
Corporate Incubation:

How centralized, employee-focused innovation activities
enhance the hosting companies' innovativeness.



TECHNISCHE
UNIVERSITÄT
DARMSTADT

Dem Fachbereich Rechts- und Wirtschaftswissenschaften
der Technischen Universität Darmstadt

zur Erlangung des akademischen Grades
Doctor rerum politicarum (Dr. rer. pol.) vorgelegte

Dissertation

von

Tobias Kruft, M.Sc.
geboren in Tübingen

Erstgutachter: Prof. Dr. Alexander Kock
Zweitgutachterin: Prof. Dr. Dr. Ruth Stock-Homburg
Darmstadt 2019 (D17)

Kruft, Tobias: *“Corporate Incubation: How centralized, employee-focused innovation activities enhance the hosting companies’ innovativeness.”*

Darmstadt, Technische Universität Darmstadt,

Jahr der Veröffentlichung der Dissertation auf TUprints: 2020

Tag der mündlichen Prüfung: 05.02.2020

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Abstract

Companies in a wide range of industries increasingly build corporate incubators to meet the growing challenge of exploration and innovation while remaining efficient and productive on existing products. Particularly important for these incubators is ensuring and maintaining the relationship with the hosting company without compromising the incubator's exploration capabilities, which is a particular challenge, owing to the structural separation of the two entities. As a result, incubators try not only to achieve the highest possible benefit for the hosting company through a wide variety of objectives and strategies, but also through a combination of different activities, which has led to a myriad of different incubation concepts. In addition to the promotion of business model innovations and the maximization of revenues, the activities mainly serve the exchange of knowledge and values, as well as the promotion of innovation behavior and the hosting company's innovation culture and climate. All these activities are of the greatest relevance for the success of corporate incubators, but they involve many risks, causing a large number of corporate incubators to shut down or restructure continuously.

In particular, researchers have, thus far, hardly investigated the activities directly aimed at the hosting company, such as knowledge and value exchange, the stimulation of innovation behavior, and the improvement of the innovation culture and climate. Especially lacking is a comprehensive classification of corporate incubators according to their different goals and strategies, such that scholars can compare them from a research perspective. It is not clear how incubators can find and promote ideas and select those with the most potential. In this context, there has been insufficient research into innovation platforms in particular how to stimulate innovation behavior. Moreover, it is not clear how a cultural change in the hosting company could materialize if its supervisors do not support it.

This dissertation contributes to close these research gaps by analyzing corporate incubators' most essential activities from a postpositivist perspective. Using three different data sets on individual, group, and incubator level including platform, longitudinal, multi-level, as well as quantitative and qualitative data, this dissertation contributes to the understanding of, first, what constitutes corporate incubators and their performance, second, how corporate incubators affect employees' motivational processes and their subsequent innovative behavior, third, how corporate incubators can support idea generation and reflective idea selection processes, and fourth, how corporate incubators contribute to a behavioral change of innovation climate. This dissertation's overall findings, moreover, lead to a generic model of centralized incubation. Its effects on various other research areas with similar incubation processes are discussed.

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Chapter 1

Introduction

1.1. Motivation

Established companies increasingly face challenges to expand their innovative power and align it to the increasingly ambidextrous requirements. These challenges result from the companies' need to improve their existing products' quality while maintaining attractive prices and the simultaneous need to continuously explore and innovate in order to be adequately prepared for the future (Raisch et al. 2009). In order to meet this challenge by means of structural measures, many medium-sized and well established companies have set up corporate incubators in recent years not only as business units to accelerate new product development in a structurally ambidextrous way, but also to transform their corporate culture towards greater agility and innovation (Leifer, Colarelli O'Connor, and Rice 1993; Dushnitsky and Lenox 2005). This trend, thereby, goes far beyond high-tech companies and has gained importance worldwide and across industries. For example, companies from health, manufacturing, consumer goods, insurance, banking, and entertainment sectors, such as Merck, Daimler, Coca-Cola, Allianz, HSBC, and Disney, operate corporate incubators and continuously strive to improve them, since researchers has not yet found a universal recipe for corporate incubator success that meet all demands (Kohler 2016). In contrast to sequentially and contextually ambidextrous measures, structural measures, such as corporate incubators, do not initially influence the company's day-to-day business operations and at the same time represent a quite publicly effective instrument to improve the company's reputation (O'Reilly and Tushman 2004; Barone and Jewell 2013). However, the resulting structural independence does not protect corporate incubators from, or may even increase the risk of, failure on a regular basis up to the point of shutting down incubator programs, as far too many aspects are still unknown or misunderstood (Gibson and Birkinshaw 2004; Dutt et al. 2016).

In particular, corporate incubators must overcome five challenges which potentially inhibits the successful work of corporate incubators: first, the alignment of the incubator with the hosting company; second, the selection and execution of appropriate activities to best achieve the goals set and, third, the establishment of knowledge transfer from the new businesses to the hosting company, not least to, fourth, motivate employees to implement innovative behavior. Fifth, the incubator must then select suitable ideas from the resulting innovation behavior so as

to, sixth, be able to improve the hosting company's overall innovativeness in the long term by means of the promoted innovation activities.

First, a particular challenge of corporate incubators is ensuring and maintaining the relationship with their hosting company. Unlike other business incubators, which, for example, are government funded or operated by private investors (Grimaldi and Grandi 2005), corporate incubators do not only exchange financial resources between the funded new businesses and the operating unit in return for the operating unit's support. Instead, the hosting company seeks to obtain maximum benefits from corporate incubators by exchanging knowledge, skills, and values (Gassmann and Becker 2006). This additional exchange, which goes beyond mere financial exchange, is characteristic of all corporate incubators, even if they may differ more strongly from each other through their very own, specific concepts. However, this additional exchange makes it even more difficult for corporate incubators to be successful, since, compared to other business incubators, not only new businesses need to be incubated, but also the hosting company (Kötting 2019). For this reason, many companies host more than one corporate incubator to share roles, responsibilities, and risks – for example, a corporate venture capital unit for external incubation and an innovation lab for the internal. However, this approach may entail further challenges for exchange and coordination between the incubators, as they ideally should complement and, most importantly, benefit from each other's perspective and knowledge.

Due to the aforementioned challenge, a multitude of different incubation concepts with disparate sets of objectives and strategies have emerged and they all differ from each other in various dimensions (Miles and Covin 2002; Hill and Birkinshaw 2008; Weiblen and Chesbrough 2015; Kohler 2016; Schöll and Hirte 2018), which results in the second challenge: Due to different objectives and strategies, corporate incubators carry out numerous different activities to transfer external innovation potential to the hosting company, to stimulate internal potential from within the hosting company, and to further promote internal innovation potential within the incubator in order to maximize the exchange's benefits with the hosting company (Blindenbach-Driessen and Van Den Ende 2014; Kötting 2019). This group of very different incubation concepts and activities is not only very complex and difficult to manage from a practical perspective, since companies can only transfer lessons learned from other incubators to a very limited extent; it is also difficult to reliably explore from a research perspective (Gassmann and Becker 2006; Weiblen and Chesbrough 2015; Kohler 2016; Makarevich 2017).

Particularly critical in this regard are the corporate incubators' inward-facing activities, which focus on, first, transferring knowledge to the hosting company, second, motivating employees and stimulating their innovative behavior, third, selecting and promoting the resulting promising ideas, and fourth, generally contributing to a better working environment in the hosting company.

The third challenge, knowledge transfer to the hosting company, is particularly demanding, because the most valuable knowledge is often intangible (Grant 1996), which is why it cannot simply be stored, but has to be transferred from employee to employee via learning processes (Honig 2001; Lane, Salk, and Lyles 2001; Edmondson 2002). If, however, an entire organization needs to learn, the organization must overcome a large purported transactional distance (Moore 1993), since management must integrate many employees into this learning process, such that a face-to-face exchange for all is only possible with great effort over a long period of time (Gassmann and Becker 2006). In order to establish a continuous learning process, corporate incubators need to set up and maintain structures and processes that are capable of reaching all employees and transferring general knowledge relevant to all employees and specific knowledge relevant to certain employees only (Easterby-Smith, Lyles, and Tsang 2008; Ahuja and Novelli 2011). Setting up these structures, first, requires the right corporate incubator's objectives and strategies and, subsequently, extensive attention to detail, whereby the risk of failure is not negligible (Weiblen and Chesbrough 2015; Kanbach and Stubner 2016; Schöll and Hirte 2018; Selig, Gasser, and Baltes 2018). In order to facilitate general knowledge transfer, corporate incubators may establish digital learning platforms, which any employee can access easily (Olleros 2008; De Reuver, Sørensen, and Basole 2018), that are also resource-friendly and convenient to operate (Sedera et al. 2016). However, it is then all the more difficult to motivate employees to actually use this platform, as this is usually not part of their job description (Chatman 1989).

Fourth, motivating employees and stimulating their innovative behavior is another challenge corporate incubators have to overcome, since successful innovations typically follow invisible development paths and require individual promoters and a big portion of serendipity (Rost, Hölzle, and Gemünden 2007; Anthony, Duncan, and Siren 2014). Since firms increasingly encounter an uncertain, unstable, and turbulent economic environment, both company and employee innovativeness have become crucial for organizational success (West 2002; Ramamoorthy et al. 2005) by guaranteeing a company's sustainable competitive advantage

(Leifer, Colarelli O'Connor, and Rice 1993; Engelen et al. 2017; Shanker et al. 2017). Corporate incubators provide employees the opportunity to innovate independently from company constraints and to also profit from the entrepreneurial spirit of fostered external start-ups (Ford, Garnsey, and Probert 2010; Weiblen and Chesbrough 2015; Mian, Lamine, and Fayolle 2016). However, merely providing an opportunity is usually not enough to stimulate innovative behavior. Incubator activities must address employees' values (Klein and Sorra 1996) and fulfill their inherent desires (Reiss 2004) to be successful. Since each employee has a different value system and distinct desires, the challenges for incubators continue to rise.

If corporate incubators have managed to encourage employees adopt innovative behavior, it is necessary to collect and enrich the resulting ideas, and then to select the most promising ones for promotion in the incubator, which imposes the fifth challenge. As long as an ideation platform is available, the collection and refinement of ideas is, thereby, less problematic than the actual selection of ideas. When employees submit many ideas, which easily happens in large companies, the variety of ideas from which to select soon overwhelms the evaluators – a state known as crowding (Piezunka and Dahlander 2015). Without the right idea selection, however, the entire ideation and promotion process of the corporate incubator would suffer a major loss of potential. In order to ensure the selection of ideas with the greatest potential, the evaluators need to make reflective instead of intuitive decisions. Decisive for whether a reflective process is initiated at all within evaluators is, on the one hand, its cognitive capacity, such as motivation and expertise (Reitzig and Sorenson 2013; Criscuolo et al. 2017), as well as cognitive strain, such as the time available for evaluation (Piezunka and Dahlander 2015; Criscuolo et al. 2017). On the other hand, also the available information about the ideas plays a significant role (Di Gangi, Wasko, and Hooker 2010; Evans 2011; Young et al. 2012; Beretta 2019). However, especially in innovation processes, time plays a central role, which is why employees rarely invest enough effort in their ideas' detailed and understandable description, while evaluators usually do not have enough time and are unable to provide the necessary expertise to understand the entire spectrum of ideas (Piezunka and Dahlander 2015; Criscuolo et al. 2017). Thus, even when selecting ideas, the corporate incubator faces extraordinary challenges, which significantly influence the success of the subsequently promoted ideas (Kohler 2016). A more comprehensive understanding of the interrelationships involved in the selection of ideas is, therefore, of utmost importance.

Sixth, all inward-facing activities that help transfer knowledge, initiate learning processes, motivate employees, stimulate their innovative behavior, and select the most promising ideas, mainly serve two purposes: a successful business model development within the incubator and an effective increase of the hosting company's overall innovativeness. For both purposes, the hosting company's innovation climate plays a decisive role, since it can essentially nip any innovation in the bud or directly foster even the weakest ideas during their development (Amabile et al. 1996; Oldham and Cummings 1996; Büschgens, Bausch, and Balkin 2013; Hogan and Coote 2014; Zhu, Gardner, and Chen 2018). The biggest inward-facing challenge is, therefore, presumably improving the innovation climate of the hosting company's business units', as this requires a shift in the mindset of each employee, which is only achievable over a long period of time, if at all (Archer 1995; Magadley and Birdi 2009).

1.2. Research Gap and Research Questions

In this section, four overarching research questions are derived from different research directions' research gaps and the aforementioned six challenges, corporate incubators have to overcome. From these overarching research questions, the specific research questions for each research article are then derived in Section 1.4.

While scholars have studied business incubators intensively in literature, corporate incubator literature is still rare. Yet, corporate incubators form part of many typologies of business incubators and the applicable business incubator literature might also explain the support of new business in corporate incubators. However, literature on the outside-in processes of corporate incubators (Weiblen and Chesbrough 2015) still provides only a limited and high-level understanding. Researchers have studied general mechanisms about the resource flow and knowledge exchange between a corporate incubator and its hosting company. For example, Gassmann and Becker (2006) proposed an exchange of resources, knowledge, intellectual property, and services not only from the incubator to the new venture, but also to the hosting company. Especially the differentiation and application of several knowledge modes help manage knowledge flows effectively. In another study, corporate venture capital has proved to foster the investing company's innovation rate in weak intellectual property regimes if their absorptive capacity is high (Dushnitsky and Lenox 2005), which implies the importance of knowledge transfer to the incumbent. Furthermore, Weiblen and Chesbrough (2015) proposed basic mechanisms and best practice of how corporate incubators can drive product and business model innovation. Overall, however, literature that empirically, especially quantitatively,

investigates the influences and underlying mechanisms of corporate incubators on individuals in the hosting company, is scarce.

