	Hamburg	2015	Private	6 months	2	Approx. 4– 10	Specific focus on media industry	✓	✓	✓	✓	✓	✓
E	Berlin	2010	Private	3 months	n/a	n/a	Specific focus on energy and transportation industry	✓	✓	✓	✓	✓	✓
F	North Rhine- Westphalia	2015	Private	6 months	2	Approx. 10	Generalist	x	✓	✓	✓	✓	✓

3.3. Data analysis

To analyze our data, we first conducted individual within-case analysis by coding the transcriptions with the software program MAXQDA to become familiar with each case as a standalone entity (Eisenhardt 1989). To ensure that the statements of our respondents were left in their original context, we coded words, phrases, sentences or whole paragraphs (Miles et al., 2018; Miles and Huberman 1994). The initial list of codes was based on our prior knowledge (Miles et al., 2018; Miles and Huberman 1994). While working with the data material, the coding system was continuously extended, revised and condensed. With that, we followed the qualitative data analysis approach as an iterative, ongoing and inductive process (Eisenhardt 1989; Miles et al., 2018; Miles and Huberman 1994). The codes were then aggregated into meaningful categories and subcategories (Miles et al., 2018; Miles and Huberman 1994; Strauss and Corbin 1990). To ensure the coding's reliability, the coding scheme was extensively discussed among the authors and adapted until final agreement was reached. After these steps, the categorized data were used to perform a thematic content analysis (Saldaña 2009, 2021). Since it is important to first understand the dynamics of each particular case before proceeding to cross-case explanations (Miles et al., 2018; Miles and Huberman 1994), we wrote individual case reports that indicated how and why particular patterns and results were demonstrated or not (Yin 2018).

In the second step, we conducted a cross-case analysis by identifying cross-case patterns (Eisenhardt 1989) to account for the replication logic of a multiple-case study (Yin 2018). We used two different approaches: First, we selected categories and dimensions and looked for similarities and differences among cases. Second, we selected groups of cases (for example pairs) to find patterns in each group (Eisenhardt 1989).

Finally, the themes, concepts and relationships between variables that emerged (Eisenhardt 1989) built the basis for answering our research questions.

4. Findings and discussion

Investigating the relationships among startups in accelerators, we find that startups are forging relationships that include both cooperative and competitive elements. Moreover, we investigate the accelerator's role in startups' relationships. Thereby, we identify the accelerator as a driver of the startups' cooperative yet competitive relationships, otherwise known as cooptation.

4.1. Cooperative elements of the startups' relationships

Our data show that cooperation is not the main reason for startups to join an accelerator program in the first place, since the startups need to concentrate on their own business. However, cooperation is a frequently named benefit of accelerators. This common perception was summarized by D_1³:

I think [cooperation] is strong. (...) Of course, at the end of their story, everyone has their own product. They need to work on it and for themselves. That's Priority Number 1. Priority Number 2 would be to help each other.

Prior research shows that corporations usually cooperate through long-term relationships such as alliances (Bengtsson and Kock 2000; Faems et al., 2010). It is, however, questionable whether startups cooperate in the same way as corporations due to their early stage with their specific characteristics, challenges and fewer resources. In fact, we find evidence that in accelerators, startups do not have joint R&D

³ The interviewees are pseudonymized. Please find the assignment of aliases in Table 2.

Table 2
Characteristics of interviewees.

Case	Interviewee	Alias	Profession	Education	Subject	Age	Gender	Interview length
A	Startup 1	A_SU1	CFO	A-levels	Media Management	23	M	01:18
A	Startup 2	A_SU2	CTO	Diploma	Mathematics	32	M	00:47
A	Startup 3	A_SU3	CEO	A-levels	Engineering Economics	21	M	00:46
A	Alumnus 1	A_SU4	CEO	Bachelor	Corporate Management & Economics	26	F	00:47
A	Alumnus 2	A_SU5	CEO	Diploma	Economics	32	M	00:38
B	Startup 1	B_SU1	Co-Founder; Application Specialist	Master	Physics	26	F	01:03
B	Startup 2	B_SU2	Co-Founder	PhD	Neuropharmacology	31	M	00:50
C	Startup 1	C_SU1	CEO	Diploma	Economics	49	M	00:38
C	Startup 2	C_SU2	Co-Founder	Bachelor	Computer Science	32	M	01:36
C	Startup 3	C_SU3	Head of Product	Master	Public Affairs	32	F	00:44
D	Startup 1	D_SU1	CEO	Bachelor	Business and Marketing	36	M	01:18
D	Startup 2	D_SU2	CEO	Bachelor	Business Administration	26	M	00:30
D	Startup 3	D_SU3	CEO	Master	Rhetoric, Art History	34	M	00:38
D	Startup 4	D_SU4	Co-founder; CEO	Master	Business Management and Computing Science	31	M	00:46
E	Startup 1	E_SU1	Co-founder; CXO	Master	Management	24	F	00:52
E	Startup 2	E_SU2	COO	Master	Management	26	M	00:32
E	Startup 3	E_SU3	CEO	Bachelor	Engineering	32	M	00:42
F	Startup 1	F_SU1	CEO	Master	Business Administration	30	F	00:58
F	Startup 2	F_SU2	CEO	Bachelor	Business Administration	24	M	00:49
F	Startup 3	F_SU3	CEO	Master	Engineering	34	M	00:28
F	Startup 4	F_SU4	CEO	Diploma	Economics	46	M	00:35
F	Startup 5	F_SU5	CEO	Master	Finance	33	M	00:24
F	Startup 6	F_SU6	CEO	Master	Architecture	32	M	00:42
A	Acc. member 1	A_1	CEO	Bachelor	Media Management	29	F	01:27
A	Acc. member 2	A_2	Relationship and Project Manager	Apprenticeship	Media Management	29	F	00:40
A	Acc. member 3	A_3	Creative Director	Bachelor	Visual Communication	28	F	00:45
B	Acc. member 1	B_1	Manager	Master	Engineering Economics	29	M	01:00
C	Acc. member 1	C_1	Founder; Managing Partner	Master	Strategic Finance	41	M	01:42
C	Acc. member 2	C_2	Founder	3 Masters	Chemical Engineering, Organization Psychology, MBA	47	F	00:40
D	Acc. member 1	D_1	Program Manager	Bachelor	Applied Translation	27	F	00:40
E	Acc. member 1	E_1	Head of Marketing & Operations	MBA	Management	26	F	00:51
E	Acc. member 2	E_2	CEO	MBA & Master	Telecommunication & Finance; International Relations	51	F	00:45
F	Acc. member 1	F_1	Program Director	Bachelor	Business Administration	26	F	00:42
F	Acc. member 2	F_2	Trainee Marketing and Events	Master	Innovation & Entrepreneurship	27	M	00:32

alliances. This is not surprising, as startups typically come up with their own startup idea independently of each other, some months before participating in an accelerator. Instead, our results suggest that for startups within accelerators, cooperation can take on two different forms: *joint projects* and *exchange* (see Fig. 1). Most similar to the alliances of corporations are the *joint projects* of startups. These projects might be of a different nature, such as joint customer projects, market research or product integration. While some startups work closely together during the accelerator program, for others there is not the right cooperation partner, or they are too early in their development to enter close collaborations. Many of the latter, however, plan to do some joint projects in the future and are constantly looking for opportunities to cooperate (see Table 3, constructs “*joint projects and future joint projects*”). F_SU4 explained his ideas for future joint projects:

One example: At the very first pitch here in this accelerator program I met someone (...) and they sell journeys. Since we also sell a specific part of journeys, we have already discussed whether we could work together. That would be a good opportunity. Or there is another girl working for another startup, which also is about traveling. And of course we are searching for ways how to pool our traffic. For example, if one created traffic through their offer, maybe the other

could offer their products to the same customer – or at least support each other.

