Corporate Startups: A Systematic Literature Review on Governance and Autonomy

Konstantin Garidis[1]([✉]) [iD], Alexander Rossmann[2] [iD], and Alan Murray[1]

[1] University of the West of Scotland, High Street, Paisley PA1 2BE, Scotland, UK
konstantin.garidis@reutlingen-university.de,
alan.murray@uws.ac.uk
[2] Reutlingen University, Alteburgstr. 150, 72762 Reutlingen, Germany
alexander.rossmann@reutlingen-university.de

Abstract. Many incumbents observe the startup world in jealousy of their agility and innovational performance. An increasing number of initiatives aim to mimic startup-like procedures in order to increase the incumbents' innovational output. Structural models like accelerators, spinoffs, incubators, or corporate venture capitals aim to achieve that goal by implementing different governance setups. However, the success of such initiatives often remains unclear. While there is broad research on such topics, a clear empirical view on governance mechanisms for entrepreneurial structures in incumbents is missing. This paper outlines how to build a governance model based on empirically validated mechanisms and their relationship to corporate startup autonomy. This is achieved by following the systematic literature review approach by Webster and Watson combined with qualitative data analysis techniques. The results describe relevant gaps in current research and identify promising pathways for future research.

Keywords: corporate startup · corporate entrepreneurship · governance · autonomy

1 Introduction

New and disruptive digital business models enter every market. Over the years, the speed of development and market entry has continuously increased. With the development of new ideas, and thanks to the maturing internet technology and the spreading of digital products in most industries, concepts are designed and tested on the market even faster. These methods of rapid development and introduction of disruptive digital business models are mostly said to be done by digital startups and tech firms [4]. As business model innovation is a new way to create, deliver or capture value [32], it also calls for structural, operational, or cultural renewal [31]. Digital startups inhibit this approach in their essence as they are "an organization formed to search for a repeatable and scalable business model" [1]. Therefore, research and practice mainly attribute the ability to drive digital business models to startups, startup-like structures, and big tech firms [2]. As these abilities are intertwined with a firm's organizational structure, many

incumbents realized a need for autonomous startup-like structures to reach the agility, speed, and flexibility needed. Hence, the idea of corporate startups (CS) has risen. Today incumbents apply many CS models following different strategies; e.g., Weiblen and Chesbrough [39] describe engagement models according to the direction of the innovation flow outside-in or inside-out and equity involvement. Most models today aim to build an environment that enables innovation by offering a certain degree of autonomy from the established structures of the incumbent [31]. Debates have arisen on how incumbents can grant autonomy to their CS, while still maintaining a mutually beneficial relationship, as research has shown that incumbents struggle with professionalizing their CS initiatives [33].

Over time, the topic has also been of high research interest. Currently, various studies are analyzing the effects of implementing specific models like accelerators or incubators [12]. Most researchers investigate these models and their circumstances [6]. Some look into the economic aspects of corporate venturing [7], and others analyze the cooperation or collaboration between the uneven partnerships of startups and corporates [9]. Research has addressed the challenge of utilizing resources from the incumbent or enabling knowledge inflow and outflow while allowing the CS to act autonomously and evolve under the debate of the structural autonomy of CSs. However, the results in this research stream are contradictory [5, 10, 19]. Some research shows that structural autonomy is needed to secure fast and independent decision processes [22]. In contrast, other studies show that CS autonomy (CSA) can hinder resource provision and knowledge flow [20]. Moreover, the success of CS initiatives often remains unclear. As Kötting [18] describes, "a major decision with the implementation of corporate incubation is the degree of autonomy." There seems to be a "tug of war" between granting autonomy and effectively governing CSs. Additionally, most studies focus on autonomy as a single construct rather than complex governance structures. Conclusively, our research thrives on answering the following questions:

1. Which governance aspects of corporate startups exist in empirical research?
2. How can autonomy be managed from a governance perspective?
3. What research is missing to provide incumbents with an effective corporate startup governance framework?

This study uses a literature review approach to identify the current state of research on the governance aspects of CS models based on the typology by Weiblen and Chesbrough [39]. While there are literature reviews on the organizational aspects of CSs, some address specific models like accelerators [6, 23, 35] or do not focus on governance mechanisms [26, 28, 40]. This review shows, that no study investigates CS governance as a whole. This leads to the current body of knowledge where, although we know about aspects of CS models, how firms implement these models by applying governance mechanisms is still unknown. Our review fills this gap by developing a governance model built on empirically identified mechanisms extracted from the literature using qualitative text analysis and the software maxqda. The model developed by this review enables firms and researchers to investigate CS models from a governance perspective and understand how an optimal configuration could look like.

2   Theoretical Foundation

A startup is a temporary organization and the sole purpose of a startup is to develop and test a new business model [1]. As their purpose is to test new concepts, they need to be able to adapt and develop, based on previously gained experiences. They are usually small and relative newcomers to the market. Hence, these firms typically have no established functional structures like human resources, sales channels, or partners [9].