Knowledge exchange and learning processes between the hosting company, incubator, and new businesses strongly depend on the incubator's objectives and resulting strategies (Hill and Birkinshaw 2008; Kötting 2019). In order to distinguish between various types of corporate incubators, which arise in practice and, as previously outlined in the first two challenges, differ significantly from one another in terms of their objectives and strategies, it is first necessary to categorize corporate incubators. Several suggestions exist in literature (Weiblen and Chesbrough 2015; Kanbach and Stubner 2016; Schöll and Hirte 2018; Selig, Gasser, and Baltes 2018). However, scholars have not yet categorized and tested corporate incubator types comprehensively; instead, current research justifies its approaches more conceptually than empirically, in which academics only take a few distinguishing aspects into account (Kötting 2019). Moreover, scholars have also investigated the objectives' and strategies' influence on corporate incubators' performance only on the basis of a small number of criteria (Becker and Gassmann 2006a; Hill and Birkinshaw 2008). The first overarching research question is therefore:

RQ1: What constitutes corporate incubators and their performance?

Researchers have already examined the employees' motivation and the promotion of their innovative behavior several times in the literature (Scott and Bruce 1994; Janssen 2001; Birdi, Leach, and Magadley 2016), which could already help overcome the fourth corporate incubator challenge. In particular, the researchers investigated, on an individual level, aspects like propensity to innovate (Bunce and West 1995), mastery orientation (Janssen and van Yperen 2004), intrinsic interest (Yuan and Woodman 2010), problem-solving style (Scott and Bruce 1994), and problem ownership (Dorenbosch, Engen, and Verhagen 2005). However, the researchers also examined certain organizational factors, such as supervisory behavior (Scott and Bruce 1994; Tierney, Farmer, and Graen 1999; Mumford et al. 2002), transformational leadership and leader-member exchange (Basu and Green 1997; Yuan and Woodman 2010; Pieterse et al. 2012; Sethibe and Steyn 2017), as well as support for innovation (Chandler, Keller, and Lyon 2000; Engelen et al. 2017), job autonomy (Axtell et al. 2000), and job challenge (De Jong and Kemp 2003). However, the corporate support systems' impact on innovative work behavior has only rarely been investigated (Engelen et al. 2017). Specifically,

there is no evidence if corporate incubators can increase innovative behavior and which mechanisms might play a role. According to Kolympiris and Klein (2017), university incubators can even worsen the quality of a university's innovation activities, since incubators compete with other innovation-related activities and resources of the university. The incubator's impact on the hosting unit's innovation behavior is, therefore, not clear in the literature. Likewise, for digital platforms, which corporate incubators can use to reach employees effectively and efficiently, evidence on the innovative behavior's effects is scarce. Although there has been a considerable amount of research on how digital platforms can stimulate innovation, scholars have mainly considered this effect at the institutional level instead of the individual level (Rai and Tang 2010; Chakravarty and Grewal 2013; Nambisan 2013; Nylén and Holmström 2015; Sedera et al. 2016). Hence, the second overarching research question is:

RQ2: How do corporate incubators affect employees' innovative behavior?

While researchers have already examined the influence of the innovation climate on innovation behavior to a certain extent (Amabile 1988; Scott and Bruce 1994), they have not yet examined how a social system, such as innovation climate, combined with a structural system, such as a corporate incubator, affects innovative behavior. Depending on the innovation climate's characteristics in certain areas of an organization, the incubator initiatives may have different effects, which could be the reasons for the sixth corporate incubator challenge, namely, how to improve the hosting company's overall innovativeness. One can argue that corporate incubators complement innovation climate in that they enhance the innovation climate's positive effect on innovative work behavior and vice versa (Eisenberger et al. 1986; Amabile et al. 1996; Armeli et al. 1998). However, corporate incubators may also serve as a substitute for innovation climate, such that the benefits of incubators are higher if the innovation climate is not yet well established. A more differentiated perspective on innovation climate might be an approach to resolve this contradiction. Usually, academics consider either the individual perception in terms of psychological climate or the shared perception of organizational climate (Schneider and Bartlett 1968; Glick 1985; Baltes, Zhdanova, and Parker 2009) in research models, although these perceptions indicate two different aspects and might, therefore, complement each other (Denison 1996). Furthermore, while the literature on climate, innovation, and creativity in general is huge (Abbey and Dickson 1983; Amabile 1988; Damanpour 1991; Janssen 2001; Büschgens, Bausch, and Balkin 2013), there is still some

potential for a holistic and operationalized view of the innovation climate that corresponds to the current state of research. Likewise, how incubators can influence innovation climate is also not clear in the literature. The Lewinian theory's prevailing perspective in organizational climate literature calls for a strict top-down influence of the innovation climate via the respective departments' supervisors (Lewin 1951; Denison 1996). The supervisors may play an important role in influencing the innovation climate (Zhang and Bartol 2010), but with the prevailing perspective it is theoretically not possible for employees to exert a bottom-up influence on the climate bottom-up in which they work (Denison 1996). However, these mechanisms seem to occur successfully in practice, arising from corporate incubators without research being able to explain them from a theoretical point of view which leads to the third overarching research question:

RQ3: How do corporate incubators impact innovation climate and how do they affect the relationship between innovation climate and innovative behavior?

In order to reduce innovation barriers, due to easily accessible innovation processes and structures, organizations increasingly try to leverage individual creativity (challenge four) and to promote knowledge exchange (challenge three) by implementing online ideation platforms (Poetz and Schreier 2012), which can function as a reliable supplier of innovative ideas from a corporate incubator's perspective. Literature on ideation platforms has recently gained much attention. Academics have analyzed several different kinds of ideation platforms and processes to gain a better understanding of the antecedents of idea quality, quantity, and selection. Scholars have studied antecedents on individual (Füller, Hutter, and Faullant 2011; Bayus 2013) and idea level (Beretta 2015; Schemmann et al. 2016), as well as organizational and campaign level (e.g., Piezunka and Dahlander 2015). While many studies have investigated external crowdsourcing of ideas (e.g., Schemmann et al. 2016; Gatzweiler, Blazevic, and Piller 2017), relatively few studies have investigated corporate online ideation platforms that tap into the creativity and knowledge of employees in closed corporate settings (e.g., Beretta, Björk, and Magnusson 2017). From an evaluator's perspective, research increasingly focuses on which factors influence evaluators in their decision-making and whether evaluators, consequently, tend to make intuitive or reflective decisions, which may explain, why the sixth challenge of corporate incubators, choosing the right ideas, could be such a difficult challenge. Reitzig and Sorenson (2013) find that evaluators prefer submissions from inside their own unit, due to motivational reasons. Piezunka and Dahlander (2015) argue that too many submitted

ideas narrow the attention of organizations and for this reason evaluators are more likely to pay attention to submissions that they find more familiar in order to reduce the idea selection workload. Criscuolo et al.'s (2017) finding show similar results. Here, the evaluators' workload reduces the preference for novel ideas. One should avoid such biases wherever possible, such that only the ideas with the greatest objective potential are selected. However, it is still difficult to determine what influences decision-making towards intuitive and reflective decisions in idea competitions. The fourth overarching research question, therefore, arises:

RQ4: Under which circumstances do evaluators in corporate idea contests make intuitive or reflective decisions?

1.3. Scope of Corporate Incubator Activities

As the research questions have been identified, it is important to first build an understanding of what activities corporate incubators can involve and how corporate incubators may differ from business incubators.

1.3.1. Corporate Incubators in the Context of Business Incubation

Business incubators generally intend to assist emerging ventures by helping them realize their vision to survive, scale up, and grow, and researchers term them with names, such as technology incubators, science/research/technology parks, innovation/technology centers, and business/seed accelerators (Grimaldi and Grandi 2005; Mian, Lamine, and Fayolle 2016). Although the evolution of business incubators first occurred in the USA, incubation roots etymologically in Europe. In ancient times, Roman and Greek temples served as locations for a practice called *incubatio* (lat: breeding; lie on sth.), during which people lay down on the fresh hides of sacrificed animals in order to receive visionary dreams (Aernoudt 2004). Even if the primary use of this practice was to gain insights into how to overcome diseases and survive, already in ancient time people tried to anticipate future developments with this practice. For certain fields of application, this practice's medical focus remained the same until today, since the term "incubator" nowadays also refers to facilities in which premature infants survive and grow in order to develop successfully in later years (Smilor and Gill 1986).

Business incubators became widespread in the 1980s, primarily to provide office space for many emerging ventures under the same roof (Bruneel et al. 2012). Later, they additionally provided services to start-ups in order to reduce their costs for new ventures and provide local visibility for emerging business (Grimaldi and Grandi 2005). Since then, researchers have

observed a constant, worldwide growth of business incubators (Gassmann and Becker 2006; Mian, Lamine, and Fayolle 2016), but due to a distinct increase of high-tech and knowledge-based companies with fast and diverse business models, business incubators have adapted their concepts. Meanwhile, emerging private incubators focus on shortening clients' time to market, offering high-quality and specialised services and bringing emerging businesses and big players into a common network (Grimaldi and Grandi 2005). With the rise of corporate incubators as a subset of business incubators and the growing importance of intrapreneurship (Antoncic and Hisrich 2001), the focus of the incubators' objectives extended to a more internal perspective. Besides independent start-ups, corporate incubators also nurture the growth of internal corporate ventures (Gassmann and Becker 2006). Therefore, additional objectives like improving the hosting company's own innovation climate gain increased access to the center stage. These incubators have only recently emerged as a prominent organisational form of research and development management (Hansen, Berger, and Nohria 2000).

As a result of the manifold characteristics that business incubators developed over time (Heinrichs, Tischler, and Kiel 2016), one can find many typology approaches in literature (Allen and McCluskey 1990; Grimaldi and Grandi 2005; Gassmann and Becker 2006; Pauwels et al. 2016). Typology criteria are, for example, the business model, the owning institution, the strategic goals, and the development phase of the new ventures that the business incubator fosters (Heinrichs, Tischler, and Kiel 2016). In order to distinguish corporate incubators from other business incubators, the typology by Gassmann and Becker (2006) is an appropriate option (see Figure 1: p.11).

According to this typology, Gassmann and Becker (2006) further distinguish corporate incubators from incubators that universities, the government, or independent individuals set up (Grimaldi and Grandi 2005). While non-profit incubators set up with public funds rather aim for encouraging technology transfer and entrepreneurial initiatives, privately funded incubators, instead, aim for promoting profit maximization, the emergence of new independent business units, and the commercialization of radical technologies (Bøllingtoft and Ulhøi 2005; Grimaldi and Grandi 2005; Aerts, Matthyssens, and Vandenbempt 2007; Ford, Garnsey, and Probert 2010; Heinrichs, Tischler, and Kiel 2016). In the context of this dissertation, corporate incubators encompass for-profit facilities with a focus on their hosting company's technology and innovation development. "The object of support [thereby] can be external or internal start-ups or entrepreneurs with a promising business idea or technology" (Gassmann and Becker

2006: 21). The further distinction between different types of corporate incubators is widely heterogeneous in the literature and requires a more intensive investigation, which is carried out in chapter 2.2 (p.31).

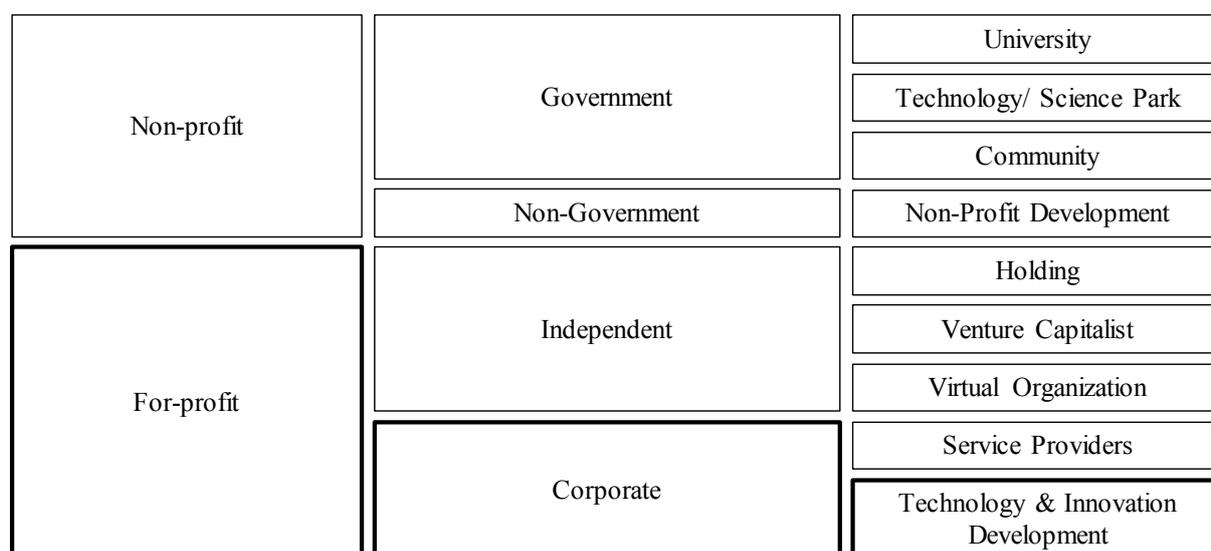


Figure 1: Corporate incubators' positioning in the context of other business incubators (Own figure based on Gassmann and Becker 2006)

1.3.2. Corporate Incubator Activities in the Hosting Company's Context

In order to ensure effective support for the development of the hosting company's technology base and innovation capabilities, corporate incubators use a multitude of different activities (see Figure 2: p.12), which result from corporate incubator research (Gassmann and Becker 2006; Hill and Birkinshaw 2008; Weiblen and Chesbrough 2015; Kanbach and Stubner 2016; Hirte 2018; Selig, Gasser, and Baltes 2018; Kötting 2019), and which one can subdivide into eight groups. First, incubators interact with the hosting company's top management to align the incubator's goals and strategies with the company's vision and mission. Second, incubators can stimulate the innovative work behavior of all employees in the company and improve the hosting company's innovation climate through appropriate processes and structures. Third, incubators collect the ideas and innovation projects resulting from the stimulated innovative work behavior via idea platforms and trigger further improvement processes through an intensive exchange amongst employees on these platforms. Fourth, incubators also seek out suitable start-ups and entrepreneurs outside of the hosting company in order to promote them in the incubator and benefit from the initiated exchange. Fifth, selected ideas, innovation projects, start-ups, and entrepreneurs then usually move into the incubator and receive support during the promotion period; in the incubator, they undergo dedicated promotion according to their origin (internal or external) and their objective (integration or spin-off). After the promotion phase, the new businesses, sixth, integrate or reintegrate into the hosting company

or evolve outside of the company's boundaries with more or less interaction with the hosting company. In particular, seventh, exerting influence on the environment's social and entrepreneurial aspects can improve corporate awareness and reputation.