In addition to these joint projects, the startups cooperate through *exchange* (see Table 3 construct “*exchange*”). This exchange can either be *one-sided*, which means that there is one partner dominating the exchange. One example would be when one startup mentors another one. Alternatively, this exchange can be *two-sided*, which means that it is a relationship where both exchange partners have an equal role. Accelerator manager D_1 gave an example:

[Startup 1] is very good at pitching, and there is another guy with us who's not a good presenter. Therefore, [Startup 1] really tells him: You need to change this, change that! He's a mentor in pitching. This is wonderful! I don't even need to say anything – they're helping each other.

Overall, as the statements of the interview partners show, the main contents of the cooperative relationships seem to be in the areas of *pitching* (one of the main topics within accelerator programs), *technology* and *business*.

In summary, our data demonstrate that the startups within accelerators cooperate with each other. As early-stage startups have different

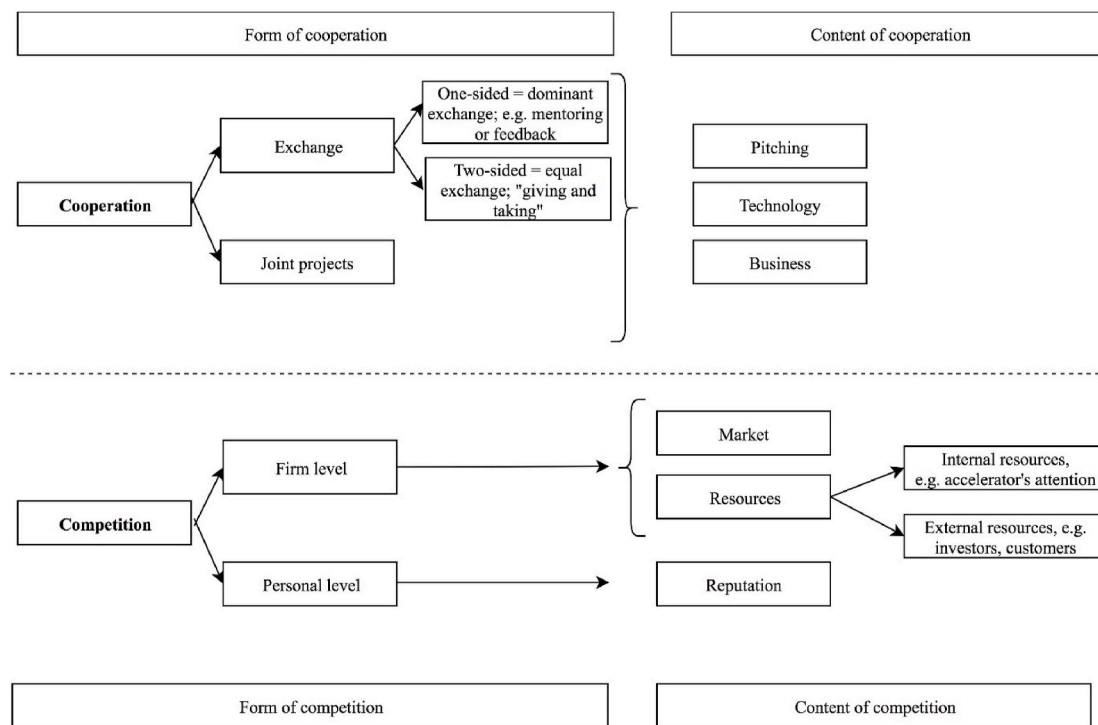


Fig. 1. Cooperation and Competition Forms and Contents among Startups in Accelerators (Source: Own illustration.).

needs, challenges and requirements than more mature firms or even corporations (Drori and Wright 2018), we find evidence that startups use their own specific forms to cooperate, which are adjusted to their early stage. Therefore, we propose:

Proposition 1. *The startups in accelerators cooperate through joint projects and exchange.*

Our data further indicate that the startups consider the cooperative element of their relationships to be beneficial and that they highly appreciate it. One example of a particularly successful collaboration was two startups that started working together on acquiring new customers (Case E). In the end, the two startups decided to merge, as their skills complemented each other well. Subsequent to the merger, the startup was able to raise millions of euros of follow-up financing clearly expressing the success of this strategic decision.

Overall, our data demonstrate that cooperation plays an important role for startups in accelerators and that those cooperative relationships seem to lead to successes for the involved firms. In light of the liability of newness and smallness (Freeman et al., 1983; Stinchcombe et al., 1965), this particular type of relationship seems to be highly valuable for entrepreneurial firms. In prior research, cooperative relationships are associated with firms' survival, performance as well as innovation (Baum et al., 2000; Doblinger et al., 2019; Neyens et al., 2010; Pangarkar and Wu 2013). In the context of our study, we find that cooperation among startups in business accelerators specifically appears to be one potential aspect that reduces their liability of newness and smallness. It provides access to important networks, business and technological knowledge, and the possibility to target larger markets and reach more customers. Entrepreneur D_SU4 summarized:

We always bounce ideas off each other, especially with [Startup3]. We're doing this mutual event together (...). We're both presenting there, but we're also providing our services (...) in a combined effort. Additionally, [Startup3] and I (...) discussed how we can integrate. (...) So, it's mutually beneficial.