As incumbents recognize the advantages in agility and flexibility that startups have, they aim to combine their strengths to enhance innovation output. Due to their nature, incumbents optimize their structures, processes and operations to optimally execute their current business model [21]. These structures are needed to optimize operational costs and speed up standardized processes. In recent years, incumbents have increased their efforts to build structures that enable digital business model innovation [6].

Research and practice generally refer to these startup-like structures as CS. A CS shares a startup's attributes, but differs in that it is associated with a corporate incumbent by ownership, strategic partnership, or integration into the corporate structure. The concept of the CS tries to benefit from the agility, and change-embracing structure that startups have, combined with the resources and established processes an incumbent has built. The gap that separates the incumbent and the CS varies hugely [37]. Various attributes of the collaboration, such as ownership, integration into the corporate structure, or even the headquarters' location, determine how deeply integrated the CS is into the incumbent. How such structural attributes affect the abilities of the CS has yet to be researched [18].

While there have been studies on the effects of organizational and structural mechanisms of CS on performance, the existing studies show mixed results. Some scholars advocate a more autonomous CS setup [10]. Other empirical research found evidence that more integrated configurations can benefit CS performance [37]. However, it is still not fully understood how various governance mechanisms can be utilized to manage CSA.

2.1   Corporate Startups Defined

Incumbents follow different CS models and strategies to pursue their innovation goals. Over the years, several of these models have become established in practice. A plethora of research exists to describe distinct models and their attributes [23, 35]. Although these concepts are valuable for analyzing the respective CS model, a typology encompassing all models is needed to investigate the applied governance mechanisms. Weiblen and Chesbrough's approach explains different models by classifying CS models following the innovation flow and equity involvement [39]:

Inside-Out models: Corporate Incubation is often nested into a structured program where internal innovation processes are streamlined into a more agile entity. Firms usually apply these models for innovations that differ too much from the core business, hinting at a need for structural autonomy. Startups emerging from this type are often called spinoffs. The term incubation is also used for outside-in entities that cooperate with startups by providing facilities, mentoring, and other services [15].

Outside-In models: Corporate Venturing describes a well-established model of investing in existing startups according to a strategic goal set by the corporate entity. The process involves individual steps like scouting for fitting startups or comprehensive due diligence. A *Startup Program* is a model used to make promising innovations and products by startups available for the offering corporate. The format allows the incumbent to engage with several startups and explore possibilities. In exchange, the startups receive benefits like consulting, or access to the corporate ecosystem.

2.2   Autonomy and Governance

Autonomy has been a topic of debate in CS research for quite a while now. Many studies suggest that a CS needs a certain level of autonomy to enhance its learning and develop innovation capability fully. This idea is substantiated by structural ambidexterity, which suggests separating organizational structures into entities according to the two objectives of exploiting existing markets and exploring new ones [34]. The idea of CSA is to create an environment for the CS that promotes creativity and flexibility to enable exploration [20]. Other research shows that a high degree of autonomy can adversely affect CS performance as it impedes knowledge inflow from the CS to the parent firm [5, 16].

There seems to be a "tug of war" between granting autonomy to create a creative environment that promotes exploration, and setting up structures and processes that integrate the CS into the parent to secure alignment between the two. Researchers have addressed this issue by distinguishing different types of autonomy: Structural autonomy refers to the extent to which a CS is separated from its parent [3]. Operational autonomy describes the extent to which CS operations, such as human resources, are shared with the parent firm [11]. Planning autonomy represents the strategic aspects of autonomy and describes the CS ability to autonomously set its goals and strategic directions [16].

Autonomy is a complex construct influenced by various mechanisms and their interplay [37]. Research has established similar dimensions in governance research as they address comparable design dimensions of a firm: structures, processes and operations, and relational mechanisms [14, 36]. Studies show that effective governance mechanisms can significantly improve a firm's performance. Although the relationship between CSs and their parent has been studied extensively [27, 30], research is just starting to utilize the mentioned governance dimensions in the context of CSs.

3   Research Approach

We follow a systematic literature review process by Webster and Watson to analyze the body of knowledge on CS [38]. The review aims to identify related work on governance mechanisms and their impact on CSA to understand how an optimal CS governance setup may be designed. The research process follows five phases. Table 1 summarizes the results of the process.

Phase 1 Search: Each selected search string in table 1 represents a CS model based on the conceptual framework described in Sect. 2.1. These search strings ensure that we include studies for all CS models to build a broadly applicable framework. Additionally, we added a general search string to ensure the inclusion of studies on general CS models.

We conducted the title and abstract search and used the mechanisms provided by the databases in Table 1 to ensure that plurals and differences in spelling, e.g., "incubation" vs. "incubator" are included. As CS models are recently gaining more attention, we searched for studies published in peer-reviewed journals and conferences, as the latest research is usually first published at conferences. To ensure that the studies we found truly represent the current phenomena of CSs, we omitted studies published before 2010 from the search. Thus, 883 papers were identified for the next step.