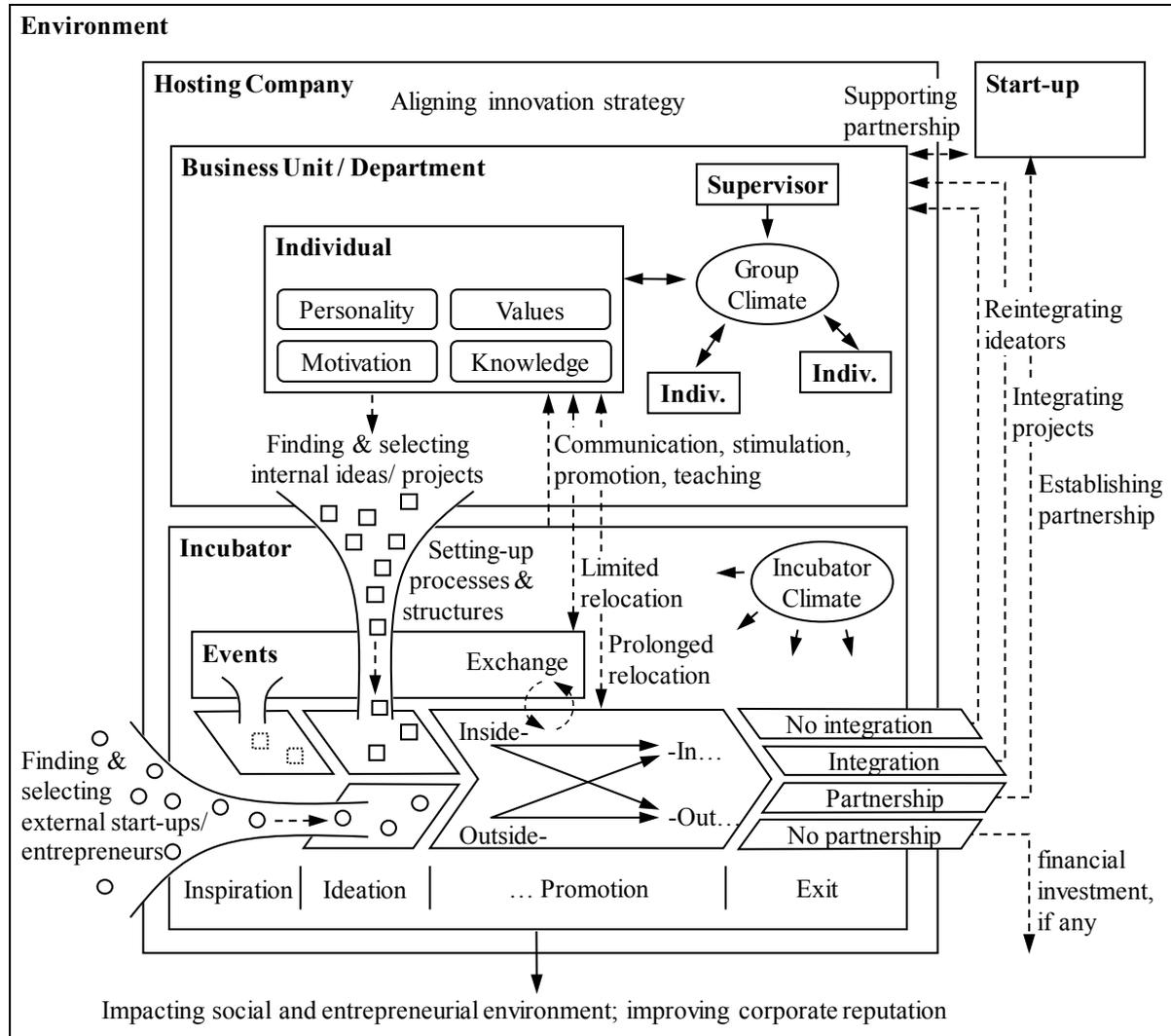


Figure 2: Corporate incubator's scope of activities

One important aspect for the effective operation of corporate incubators is their alignment with the hosting company's innovation strategy (Salomo, Talke, and Strecker 2008; Hartmann 2014). On the one hand, the corporate incubator must promote innovations that fit the company's goals, which means that the search for new businesses, the selection, and the type of support are aligned such that the successful new businesses have a maximum benefit for the hosting company (Shankar and Shepherd 2018). On the other hand, alignment with the hosting company's innovation strategy is important, as it defines the corporate incubator's ambidextrous role (O'Reilly and Tushman 2004; Raisch et al. 2009). Depending on the extent to which the corporate incubator can perform exploration activities independently, the

incubator has to arrange its scope of exchange with top management and middle management to successfully align its activities with the hosting company's needs (Balogun 2007; Cao, Gedajlovic, and Zhang 2009; Blindenbach-Driessen and Van Den Ende 2014).

To successfully promote innovations from within the company in the incubator, the incubator has to perform a series of activities in the first place. First and foremost, it has to ensure that employees are willing to share their ideas. This requires a proper innovation climate in which employees perceive their colleagues' behaviors and values to allow for new ideas, changes, and mistakes (Abbey and Dickson 1983; Ekvall 1996; Baer and Frese 2003). The incubator then has to stimulate the employees' motivation in order for the employees to actually become innovative. Here the employees' personality, values, and existing knowledge play a decisive role (Woodman, Sawyer, and Griffin 1993). A method to improve the employees' innovative work behavior is digital platforms where they can learn and exchange (Leimeister et al. 2009; Haller, Bullinger, and Möslein 2011; Beretta 2019). Another method to improve the innovation climate and stimulate the innovative work behavior is events, such as talk sessions, failure culture workshops, and method trainings in the incubator, where participants absorb new knowledge and adapt to values they are exposed to (Bandura 1962; Bandura 1977; Shalley and Perry-Smith 2001; Zhou 2003; Kosonen et al. 2014). Thereby, the incubator can also consciously promote an exchange with new businesses that are already in the incubator, which represent the incubator's innovative working climate and can stimulate new ideas. Particularly during more intensive events, such as think tanks lasting several weeks, the participants deliberately develop ideas that can mature into new businesses in the first phases of the incubation process.

In order to find employees' emerging ideas at their workplace, incubators use various structures and processes, which they specifically set up for this purpose. An example is corporate idea contests where management invites employees to submit and improve their ideas (Björk and Magnusson 2009; Beretta 2019). In contrast to externally oriented crowdsourcing contests (Chesbrough 2003; Surowiecki 2004), internal ideation contests mainly promote ideas that are novel and could reveal internal competencies, which is why these ideation contests may not take place openly for reasons of secrecy (Poetz and Schreier 2012). Given that employees submitted ideas, it is necessary to meet two important conditions in order for idea contest to successfully identify ideas with high potential for further promotion in the incubator. First, it is necessary to reveal the idea's potential in the course of the idea contest. Therefore, an

interactive and continuous exchange with other ideators is of great importance, since knowledge building can improve the submitted ideas and enables a valid evaluation of each idea (Bandura 1963; Leonard-Barton 1985; Frey, Lüthje, and Haag 2011). Second, it is necessary to ensure that the evaluators select the ideas that actually have the greatest potential. Especially the idea selection is a major challenge, as many factors like the evaluators' lack of motivation (Reitzig and Sorenson 2013), time (Piezunka and Dahlander 2015; Criscuolo et al. 2017), and expertise (Criscuolo et al. 2017) can negatively affect it. The less potential the selected ideas have, the more limited the incubator is in its promotion possibilities. The idea selection process is, therefore, crucially important for the incubator's effectiveness.

Corporate incubators use their knowledge of market trends and new technologies to successfully find external new business through open calls and scouting processes (Pauwels et al. 2016; Köttig 2019). In order to ensure a successful exchange with the hosting company during the subsequent promotion phase, the corporate incubator may already involve the hosting company's business units in this stage's decisions (Ford, Garnsey, and Probert 2010; Chen and Kannan-Narasimhan 2015). One can basically use two types of selection, each with two variants, to select external new businesses (Bergek and Norrman 2008). The first selection type consists of an ex-ante attempt to identify and select only potentially successful new businesses (Hackett and Dilts 2004), whereby the evaluation of the potential performance can either base on the idea or the entrepreneurs. Evaluators also use the former variant frequently in the selection of corporate idea contests in an attempt to select the potentially best ideas. If the focus is on entrepreneurs, the evaluators will only evaluate the potential and skills of those who will lead the new business to success are evaluated. The second selection type has much more flexible admission criteria. The aim here is for the market to take over the selection process. Accordingly, significantly more new businesses gain admission into the first stage and sorting out follows over time. Here, too, the incubator can focus on composing the portfolio from potential ideas or capable entrepreneurs (Clarysse et al. 2005; Bergek and Norrman 2008).

The selected ideas usually move into the incubator over a prolonged period of time and management promotes them intensively. In this promotion phase, the incubator supports each new business according to the outcomes that the promotion needs to achieve. Whether the new business originates from the hosting company or from outside and whether the goal is to integrate the new business into the hosting company or to promote it as a legally independent structure outside of the company determine the outcome (Miles and Covin 2002; Hill and

Birkinshaw 2008; Weiblen and Chesbrough 2015). This distinction results in four possible paths of promotion that are conceivable for a new business: inside-in, inside-out, outside-in, and outside-out (see Table 1). Thereby, the incubator's financial involvement has a major influence on the type of support, as this especially determines the extent of co-determination the incubator acquires and how much responsibility the new business still has to bear itself (Weiblen and Chesbrough 2015). While the inside-in process promotes internal new businesses outside of the hosting company's potentially obstructive influence with the goal of reintegrating them (Selig, Gasser, and Baltes 2018), the inside-out process serves mainly to spin off internal new businesses from the company that do not match the hosting company's core strategy (Roberts 1980; Clarysse et al. 2005; Grimaldi and Grandi 2005). The outside-in and outside-out processes, in contrast, help integrate knowledge from external new businesses into the hosting company. While the outside-in process primarily integrates the entire new business or a considerable part, the outside-out process aims at a mostly temporary intensive exchange with the incubator (Narayanan, Yang, and Zahra 2009; Weiblen and Chesbrough 2015).

Table 1: Promotion process depending on innovation direction and equity involvement (supplemented based on Weiblen and Chesbrough 2015)

		Direction of innovation flow			
		<i>Inside-in</i>	<i>Inside-out</i>	<i>Outside-in</i>	<i>Outside-out</i>
Equity involvement	<i>No</i>	Temporarily exempt internal innovations from organizational obligations to successfully promote and re-integrate them.	Spur complementary external innovation to push an existing corporate innovation.	Insource external innovation to stimulate and generate corporate innovation.	Encourage exchange with external innovations to facilitate the development of internal innovations.
	<i>Yes</i>	Involve internal innovators in innovations to promote motivation and spread risk.	Provide a viable path to market for promising corporate non-core innovations.	Participate in external innovations' success and use new technologies in corporate innovation.	Participate in external innovations' success and gain strategic insights into non-core markets.

Even if the evaluators selected the new businesses thoroughly, the likelihood of failure for the new businesses is still fairly high (Mcgrath 1999; Shepherd, Covin, and Kuratko 2009). Corporate incubators usually spread their risk with a portfolio approach (McGrath, Keil, and Tukiainen 2006), but the failing new businesses cannot change the reality that their plans were unsuccessful and the entrepreneurs have to search for another occupation. Particularly in new businesses that originate from the hosting company and for which the corporate incubator has a higher commitment, the reintegration of failed entrepreneurs is a critical process, since

handling these entrepreneurs incorrectly may result in them no longer feeling willing to innovate (Bandura 1993; Baer and Frese 2003; Shepherd, Covin, and Kuratko 2009) or they may even vent their displeasure and bad-mouth the corporate incubator in the hosting company. However, research shows that, during the idea submission phase, potential entrepreneurs can deal fairly well with rejection as long as they receive definite and constructive feedback using the linguistic style of the idea text (Piezunka and Dahlander 2018). Moreover, through the incubator providing social support and a strengthening of coping self-efficacy, even negative emotions may stimulate learning from failure and increasing the commitment to subsequent entrepreneurial activities (Shepherd, Covin, and Kuratko 2009).