We therefore propose:

Proposition 2. *The cooperative element of startups' relationships in accelerators has a positive effect on the startups' development by providing access to networks, knowledge and markets.*

4.2. Competitive elements of the startups' relationships

Even though the cooperative element of startups' relationships seems to be dominant, we find evidence that the relationships between startups in accelerators also hold a competitive element on both the *firm level* and the *individual level*. On the firm level, several interviewees mentioned market competition, such as accelerator director E_1: "I think competition would come if someone else did something similar." However, according to our interviews with accelerator directors and team members, most of them are careful not to take two similar startups into one cohort, as stated by C_2: "It is very important for us that none of the startups are direct market competitors. We select them on purpose because we want them to help and support each other." Although some overlaps regarding markets and customers cannot be ruled out completely, startups in the same accelerator seem not to be perfect market competitors. According to our data, competition on the *firm level* among startups in accelerators, however, refers not only to market competition but also to competition for resources (quotes see Table 4, construct "firm-level competition"). Prior incubation research has come to similar findings, as McAdam and McAdam (2006) indicate that even if startups within incubators are focused on different sectors, they still compete for funding, grants and a spot in the local limelight (McAdam and McAdam 2006). In the case of accelerators, we find that startups compete on the *firm level* for accelerator *internal resources*, such as the accelerator's attention, and accelerator *external resources*, such as investors (see Fig. 1). An example was given by entrepreneur C_SU2: "And on the other side [there is competition] if the accelerator does something like the (...) investor day, which we had a couple of weeks ago," where the startups had to pitch to potential investors. Another example was stated by program director F_1: "I think that is going to change now on the internal demo day, where there is going to be the decision of who is staying and who is leaving. Most certainly there will be more competition."

Additionally, our data suggest that there is further competition on an

Table 3
Cooperation

Construct	Amount of evidence	Selected quotes
Joint projects	Total: 12 Startups: 7 Accelerator staff: 5	“There is a very concrete example: We currently have a common project with one of the other startups. There is an upcoming event (...) where we will stream lots of sessions. (...) We deliver the software for streaming, and [Startup 4] delivers the program (...)” – D_SU3 “There are wonderful examples. For example, two years ago, we had two different startups, both with very distinct business models for the trucking industry (...). At some point they decided to work together, since they were approaching the same target markets and the same customers. During that collaboration for market analysis and customer analysis, they decided to unite and establish a new firm. Although only half of the accelerator program’s time was left to establish their new firm, they were the first ones to collect one million [euros] of follow-up funding.” – E_2
Future joint projects	Total: 7 Startups: 5 Accelerator staff: 2	“We actually thought about concrete collaborations – complementing each other’s business field – once or twice. It didn’t work out in the end, but generally I think that opportunities for collaboration could emerge in future.” – F_SU3 “They are too different, and it’s too early for them to collaborate. Some of them do not even have a product. Therefore, you cannot work on a joint project. But eventually [Startup 2] is going to be ready to connect its own software with that of [Startup X] to enhance both products. (...) However, that is possible only after the accelerator program.” – A_1
Exchange	Total: 33 Startups: 22 Accelerator staff: 11	“I think we’re all students and teachers at the same time to each other. We can learn from our stories, even if it’s just a story.” – D_SU1 “They help each other. Some startups are full of programmers, and some have fewer, and they help each other when it’s needed. Some others have more business understanding, financial understanding, and they also help the others. It’s bringing passionate people together.” – C_1

individual level, that is, on the level of the entrepreneur, for reputation. Examples are the demo day or the interaction with the accelerator (for quotes, see Table 4, construct “individual-level competition”). Every entrepreneur wants to build up the best possible reputation and not lose face. This sentiment was summarized by entrepreneur D_SU4: “There’s competitiveness in a way to outdo each other and be the one that gets the funding, or be the one that signs the next pilot, or be the one that gets picked to go to an event or something.” In line with this, entrepreneur A_SU1 stated, “Of course it is friendly, but also a bit of a rivalry. You also want to be an entrepreneur that makes progress, and you want to prove that to the accelerator.” These results lead us to the following proposition:

Proposition 3. *The startups in accelerators compete (a) for internal as well as external resources on the firm level and (b) for reputation on the individual level.*

Although our data suggest competition among startups, the entrepreneurs do not perceive this to be negative or unhealthy but rather healthy. Entrepreneur D_SU1 remarked:

It’s healthy competition. We cheer each other on. Someone launched an app the other day. Yeah! Right! We all cheer for each other, but at the back of your mind, you’re always working on competitiveness. If there is competition, you push yourself.

This healthy competition is underlined by the fact that the entrepreneurs show a positive attitude toward the success of other startups. Instead of being jealous, they seem to be happy for each other. They become even more motivated to be the next successful startup and see the success of others as a development opportunity for themselves (see Table 4, construct “healthy competition”). This is in line with prior research finding that competitive elements in relationships pressure firms to develop new markets and products (Bengtsson and Kock 2000).

In addition, for startups within accelerators, the main advantage of competition seems to be the additional positive effect on their entrepreneurs’ inspiration and motivation. This conclusion was affirmed by entrepreneur B_SU2: “The others can inspire you to make more and be better. From this point of view, we can see the competition that can be created in the accelerator.” And similar statements are summarized in Table 4 (construct “motivational effect”). This finding is in line with

Table 4
Competition

Construct	Amount of evidence	Selected quotes
Firm-level competition	Total: 14 Startups: 7 Accelerator staff: 7	“The business side would be whether we have any conflict of interest; so, do we believe we are fighting for the same investor? And are we fighting for the same customer? If there is any conflict there, naturally, we become competitive.” – E_SU1 “Sometimes, they are talking to the same clients; maybe there might be a clash.” – D_1
Individual-level competition	Total: 7 Startups: 7 Accelerator staff: 0	“There’s no rivalry in the sense of market competition. But of course you want to prove to the accelerator that you are pushing your idea forward. If you see that the other startups have developed relatively more, of course you don’t like that. Everyone wants to progress as much as possible.” – A_SU1 [no quotes could be identified from accelerator staff supporting this construct]
Healthy competition	Total: 12 Startups: 10 Accelerator staff: 2	“It’s a positive competition – so that we push and motivate each other. I don’t know of any example where someone begrudged someone else. Instead, it’s a really supportive competition.” – F_SU2 “They truly feel happy when one startup gets the investor, gets the business. (...) And then they think, ‘Okay, now let’s be the next one.’” – C_1
Motivational effect	Total: 13 Startups: 9 Accelerator staff: 4	“I think our competition is positive. Because slight competition leads to being even more motivated to work hard. If competition was too fierce, the cooperative mindset – that is exchanging and helping each other – would get lost. But I think we have a healthy mixture of competition and cooperation here. Competition is not so strong that we wouldn’t talk to each or keep secrets from each other.” – D_SU2 “It’s amazing, because you get encouraged. The other startups are working, and you want to be better. You see people who stay and work so many hours. And then you think, ‘Wow! I should, maybe, too. It’s a very healthy competition.’” – D_1

prior research that has demonstrated the positive effect of competition on motivation. More specifically, it has been shown that competition can have a particular positive impact on the motivation of individuals who seek challenges, desire to attain competence and strive to outdo each other (Epstein and Harackiewicz 1992; Tauer and Harackiewicz 1999). However, our data suggest that some entrepreneurs were inherently more competitive than others, as cited by entrepreneur A_SU3: “I think the competitive mindset is also dependent on the individual personality of the founder. For example, I like competition. I like it if others are better than I am. Then, I try to outrun them.”

