International Journal of Business and Economics Research
2025, Vol. 14, No. 2, pp. 38-55
https://doi.org/10.11648/j.ijber.20251402.11

Research Article

The Startup-Zoo: A Typology of Startups Based on the Ambitions of Their Founders

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Abstract

The development of a startup is determined by the entrepreneurial actions of its founders, and the associated entrepreneurial action theory accordingly describes the different goals, strategies, and measures of the founders for this development. The founders' ambitions, which are a driving force behind entrepreneurial action, play a significant role in this context. Research shows that these ambitions determine the goals, strategies, and measures of the young company and, thus, the desired development from the founders' perspective with the associated success. However, not every founder pursues the same ambitions in terms of content and form or always strives for the maximum. Based on three consecutive surveys (n = 1,985 startups), we use K-means cluster analysis to analyze three different dimensions of entrepreneurial ambition (growth, ownership, and cooperation) to examine their combined configuration. Based on this, we identified and double-checked four ambition groups with K-means cluster analysis and laid a foundation for a typology of startups based on the goals of their founders. The results have theoretical and practical implications for the founding and development of startups and a related focus on the founders' ambitions, but also an associated broader consideration by potential investors.

Keywords

Startups, Founders, Ambitions, Typology, Characteristic, Classification

1. Introduction

A central component of entrepreneurship is action, which occurs under uncertainty [1-4]. Entrepreneurial action is a goal-oriented and consistent initiative with which entrepreneurs create innovation [4-6]. Independent of background, circumstances, resources, and motives, entrepreneurs create something new in their own way [7, 1, 8, 4]. Therefore, they recognize and pursue opportunities [3]. The ability to make judgments and act rationally is fundamental for entrepreneurial action [9, 10]. Especially in the early phases, business success is a result of the founders' "experience, judgments, and actions" [11], p. 1127. This theory is referred to as the "theory of entrepreneurial action" [4].

In the entrepreneurial process, entrepreneurs have wishes that transform into goals, actions, and performance [2]. For the unknown future, entrepreneurs develop visions [12, 4] of what they want their startup to look like in the future and what they want it to achieve [13, 14]. A vision in this context refers to a clear idea of what is to be achieved in the future based on the ambition(s) of the entrepreneur(s) and as a resulting development for the startup [15, 16]. Individuals with ambition

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Received: 23 January 2025; **Accepted:** 11 February 2025; **Published:** 7 March 2025

aspire in all areas constantly for accomplishment and success [17]. This is especially true for individuals who are starting a business, and research indicates that ambition drives the corresponding entrepreneurship and sustains it simultaneously [18, 19].

Various definitions of ambitions exist in the context of entrepreneurship. There are definitions of ambitious entrepreneurship e.g. [20, 21] that provide specific differentiation between low and high ambition [20]. Since we examine different entrepreneurial ambitions regarding strength and content, the distinction between low and high ambition is insufficient. Definitions of growth ambitions also exist [22, 23] that do not encompass all of our ambitions, as we consider two additional ambitions beyond growth ambitions. Hence, we define ambition as an entrepreneurial value in Kirkley's framework [24], p. 307: "Having an ambition means having a long term goal that is way beyond your current capability – like a vision of the future for yourself."

In doing so, each entrepreneur has the choice to set their individual goals in this regard (possibly in conjunction with the goals of other founding members) and to determine when and how they (or the group) want/want to achieve them [24]. Conceptually, goals and visions are different, but both aim at a future state that a person or group wants to achieve [25, 26]. "A goal is the object or aim of an action, for example, to attain a specific standard of proficiency, usually within a specified time limit." [27], p. 705. The basis for this is the respective ambitions of the founder(s). In addition to ambitions, other constructs such as aspirations, expectations, imagination, passion, and intentions exist in the literature [20, 28-31]. Since this paper is not intended to differentiate between these terms, entrepreneurial ambitions are representative of these expressions, so they will be used synonymously in this study.