Not only failed new businesses pose challenges for the incubator. Even if new businesses have successfully undergone the promotion phase, the chance of failure is still considerable (Chen and Kannan-Narasimhan 2015). Especially new businesses after the inside-in or outside-in process are still to be integrated into business units. While the corporate incubator's structural separation from the hosting company increases its ability to explore (O'Reilly and Tushman 2004; Raisch et al. 2009), it also restricts any opportunity for exchange and, thus, also the integration of new businesses (Burgers et al. 2009). Exemplary mechanisms to facilitate integration are maintaining lateral or cross-departmental relations, encouraging informal communication, having a shared organizational vision, and performing socialization techniques, such as conveying corporate culture and values by means of training and reward systems (Ouchi 1977; Burgers et al. 2009; Chen and Kannan-Narasimhan 2015). Furthermore, Gassmann et al. (2012) discovered that the search for external validation, showcasing of innovations, network channeling, collaborative decision making, and liaison building can also support the integration of new businesses into the hosting company. But spin-offs also face challenges. If the spin-off takes place too early, there are still too many technological and market risks. If, instead, the spin-off takes place too late, the new business may have difficulties asserting itself successfully against other competitors (van Burg et al. 2012; Chen and Kannan-Narasimhan 2015)

If the intrapreneurs spin the internal new business out successfully or the external new business leaves the corporate incubator after a successful incubation phase, the best course of action to maintain a beneficial knowledge exchange may be to continue established relationships with business units through strategic partnerships. In order to encourage strategic partnerships, the incubator can prepare these partnerships already during the incubation phase, for example, by

comparing the requirements of new businesses and business units (Niederkofler 1991; Alvarez and Barney 2011), identifying suitable cooperation partners and assessing the risk (Marxt and Link 2002; Alvarez and Barney 2011; Basu, Phelps, and Kotha 2016), assisting in the communication and development of common goals (Weber and Weber 2011; Hogenhuis, Hende, and Hultink 2016), and supporting the conclusion of contracts (Basu, Phelps, and Kotha 2016; Hogenhuis, Hende, and Hultink 2016). Corporate incubators can also contribute to a strategic partnership's maintenance and success during its existence, for example, by providing and maintaining a diverse network, as well as promoting feedback processes, reciprocity, and networking within each strategic partnership (Weber and Weber 2011; West and Bogers 2014). If no strategic partnership appears suitable, there is still the possibility of a financial participation in the new business if such a participation turned out to be promising during the incubation process (Weiblen and Chesbrough 2015).

One of the corporate incubators' goals is the development of external ecosystems and the establishment of networks (Weiblen and Chesbrough 2015; Kohler 2016; Schöll and Hirte 2018). In pursuing this goal, the incubator inevitably becomes more visible outside the company, which may be harmful if the incubator simultaneously pursues a strategy of high privacy and secrecy (Cohen, Bingham, and Hallen 2018). However, hosting companies often deliberately aim to achieve greater public visibility by setting up a corporate incubator (Weiblen and Chesbrough 2015). In this context, hosting companies may advertise the development and progress of the incubator in newspaper articles or on other platforms, or they host public events. These activities not only potentially benefit the search processes for external new businesses (Pauwels et al. 2016; Kötting 2019), but also the reputation of the hosting company. A better reputation can have many advantages for the hosting company, such as an increased willingness to buy among customers (Yoon, Guffey, and Kijewski 1993), a higher quality of applicants for open positions (Turban and Cable 2003), or an improvement in long-term success (Roberts and Dowling 2002). First and foremost, a corporate incubator can enhance the company's innovative reputation via thoroughly conducted activities, which can obtain them an Innovator's License, enabling them to apply deviating strategies without the customer penalizing the company, as usual (Barone and Jewell 2013).

All these activities form the contextual scope of corporate incubators. In the following section, this contextual scope serves as the basis for the contextual alignment of the dissertation.

1.4. Alignment of Dissertation

This section covers the dissertation's contextual and methodological alignment. Initially, the first subsection focuses on the contextual scope of corporate incubators' activities from section 1.3.2 by deriving all dissertations' research articles with their research questions and theories based on the context of incubator activities. Subsequently, the second and third subsections encompass the derivation of the dissertation's paradigmatic perspective and the corresponding alignment of methodologies, methods, and data sets. Table 2 (p.19) provides an overview of the dissertation's contextual and methodological alignment.

1.4.1. Contextual Alignment towards Corporate Incubator Activities

The activities shown in Figure 2 (p.12) represent the overall scope of activities that corporate incubators may undertake. Scholars have already investigated many of the external activities, such as the search for and successful promotion of external new businesses, extensively in literature and it is also possible to apply many of these findings to the promotion of internal new businesses within the corporate incubator (Hackett and Dilts 2008; Bøllingtoft 2012; Soetanto and Jack 2013; Dutt et al. 2016; Mian, Lamine, and Fayolle 2016; Pauwels et al. 2016). However, academics have done very little research on the hosting company's advantages of setting up a corporate incubator, besides the rather common advantages like business model development or establishing new partnerships and external ecosystems (Kötting 2019). They rarely consider explicit support mechanisms for the hosting company, and if so, then rather from a qualitative perspective (O'Connor and Ayers 2001; Uittenbogaard, Broens, and Groen 2005; Robeson and O'Connor 2007; Maine 2008; Ford, Garnsey, and Probert 2010). This dissertation, therefore, focuses on the inward-facing support activities of corporate incubators, in particular how the hosting company's employees can receive support within their working environment to strengthen the innovation climate, become more innovative, and, thus, submit ideas that the incubator could potentially promote (see Figure 3: p.20).

These employee-focused corporate incubator activities, thereby, differentiate from the activities of the hosting company employees' direct supervisors (Mumford et al. 2002; Maine 2008; Chen and Kannan-Narasimhan 2015; Hirte 2018). In contrast to the promotional activities that the supervisors carry out, those of corporate incubators have the advantage of

Table 2: Research articles' contextual and methodological alignment

<i>Article</i>	<i>Research questions</i>	<i>Theory</i>	<i>Reasoning</i>	<i>Methodology</i>	<i>Methods</i>	<i>Data</i>
A	How can corporate incubators be categorized comprehensively? Which incubators in these categories perform better than those in other categories?	Transactional distance theory (Moore 1993)	Induction	Clustering and classification	Bicluster analysis, single-linkage, wards-linkage, k-means, OLS regression	Incubator Dataset
B	How does a corporate incubator affect the innovative work behavior of employees? How does the innovation climate moderate the relationship between corporate incubators and innovative work behavior?	Interactionists theory (Woodman and Schoenfeldt 1990; Woodman, Sawyer, and Griffin 1993)	Deduction	Construct development and hypothesis testing	Factor analyses and multilevel, moderated OLS regression	Innovator Dataset (first wave)
C	How can employees' awareness and perceived support of digital platforms' inherent characteristics and opportunities motivate them towards innovative work behavior?	Expectancy theory (Vroom 1964) and theory of 16 basic desires (Reiss 2004)	Deduction	Construct development and hypothesis testing	Factor analyses and mediated OLS regression	Innovator Dataset (second wave)
D	What issue-irrelevant information has a persuasive effect on evaluation teams regarding selecting certain ideas on corporate online ideation platforms? To which extent do evaluation teams of online ideation contests rely on issue-irrelevant information when faced with content scarcity?	Yale Attitude Change Approach (Hovland, Janis, and Kelly 1953) and Default-Interventionist model (Evans 2011)	Deduction	Critical multiplism	Logistic regression, semi-structured interviews	Ideator Dataset
E	How can employees' participation in centralized innovation activities of corporate incubators affect their department's innovation climate due to a behavioral change of these employees?	Social realist theory (Archer 1995)	Deduction	Hypothesis testing	IV-regression and Difference-in differences approach	Innovator Dataset (longitudinal)

transferring new knowledge (Becker and Gassmann 2006b; Rothaermel and Alexandre 2009; Kötting 2019) and values (Narayanan, Yang, and Zahra 2009; Euchner and Ganguly 2014) to the hosting company and promoting employees outside of their regular responsibility patterns (Blindenbach-Driessen and Van Den Ende 2014; Engelen et al. 2017). As soon as employees participate in activities within the corporate incubator, they can temporarily elude the hosting company's influence and develop without hindrance from their working environment, whereby they unbiasedly acquire new knowledge and absorb new values (Bandura 1977; Shalley and Perry-Smith 2001; Rhoades and Eisenberger 2002; Zhou 2003). By sharing these new experiences with their hosting company's working environment, they contribute to climate change differently than supervisors and even without their support by leveraging "value commitments and ultimate concerns" of their colleagues (Archer 1995; Porpora 2013: 28). However, employees do not have to enter the incubator in order for its activities to affect them.

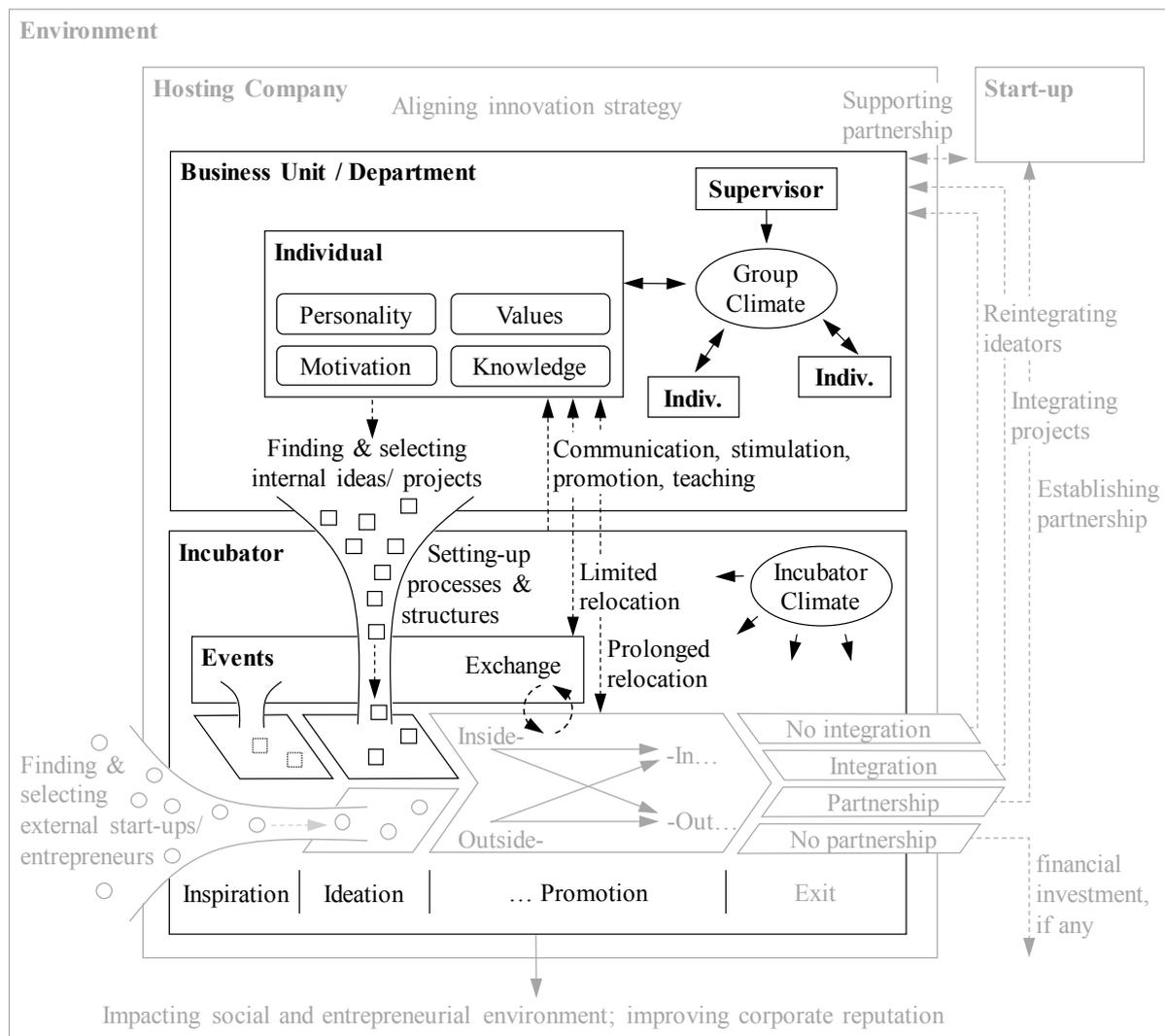


Figure 3: Dissertation's scope of research

For example, corporate incubators can provide exchange, learning, and idea platforms to support employees in different stages of their individual innovation process (Woodman, Sawyer, and Griffin 1993; Scott and Bruce 1994; Beretta 2019; Zhu et al. 2019). Exchange and learning platforms primarily support the initiation of innovative behavior through various motivational mechanisms (Honig 2001; Reiss 2004). Idea platforms, instead, help the actual support and particularly the collection of the employees' innovation activities in order to subsequently select them for promotion processes (Beretta 2019; Zhu et al. 2019). As soon as the evaluators select employees with their ideas, in the ideal case, the incubator's task is to negotiate the formalities with their supervisors in order to assist the employees in their project. In this manner, the employees experience an empowerment, which they probably would not have received from their supervisors, due to the innovation activities contradicting their job description's activities (Chatman 1989).

All research articles of this dissertation are arranged in the context of employee-centered corporate incubator activities (see Figure 4: p.22). Research article A adopts a cross-incubator perspective in order to identify how inward-facing, employee-focused incubators differ from outward-facing ones in terms of their objectives and strategies. In particular, the use of transactional distance theory (Moore 1993) helps to explain how the different objectives and strategies differ in their influence on the learning processes of new businesses, the incubator, the hosting company, and, subsequently, on the incubator's overall performance. Research article B assesses the innovation climate's influence on the employees' innovative work behavior and investigates how corporate incubators moderates this relation. The interactionists theory of creativity (Woodman and Schoenfeldt 1990; Woodman, Sawyer, and Griffin 1993) thereby provides a basis for considering the incubators' influence on an individual and group level in a more dedicated manner. Article C analyzes, in detail, the motivational mechanisms involved in a particular type of incubator support and the provision of digital innovation platforms. With the help of expectancy theory (Vroom 1964) and Reiss' (2004) theory of 16 basic desires, we gain insights into which motivational factors the digital platforms stimulate successfully in order to affect innovative work behavior. Research article D investigates an idea platform on which employees become engaged in order to submit and discuss their ideas after their innovative work behavior was successfully stimulated. Based on the Yale Attitude Change Approach (Hovland, Janis, and Kelly 1953) and the Default-Interventionist model (Evans 2011), we specifically investigate which factors stimulate evaluators' intuitive decisions over reflective ones and how these effects change when the ideas' content is scarce. Article E concludes by exploring the successful employee incubation's causal influence on the

change in the hosting company's innovation climate. Since it is not possible to causally explain this form of organizational climate change with current organizational climate theories (Lewin 1951; Denison 1996), we adapt Margret Archer's (1995) social realist theory to provide a theoretical basis for our investigation.