Based on these findings, we propose:

Proposition 4. *The competitive element of startups' relationships in accelerators has a positive effect on the startups' development, as it increases the entrepreneurs' overall motivation to develop their startups.*

4.3. Coopetition among startups in accelerators

Overall, our data suggest that both cooperation and competition play an important role in the startups' relationships (see Fig. 1). Whereas the conventional view of interfirm dynamics suggests that relationships are either cooperative or competitive (Walley 2007), today's global markets require firms to pursue both competitive and cooperative strategies simultaneously (Luo 2004). This form of multifaceted interfirm relationship which includes both cooperative and competitive elements is named “coopetition” (Dowling et al., 1996). We find these coopetitive relationships also between startups in accelerators; however, they seem to adapt the activities and characteristics of cooperation and competition to their early-stage needs. This flexible adaptation of the coopetitive process by startups to their specific needs is in line with the dynamic and complex (Bengtsson and Raza-Ullah 2016) nature of coopetition suggested by prior research.

Therefore, we propose the following:

Proposition 5. *The startups in accelerators are involved in specific types of coopetitive relationships with each other, which are adapted to their early-stage needs.*

Moreover, our data highlight that the startups assess both elements of their coopetitive relationships to be beneficial and healthy. This is in line with prior literature arguing that coopetition is the most advantageous type of relationship between competitors – compared to pursuing only a competitive strategy – because the competitors combine their resources and capabilities and simultaneously force each other toward more innovative performance (Bengtsson and Kock 2000). Coopetition thereby combines the advantages of both cooperation and competition and “involves cooperating to create a bigger business pie, while competing to divide it up” (Luo 2004, p. 9).

The advantages and outcomes suggested in prior research on coopetition among corporations are related to innovation (Bouncken and Fredrich 2012; Park et al., 2014a, b), knowledge (Bouncken and Kraus 2013; Ho and Ganesan 2013; Song and Lee 2012), performance (Lechner et al., 2016; Luo et al., 2006), efficiency (Peng et al., 2012) and relations (Bengtsson and Raza-Ullah 2016).

In our startup-specific research setting, however, the outcomes were more related to the startups' early-stage needs, which were to acquire specific resources such as networks, knowledge, markets and customers through cooperation and, simultaneously, to increase and keep up their inspiration and motivation through competition.

Thus, our study empirically shows that coopetition can also be relevant for small entrepreneurial firms (Soppe et al., 2014; Thomason et al. 2013), especially in the years after foundation (Lechner and Dowling 2003; Lechner et al., 2006), due to startups' limited size and resources (Dagnino and Mariani, 2010; Soppe et al., 2014). Coopetition therefore might make startups more resilient against the liabilities of newness and smallness.

4.4. The accelerator as a driver of coopetition

4.4.1. The Accelerator's role in coopetition among startups

Based on our data, it seems that the accelerator holds a unique role in regard to the coopetitive relationships between startups. Specifically, the accelerator seems to be an external driver of coopetition. Most prior literature on coopetition discusses the intentional and deliberate formation of coopetition by the involved firms (e.g. Bengtsson and Kock 2000; Faems et al., 2010; Soppe et al., 2014) through internal drivers (Bengtsson and Raza-Ullah 2016). However, coopetition can also be an unintended and therefore emergent strategy driven by the external environment (Mariani 2007), such as the accelerator program. In particular, this role as a driver of coopetition seems to go beyond a pure broker role, which has been found by Ahmad and Ingle (2011) in regard to the relationship between incubator managers and incubated firms.

Our data particularly indicate that the accelerator possesses different tools (see Fig. 2) – which can be categorized into *events*, *communication* and the *coworking space* – that are capable of triggering coopetitive behavior among early-stage startups. The tool category *events* includes the introduction week, workshops, socializing events, pitching practice, status reports, startup events, so-called “Stammtische” and the demo day. These events allow startups to connect with their peers and enter coopetitive relationships. The tool category *communication* includes the accelerator's activities regarding its role as broker, the development of motivation and pressure, the accelerators' mindset on cooperation and competition, investor and customer relations, Slack channel communication and the working climate and atmosphere. That means that the accelerator staff can actively use their communication tools, including the overall mindset and the entrepreneurial culture within the accelerator, to influence the startups' relationships in regard to coopetition. This is in line with prior research showing that the culture in an ecosystem can help startups in their development (Spigel 2017). Finally, the tool category *coworking space* includes the layout of the offices, exchange corners, integration in wider coworking areas, “coffee-corners” and equipment (see Table 5). The coworking space thus enables the startups to further immerse themselves in the coopetitive relationships through physical proximity.

Based on our data, it seems that, depending on the number and intensity of the tools being used, the accelerator triggers different types of coopetition. In prior literature, coopetition has been classified into different types (Bengtsson et al., 2010; Bengtsson and Kock 2000; Lado et al., 1997; Park et al., 2014b) based on different combinations of high and low levels of its two elements, cooperation and competition (Bengtsson et al., 2010). These different types are weak,

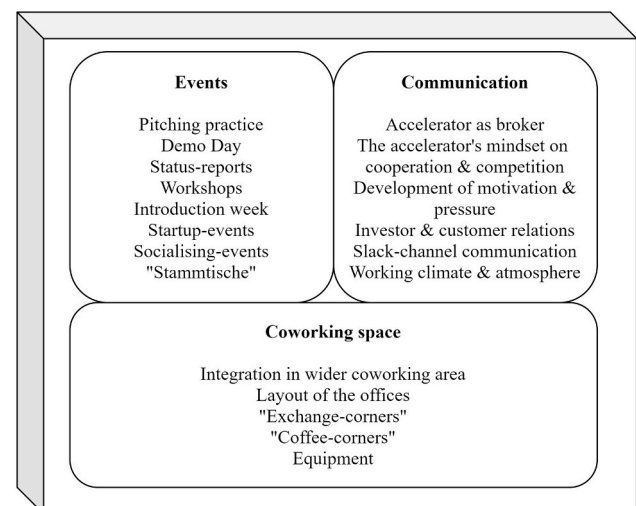


Fig. 2. Accelerators' Coopetition Toolbox (Source: Own illustration.).

Table 5
Accelerators' coopeition tools.