To understand how the actions and outcomes of a company are generated, the prejudices and preferences of their most influential stakeholders are relevant. Hence, a company is the reflection of its top managers. In this context, the upper echelons theory states that leaders affect their interpretation of situations and their decisions by their experiences, beliefs, and characteristics [32]. According to the upper echelons theory, the characteristics of the founding team, certainly including the respective ambitions, shape the startup results [32, 33]. At the beginning of a new business, there are one or more ambitious founders who shape the structure and strategy of the startup in order to succeed [13, 14]. Entrepreneurial ambitions are thus among the important individual characteristics of the founders of determine the founding and further development of a startup [15, 16]. For this reason, we equate the founders' ambitions with those of the startup.

Entrepreneurs have varying strengths of ambition, especially in terms of growth e.g. [34]. In research, ambition is often referenced and not adequately explained [17]. The literature on entrepreneurial ambitions is increasingly recognized and not overly surprisingly of great interest for research [20]. Limited studies distinguish between low and high ambitions e.g. [35, 20]. Moreover, founders differ in manifesting their ambitions e.g. [20, 36], which have been examined only individually e.g. [37, 38] and not in combination with other ambitions.

Against this background, founders can pursue several ambitions simultaneously [39]. Combining multiple entrepreneurial ambitions e.g. [37, 38] with different strengths e.g. [35, 20] has the advantage of multi-dimensional rather than one-dimensional considerations. This allows founders to pursue multiple ambitions e.g. [23, 40] for the future of their startup at the same time, setting various goals that differ in content and strength [41]. Once multiple ambitions are set, founders can develop a detailed plan to achieve them [42]. If several ambitions are considered at the same time, a clustering of ambition types emerges.

Conversely, the clustering of ambition types that emerge could, in turn, enrich entrepreneurial action theory e.g. [43, 10, 4] because if entrepreneurial action is determined by ambition, then different ambition types can also determine different types of entrepreneurial action. The question would then be "how" the action could be characterized, what ambitions are associated with it, and what types of startups can be described with it. In the end, we may be able to offer a more differentiated picture of entrepreneurial action via the startup/ambition types and, thus, hopefully, enrich the theory. It would be desirable if there were some kind of classification for startups based on different entrepreneurial ambitions, with which founders but also investors could reflect on or classify the goals of a startup and make essential decisions for the future on this basis. It is very important that ambition is not categorized as either good or bad in this context.

Aldrich and Ruef [44], Morris & Kuratko [45], Kuratko and Audretsch [46], and Kuckertz et al. [36] emphasize that research should not only focus on extreme outliers of entrepreneurship (maximum ambitions in our context) but should consider the multiple aspects (different ambitions in our context). Kuratko and Audretsch [46], p. 269 raise the question "The future of entrepreneurship: the few or the many?". We consider it relevant to examine the diversity and distinctiveness in the entrepreneurship context. A differentiated classification across the entire range of ambitions would perhaps identify several startup types, which, in their consideration, would produce different strengths for further development. Thus, independent of a one-dimensional consideration of maximum expressions and related goals, e.g., in terms of growth, the basis for a differentiated consideration and the value of a startup for an economic ecosystem or the prospect of venture capital funding could also be made.

Currently, there are individual classifications and type designations in the practice-oriented (and partly also theoretical) reporting on startups [47, 48], which also take into account the ambitions of the associated founders, but a theoretical basis for this or an overarching overall model cannot be found in the literature. This paper aims to fill this gap because, to the best of our knowledge, no reliable "startup type theory"

exists, especially based on ambitions. The descriptions of so-called Unicorns and Zebras originate from the practice-orientated discussion. Although these terms appear more frequently in theoretical considerations, we have not found any empirical studies that would initially prove the existence of these startup types. Even if the descriptions from practice are initially comprehensibly explanatory, we believe that the theoretical and empirical basis for the proof of these genera is missing. Therefore, we first used a structure-discovering/explorative method for theoretical foundations, not a structure-testing method for an existing theory.

Therefore, we conducted a repeated cross-sectional study with a comprehensive survey of startup founders. In doing so, we designed and coordinated the surveys with our partner, the German Startup Association, over three years. In particular, we developed the scientific scales independently based on our theoretical research and inserted them into the joint questionnaire. Our partner then conducted the surveys and collected the data. After that, we analyzed the data. We used a K-Means cluster analysis to classify startups by ambition types across several dimensions of entrepreneurial ambition. In this regard, various kinds of entrepreneurial ambitions could have been used, but three dimensions in particular are described in the literature as essential [35, 15, 40]: Growth, exit, and collaboration ambitions.