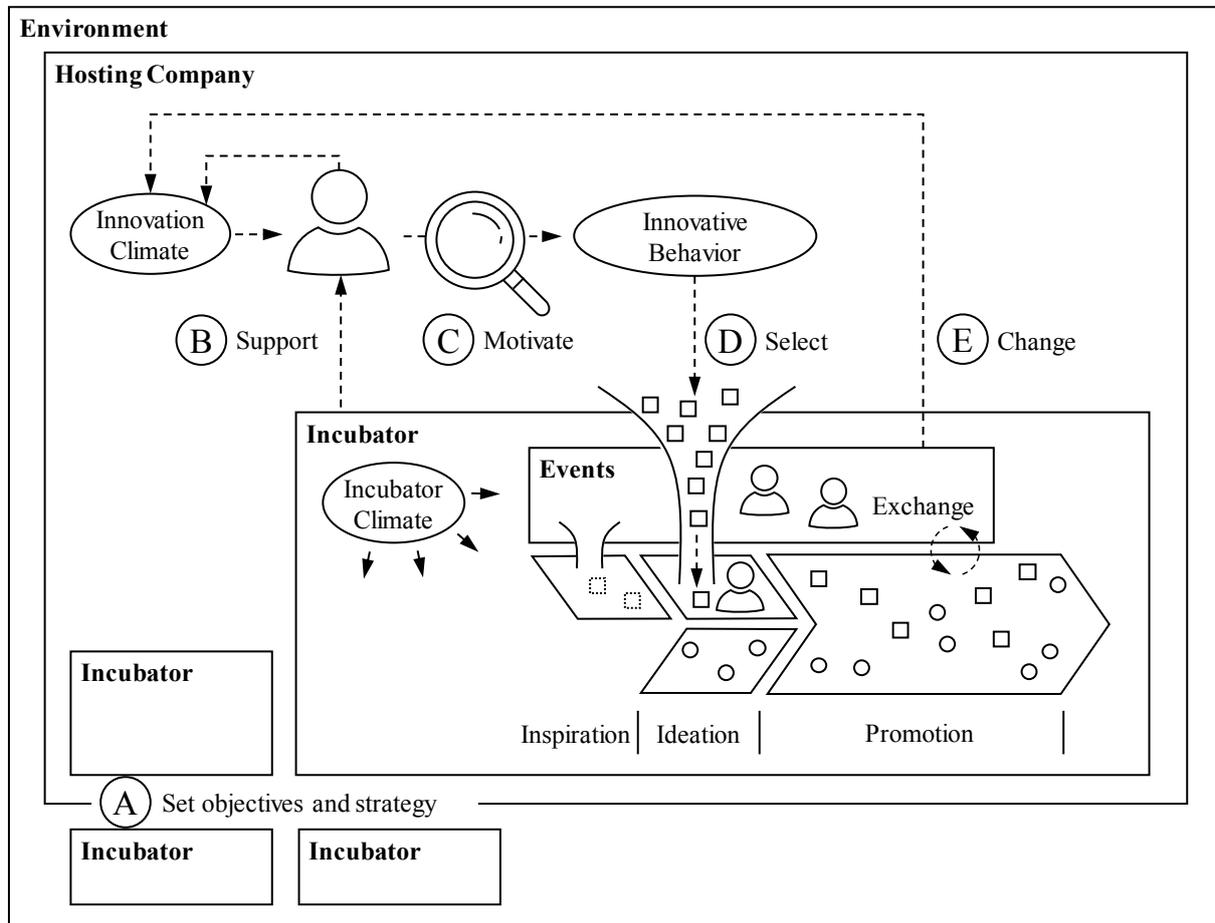


Figure 4: Overview of research articles

1.4.2. Methodological Alignment towards Paradigmatic Perspectives

One can basically explore the corporate incubator's activities shown in Figure 4 via five different, yet coequal, paradigms (basic manners of thinking) that subsume the landscape of social science. The adoption of a particular paradigm to investigate a research field strongly determines which methodology (cross-methodical research strategy) to apply, which data to collect, and how (Guba and Lincoln 2011). It is, therefore, imperative to first clarify which paradigm is applied in this dissertation in order to unambiguously derive the alignment of research. The five different paradigms are summarized in Table 3 (p.23).

Positivism is a philosophy direction that ontologically demands findings, which are supposed to have the character of knowledge, to be limited to the interpretation of positive, therefore real,

sensually perceptible, and verifiable findings – things are essentially just as they appear (Morvan 2004). For this reason, the corresponding research assumes complete objectivity,

*Table 3: Overview of paradigmatic perspectives
(summarized based on Guba and Lincoln 2011)*

<i>Paradigm</i>	<i>Ontology (What is reality?)</i>	<i>Epistemology (How to know reality?)</i>	<i>Methodological frame (How to acquire knowledge?)</i>
Positivism	Naïve realism: There is a single reality that can be measured and studied to predict and control nature.	Research needs to totally objectively and rigorously explain reality instead of focusing on social impact or research subjects.	Results and principles about reality are true until disproved. Data can be replicated and results should be generalizable.
Postpositivism	Critical realism: There is only one reality, but explaining and analysis possibilities are limited, so it may never be fully discoverable.	Research is an approximation to explain reality in order to make socially relevant decisions with incomplete data.	Statistics serve the visual interpretation of the approximated reality, which should be further examined/questioned.
Critical Theory	Historical realism: The one reality is in a constant conflict of struggle and power, which leads to privilege and oppression.	Research investigates social structures to change or remove existing oppressive structures.	Participatory research, which empowers the oppressed and supports social transformation.
Constructivism	Relativism: There are many realities that exist in the form of multiple mental constructions dependent on each individual.	Research is process-oriented to understand reality and arises from the fusion of researcher and researched subjects.	Interpretations based on dialectics and observation form a discourse about reality leading to different realities with consensus.
Participatory	Participative reality: Realities are socially constructed and exist only when shared by multiple individuals.	Research consists of not necessarily rational experiences of the participating researcher and the subjects studied.	Participation, application and action inquiry lead to an experience of reality.

which subsequently determines the researcher's attitude to be distanced from the research subject. The postpositivism that emerged from positivism, however, adopts a much more critical attitude toward the explainability of reality: Reality is considered complex and research methods limited, such that true reality will probably never be discovered, which is why the research approach is to approximate reality in the best possible manner (Wildemuth 1993). However, both paradigms share a similar methodological frame, which prefers statistical, objective, and generalizable methods (Guba and Lincoln 2011). As a counterpart to the

positivistic and postpositivistic paradigms, self-styled antipositivist perspectives have emerged. Fundamental to this antipositivist perspective is the belief that the concepts and methods researchers use influence and, from an objective point of view, bias their perception of the social world they investigate (Doğan 2013). In the opinion of constructivists, for example, research by humans on humans cannot be objective, which is why the goal of their research is to search for meaning in their subjective experiences. The constructivists, therefore, immerse themselves in their research's social context and try to understand the interrelationships of communities or groups of individuals (Bunge 1993; Guba and Lincoln 2011). Constructivism bases on several possible realities that already are valid if constructible within an individual. The participatory paradigm, in contrast, understands reality differently. Reality, thus, arises not only from one individual, but from the reality's social context and only exists if many others share it. The methodological frame differs accordingly. While in constructivism, dialectics and observations primarily help explore realities, in the participatory paradigm it is the researcher's explicit participation and experience in the research context that help gain new insights from the field. Critical theory even go one step further with regard to the researcher's role in the research context. While most research paradigms aim to explain and understand reality, critical theory aims to change it, especially to alter or remove the reality's oppressive structures (Merriam 1991). At the same time, advocates of critical theory remain in the ontology of realism by assuming, unlike antipositivists, one single reality as a basis that must be changed (Guba and Lincoln 2011).

The various paradigms have become highly interwoven and, thus, form a complex system of knowledge from different perspectives where each paradigm seems to benefit from the others (Guba and Lincoln 2011). The example of incubator research shows that constructivist research currently dominates (Kötting 2019), since many papers use (multiple) use case study methodology (Chesbrough and Socolof 2000; Grimaldi and Grandi 2005; Vanhaverbeke and Peeters 2005; O'Connor and DeMartino 2006; Ferrary 2008; Maine 2008; Branstad 2010; Ford, Garnsey, and Probert 2010; van Burg et al. 2012; Pauwels et al. 2016) but also semantic structure analysis (Neck et al. 2004) or ethnography (Ahmad 2014). Researchers have applied significantly less generalizable methodologies of positivist or postpositivist paradigms like hypothesis-testing (Hill and Birkinshaw 2008; Barbero et al. 2014), cluster analysis (Hughes, Ireland, and Morgan 2007), or others (Ohe, Honjo, and Merrifield 1992; Barbero et al. 2012) thus far. Research on corporate incubators could, therefore, benefit methodologically from a positivist or postpositivist perspective. This work therefore adopts a postpositivist perspective,

and uses classification and clustering, hypothesis-testing, construct development, and critical multiplism methodology to adequately address the stated research questions.

Classification and clustering are fundamental processes to organize reality into different groups and, therefore, to support economy of memory, predictive power, and possible theory development (Milligan and Cooper 1987). While classification performs the sorting of observations based on known, predefined parameters, such as the classification of emails as spam or not, clustering divides observations into groups based on their inherent properties without assuming a priori knowledge to maximize similarity within groups and differences between groups (Ceri et al. 2013). It is possible to apply clustering and classification methodology both deductively and inductively, whereby the inductive perspective remains true to postpositivist standards (Milligan and Cooper 1987). In research article A we use, among others, various clustering methods to inductively identify the inherent properties of corporate incubators that can serve as a basis for future classification approaches.

Hypothesis-testing, or hypothetico-deductive modelling, is a basic methodology adopted from positivism to postpositivism (Merriam 1991). The methodology bases on the approach of formulating a hypothesis such that it is possible to falsify it using observable data of which the result is not yet known. From this hypothesis, attempts take place to derive predictions and consequences about how reality should behave under certain conditions, which are then followed by attempts to disprove these by the most generalizable evidence possible (Guba and Lincoln 2011). This methodology is applied in research articles B, C, and E. Research articles B and C are thereby complemented by a further methodology, namely construct development. This methodology deals with the question how to accurately assess phenomena in practice in order to derive solid data collection instruments, which, if lacking, would hinder the development of knowledge in research flows (Lewis, Templeton, and Byrd 2005). The basic iterative approach consists of specifying the construct's boundaries, generating items, improving the items by pretesting, collecting the final data, and finally assessing reliability and validity (Churchill 1979).

It is possible to understand critical multiplism, as a key methodology of postpositivism, as a kind of methodological pluralism that underlines the use of qualitative and quantitative methods to complement each other's fragmentary, imperfect perspectives (Wildemuth 1993; Williams 2007). Critical in this context means that research has to undertake rational, empirical, and, therefore, inherently social efforts in order to reduce the restrictive basic assumptions and

biases of various methods by supplementing them (Shadish 1993). Multiplism means that the whole research process can and should basically be investigated from different perspectives that relate to the development of research questions, the chosen methods and analyses, and the interpretation of the results (Houts, Cook, and Shadish 1986; Coward 1989). This methodology was adopted for research article D in the course of the research process in order to be able to explain the allegedly contradictory findings. Thus, multiple perspectives were applied to the adaptation of research questions, analytical methods and the interpretation of results.

1.4.3. Alignment of Methods and Data

To answer the research questions using the chosen methodologies, a total of six data sets were collected and merged into a total of three superordinate data sets. The first superordinate data set (Incubator Study) consists of a cross-incubator survey matched with objective company data. The second data set (Innovator Study) consists of two matched employee surveys spanning three years, and the third data set (Ideator Study) consists of a platform data set of 227 idea campaigns supplemented by interviews with various evaluators.

The Incubator Study, which was conducted in 2019 based on a survey of the corporate incubators' directors, bases on a unique data set of corporate incubators from established companies. The questionnaire was sent to a total of 209 corporate incubators, mainly from Europe, U.S.A., and China, from which we received a total of 55 responses, resulting in a good response rate of 26.3%. The survey's content includes objectives, strategies, composition of new businesses and the incubator staff, orientation toward the hosting company and the outside world, as well as characteristics of workplace and building architecture. Objective company data, such as industry (NAICS), sales, number of employees, and others supplement these data. Thus, this data set has all necessary data to provide an answer to the research questions of research article A (see Table 2: p.19). In particular, the incubators' objectives and strategies come into play in conjunction with objective company data in order to cluster the incubators and investigate the identified incubator types' influence on their performance.