Coopetition tools	Example quotes
Events Pitching practice: Some accelerators offer pitching practice, where each startup has to do a pitch on stage in order to improve themselves through feedback from the accelerator staff and from other startups. Demo day: The final pitching event is one of the specific characteristics of accelerators where investors, mentors, entrepreneurs and other participants in the startup scene are invited. Status reports: Some accelerators regularly organize status reports, for example, every two or four weeks, to provide the startups with the opportunity to present their tasks, successes and challenges and discuss with their peers. Workshops: Workshops serve to impart knowledge to the startups about business-related topics such as strategy & product development, IT & design, finance & legal, marketing & sales, media & communication, leadership, etc. (example taken from the homepage of accelerator F). Usually, the startups work closely together on these workshops and exchange feedback. Introduction week: Some accelerators offer an introduction week to facilitate getting to know each other by conducting fun events, workshops or networking events with mentors. Startup events: These startup events may include, for example, trade shows, investor days and additional pitching events. Socializing events: In addition to the introduction week, most accelerators offer socializing events, such as playing sports, eating and drinking together, or watching games, so that the startups become acquainted. “Stammtische”: “Stammtische,” such as regular breakfasts, beer after work or barbecues, are also aimed at making the startups exchange ideas and feedback and network with each other. Communication Accelerator as broker: Most accelerator team members and managers are well informed about the startups, their strengths and their challenges. Therefore, they can easily act as “broker” and bring together startups which might cooperate well. The accelerator's mindset on cooperation & competition: Most accelerators have a predefined attitude toward cooperation and competition among the startups within their programs. They evaluate either both or one of them to be beneficial or useless and transfer this evaluation to the startups through their communication. Development of motivation & pressure: The accelerators can generate motivation as well as pressure among the startups through their communication. They can, for example, encourage them, set deadlines, compare them to each other, etc. Investor & customer relations: Another way to stimulate either cooperation or competition (but mostly competition) is through investor and customer relations. Slack channel communication: Most accelerators offer Slack, which is a tool to facilitate communication among team members. Therefore, the startups have the opportunity to communicate with the accelerator staff as well as with the other startups while outside the coworking space. Working climate & atmosphere: The accelerator can create a specific climate or culture through their policies, practices, procedures as well as behaviors. Coworking Space Integration in wider coworking area: Accelerators can either provide a coworking space on their own where exclusively startups of the accelerator program work or integrate into a wider coworking area where other startups, entrepreneurs, accelerators, incubators, etc. also take part. Layout of the offices: The structure of the accelerator's coworking space differs. Some offer separate rooms for each startup, while others provide large open spaces with different desk groups. Additionally, some provide conference rooms, telephone rooms and quiet rooms. “Exchange-corners”: Some accelerators provide special places where startups can easily meet and exchange, such as a common living room or a large table in the kitchen to eat lunch together. “Coffee-corners”: The kitchen as well as “coffee-corners” are often also provided for the additional purpose of stimulating exchange among the accelerator participants. Equipment: There is also lots of scope in how to equip the coworking space, for example with sofas, dining tables and foosball tables.	“We developed a very good relationship, and we help each other. For example, twice a week we have public pitch sessions (...) we all get together to provide people with feedback.” E_SU1 “That's how they foster this competitiveness: by putting things like demo day as the ‘carrot.’” – D_SU1 “Although competition is not the main focus of the status reports, they created a certain motivation.” – F_SU2 “In the ‘positioning and sales’ training, the trainer always goes through each startup's business idea. And then the startups give feedback to and receive it from each other (...) they help each other to improve their idea. And the same occurs at the business model canvas or pitching training.” – B_1 “Mostly through fun events to break down the barrier. For example, at the beginning, we do a boat trip, we go for dinners, etc. The idea is that they become more comfortable approaching each other – (...) instead of being so anonymous” – E_1 – “[The accelerator team] also organizes activities which are independent from the accelerator program itself in order to get to know each other better. (...) for example, watching an ice hockey game or going to a market or eating pizza together.” – A_Alumnus2 “Every Friday, when we have a breakfast meeting, we all talk together what has been done, what are challenges and so forth. We use it as a sounding board and for brainstorming.” – C_1 – “The accelerator is in close contact with each team, and therefore (...) I would say the accelerator acts a bit like a broker.” – D_SU2 “They teach us that we are all a big team. Their aim is not to produce fighting machines but to foster collaboration.” – F_SU6 “[the accelerator fosters this kind of competitive mindset when the accelerator manager is] coming out of the office, saying, ‘How many pilots are close? Come on, guys! Demo day's 24 days away!’” D_SU1 “When we're doing the pitches [for customers and partners] (...) we pitched in front of five different audiences (...) so it's a case of people that were, at the end of it, saying, ‘We're interested in that. Send me your details. Let's get in touch.’ So, I think it got a bit competitive then.” – D_SU4 “And we are using Slack. Sometimes people post there if they need support on something. That is a good communication tool.” – C_SU3 “And that is exactly how we wanted to build our accelerator: an accelerator that is approachable, where no one has to be frightened to pitch. (...) Instead, we want to communicate at eye level. (...) That is also why we defined our corporate identity and the physical layout here so that everyone feels comfortable.” – A_1 Based on observations. “The atmosphere here is definitely characterized by openness. You find a place that is open to your ideas (...) and helps you to reach your goals. (...) And the open space really helps. You can just stand up, talk with other people in any moment without walls, without separations.” – B_SU2 “The accelerator had this large living room which they furnished with different seating possibilities and a football table where we could meet and exchange. They really created places for exchange.” – A_Alumnus2 Based on observations. Based on observations.

balanced-strong, cooperation-dominant and competition-dominant coopetition (Bengtsson et al., 2010; Bengtsson and Kock 2000; Park et al., 2014a, b). In our study, the accelerators seem to trigger in particular cooperation-dominant, weak and balanced-strong coopetition. They do not, however, trigger competition-dominant coopetition, since it seems that accelerators do not give priority to competition.

Furthermore, our research demonstrates that unintended and induced coopetition does not necessarily require acknowledging the partner before attending the accelerator program. Cooperating and

competing can emerge simultaneously from scratch through the external environment. We therefore propose:

Proposition 6. *The accelerator acts as an external driver of coopetition among startups through its toolbox, including events, communication and the coworking space.*

4.4.2. The moderating effect of the Accelerator's industry focus

Our data further suggest that the effect of the accelerator's toolbox on the startups' coopetition is influenced by the accelerator's industry

focus. While many accelerators are generalists across industries, others have an industry focus such as healthcare, energy or digital media (Drori and Wright 2018; Hochberg 2016). One reason for strategically selecting firms from the same sector is to allow the pooling of resources and to encourage knowledge and experience sharing (Ahmad and Ingle 2011). We found that if the accelerator has an industry focus, the startups seem to cooperate and compete more extensively through the accelerator's tools. This result is in line with prior incubator research showing that if the startups within an incubator have something in common, for example the same industry sector, cooperation is more likely to occur (Schwartz and Hornych 2008), as it facilitates sharing knowledge and technical resources (Chan and Lau 2005). Therefore, the industry specialization of incubators has been argued to increase the networking and cooperative interactions among the startups (Schwartz and Hornych 2008).