Phase 2 Evaluation: This phase represents the title and abstract review. After removing duplicates, 556 studies remained for further evaluation. Only studies that empirically analyze or develop structures and governance mechanisms of CS and their effect on CSA or its performance effects are selected. We excluded conceptual papers [25] or studies that don't focus on CS governance mechanisms from the review [24]. At this stage, 58 papers remain for further analysis.

Phase 3 Reading: This phase represents the full-text review. During this process, we excluded some papers due to their lack of focus on governance mechanisms and we found two additional papers through forward-and-backward search. Finally, 12 studies remained for assessment.

Phase 4 Coding: We quantatively extracted governance mechanisms using the analyzing software maxqda analytics pro. We only coded mechanisms in the results presenting sections, discussion, and conclusion to ensure that the model only includes empirically identified mechanisms from the literature. This restriction ensures that non-empirical ideas or examples do not compromise the final model. The model separates the mechanisms according to the established governance framework we previously described and divides them into the innovation flows if applicable [36].

Phase 5 Writing the Review: We combined the identified mechanisms from the previous phase into our model. All mechanisms found in the last step are mapped to the three dimensions of the governance framework by Vejseli [36]. After completing the model-building, the review describes the knowledge base for each mechanism, and we discuss their implications, effects on CSA and define gaps in the model.

4 Descriptive Results

In the context of framework development, different aspects are essential to address. Table 2 lists the twelve identified studies, their investigated CS model, and innovation flow. To understand how incumbents govern these models, we map the models with the governance mechanisms and autonomy aspects, respectively. Most studies combine governance and autonomy explicitly. The table shows they investigate similar governance and autonomy dimensions, e.g., *structural governance mechanisms* and *structural autonomy* [5, 37]. Some studies incorporate aspects of autonomy implicit as an attribute of the investigated governance mechanisms [26, 29]. This circumstance is especially evident for *structural autonomy* aspects like holding equity or general statements on "structural separation" [29].

While most studies examine *structural autonomy* in their research, all studies investigate *operational governance* aspects. This imbalance might indicate a blind eye in CS governance research on the other dimensions. Seven of twelve articles were published

Table 1. Search process

Innovation Flow	Keyword	Science Direct	WoS	Business Source Ult	Emerald	T&F	Sum
Phase 1: Search							
General	corp. Startup	2	15	14	5	8	44
Inside-out	corp. Spinoff	14	50	35	3	2	104
Inside-out	corp. Incubation	0	103	35	48	13	199
Outside-In	corp. Accelerator	26	71	64	29	8	198
Outside-In	corp. Venture capital	63	130	121	9	15	338
Sum:		105	369	269	94	46	883
Phase 2: Evaluation							
Sum without duplicates	556						
Title and abstract review	58						
Phase 3: Reading							
Full-text review	12						

in the last three years, and only one identified study was published before 2015 [41]. The fact that most studies use qualitative research methods and their recent publication dates indicate that investigating CS through the lens of governance mechanisms and autonomy seems to be a relatively new aspect of CS research. However, researchers in CS research seem to prefer qualitative methods due to data availability issues for quantitative methods [10]. The explorative stage of the research stream strengthens the argument for conducting this literature review to build a holistic governance model.

Although the selection process excluded studies only containing distinct governance mechanisms, just four of the twelve articles investigated all three established governance dimensions. All three studies having all three governance dimensions only implicitly investigate the role of *structural autonomy*, excluding the other autonomy dimensions [17, 19, 22]. The findings show that research has only studied fractions of CSA.

There is no imbalance in the number of studies addressing the two directions of innovation flow. Although there were more search results for the outside-in search terms, as shown in table 1, the resulting papers equally focus on inside-out and outside-in models. The fact that there are more inside-out studies proportionate to the search results could hint that CS governance is more eminent in inside-out research.

5   Corporate Startup Governance Framework

This section represents *phase 5* of the review. The framework presented in Table 3 provides all mechanisms identified in *phase 4*. We sorted the mechanisms based on the number of occurrences and referenced the respective sources for each mechanism. Furthermore, the table maps the respective autonomy dimensions described in the studies, if applicable. In the following, we illustrate the framework by describing the mechanisms for each dimension and how they are related to CSA. Where there is a difference between inside-out and outside-in models, we state it in the description. Section 5.4 describes how the literature defines each autonomy dimension and the interplay between governance mechanisms and CSA.