The Innovator Study comprises data from a leading, international science and technology company with longitudinal data of employees' activities from 2016 and 2019. We collected data by surveying a comprehensive sample of employees at the company's main site where the company's corporate incubator is situated. In 2016, we conducted five exploratory interviews in advance to gain a better understanding of the corporate venture unit's composition and the related mechanisms to align the survey's content to the company's characteristics. In 2016, the

survey was sent to all employees working in different functions on the main site of the company, in total 5,605 employees. In 2019, we repeated the procedure. In 2016, we received 1,202 fully completed answers, resulting in a satisfactory response rate of 21.4%. In 2019, 1,742 employees fully answered our survey. With the help of a voluntary, anonymous identifier, we were able to match $n=248$ respondents who participated in both surveys. A comprehensive construct development phase preceded the two inquiries (Churchill 1979; Lewis, Templeton, and Byrd 2005) in order to assess constructs that are not available in the literature, but necessary for answering the research questions. The first inquiry focuses on a comprehensive assessment of the hosting company's innovation climate, the corporate incubator's influence on employees, and the employees' resulting innovative behavior as a basis for research article B. The second inquiry focuses more on the employees' motivational factors, which qualifies it to serve as the quantitative basis for the investigation of article C's research questions. Research article E is examined on the basis of the matched data set that, in conjunction with employees' participation information in incubator activities and instrument variables, is well suited to investigate the corporate incubator's causal influence on the hosting company's innovative climate.

The Ideator Study's platform data set consists of 3,025 ideas, 6,581 comments, and 6,619 votes that a total of 2,828 unique contributors of a company's idea platform submitted. The ideas were generated over four years in 227 idea campaigns that had different purposes and, therefore, vary regarding the idea selection rate. In total, 222 ideas were selected, which is a rate of 7%. Eight semi-structured interviews with different campaigns' evaluators expand the knowledge of the evaluation process. The following interviewee selection criteria allowed to obtain a diverse picture of the evaluation process: the evaluators' position, whether the evaluators were also executive sponsors of the campaign, the campaign's domain focus and size, whether ideas were treated as confidential within the business unit, and the year in which the campaign started. Using logistic regression analysis in connection with the interviews' findings, the research questions of research article D are answered on the basis of this data set.

Chapter 2 – Research Article A

Towards a comprehensive categorization of corporate incubators: Evidence from cluster analysis.

Abstract

Established companies are increasingly challenged to expand their innovation development capabilities and to align them to increasingly ambidextrous requirements. A currently popular way for companies to meet these requirements are corporate incubators. Successfully designing such units imposes specific challenges on companies, which results in large numbers of different corporate incubator types spanning a wide range of activities. This group of very different incubation concepts is not only very difficult to manage from a practical perspective; it is also complex to reliably explore from a research perspective. In this study, we therefore examine how incubators can be comprehensively categorized and how different objectives and strategies relate to corporate incubator performance. Results from cluster and regression analysis of a sample of incubators from 14 different industries reveal 16 clusters dependent of five objective and five strategy criteria. The criteria have a diverse relation to performance which can be explained using transactional distance theory.

Conferences and publication

Best Paper Nominee at ISPIM Innovation Conference, Florence, Italy on 16-19 June 2019.

Kruft, T., and A. Kock. 2019. Towards a comprehensive categorization of corporate incubators: Evidence from cluster analysis. *International Journal of Innovation Management*. In Press.

Classification

<i>Ontology</i>	<i>Reasoning</i>	<i>Theory</i>	<i>Methodology</i>	<i>Methods</i>	<i>Data</i>
Critical realism	Induction	Transactional distance theory ¹	Clustering and classification	Bicluster, single & wards-linkage, OLS regression	Incubator Dataset

¹ Moore (1993)

Chapter 3 – Research Article B

Substitutes or Complements? The Role of Corporate Incubator Support and Innovation Climate for Innovative Behavior in the Hosting Firm.

Abstract

Incubation of organizations by corporate incubators is currently regaining attention as a key way to foster innovation. However, understanding of how corporate incubators affect employee’s innovative behavior in the host company is still limited. This study aims to fill this gap by examining the relationship between corporate incubator influence and innovative work behavior and how this is moderated by innovation climate. Using a multi-level regression with 1,202 participants nested in 100 organizational units of a large, international company, the study shows that corporate incubators and innovation climate significantly affect innovative work behavior. Further, we found that shared and individual perceptions of innovation climate moderate incubator influence differently. In order to improve innovative work behavior, corporate incubators can compensate a weak innovation climate while strengthening the impact of individual perceptions of innovation climate on innovative behavior, which introduces new ways of how companies are able to improve their innovativeness.

Conferences and publication

Best Paper Nominee at ISPIM Innovation Forum, Boston, USA on 25-28 March 2018.

Kruft, T., M. Gamber, and A. Kock. 2018. Substitutes or Complements? The Role of Corporate Incubator Support and Innovation Climate for Innovative Behavior in the Hosting Firm. *International Journal of Innovation Management* 22 (5): 1840006: 1–29.

Classification

<i>Ontology</i>	<i>Reasoning</i>	<i>Theory</i>	<i>Methodology</i>	<i>Method</i>	<i>Data</i>
Critical realism	Deduction	Interactionists theory ³	Construct development and hypothesis testing	Factor analyses and multilevel OLS regression	Ideator Dataset (first wave)

³ Woodman and Schoenfeldt (1990); Woodman, Sawyer, and Griffin (1993)

Chapter 4 – Research Article C

Digital Platforms: Toward an Efficient Way to Trigger Employees' Innovative Behavior

Abstract

Innovation is being relentlessly digitalized, which strongly affects how companies and individuals perceive and deal with innovation. Yet companies have great difficulty motivating employees to become innovative. We take a complementing sociotechnical and sociocultural perspective on digital platforms to investigate how employee awareness and perceived support of digital platforms' inherent characteristics and opportunities can efficiently stimulate intrinsic motivational forces toward innovative work behavior in the context of an omnipresent innovation climate. As a theoretical foundation, we use Vroom's expectancy theory supplemented by Reiss's theory of 16 basic desires. To test our hypotheses, we use multilevel fixed-effects moderated mediation regression analysis of a dataset containing 1,614 employees nested in 136 departments of a leading international science and technology company conducted in 2019. To further validate our results, we supplement the analysis with a platform dataset of 270 employees with matched survey data. The results support our core argument that inherent characteristics and opportunities of digital platforms motivate employees to engage in innovative work behavior and that the innovation climate partially moderates this relationship. Our detailed results offer several contributions to the information systems literature and beyond.

Submitted to

Submitted to a VHB A-Ranked Journal.

Classification

<i>Ontology</i>	<i>Reasoning</i>	<i>Theory</i>	<i>Methodology</i>	<i>Methods</i>	<i>Data</i>
Critical realism	Deduction	Expectancy theory ⁴ and theory of 16 basic desires ⁵	Construct development and Hypothesis testing	Factor analyses and OLS regression	Ideator Dataset (second wave)

⁴ Vroom (1964)

⁵ Reiss (2004)

Chapter 5 – Research Article D

Persuasion in Corporate Idea Contests: The Moderating Role of Content Scarcity on Decision Making.

Abstract

Organizations increasingly use corporate online ideation platforms to foster individual innovativeness. Recent research, however, has shown the downside of such contests — the selection of ideas is not entirely rational. Analyzing the impact of content scarcity, which occurs when ideators provide very little issue-relevant information when submitting ideas, contributes to this new literature stream. The main argument is that evaluators increasingly rely on heuristics based on issue-irrelevant information when content scarcity obstructs reflective decision-making. The default-interventionist model of decision-making in combination with the Yale attitude change approach allows us to examine the mechanisms evaluators apply when content scarcity occurs. The hypotheses are tested on an extensive data set of 3025 ideas. The results show that content scarcity affects the evaluators’ decision-making process by preventing them from intervening their first intuitive decision. The scarcer the content of the submitted idea, the stronger the persuasiveness of issue-irrelevant aspects that affect idea selection: aspects of the ideator, message, and community.

Published in

Conference Best Paper Award at IPDMC Conference, Porto, Portugal on 10-13 June 2018.

Kruft, T., C. Tilsner, A. Schindler, and A. Kock. 2019. Persuasion in corporate idea contests: the moderating role of content scarcity on decision making. *Journal of Product Innovation Management* 36 (5): 560–585.

Classification

<i>Ontology</i>	<i>Reasoning</i>	<i>Theory</i>	<i>Methodology</i>	<i>Methods</i>	<i>Data</i>
Critical realism	Deduction	Default-Interventionist model ⁶ & Yale Attitude Change Approach ⁷	Hypothesis testing	Logistic regression	Ideator Dataset

⁶ Evans (2011)

⁷ Hovland, Janis, and Kelly (1953)

Chapter 6 – Research Article E

Behavioral change of innovation climate: How employee-focused, centralized innovation activities affect organizational innovation climate.

Abstract

Organizations’ innovative working climate is indispensable for promoting innovation and, therefore, it determines if companies continuously find new methods to generate and monetize value to avoid falling behind their competitors in the long run. To shape the working climate, companies have long used a top-down approach by influencing department supervisors to create a more innovative working climate. Likewise, research has also focused on this perspective of how supervisors construct the working climate in which employees work without influencing it themselves. However, due to the increasing pressure to innovate, certain companies now also try to influence the innovation climate through a bottom-up approach by trying to achieve a mindset and, subsequently, a behavioral change in employees regardless of their supervisor’s attitude toward innovation. However, research cannot map this bottom-up change in the working climate causally with conventional theories from the field of organizational climate and cultural research and, therefore, it is not possible to confirm that such bottom-up approaches work at all. By adapting social realist theory to the context of organizational climate, we propose a novel approach to explain the behavioral change of innovation climate through the dissemination of knowledge and values that the centralized innovation activities of corporate incubators trigger. To test our hypothesis, we use a longitudinal two-stage control function approach with 248 participants nested in 97 organizational units of a large, international science and technology company with several instrument variables to avoid selection bias. Results show that the activities are capable of affecting the department’s innovation climate via employees’ behavior. Thus, we contribute to the still unexplored field of climate and incubator research, especially regarding innovation climate change via employee behavior. Moreover, we contribute to broadening the social realist theory’s perspective and expand research on corporate incubators by investigating further effects to influence the hosting company’s innovativeness.

Submitted to

Submitted to a VHB A-Ranked Journal

Classification

<i>Ontology</i>	<i>Reasoning</i>	<i>Theory</i>	<i>Methodology</i>	<i>Methods</i>	<i>Data</i>
Critical realism	Deduction	Social realist theory ⁸	Hypothesis testing	IV-regression and Difference-in differences	Ideator Dataset (longitudinal)

⁸ Archer (1995)

Chapter 7

Superordinate Discussion

This dissertation provides a comprehensive basis for discussions that go beyond the implications of the single research articles presented. In particular, the combination of the research articles results in a number of superordinate implications for both, research and practice, which are discussed below. There are also superordinate considerations as to how the research streams described in this dissertation may further develop in the future based on this dissertation's findings, which is finally discussed in the section future research.

7.1. Implications for Research

In addition to the specific contributions described in each research article, this dissertation provides a series of superordinate contributions resulting from the overall merits of each research contribution. In addition to the specific contributions described in each research article, this dissertation also provides a series of superordinate contributions resulting from a combination of all research articles' findings and the total of seven theories introduced to the research field of corporate incubators, which originate from the domains of learning (Moore 1993), creativity (Woodman and Schoenfeldt 1990; Woodman, Sawyer, and Griffin 1993), desires (Reiss 2004) motivation (Vroom 1964), persuasion and attitude-change (Hovland, Janis, and Kelly 1953), reflective and intuitive decision making (Evans 2011), as well as social and socio-cultural interaction (Archer 1995). More specifically, this dissertation provides superordinate contributions to the understanding of what constitutes corporate incubators, how corporate incubators affect employees and innovation climate, and how corporate incubators can support idea generation and reflective selection. Moreover, a generic model of centralized incubation will be developed.

First, this dissertation contributes to the understanding of what constitutes corporate incubators by expanding the definitional base and providing quantitative evidence for complementing macro and micro level effects of corporate incubators based on their objectives, strategies, and activities with regard to their performance. Corporate incubators' inward-facing transactional distance to the hosting company, which determines how well new businesses, the corporate incubator, and the hosting company can learn from each other (Moore 1993; Giossos et al. 2009), characterizes corporate incubators decisively on macro level (Miles and Covin 2002;

Hill and Birkinshaw 2008; Weiblen and Chesbrough 2015; Kohler 2016; Schöll and Hirte 2018). On micro-level, the explicit activities carried out on the basis of the chosen goals and strategies in order to promote the hosting company's employees, further constitutes corporate incubators. For example, a number of incubators that all promote cultural change similarly, may enforce this objective very differently, while certain incubators offer events to promote each employee individually in order to achieve a behavior-based bottom-up adaptation of the hosting company's working environment (Bandura 1977; Archer 1995; Shalley and Perry-Smith 2001; Zhou 2003), others mainly rely on the benefits of digital platforms and good cooperation with the business units in order to make the working environment more innovative through behavioral adaptations of the supervisors top-down (Lewin 1951; Denison 1996; Zhang and Bartol 2010).

Second, this dissertation contributes to research on stimulation of employees' behavior, especially by providing evidence on specific psychological and social effects. On the one hand, corporate incubators can affect the employees' innovative behavior by setting up structures, establishing processes and providing resources which strengthen the employees' proclivity to act based on their increased expected performance capabilities in a given situation due to a decrease of their potential impediments of being innovative (Rhoades and Eisenberger 2002; Bandura 2012; Garcia et al. 2015) and stimulating their innovation-related desires of being challenged (Vroom 1964; Reiss 2004; Tu and Lu 2013; Nicholson 2015), fulfilling a personal purpose (Van Eerde and Thierry 1996; Sambamurthy and Zmud 2000; Baer and Frese 2003; Björk and Magnusson 2009; Zhu et al. 2019) and receiving appreciation (Fuller, Marler, and Hester 2006; Nicholson 2015; Nylén and Holmström 2015; Sedera et al. 2016; Zhu et al. 2019). On the other hand, corporate incubators can also moderate how employees perceive their work environment thereby deliberately stimulating a specific behavior. Thus, corporate incubator activities can substitute the influence of a department's weak or harmful shared innovation climate by establishing an own innovative environment in its own facilities which affects each employee participating in incubator activities (Scott and Bruce 1994; Atuahene-Gima 2003; Baer and Frese 2003; Patterson et al. 2005; Parker, Williams, and Turner 2006; Tu and Lu 2013; Montani, Odoardi, and Battistelli 2014; Hong et al. 2016). At the same time the corporate incubator is capable of improving the perception of each employee's individual innovation climate at their workplace by stimulating cognitive-emotional as well as value-based processes resulting in more innovative behavior (Eisenberger et al. 1986; Amabile et al. 1996; Armeli et

al. 1998; Riggle, Edmondson, and Hansen 2009; Arora, Haynie, and Laurence 2013; Montani, Odoardi, and Battistelli 2014).