In our study, we find similar results in the context of accelerators as for incubators. Even though the accelerators investigated seem to avoid supporting direct competitors – as stated by C.1, “It is very important for us that none of the startups are direct market competitors. We select them on purpose because we want them to help and support each other” – the startups seem to cooperate better when they operate in the same industry, for example, through pitching practice sessions, workshops, status reports and exchange corners. Simultaneously, the same industry focus seems to strengthen competition, which arises from tools, such as the demo day and the activities of the accelerator triggering pressure and motivation, as the startups are more likely to be market competitors (for quotes, see Table 6, construct “industry focus”). One example is Accelerator D, which accepts only startups from the media industry. Within this accelerator, the startups seem to both cooperate and compete more intensely than in the other accelerators. On the one hand, they are able to help each other better and come up with many ideas for joint projects. On the other hand, they compete more intensely for investors and customers (for further examples, see Table 6, construct “industry focus”). As a result, we propose that an industry focus of accelerators moderates the effect of the accelerator's toolbox on the startups' cooperative relationships. More precisely, we propose that:

Proposition 7. *The industry focus of an accelerator strengthens the effect of the accelerator on the startups' cooperation and competition.*

Altogether, accelerators seem to take on a special role in the startups' relationships. It appears that they drive startups' cooptition through different tools, such as events, communication and the coworking space. Depending on which tools they use and with what frequency and intensity, accelerators create cooptition. Furthermore, accelerators' industry focus seems to play an important role in triggering cooperative and competitive relationships among startups.

Table 6
Moderating Effect: Industry Focus

Construct	Amount of evidence	Selected quotes
Industry focus	Total: 24 Startups: 14	“For us, it depends on the similarity. If one startup is similar to us, we consider it automatically to be a competitor in a certain way.” – A_Alumnus2
	Accelerator staff: 10	“In the first cohort, the startups operated in different fields. Therefore, there was not much exchange among the startups. In the current cohort, there are two teams who have similar customers. Therefore, they exchange more intensively.” – A_3 “If they target the same industry, the competitive mindset is stronger. For example, yesterday in the status report, the two startups tested (...) each other to find out: Are they our competitors? And if yes, how can we approach them?” – F_1

5. Summary and implications

5.1. Summary of the main results

In light of the increasing practical relevance of accelerators, scholars have started turning their attention toward this new phenomenon. Recent studies have created substantial understanding in regard to accelerators' characteristics and designs (e.g. Cohen et al., 2019; Cohen and Hochberg 2014; Pauwels et al., 2016), their effects on startups (e.g. Cohen et al., 2019; Cohen et al., 2018; Del Sarto et al., 2020; Hallen et al., 2019; Naulin and Moritz, in press; Yu 2020) and the wider ecosystem (e.g. Fehder and Hochberg 2015; 2018; Goswami et al., 2018). Nevertheless, to date, little research has been conducted to fully comprehend the impact of the specific environment in accelerators on startups. In particular, the types of relationships among startups in accelerators have not yet been investigated. This is, however, important, since cooperative relationships have the potential to mitigate startups' liabilities of newness and smallness. Therefore, the aim of our study was to explore if and how startups establish relationships within accelerators and what role the accelerator plays therein.

The key result of our study is that relationships among startups in accelerators include both cooperative and competitive elements, and therefore, accelerated startups seem to establish cooptitive relationships. However, compared to corporations that practice cooptition, early-stage startups apply different forms to cooperate and compete with each other. It seems that they intuitively and flexibly adapt cooperation and competition to their specific early-stage needs. Specifically, cooperation is conducted either through joint projects or through the personal exchange of ideas, feedback and help. Cooperation seems to play an important role for startups in accelerators and appears to be linked to successes for the involved firms. While in previous cooptition literature, the cooperative part of cooptition is supposed to provide the involved parties with access to resources such as time, competence, market knowledge and reputation (Bengtsson and Kock 2000), early-stage startups in accelerators are provided with access to important networks, business and technological knowledge, markets and customers through cooperation.

Competition in accelerators occurs on the firm level for the accelerator's internal and external resources, as well as on the individual level for reputation. Even though we find competition among the startups, they describe it as healthy, and it seems to particularly fuel their motivation. This is in line with prior research finding that the competitive element of cooptition motivates firms to develop new markets and products (Bengtsson and Kock 2000).

In addition, we find that accelerators play a key role in the startups' cooptitive relationships. Through its toolbox, including events, communication and the coworking space, the accelerator acts as an

Table 7
Summary of propositions.

No.	Propositions
1	The startups in accelerators cooperate through joint projects and exchange.
2	The cooperative element of startups' relationships in accelerators has a positive effect on the startups' development by providing access to networks, knowledge and markets.
3	The startups in accelerators compete (a) for internal as well as external resources on the firm level and (b) for reputation on the individual level.
4	The competitive element of startups' relationships in accelerators has a positive effect on the startups' development, as it increases the entrepreneurs' overall motivation to develop their startups.
5	The startups in accelerators are involved in specific types of cooptitive relationships with each other, which are adapted to their early-stage needs.
6	The accelerator acts as an external driver of cooptition among startups through its toolbox, including events, communication and the coworking space.
7	The industry focus of an accelerator strengthens the effect of the accelerator on the startups' cooperation and competition.

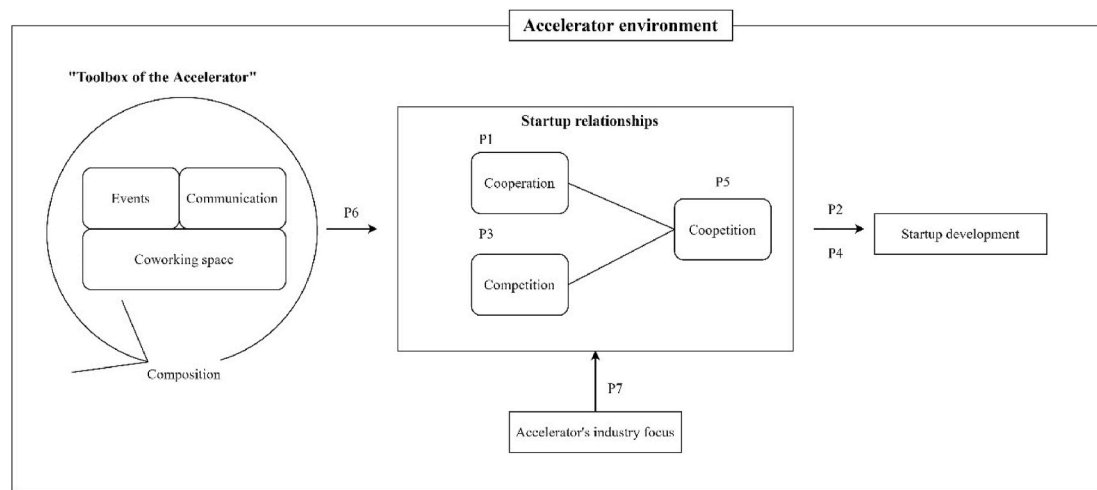


Fig. 3. Theoretical framework.

important driver of coopetition and determines which types of coopetition develop. As the participating startups in accelerators are typically not related before the program, these coopetitive relationships emerge from scratch through the external environment. Furthermore, we find that the industry focus of the accelerators seems to moderate the creation of coopetition. We provide seven propositions to summarize our results (see Table 7) and provide a starting point for future research (see Fig. 3).