Table 2. Studies on corporate startup governance and autonomy

Study	Innovation Flow	CS Model	Method	Governance	Autonomy
[10]	Inside-Out	Internal Corporate Venture	Quantitative	Operational	Planning
[26]	Inside-Out	Internal Corporate Accelerator	Qualitative	Structural; Relational; Operational	Structural
[5]	Inside-Out	Internal Corporate Venture	Quantitative	Structural; Operational	Operational
[37]	Inside-Out	Corporate Venturing	Qualitative	Structural; Operational	Structural; Operational; Planning
[19]	Inside-Out; Outside-In	Corporate Incubation	Qualitative	Structural; Relational; Operational	Structural;
[29]	Inside-Out; Outside-In	Corporate Incubation	Qualitative	Structural; Operational	Structural;
[8]	Inside-Out; Outside-In	Corporate Incubator	Quantitative	Relational; Operational	Relational
[41]	Outside-In	Corporate Venture Capital	Quantitative	Structural; Operational	Structural; Operational
[17]	Outside-In	Corporate Accelerator	Qualitative	Structural; Relational; Operational	Structural

Table 2. (*continued*)

Study	Innovation Flow	CS Model	Method	Governance	Autonomy
[22]	Outside-In	Corporate Accelerator	Qualitative	Structural; Relational; Operational	Structural; Relational
[42]	Outside-In	Incubator	Quantitative	Operational	Operational; Relational
[13]	Outside-In	Corporate Accelerator	Qualitative	Relational; Operational	Relational; Planning

5.1 Structures

The *management* dimension describes the degree of support and participation of the incumbent's management in the CS. The weakest form of management participation is management attention; a situation where the management is not actively involved but aware of the CS. Management attention is the first stage in gaining management sponsorship [17, 37]. All studies agree that strong management sponsorship and commitment represent a vital success factor for CSs [17, 26, 29, 37]. This assessment is different in the case of management influence and involvement. Management influence describes a situation in which the management does not actively participate in the CS, but has the power to influence its strategies and operations. This influence could be beneficial, depending on the management's knowledge about the CSs operations and market [37]. There are contradicting results in the case of active management involvement. Although Waldkirch et. al. [37] found positive effects in different circumstances, Yang [41] identified adverse effects of active management involvement and CS performance. Strong management backing helps the CSs get the necessary resources and freedom, thus improving their performance. In contrast, the success of active management involvement is dependent on other factors, such as the alignment of the CS and the parent's businesses and strategy [37]. More research on the effects of management involvement is needed to understand its impact.

The *entity* dimension describes how the CS is structurally separated. Many studies do not define the separation in detail. We found that it can range from full integration and acting inside the incumbents' traditional structures [29] to fully extracting it into its separate legal entity with only a few structural linkages [10]. But the entity dimension is not mappable on a one-dimensional scale. There is the idea of a safe space where the CS can act relatively freely, although not structurally separated [17]. Some structures link the CSs and the incumbent via an intermediary unit, such as an institutionalized incubator or a tech hub [19, 29]. These units themselves can be separated or integrated. The dimension entity also evolves as the CS matures. Some CS begins at a provided safe pace and gets separated as it grows [26].

Branding describes an apparent external linkage to the incumbent. The association with the incumbent can evoke trust and increase credibility [17, 42]. Joint branding also simplifies joint marketing [19]. Associated branding might also increase the incumbents'

perceived dynamism and creativity [22]. However, branding wasn't a focus in these studies, and future research should consider brand research to assess its effects.

Although it is strongly linked with the entity dimension, the research we found investigated *location and facilities* separately. Some incumbents construct specialized buildings to facilitate their CS programs [29]. Partially changing locations is also used to create safe spaces and underline a new working mode for time-bound programs [8]. There could be downsides to separating the CS from the location of the incumbent, as they might loosen their relationship [17].

Program management considers that some incumbents embed CS undertakings in structured programs [19, 22]. How this management effects CSA is not described by the identified CS governance literature.

5.2   Processes and Operations

The *resources* dimension includes the resources offered and shared by the parent. This includes financials and materials, although the papers did not specify financing models extensively. Some studies describe that capital can be project-based, budget-based, granted loans, or originate from external funding sources [8, 13, 22, 29, 42]. This dimension is not limited to financial resources; it includes intangible resources like data [8] and tangible resources like equipment and infrastructure [22]. Besides the following mechanism, this dimension also encompasses resources the incumbent uses, such as their machines [22]. Furthermore, this includes human resources in the form of a workforce. In this case, the CS is either (partially) staffed by personnel from the incumbent or the CS can cooperate with the incumbents' staff [8, 13, 17, 37]. Other aspects mentioned are marketing resources like access to markets or the incumbents' network [19].

The *services* dimension encompasses a more formalized provision of resources and services. Just as the resources dimension, it includes tangible resources. In this case, these are assets provided as a service as part of a CS unit or a program [13, 17, 42]. The dimension also includes field services [42], legal services [42], human capital [8, 19, 29], and specialized facilities such as office space [22, 26, 29]. A considerable part of the services dimension involves mentoring and coaching [8, 13, 19, 22, 29].

The *structured program* dimension addresses whether firms embed the innovation process's ideation, development, and execution into a formal process. It also involves the development of ideas and whether they emerge naturally or from a structured approach. Incumbents use institutionalized accelerator programs or other innovation programs to formally assist in developing innovation [10, 19]. Nevertheless, how these programs actually interfere with CSA remains unclear.

*Decision proce*sses describe how, where and who makes decisions, involving both formal decision processes and the CSs' ability to decide independently. The authors find that rigid bureaucracy affects CSs performance negatively [13].