Third, this dissertation contributes to organizational climate research by providing causal evidence of how the hosting company's innovation climate can be strengthened (Davis-Blake and Pfeffer 1989; Archer 1995; Porpora 2013) by means of an employee-centric stimulation of behavioral change from within corporate incubators (Bandura 1977; Shalley and Perry-Smith 2001; Zhou 2003; Wang and Wu 2008; Kosonen et al. 2014) as well as by analyzing the substitutional and complementing effects of corporate incubators on the relation between innovation climate and innovative behavior, like emphasized in the previous paragraph. The former contribution to organizational climate research is of particular relevance, since an employee-stimulated adaptation process of innovation climate is carried out in practice, but so far there has been no theory-based, explicit explanatory approach for this phenomenon in climate research. So far, according to the Lewinian theory, it has preferably been assumed that working climate is constructed top-down by supervisors (Lewin 1951; Denison 1996) rather than bottom-up by employees. This bottom-up effect could have been explained only from symbolic interaction (Mead 1934) and social construction (Berger and Luckmann 1966) rooted in the paradigmatic perspective of constructivism, but therefore neither causally nor objectively generalizable (Guba and Lincoln 2011). Through this complementary perspective using social realist theory (Archer 1995), this dissertation provides causal indications that this bottom-up process actually exists and expands the possibility to investigate bottom-up climate change from a postpositivist perspective.

Fourth, this dissertation contributes to understanding how ideas are generated and selected. We provide evidence how idea generation, as part of innovative behavior, can be affected by corporate incubators through setting up structures, establishing processes and providing resources as well as by stimulating motivational cognitive-emotional as well as value-based processes within the individual. Without the right idea selection, however, the entire ideation process would suffer a major loss of potential. Decisive for whether a reflective process is initiated at all within evaluators is, on the one hand, its cognitive capacity such as motivation or expertise (Reitzig and Sorenson 2013; Criscuolo et al. 2017) as well as cognitive strain such as the time available for evaluation (Piezunka and Dahlander 2015; Criscuolo et al. 2017). On the other hand, also the available information about the ideas plays a significant role (Di Gangi, Wasko, and Hooker 2010; Evans 2011; Young et al. 2012; Beretta 2019). By comprehensively

analyzing the influence of content scarcity on reflective and intuitive decision making, which has not yet been investigated before, we contribute to a better understanding of a new stream in ideation literature about evaluators' biases and ideators' persuasive behavior (Reitzig and Sorenson 2013; Piezunka and Dahlander 2015; Criscuolo et al. 2017), to knowledge exchange literature by examining how knowledge exchange works when little knowledge reaches the recipient (Menon and Blount 2003; Ko, Kirsch, and King 2005; Lyles, van Wijk, and Jansen 2008) as well as to various aspects of psychological research regarding the theories used (Hovland, Janis, and Kelly 1953; Evans 2011).

Fifth, the model of centralized incubation (see Figure 4: p.22) which was derived in Chapter 1.3, as well as all papers of this dissertation which are part of this model, may be generalizable. This generalization potentially makes this dissertation's findings transferable to other research areas, especially those of business incubators in general (Vanderstraeten and Matthyssens 2012). Thereby, this model also might contribute to the literature of clubs (Gable 2000; Algesheimer, Dholakia, and Herrmann 2005; Rein and Shields 2007; Kunz 2009; Meier and Saavedra 2009; Spaaij 2009; Vermeulen and Verweel 2009) and NGOs (Jasanoff 1997; Vachani, Doh, and Teegen 2009; Finkel and Smith 2011) to explain how new members are recruited, how they learn within these institutions and how they influence society. In addition, the process could contribute to research on schools to understand learning processes from a high-level perspective that takes into account the social environment of students outside school, especially family and friends, and how institutions can support their learning processes there (Hoover and Patton 2004; Winter and Firth 2007; Finkel and Smith 2011; Grant 2011). The model may also potentially contribute to explaining which mechanisms in churches or other religious institutions lead to followers adopting or not adopting the values of religion (Cipriani 2007). This reasoning is further elaborated in section 7.3.2 (p.176).

7.2. Implications for Practice

Basically, this dissertation provides a step-by-step process for managers on how to use corporate incubators to improve each employee's innovativeness and subsequently, the hosting company's overall innovativeness. Figure 4 (p.22) can serve as an overview for this process: First, managers need to define the objectives and strategies for the corporate incubator, then create a nurturing environment for innovation activities, subsequently, motivate employees to adopt innovative behavior, then select and further promote employees with the greatest

innovation potential or the best ideas, and ultimately use these employees to further stimulate all other employees again by improving the overall innovation climate in the hosting company.

First, managers need to define the objectives and strategies that the corporate incubator should follow – in other words, they must decide what type of corporate incubator to set up (see Figure 5: p.41). As described in research article A, managers should particularly concentrate on whether and to what extent the corporate incubator should, first, strive for external ecosystem development and network building, second, generate new revenue streams, third, accelerate innovation processes, fourth, promote explicit business units instead of the entire company, and fifth, achieve a cultural change within the hosting company (Weiblen and Chesbrough 2015; Kanbach and Stubner 2016; Schöll and Hirte 2018; Selig, Gasser, and Baltes 2018). In particular, it is important for managers to decide whether the corporate incubator should try to sustain the entire hosting company by focusing on revenue streams and cultural change, or whether it should mainly serve as a rather non-committal exploration unit for the hosting company. However, if managers decide to promote certain business units specifically, it is more important to determine whether this support should originate from within the company, that is, a diverse network of other employees, or whether the innovative capabilities of networks and ecosystems should be sourced outside the company. Once the objectives are set, managers should define the strategy with which they intend to achieve the objectives set. They, thereby, should in particular clarify, whether and to what extent the corporate incubator should, first, obtain ideas from within or outside the company (Hill and Birkinshaw 2008; Weiblen and Chesbrough 2015), second, carry out disruption or expansion of business activities (Schöll and Hirte 2018), third, provide financial or mentoring support (Selig, Gasser, and Baltes 2018), fourth, be located close to or far from company sites and (Gassmann and Becker 2006) and fifth, promote exchange or be more confidential (Cohen, Bingham, and Hallen 2018). Of these five strategic elements, however, the distance to the company site and the confidentiality of the incubator processes should prevail.

Once goals and strategy are set, managers should try to create a nurturing environment for innovation activities as described in research article B. In particular, they should set up activities that influence the innovation climate's effect on employees' innovative behavior within the departments, initially without necessarily changing the innovation climate itself. Corporate incubators, thereby, are capable of both compensating for the effects of a poor innovation climate and further increasing the influence of a strong innovation climate. The

compensation effect can be achieved at departmental level by the incubator primarily developing its own innovation climate in which it can promote employees with innovation potential, even if the innovation climate of these employees' department is poor (Woodman, Sawyer, and Griffin 1993; Patterson et al. 2005). At the same time, the incubator can also increase the positive innovation climate effects on each individual employee at the individual level, since each individual perceives the environment differently. The strengthening effect can be promoted primarily by conveying the feeling of organizational support to the employees, as this can influence the perception and interpretation of the employees' context (Eisenberger et al. 1986).

As soon as the working climate of each employee directly or indirectly enables innovative behavior, incubators should try to stimulate each employee's motivation to innovate by means of explicit activities, as derived in research article C. Digital platforms, in particular, offer an efficient yet effective way to reach every employee (Sedera et al. 2016) since they can stimulate the motivational forces competition, transformation, and appreciation which subsequently leads to an increase in the employees' innovative behavior (Vroom 1964; Reiss 2004). While competition comprises the employees' desire for challenge and efficacy (Begley and Boyd 1987; Hertel, Niedner, and Herrmann 2003), transformation represents the employees' desire for impact and self-determination (Nickerson 1985; Renko, Kroeck, and Bullough 2012). Appreciation, in turn, describes the employees' desire for self-importance and self-confidence (Eisenberger and Selbst 1994; Yuan and Woodman 2010). In order to adequately stimulate these three motivational forces and, subsequently, innovative behavior, digital learning, exchange, or idea platforms provide a good starting point.

If enough employees became motivated to work innovatively, the corporate incubator's management has to select suitable employees according to their ideas. Thereby, reflective evaluator decisions are of particular importance since otherwise innovation potential might get lost. As described in research article D, in addition to the evaluators' workload, expertise and motivation (Haas, Criscuolo, and George 2014; Piezunka and Dahlander 2015; Criscuolo et al. 2017), it is especially the idea's content scarcity that determines whether evaluators make intuitive or reflective decisions. If the evaluators do not have enough factual information about an idea at their disposal, but inevitably have to decide whether the idea should be accepted or rejected, then evaluators intuitively use issue-irrelevant information, such as the ideators' reputation or status or the apparent contribution of the idea based on the community mood

(Evans 2011). In order to identify and address intuitive and, thus, potentially irrational decisions, managers could use three combinable action strategies concerning the platform, idea content, and evaluators which are extensively described in subsection 5.6.5 (p.144).

Once the employees with the greatest innovation potential are selected, they can receive extensive support within the corporate incubator. However, having the company's most innovative employees all in one place also opens up valuable opportunities that can benefit every single employee as research article E explains. By means of talks, training courses and workshops, managers can impart knowledge and values to the employees (Bandura 1977; Shalley and Perry-Smith 2001; Kosonen et al. 2014), which the employees subsequently transfer to their department and disseminate consciously or unconsciously which may lead to a strengthening of the overall innovation climate (Davis-Blake and Pfeffer 1989; Archer 1995; Porpora 2013). In this way, the circle closes, is complete, because, as described in the research articles B and C, the innovation climate works together with the incubator activities, in order to enable and motivate employees to adopt innovative behavior in the first place.

7.3. Future Research

This section provides an overview of further research topics arising from the research articles' results in this dissertation. In the first subsection, this overview is focused mainly on organizational management literature, which is the main research focus of this dissertation. In the second subsection, the outlook then refers to several other literature streams in order to place this dissertation's generalizable findings in a broader context.

7.3.1. Toward Further Management Research Topics

From this dissertation, four paths of further research emerge which could help to gain a more comprehensive understanding of how corporate incubators behave. The first path involves the transfer of knowledge and values, the second the role of the incubator staff or facilitators, the third startup collaboration and the fourth the development paths of new businesses within the corporate incubator.

Although we were able to causally confirm the effects of corporate incubators on the innovation climate, the mechanisms that lead to this change may still be rather conceptual in nature. The incubators from our data sets have already tested several activities to transfer knowledge and values from the incubator to the hosting company, such as talks, F*ckup nights or workshops,

but whether they actually account for the transfer process up to an improvement of the innovation climate cannot be conclusively proven yet. Our results suggest that such activities have the greatest potential to transfer knowledge and values where regular employees and entrepreneurs, or intrapreneurs respectively, can come together and exchange ideas on innovation topics over a longer period of time. Especially for such activities, an experimental setup would be very suitable, since a workshop, for example, provides a controlled environment for the exchange process.

Without the employees who operate the incubator, the incubator itself might at the very best be a furnished building. In particular, those employees who are in direct contact with the new businesses or the employees to be promoted hold a special role. But as the results from research article D demonstrate, every role has to be performed by people who are not perfect, make mistakes and are potentially biased. In order to be able to explain which processes take place in incubators, it might be worthwhile to examine the incubator staff and the facilitators as well as their exchange with the new businesses and the hosting company.

For this dissertation, the focus was clearly on the mechanisms that serve to promote the innovativeness of the hosting company. All individuals who constitute the innovative climate within the corporate incubator were therefore subsumed and for the most part not further differentiated. In the particular mechanisms, however, exchange processes between the hosting company and innovative employees in the incubator may differ from those between the hosting company and innovative startups in the incubator. There is already a great deal of literature on how startups can be promoted in business incubators (Hansen et al. 2000; Bøllingtoft and Ulhøi 2005; Voisey et al. 2006; Hackett and Dilts 2008; Mian, Lamine, and Fayolle 2016), but a hosting company perspective, which is special to corporate incubators, is lacking. Further research could therefore take a closer look at collaboration processes as well as the exchange of knowledge and values between startups and the hosting company in particular.

Based on Weiblen and Chesbrough (2015), four new business development paths can be derived, which describe how new businesses pass through the incubation process of a corporate incubator (see also Table 1: p.15 and Figure 2: p.12): Internal new businesses can be either reintegrated after incubation or spun-off. External new businesses, for example startups, can be either integrated or just used for temporary exchange. These four ways potentially differ fundamentally from each other, although they all serve to promote new businesses. Thus

possibly, different contacts have to be initiated, different knowledge has to be imparted, different priorities have to be given to speed and quality and the balance between startup and entrepreneurs has to be balanced differently (Roberts 1980; Clarysse et al. 2005; Grimaldi and Grandi 2005; Narayanan, Yang, and Zahra 2009; Weiblen and Chesbrough 2015; Selig, Gasser, and Baltes 2018). In order to successfully carry out these four processes, they may be analyzed in further detail.