5.2. Theoretical contributions

First, our study contributes to the literature on accelerators by critically investigating their role in the formation of different types of relationships among early-stage startups. Due to the newness of accelerators, there are only scarce research findings (Dempwolf et al., 2014) about their impact and efficacy on the entrepreneurial landscape (Hochberg 2016). Given that a substantial amount of resources are invested in accelerator programs by public and private players, with the hope of many local governments to transform local economies, there is a need to better understand the impact of accelerators on startups' development (Hochberg 2016). Prior literature approaches this need by empirically assessing accelerators' impact on startups and on the wider ecosystem (Fehder and Hochberg 2015, 2018; Goswami et al., 2018). We contribute to this discussion by combining both perspectives. In particular, we provide evidence that the specific environment provided by the accelerator plays a key role in startups' relationship-building. Furthermore, through its tools, the accelerator creates an environment that has a significant influence on the startups and their respective relationships toward cooperation, competition and even coopetition, which can positively affect startups' development.

Second, our study adds to previous research on coopetition specifically in the field of entrepreneurship (Lechner and Dowling 2003; Lechner et al., 2006; Soppe et al., 2014). We show that coopetition also exists among early-stage startups in accelerators. Previous coopetition research has mainly focused on large corporations and has neglected SMEs (Gnyawali and Park 2009; Park et al., 2014b) and especially startups (Gast et al., 2015). Coopetition, however, has been argued to also be relevant for entrepreneurial firms (Soppe et al., 2014). On the one hand, the specific characteristics of accelerator programs, such as the cohort-based structure, the joint coaching and mentoring sessions, the limited time span and the final demo day, help to establish cooperative relationships between startups. On the other hand, we find that startups in accelerators compete for internal and external resources as well as reputation. Hence, our study indicates that both cooperative and competitive, thus coopetitive, relationships among startups are relevant

in their daily coexistence in the accelerator program. On top of that, we find that startups coopete intuitively and flexibly, adapting both cooperation and competition to their early-stage needs to benefit most from their relationships.

With our findings, we further show that the external environment can play an important role in the formation of coopetitive relationships (Bengtsson and Kock 2000; Faems et al., 2010; Mariani 2007; Soppe et al., 2014). Specifically, accelerators can trigger these coopetitive relationships by providing a specific environment with their coworking space, their overall climate as well as their communication and events. Additionally, we show the relevance of the unintentional and emergent development of coopetitive relationships among early-stage startups. In other words, coopetition might be unintended by the startups but emerge through the external environment, such as the accelerator. Most coopetition studies so far focus on the intentional and deliberate formation of coopetition by the involved firms (e.g. Bengtsson and Kock 2000; Faems et al., 2010; Soppe et al., 2014). Prior literature has shown, however, that coopetition can also be unintended and induced by the external environment, such as by institutions and policy makers, for example, by imposing the requirement for competitors to cooperate (Mariani 2007). We add to this literature stream by showing that not only institutions and policy makers but also entrepreneurial environments such as accelerators can induce coopetition.

Finally, we contribute to the literature on the outcomes of coopetition. Whereas prior literature mostly investigated coopetition outcomes for large firms, such as its effect on innovation, knowledge and performance enhancement (Bengtsson and Raza-Ullah 2016; Bouncken and Fredrich 2012; Lechner et al., 2016; Luo et al., 2006; Park et al., 2014b), we find that coopetitive relationships among startups can affect their overall development. More specifically, the cooperative element of startups' relationships can have a positive effect on startups' network, knowledge and market development. With that, we add to prior research which argues that cooperation is important for startups to compensate for missing resources (Baum et al., 2000). Furthermore, cooperative networks have been found to be of high importance for startups to manage today's complex markets (Galkina and Chetty 2015; Gnyawali and Madhavan 2001; Gnyawali and Park 2009). Additionally, we find that the competitive element of startups' relationships can increase the entrepreneurs' overall motivation to develop their startups. With that, we show that both elements of coopetition contribute to startups' development.

5.3. Managerial implications

Our findings have several managerial implications. Accelerators

should be aware of their critical role as a driver of coopetition for startups and of the different tools they could use to trigger both cooperation and competition. Furthermore, accelerators should understand that cooperation and competition can each have positive effects for startups and, consequently, the success of their program. Cooperative relationships, on the one hand, help startups to advance their business, technology and pitching capabilities, and on the other hand, certain competitive environments can increase their motivation. With that, accelerators help startups to gain experience to manage these relationships not only during the time within the accelerator but also for their future development.

For startups, this study provides an understanding that both cooperation and competition can have positive effects for their firms in terms of increased motivation, access to networks, and business and technological advice. These effects are likely to be higher if they use the coworking space provided, as physical attendance increases the contact with other startups as well as the accelerator. With this knowledge, startups can actively establish coopetitive relationships and exploit them through accelerators but also through other types of startup centers, such as coworking spaces or incubators.

Finally, since local governments are interested in using accelerators to foster local economies (Del Sarto et al., 2018), our study also has policy implications. Based on our findings, it seems promising to support accelerator programs, since they can foster local entrepreneurial activity and interaction among startups. In particular, policy makers can establish an entrepreneurial landscape of innovation in their region and increase their attractiveness for local and even non-local startups by supporting accelerators.

5.4. Limitations and future research

Our study has some limitations. First, due to the specific nature of each case, statistical generalizations of our findings to the populations of accelerators and startups cannot be undertaken. Our explorative research instead aims at analytically generalizing our set of results through replication logic. In particular, we focused on German accelerators as a relatively new player in the entrepreneurial ecosystem in Germany. Therefore, our results cannot simply be transferred to other geographical areas due to the different characteristics of the entrepreneurial finance markets but also cultural differences, which are reflected in the business models of accelerators (Isabelle and Del Sarto 2020). Hence, a replication of our study in other geographic markets would be recommendable. Second, we did not conduct a longitudinal case study, which would have followed the startups beyond the accelerator program. Future research could analyze how startups carry on their coopetitive relationships beyond the accelerator program and what impact the relationships have on their further development. Third, with our study, we are not able to specify quantitatively which combination and strength of the accelerator's tools, namely, events, communication and the coworking space, lead to which coopetition type among the startups. To be able to develop an even deeper understanding of the proposed relationships, it would be interesting to investigate these further in a large-scale study. In addition, the sampled cases in our study reflect a wide heterogeneity of accelerators in terms of location and business model. Therefore, our study generalizes across the phenomenon of "accelerators" and cannot specify the accurate coopetition situation in each accelerator model. Finally, our study took place before the pandemic crisis due to COVID-19. Due to the economic effects of the crisis, the business models of accelerators might need to change with regard to the accelerators' own sustainability but also to their support for startups (Isabelle and Del Sarto 2020). Future research should consider these changes and investigate how the positive effects for startups identified in our study can be realized in a (more digitized) post-COVID-19 world.

Altogether, our study can help to better understand the importance of coopetitive relationships in the early stages of startups – especially in

the pre-seed and seed phases of acceleration – and provide useful information about accelerators' role in startups' relationships for diverse stakeholders.

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Declarations of interest

None.

Interview guidelines

Interview Guideline for Startup Team Members.