Metrics and KPIs describe how incumbents track CS progress. As Richter et al. [22] put it: "A company investing in such a program will likely require some evidence of return on investment which goes beyond existing accelerator metrics…" They also mention "Innovation KPIs" but do not describe the details of their function. This dimension also addresses incentive schemes for CS managers. Yang [41] finds that an incentive scheme that balances financial and strategic goals has a positive influence on a CSs performance.

Although these mechanisms effect the planning autonomy, it is unclear to what extent and in which configuration.

Scouting and selection define the process of finding and choosing innovations to pursue. This dimension also includes established scouting and selecting outside-in startups [17]. *Events* can be a part of the previously defined selection process. E.g., in the form of a demo day. They also support team-building, combine different CS initiatives, and help sophisticate a network [13, 26].

Confidentiality addresses how the CS and the incumbent share information. Although identified by Richter et al. [22] as a common feature, it is not clear how CSA is affected.

5.3   Relational Mechanisms

The dimension of *collaboration and communication* describes qualitative aspects of the collaboration between the CS and the incumbent [13, 29]. The studies identified direct access to decision-makers as a critical success factor, which goes hand in hand with the findings for the management dimension. But also, collaboration with the incumbents' employees as partners or experts is essential [13, 17]. The participants of the study by Gutmann et al. [13] recognized that ongoing cooperation was hard to establish as the incumbents' employees were not committed enough in the long term. This shows a negative effect of low CSA.

Furthermore, the articles identified the *interplay and networking* between innovation initiatives as essential. The incumbent can establish relationships between several CSs by offering a collaboration platform [13, 17]. This network facilitates an interplay between programs to enable overarching strategic innovation goals [19].

Values and culture describe how the corporate culture influences the work at the CS and could mean a culture transfer, e.g., by employing incumbent personnel at the CS. The studies generally perceive this circumstance as harmful to the CS's success [19, 26]. The studies suggest that an entrepreneurial culture that enables creativity, openness, and individual responsibility is beneficial [19, 22].

Last but not least, Selig et. al. [26] outline how creating entrepreneurial *role models* that have experience and can communicate best practices, positively affects CS employees.

Table 3. Corporate startup governance mechanisms on autonomy

Mechanisms	No	Sources	Autonomy relation
Structures			
Management	7	[8, 17, 22, 26, 29, 37, 41]	Unclear
Entity	6	[10, 17, 19, 22, 29, 37]	Structural
Branding	4	[17, 19, 22, 42]	Unclear
Location	3	[8, 17, 29]	Structural

<div align="right">(continued)</div>

Table 3. (*continued*)

Mechanisms	No	Sources	Autonomy relation
Program Mgt	2	[13, 22]	Structural
Processes and Operations			
Resources	10	[8, 13, 17, 19, 22, 23, 26, 29, 37, 41, 42]	Planning; Operational
Services	9	[8, 13, 17, 19, 22, 23, 26, 29, 41, 42]	Operational
Structured Programs	8	[10, 13, 17, 19, 22, 23, 26, 29, 37]	Unclear
Decision Processes	6	[10, 13, 17, 19, 26, 41]	Planning; Operational
Metrics	2	[22, 41]	Planning;
Scouting	2	[17, 22]	Unclear
Events	2	[13, 26]	Unclear
Confidentiality	1	[22]	Operational
Relational Mechanisms			
Collab. And Comm	5	[13, 17, 19, 22, 29]	Operational
Interplay and Netw	4	[13, 19, 26, 29]	Unclear
Values and Culture	4	[17, 19, 22, 26]	Planning; Operational
Role Models	1	[26]	Unclear
Autonomy			
Structural Aut	7	[10, 17, 19, 22, 29, 37, 41]	
Planning Aut	6	[10, 19, 22, 26, 37, 41]	
Operational Aut	5	[10, 17, 22, 37, 41]	

5.4 Autonomy

The papers cover *structural autonomy* mainly through structural mechanisms such as *entity*, *equity,* or *location and facilities* described above. They also define structural autonomy as being "structurally separated" [37]. As described in the theory section, this direct link was expected due to its nature. However, this is certainly not the case when it comes to *management dimension.* As Waldkirch et al. [37] analyze extensively, management involvement influences *structural* and *planning autonomy*. Management mechanisms seem to play a unique role in granting autonomy to CS, but the research is still fuzzy. Except for the ability to free decision-making and management interventions, we could not find any direct link between the identified governance mechanisms and CS *planning autonomy* [19, 22, 37]. Yang [41] collects data about the CS' *planning autonomy* without asking about specific governance mechanisms. The articles primarily collect data on *planning autonomy* by asking questions about setting the CS' own goals or being able to develop their strategy independently [10, 41]. How the programs obtain these abilities from a governance perspective is uncertain.