7.3.2. Toward a Theory of Centralized Incubation

During the abductive process of researching literature, collecting and analyzing data, and linking findings with theories for all research articles in this dissertation, it became increasingly apparent that the investigated, employee-centered incubation process may be generalizable to cover many other possible incubation processes from other research fields as well. In inward-facing incubation, which is the focus of this dissertation, the knowledge and value transfer plays a significant role. Transfer processes different from those of corporate incubation, which, however, also consider knowledge and value transfer as a central objective, could therefore also benefit from this dissertation's findings. To better illustrate the transferability of the model shown in Figure 4 (p.22), the model was generalized to a certain extent for this chapter (see Figure 16: p.177). The incubator is now named a generic institution and the hosting company or business unit is called the institution's environment. The support processes' outcome within the institution's surrounding is no longer merely innovative behavior, but a general desired outcome. The external start-ups' and entrepreneurs' promotion process, which proceeded alongside that of the internal innovation projects and intrapreneurs, is no longer a process, but a general zone consisting of self-styled intermediaries exclusively dedicated to the incubation of the previously internal innovation projects and intrapreneurs, which are now merely called individuals. The reduction of the start-up process, however, does not in the slightest mean that the incubation process can no longer be applied to (external) entrepreneurs. Instead, these entrepreneurs would now also be referred to as individuals and undergo the process like all others. The phases inspiration and ideation were combined, as were the activities support and motivate. Finally, a sixth phase was added that describes the passing on of the previously learned knowledge and values when this phase became an intermediary and replaced the exit phase shown in Figure 2 (p.12).

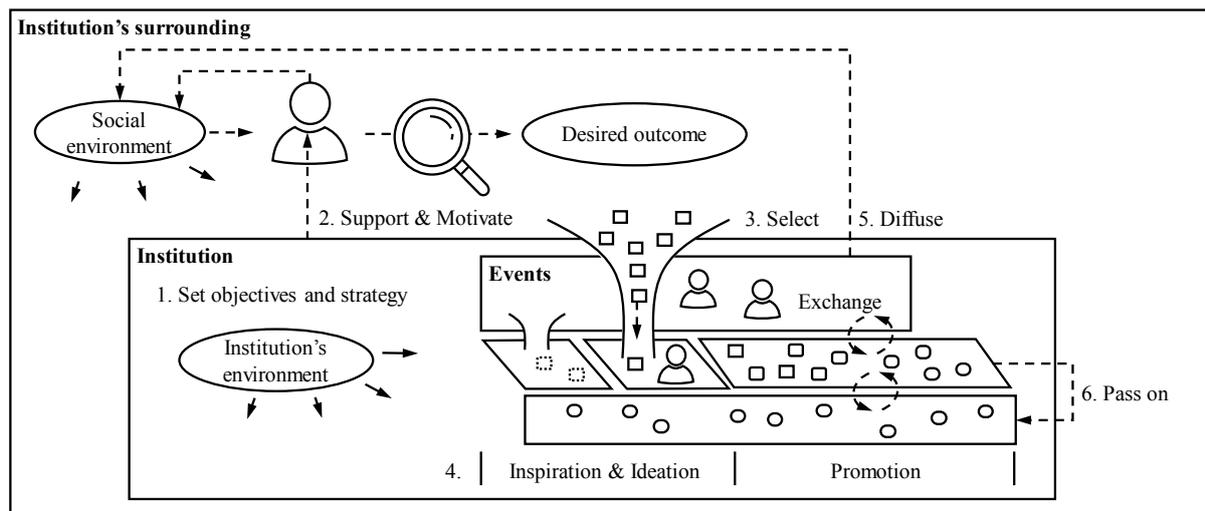


Figure 16: Generic model of centralized incubation

Generally, the process is divided into two domains, the one inside and the other one outside of the institution. While the institution's domain explains how knowledge and values are conveyed from the institution to individuals (Bandura 1977; Shalley and Perry-Smith 2001; Zhou 2003; Wang and Wu 2008; Kosonen et al. 2014), the domain outside of the institution describes how knowledge and values can transition into society (Archer 2010; Porpora 2013) where other individuals might potentially use both, knowledge and values, as a basis for their subsequent behavior (Vroom 1964; Reiss 2004). In order to support these individuals, institutions can support and motivate individuals in their social environment, as well as those who have already been promoted in the institution and need further support. As further elaborated in the next paragraphs, this process may be transferred to many other research fields in order to better explain or investigate the processes taking place there. Although certain phases of the process may be of different or minor importance in other research fields, the overall process should remain the same. In addition to the research subject of the established companies, small and medium-sized companies, where the process could be adopted and be relatively similar to those of the established companies, seem to be suitable in the first place. Moreover, the process may also be transferred to clubs and NGOs to explain how new members are recruited, how they learn within these institutions, and how they impact society. The process could be transferred to schools to understand learning processes from a high-level perspective, which accounts for the social environment of students outside of school, especially family and friends, as well as how institutions may support their learning processes there. It is even conceivable to transfer the process to churches or other religious institutions to explain, for example, which mechanisms lead to followers adopting the religion's values, or not.

Finally, the model might propose methods to facilitate and accelerate intercultural exchange between different countries by illustrating institutions that may provide interested citizens with knowledge and values of other countries' cultures.

The first phase represents the definition of objectives and strategies. As pointed out in research article A (p.26), incubating institutions differ with regard to their objectives and strategies, primarily in the manner that learning processes take place within and in exchange with the institution's environment (Moore 1993; McGrath 2001; Dushnitsky and Lenox 2005). In order to distinguish between incubation processes, it must be clear from a research perspective what objectives and strategies the examined institutions have, since it may determine how incubators behave. From a practical point of view, the objectives and strategies both decisively define how the subsequent phases affect the incubation process. This phase, thereby, not only seems to be important for corporate incubators (Hill and Birkinshaw 2008), but also for institutions outside of established companies, such as economic development incubators (Vanderstraeten and Matthyssens 2012), NGOs (Jasanoff 1997; Vachani, Doh, and Teegen 2009), sport clubs (Rein and Shields 2007; Spaaij 2009), and schools (Hoover and Patton 2004).

The second phase, entitled "support and motivate," includes all activities that institutions carry out not only to support and motivate potential or existing members, but also to enforce the institution's objectives against third parties. In addition to behavioural adaptation, institutions may also potentially impart knowledge and values directly, without each individual having previously been part of the institution. As described in research article B (p.55), institutions can, for example, establish processes and structures for this purpose. A study from England, for example, examined how digital technology usage to mediate the relationship between home and school influences student learning support and discovered the potential of using digital technologies to span the boundaries between school and home learning (Grant 2011). In particular, digital platforms can be used, as they offer a cost-efficient method of not only enabling exchanges between individuals and with the institution, but also stimulating motivational forces (see research article C: p.81) to induce certain behaviour (Vroom 1964; Reiss 2004). For example, Swigger (2013) analyzed how social media usage affects U.S.A. citizens' values of freedom of expression and privacy. Those more strongly affected by social media seem to value freedom of expression more and the value of privacy less, from which Swigger concludes that such technology could alter U.S.A. citizens' attitudes toward democratic values. Valente (2012) reviews that social networks can even affect the individuals'

subsequent behavior. However, knowledge and values can also be conveyed independently of structures explicitly set up for this purpose. For example, a study on boxing institutions in Africa examined how role models increase girls' participation in sport, while simultaneously altering gender roles and expectations of their social environment (Meier and Saavedra 2009). When individuals are motivated and seek to become involved in the institution, phase three represents the final threshold, which many, but not all, institutions set to decide which individuals may cross the boundary to the institution. Such a threshold might be regular application processes or, for example, idea competitions in the case of idea incubators (Frey, Lüthje, and Haag 2011; Schuurman et al. 2012). As investigated in research article D (p. 111), the decision-making processes, thereby, do not always have to be reflective and may be subject to biases (Hovland, Janis, and Kelly 1953; Evans 2011), which have to be overcome.

Phase four, which takes place within the institution itself, represents the presumably most effective manner to absorb knowledge and adapt to values either through joint activities that the institution's members carry out or through events, which, in principle, can also be open to the public. Ideally, new individuals in the institution are initially inspired and obtain an idea of the values and knowledge of the institution. Subsequently, the institution, either consciously or unconsciously, carries out a promotion process for the individual in which the individual is to acquire the habits of the institution and learn from it. As stated in research article E (p.149), knowledge and value transfer mainly bases on learning processes, such as learning by observation, also referred to as vicarious learning (Bandura 1962), and learning by active involvement. Through vicarious learning, individuals absorb new knowledge and impulses from role models within the institution and adopt their behavioral patterns (Bandura 1977; Shalley and Perry-Smith 2001; Zhou 2003). By questioning their own value conceptions in light of the new values to which the individual is exposed, the individual's values may be adapted to those of the institution (Archer 1995; Porpora 2013). Via active involvement and subsequent feedback, in contrast, it is possible to stimulate metacognitive processes and the reconstruction of knowledge (Bangert-Drowns et al. 1991; Johnson and Johnson 1993; Wang and Wu 2008; Kosonen et al. 2014). Similar processes also take place in schools whose task generally is the "transmission of valid knowledge, competencies and (moral) attitudes to a new generation" (Wardekker 2001: 106). Moreover, schools can also affect values. In a study by Winter and Firth (2007) on how education influences sustainable development in England, authors found evidence that facts, respect, emotions, and moral arguments teach students skills, knowledge, and values to build a sustainable society. Another study from the Netherlands

examined sport clubs' influence on competence development in social inclusion process. The study's findings were that sport offers approaches to be included, to gain recognition, and to gain self-esteem (Vermeulen and Verweel 2009). Moreover, Tomlinson and Sugden (1994) found that soccer clubs generate "a sense of communal identity and pride and a means for overcoming objective, socio-economic and political difficulties". However, other types of institutions show similar effects. A study on the democratic election in Kenya 2002, for example, provided many insights into how NGOs and schools could influence the propensity to participate in the elections by imparting democratic knowledge and values. Participants in the schools' and NGOs' civic education programs incorporated knowledge and values and became opinion leaders outside of these institutions by disseminating the new orientation within their social networks (Finkel and Smith 2011).

The aforementioned study on the democratic election in Kenya 2002 (Finkel and Smith 2011) also shows how diffusion into the social environment can take place by means of opinion leaders after the transfer of knowledge and values was successful, which illustrates the fifth phase of the generic model very well (see Figure 16: p.177). The basic process, as it was examined within business units of companies in research article E (p.149), is to enable individuals from the institution to challenge the status quo in their own social environment by sharing the newly gained insights and exemplifying behavior based on the newly gained knowledge and values (Davis-Blake and Pfeffer 1989; Archer 1995). This questioning of the status quo may subsequently "leverage value commitments and [...] concerns" within the social environment (Porpora 2013: 28) that can lead to a cultural conditioning of the new knowledge and values in society (Archer 1995). NGOs, for example, consider the diffusion of knowledge and values to be a central component of their activities: NGOs have a "clearly articulated set of values and ideological purpose" (Hailey 2000: 404). They transfer these together with knowledge, skills, and technology to places where they are needed most to disseminate them (Jasanoff 1997). Moreover, religions and their parishes embody values, which they try to spread in society. Cipriani (2007), thereby, interprets the promotion of religious values within an institution (phase 4) and the diffusion in society (phase 5) as follows: "Every performance of a ritual has multiple functions, but above all focuses the total values promoted and diffused by a particular religion through its members: the more these participate, the more they become convinced their choice was correct" (Cipriani 2007: 294). Nevertheless, diffusion processes also take place in clubs. In an ethnographic study, Gable (2000) illustrates how culture clubs in Guinea-Bissau may shape a society's value system by attempting to eradicate certain

traditions and, in turn, promote other cultural elements, such as cooperative labor. Algesheimer, Dholakia, and Herrmann (2005), in turn, discovered that car clubs in Germany attract members through their identification with certain brands. After a committed participation in the community, the members then tend to adopt recommendation behavior in which they try to persuade other individuals from outside to participate in the club's activities.

The last phase of the model consists of passing on the absorbed knowledge and values to other members of the institution. Individuals who have absorbed a certain amount of knowledge and values are likely to not only convey both to their own environment, but also to act within the institution as knowledge and value intermediaries toward new members. In this manner, they become part of the basis from which the incubation process emerges. These intermediaries play a central role in the incubation process, as a study project on sport and play from Iran shows: There, the researchers investigated the influence of sport as a psychosocial intervention of children after a natural disaster had occurred (Kunz 2009). The study found post-disaster psychosocial rehabilitation of children and youths to be improved through sport communities. In particular, coaches had a major influence on this positive effect, as they determine the social context and the value system within the sports group and provide guidance by practicing it. For example, a coach often was asked "whether something is a good thing to do or a bad thing to avoid" (Kunz 2009: 1156), which reflects the children's orientation to the coach's value system. In cases of conflict, the coaches even acted as mediators between the sports communities' environment and the children's home in order to support the children's development.

Theoretically, a single individual starting at phase 6 by challenging the status quo in society can initiate the whole incubation process (Archer 1995; Porpora 2013). If the individual is capable of convincing enough other people, an explicit or implicit institution may emerge whose diffusion process could be illustrated by the proposed model.

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Declaration of Authorship

I hereby declare that the submitted thesis is my own work. All quotes, whether word by word or in my own words, have been marked as such.

The thesis has not been published anywhere else nor presented to any other examination board.

Ich erkläre hiermit ehrenwörtlich, dass ich die vorliegende Arbeit selbstständig angefertigt habe. Sämtliche aus fremden Quellen direkt oder indirekt übernommenen Gedanken sind als solche kenntlich gemacht.

Die Arbeit wurde bisher weder einer anderen Prüfungsbehörde vorgelegt noch veröffentlicht.

Tobias Krufft

Darmstadt, October 10, 2019