Greeting.

(...)

General questions about the person and startup.

- Gender: ☐ male ☐ female
- May I ask for your age? (years)
- What is your highest educational qualification?
- In which subject did you graduate?
- Before your current startup, had you ever founded another company? ☐ yes ☐ no
- For how long have you been working?
- What position do you have in your startup?
- When was your startup founded?
- How many employees does your startup have?
- In which stage is your startup? ((pre)Seed,⁴ Startup,⁵ Expansion,⁶ Later Stage⁷)
- How did you finance your startup before the accelerator program? (family and friends, funding programs, business angels, other financing sources, etc.)
- In which industry is your startup active?
- Is your product or service already protected by, e.g., a patent?

General questions about the accelerator program.

1. You are taking part in this accelerator program at XY. I am interested in the reasons for your participation. Would you please tell me why you chose to take part in this program?
2. How well have your expectations been met until now?
3. What value-added does the accelerator provide you with?

Set of questions 1 – Relationship: startup team–accelerator team.

Now I would like to talk to you about your relationship with the accelerator team.

1. How would you describe your relationship with the accelerator team?
2. How do you perceive the support of the accelerator team?
3. How would you describe your relationship with your mentors?
4. How do you perceive the support of your mentors?

Set of questions 2 – Relationship: startup team–startup team.

We just discussed your relationship with the accelerator team and

⁴ (pre)Seed Stage: Foundation preparation, development of product/concept, market and situation analysis.

⁵ Startup Stage: Foundation of the firm, product development until market maturity, marketing concept.

⁶ Expansion Stage: Production start, market entry, growth financing.

⁷ Later Stage: Preparation of exit, MBO/MBI.

your mentors. Now I would like to talk about your relationship with the other startup teams.

1. How would you describe the relationship between your startup team and the others?
2. How does the presence of the other startups affect you and your startup?
3. What advantages and disadvantages do you perceive from being together with the other startups within the accelerator?

Set of questions 4 – Characteristics of the relationships.

Now I would like to talk with you in a bit more detail about your relationships with the other startups in the coworking space.

1. To what extent/how do the startups cooperate with, support and help each other?
2. How does the accelerator foster the cooperation/mutual exchange of the startups?
3. What situation of cooperation with one or more other startups was especially helpful? And why?
4. What situation of cooperation with one or more other startups was less helpful or did not work properly? And why?
5. If you had to assess very concretely, on a scale from 1 to 5, how strong is the cooperation thinking among the startups?
1: very strong; 2: strong; 3: neutral; 4: weak; 5: very weak
6. How does the cooperation/interplay/exchange with your peers influence you and your startup?
7. Do you think that there is competition/a competitive mindset among the startups within the accelerator?
a. [No] Why?
b. [Yes] How does this show in everyday life in the accelerator?
c. [Yes] Which elements within the accelerator foster competition?
d. [Yes] How do you assess this competitive mindset? And why?
8. How does the accelerator foster a competitive mindset among the startups?
9. If you had to assess very concretely, on a scale from 1 to 5, how strong is the competitive mindset among the startups? 1: very strong; 2: strong; 3: neutral; 4: weak; 5: very weak
10. How does the competition/competitive mindset influence you and your startup?
11. What factors determine whether you behave cooperatively or competitively?
12. How do you describe your own personality? (e.g., cooperative, supportive, competitive, helpful, ambitious, etc.)
13. How do you perceive the privacy of your startup and the protection of your ideas and strategies within the accelerator?

Set of questions 6 – Effects on the startups.

Now I would like to talk with you about the effects of the participation at the accelerator on your startup.

1. How does the participation affect you and your startup?
2. Please remember the time before you started the accelerator program. How do you perceive the development of your startup and yourself from then until today?
3. What do you feel when you think about the time after the accelerator program?

Final question.

Would you like to add any important aspect which you think was not considered enough?

End.

Thank you very much for your openness and for participating in the interview.

Interview Guideline for Accelerator Team Members.

Greeting.

(...)

General questions about the person and accelerator

- Gender: ☐ male ☐ female
- May I ask for your age? (years)
- Which is your highest educational qualification?
- In which subject did you graduate?
- Have you ever founded a company before? ☐ yes ☐ no
- For how long have you been working?
- What position do you have in the accelerator?
- How many employees does your accelerator have?

General questions about the accelerator program

1. You offer an accelerator program for startup companies. I am interested in the goals of your accelerator program. Would you please tell me more about the goals of the program and how you support the startups?
2. What value-added do you provide the startups with?

Set of questions 1 – Relationship: accelerator team–startup team.

Now I would like to talk with you about your relationship with the startups.

1. How would you describe your relationship with the startups?
2. How do you motivate the startup teams?
3. How would you describe the relationship between the mentors and the startups? Set of questions 2 – Relationship: startup team–startup team

We just discussed your relationship with the startup teams. Now I would like to talk about the relationship between the startups. Even though you can only indirectly understand their relationship from your perspective, I am interested in your opinion.

1. How would you describe the relationship between the startups?
2. What effect does the presence of the “peer startups” have on the startups?
3. What advantages and disadvantages do you think the startups have by being together with the other startups within the accelerator?

Set of questions 4 – Relationships among the startups.

Now I would like to talk with you about the cooperation among the startups in the coworking space.

1. To what extent do the startups cooperate with, support and help each other?
2. How do you foster cooperation among the startups?
3. What situation of cooperation among the startups was especially successful, in your opinion?
4. What situation of cooperation among the startups was less successful, in your opinion?
5. If you had to assess very concretely, on a scale from 1 to 5, how strong is the cooperative thinking among the startups? 1: very strong; 2: strong; 3: neutral; 4: weak; 5: very weak
6. How does the cooperation/interplay/exchange among the startups influence the founders/startups? 7. Do you think that there is competition/a competitive mindset among the startups within the accelerator?
a. [No] Why?
b. [Yes] How does this show in everyday life in the accelerator?
c. [Yes] Which elements within the accelerator foster competition?
d. [Yes] How do you assess this competitive mindset? And why?
8. How do you, as an accelerator, foster a competitive mindset among the startups?
9. If you had to assess very concretely, on a scale from 1 to 5, how strong is the competitive thinking among the startups? 1: very strong; 2: strong; 3: neutral; 4: weak; 5: very weak

10. How does the competition/competitive mindset among the startups influence the founders/startups?
11. What factors do you think determine whether the startups behave cooperatively or competitively?
12. What do you think about the privacy of the startups and the protection of their ideas and strategies within the accelerator? Set of questions 6 – Effects on the startups

You work at the accelerator and therefore might be able to assess the outcomes/development of the startups.

1. How does participation in the accelerator program affect the founders/startups?
2. How do you perceive the development of the founders/startups during the accelerator program?
3. How ready do you think the startups are to persist on their own in the market after the program?

Final question.

Would you like to add any important aspect which you think was not considered enough?

End.

Thank you very much for your openness and for participating in the interview.

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