While Waldkirch et. al. [37] define *operational autonomy* as "…the extent to which the venture's management team is responsible for the venture's operations", Garrett and

Covin [10] describe *operational autonomy* as "…the extent to which a venture has structural or process linkages back to its parent firm". From a governance perspective, these are interpreted as *structural mechanisms* instead. Yang [41] describes *operational autonomy* as hiring anyone the CS needs or making investment decisions independently. The separation of *structural, planning, and operational autonomy* remains unclear. Exact governance mechanisms that influence *operational autonomy* are missing from the analyzed literature.

6 Discussion and Future Research

Although most studies focus on operational governance, the research on governance mechanisms for CS is vast. Nevertheless, how incumbents manage CSA from a governance perspective seems to be inconsistent. The autonomy dimensions found in the literature are defined inconsistently by researchers. Likewise, how governance mechanisms institutionalize these autonomy aspects varies just as much, as there is no clear link between the applied governance dimensions and the investigated autonomy dimensions such as planning and operational autonomy. Even though we can map some of the governance mechanisms to a respective autonomy dimension with the current state of research, as shown in Table 3, there is no definitive way to build a mechanism framework for governing CSA. Furthermore, there is an imbalance of research focusing on operational governance and a strong focus on structural autonomy. To sum up, CS practitioners would benefit from a clear conceptualisation of governance models for CS and an evaluation of the associated performance effects. The following sections discuss the findings for CS governance and it's relation to CSA (RQ1, RQ2) while integrating possible pathways for future research (RQ3).

6.1 Corporate Startup Governance Model

We describe CS governance mechanisms systematically and identify gaps by mapping the existing CS governance mechanisms to an established governance framework (RQ1) [36]. Governance mechanisms are valuable tools for incumbents in designing CS, and the mechanisms addressed in research represent established governance dimensions.

The current body of knowledge comprehensively investigates *structures*, *processes and operations*. However, some research is still needed to operationalize these mechanisms into a comprehensive model for quantitative studies. Additionally, how incumbents can manifest different characteristics of these mechanisms is still vague. To exemplify this knowledge and further substantiate the model, research should ask the following questions: (1) Which precise characteristics are specific governance mechanisms adopting in a CS context? (2) How do these forms influence the success of the CS?

Although the questions above are just as relevant for the *relational dimension*, more research is needed to define its mechanisms conceptually. There is still little research on its mechanisms from a governance perspective, although governance research might find these answers in different research streams. Therefore, we propose an additional research question for this dimension: (3) Which relational mechanisms can be extracted from the expanded research on the relationship between incumbents and CSs?

As the current research stream of CS governance still seems to be a niche, future research should consider that the developed model might not be comprehensive. Therefore, studies should further explore additional mechanisms and their forms; hence the fourth research question addressing CS governance is: (4) Which other CS governance mechanisms do incumbents utilize?

The described research agenda guides future research in building CS governance frameworks, enabling incumbents to establish CSs systematically and fostering explorative innovation.

6.2 Governing Autonomy

Research indicates that balancing autonomy substantially affects CS success [5, 18, 37]. The review presented, shows that how incumbents manage CSA from a governance perspective is discussed controversy (RQ2). The papers conceptually separate autonomy in its *structural*, *planning*, and *operational dimensions*, but the dimensions are conceptually defined inconsistently. Thus, we need to understand this concept in more detail to enable incumbents to steer autonomy actively. Therefore, we propose the following research question for future research: (5) How are *structural*, *operational*, and *planning autonomy* conceptually differentiated and defined from a governance perspective?

While in the case of structural governance and autonomy, the relationship between the dimensions is relatively well understood, this is not the case for the other two dimensions. Future studies need to answer the following research questions to close this gap: (6) How do CS governance and CSA relate? (7) How can incumbents manage CSA from a governance perspective?

7 Conclusion

This systematic literature review has built a preliminary governance framework for CSA. This might help practitioners in the context of CS to analyze the governance models available so far. To assure generalizability and applicability, we incorporated mechanisms found for inside-out and outside-in types of CSs, which we oriented on the well-established typology by Weiblen and Chesbrough [39]. Additionally, we mapped the mechanisms to the established governance dimensions: *structure*, *processes and operations*, and *relational mechanisms*. Designing governance mechanisms for CSs is always a challenge when it comes to balancing autonomy, and therefore we extracted and mapped how these mechanisms represent or influence the respective autonomy dimensions if applicable. In doing this, we systematically identify relevant research gaps that are missing to sophisticate the CS governance framework. Furthermore, we laid out a research agenda on the interplay of CS governance and CSA, as these constructs are intertwined, as shown by this review.

This research provides implications for academia and practice. Our model provides a basis to build on for future research. As most CS research is still exploratory, researchers need models suitable for quantitative research methods, and our model provides a possible foundation for this. Furthermore, our model provides a framework of governance mechanisms for CS and their relation to CSA. These findings fill the gap that prior

research has identified, as the evidence of current studies on CSA is contradictory [19, 37]. Finally, we provide a roadmap for further studies which enables researchers to investigate governance mechanisms and their impact on autonomy in more detail.

We can also derive relevant findings for practice. As described in the introduction incumbents still struggle designing their CS initiatives, and our research provides an overview of the possible mechanisms that studies have found to be effective. We offer a framework incumbents can apply to assess their CS design. Naturally, more research is needed, and incumbents must consider other aspects like their strategies to design their CSs confidently. Our model provides a first orientation in this regard. Finally, the model can be applied by corporates that are just starting out their CS initiatives and helps guiding the building process by providing a clear structure of mechanisms that are implemented in practice.

References

1. Blank S. What's A Startup? First Principles (2010). https://steveblank.com/2010/01/25/whats-a-startup-first-principles/. Accessed 18 May 2022
2. Boston Consulting Group, Overcoming the Innovation Readiness Gap (2021)
3. Burgers, J.H., Jansen, J.J.P., Van den Bosch, F.A.J., Volberda, H.W.: Structural differentiation and corporate venturing: the moderating role of formal and informal integration mechanisms. J. Bus. Ventur. **24**, 206–220 (2009). https://doi.org/10.1016/J.JBUSVENT.2009.01.006
4. Corvello, V., Steiber, A., Alänge, S.: Antecedents, processes and outcomes of collaboration between corporates and start-ups. Rev. Manag. Sci. (2021). https://doi.org/10.1007/s11846-021-00510-8
5. Covin, J., Garrett, R., Kuratko, D., Shepherd, D.: Short leash or long leash? Parenting style, initial strategic clarity, and the development of venture learning proficiency. J. Bus. Ventur. **35** (2020). https://doi.org/10.1016/j.jbusvent.2019.105951
6. Crișan, E.L., Salanță, I.I., Beleiu, I.N., Bordean, O.N., Bunduchi, R.: A systematic literature review on accelerators. J. Technol. Transf. **46**, 62–89 (2019). https://doi.org/10.1007/s10961-019-09754-9
7. Dushnitsky, G., Shapira, Z.: Entrepreneurial finance meets organizational reality: comparing investment practices and performance of corporate and independent venture capitalists. Strateg. Manag. J. **31**, 990–1017 (2010)
8. Gamber, M., Kruft, T., Kock, A.: Balanced give and take-an empirical study on the survival of corporate incubators. Int. J. Innov. Manag. **24** (2020). https://doi.org/10.1142/S1363919620400058
9. Garidis, K., Rossmann, A.: A framework for cooperation behavior of start-ups. J. Small Bus. Enterp. Dev. **26**, 877–890 (2019). https://doi.org/10.1108/JSBED-04-2019-0125
10. Garrett, R.P., Covin, J.G.: Internal corporate venture operations independence and performance: a knowledge-based perspective. Entrep. Theory Pract. **39**, 763–790 (2015). https://doi.org/10.1111/etap.12059
11. Garrett, R.P., Neubaum, D.O.: Top management support and initial strategic assets: a dependency model for internal corporate venture performance. J. Prod. Innov. Manag. **30**, 896–915 (2013). https://doi.org/10.1111/JPIM.12036
12. Guardiet, T., Oreschenko, A., Wawers, H.: Success factors of corporate accelerators. Bus Entrep J **11**, 1–25 (2022). https://doi.org/10.47260/bej/1111
13. Gutmann, T., Maas, C., Kanbach, D., Stubner, S.: Startups in a corporate accelerator: what is satisfying, what is relevant and what can corporates improve? Int. J. Entrep. Innov. Manag. **24**, 443–464 (2020). https://doi.org/10.1504/IJEIM.2020.110098

14. De Haes, S., Van Grembergen, W.: IT Governance and its mechanisms. Inf. Syst. Control J. **1**, 27–33 (2004)

15. Hausberg, J.P., Korreck, S.: Business incubators and accelerators: a co-citation analysis-based, systematic literature review. J. Technol. Transf. **45**, 151–176 (2020). https://doi.org/10.1007/s10961-018-9651-y

16. Johnson, K.L.: The role of structural and planning autonomy in the performance of internal corporate ventures. J. Small Bus. Manag. **50**, 469–497 (2012). https://doi.org/10.1111/j.1540-627X.2012.00363.x

17. Kohler, T.: Corporate accelerators: building bridges between corporations and startups. Bus. Horiz. **59**, 347–357 (2016). https://doi.org/10.1016/j.bushor.2016.01.008

18. Kötting, M.: Corporate incubators as knowledge brokers between business units and ventures. Eur. J. Innov. Manag. **23**, 474–499 (2019). https://doi.org/10.1108/EJIM-12-2017-0201

19. Kötting, M., Kuckertz, A.: Three configurations of corporate innovation programs and their interplay. Eur. J. Innov. Manag. **23**, 90–113 (2020). https://doi.org/10.1108/EJIM-07-2018-0142

20. Lee, S.U., Park, G., Kang, J.: The double-edged effects of the corporate venture capital unit's structural autonomy on corporate investors' explorative and exploitative innovation. J. Bus. Res. **88**, 141–149 (2018). https://doi.org/10.1016/j.jbusres.2018.01.049

21. O'Connor, G.C., DeMartino, R.: Organizing for radical innovation: an exploratory study of the structural aspects of RI management systems in large established firms. J. Prod. Innov. Manag. **23**, 475–497 (2006). https://doi.org/10.1111/J.1540-5885.2006.00219.X

22. Richter, N., Jackson, P., Schildhauer, T.: Outsourcing creativity: an abductive study of open innovation using corporate accelerators. Creat. Innov. Manag. **27**, 69–78 (2018). https://doi.org/10.1111/caim.12252

23. Schausberger, M.: Accelerators - categorizing a new form of cooperation. In: 11th International Scientific Conference on New Challenges of Economic and Business Development. Riga, pp. 739–750 (2019)

24. Scholl, L., Hirte, R.: Incubation in multinational corporations. In: ICE/ITMC 2018 - Proceedings. IEEE, Tech Univ Munich, TUM Sch Management, Munich, Germany, pp 1–8 (2018)

25. Schuh, G., Lau, F., Dyba, C., Vogt, F.: Deriving requirements for the organizational structure of corporate incubators. In: PICMET 2018, IEEE, pp. 1–8 (2018)

26. Selig, C.J., Gasser, T., Baltes, G.H.: How corporate accelerators foster organizational transformation: an internal perspective. In: ICE/ITMC 2018 – Proceedings, New York, USA, pp. 1–9. IEEE (2018)

27. Spender, J.-C., Corvello, V., Grimaldi, M., Rippa, P.: Startups and open innovation: a review of the literature. Eur. J. Innov. Manag. **20**, 4–30 (2017). https://doi.org/10.1108/EJIM-12-2015-0131

28. Steiber, A.: Technology management: corporate-startup co-location and how to measure the effects. J. Technol. Manag. Innov. **15**, 11–21 (2020). https://doi.org/10.4067/S0718-27242020000200011

29. Steiber, A., Alänge, S.: Corporate-startup collaboration: effects on large firms' business transformation. Eur. J. Innov. Manag. **24**, 235–257 (2020). https://doi.org/10.1108/EJIM-10-2019-0312

30. Steiber, A., Alänge, S., Corvello, V.: Evaluating corporate-startup co-creation: a critical review of the literature. Int. J. Innov. Manag. **25** (2021). https://doi.org/10.1142/S1363919621500730

31. Taran, Y., Boer, H., Lindgren, P.: A business model innovation typology. Decis. Sci. **46**, 301–331 (2015). https://doi.org/10.1111/DECI.12128

32. Teece, D.J.: Business models, business strategy and innovation. Long Range Plann. **43**, 172–194 (2010). https://doi.org/10.1016/j.lrp.2009.07.003

33. Teppo, T., Wustenhagen, R.: Why corporate venture capital funds fail - evidence from the European energy industry. World Rev. Entrep. Manag. Sustain. Dev. **5**, 353 (2009). https://doi.org/10.1504/WREMSD.2009.031625

34. Tushman, M.L., O'Reilly, C.A.: Ambidextrous organizations: managing evolutionary and revolutionary change. Calif Manage. Rev. **38**(4), 8–30 (1996)

35. Vandeweghe, L., Sharapov, D., Clarysse, B.: The accelerator as an organizational form: a review and reconceptualization. Acad. Manag. Proc. **2019**, 12167 (2019). https://doi.org/10.5465/AMBPP.2019.12167abstract

36. Vejseli, S., Rossmann, A., Garidis, K.: The concept of agility in IT governance and its impact on firm performance. In: ECIS 2022 Research Papers, p. 98 (2022)

37. Waldkirch, M., Kammerlander, N., Wiedeler, C.: Configurations for corporate venture innovation: Investigating the role of the dominant coalition. J. Bus. Ventur. **36**, 106137 (2021). https://doi.org/10.1016/j.jbusvent.2021.106137

38. Webster, J., Watson, R.T.: Analyzing the past to prepare for the future: writing a literature review. MIS Q. **26**, 13–23 (2002)

39. Weiblen, T., Chesbrough, H.W.: Engaging with startups to enhance corporate innovation. Calif. Manage. Rev. **57**, 66–90 (2015). https://doi.org/10.1525/cmr.2015.57.2.66

40. Wulandari, A.D., Subriadi, A.P.: Preparing the Startup ecosystem for building a new startup business during pandemic: a systematic literature review. Int. J. Electron. Commer. Stud. **13**, 137–160 (2022). https://doi.org/10.7903/IJECS.1996

41. Yang, Y.: Bilateral inter-organizational learning in corporate venture capital activity: governance characteristics, knowledge transfer, and performance. Manag. Res. Rev. **35**, 352–378 (2012). https://doi.org/10.1108/01409171211222278

42. Zheng, X., Feng, Y., Feng, Y., Yu, Y., Meng, Y., Pan, Y.: Research on influencing factors of incubating firms' performance by incubators of large companies. In: ICSSSM 2019. IEEE, Shenzhen University, College of Management, Shenzhen, Peoples R China, pp. 1–6 (2019)