As a result, our study is expected to contribute to research in this area in several ways. First, it contributes to the literature on entrepreneurial action theory e.g. [1, 43, 10, 3, 4] by characterizing entrepreneurial action based on entrepreneurial ambitions and their cluster types. Second, our study contributes to the literature on entrepreneurial ambition e.g. [38, 23] by showing that ambitions can vary in content. It also shows that, in the end, there is a classification of four different ambition types that can be identified based on the three main ambition dimensions. By doing so, we back up existing classifications from practice e.g. [48-50] with theory and extend them to provide a holistic picture of the different ambition types, rather than looking only at the extremes as is often observed. This framework can serve as a basis for future research to explore further theoretical relationships.

Moreover, this classification provides a more nuanced view of the disposition of founders with their goals and visions and their attractiveness to investors. In this way, we also enable founders to classify their ambitions better and thus make conscious decisions for the future. They can, therefore, better formulate and execute their visions and related goals with the associated long-term plans. In addition, startups can better classify their competitors and interpret their behaviour. Investors get a basis for balanced investment decisions and exit options beyond achieving maximum valuation targets.

This paper is structured as follows. First, we take entrepreneurial action theory as a basis and seek to embed ambitions in the context of entrepreneurship. The following section recounts the methods applied. We present and interpret a typology for startup types based on entrepreneurial ambitions in the results. The paper concludes by discussing the implications for research and practice and by outlining its limitations.

2. Theory

2.1. Theory of Entrepreneurial Action

"Entrepreneurship is a self-directed activity that does not occur spontaneously from the presence of technological or industrial change. Rather, it requires the action of individuals who identify and pursue opportunities" [51], p. 3. When these opportunities arise, ambitious entrepreneurs have to explore them before someone discovers them [52]. An entrepreneur is "someone who specializes in taking responsibility for and making judgemental decisions that affect the location, the form, and the use of goods, resources, or institutions" [5], p. 155. Through his/her entrepreneurial actions, he/she reacts to changes and generates them. Entrepreneurial actions relate to behavior responding to a decision under uncertainty about a potential profit opportunity [5, 4]. This theory is denoted as the "theory of entrepreneurial action" [1, 10, 3].

The entrepreneur envisages an unpredictable future with action under uncertainty [52, 7, 3, 12, 4]. Because of the uncertainty, the entrepreneur acts cautiously [5, 4] and relies extensively on what he/she envisions as feasible for the unpredictable future [4]. The basis for this is visions, goals, and ambitions [24, 4].

2.2. Entrepreneurial Ambitions

Individuals with ambitions have plans and targets for their professional careers, want to move up and strive for a good professional future [53]. The willingness to do whatever is necessary to advance in one's profession or organization is a commitment to a particular course of action [54]. In the context of entrepreneurship, ambitions are confirmed relevant factors of startup success [55, 16]. Hence, entrepreneurs pursue long-term goals like a vision of themselves in the future [24]. Entrepreneurial ambitions [38, 20, 56, 57] serve as the basis for entrepreneurial quality, actions, and success [58-61].

The associated literature distinguishes between low and high ambitions in general and in relation to innovative strength over the course of the company's development [38, 62, 20]. Kirchhoff [63] defines an ambitious enterprise as a business founded on an innovation that is utilized along the company's life cycle. Accordingly, he is not in favor of reinventing the company. His view is in contrast to Schumpeter's view, which advocates new innovations [20, 63]. With the research of Gundry & Welsch [38] and Guzmán & Santos [62], the term "ambitious entrepreneurship" was first published in the literature in 2001. They focus on the quality of entrepreneurship, that is, the actions taken by entrepreneurs to support their firms along their life cycle [62, 20].

Gundry & Welsch [38] take the Schumpeterian perspective of ambitious entrepreneurs and connect them with the ability to innovate. Thus, ambitious entrepreneurs seek innovation along the company's life cycle [38, 20]. Entrepreneurial ambitions differ, particularly with regard to growth. In terms of the observed sizes of startups, it is relevant to differentiate between founders with low growth ambitions and high growth ambitions. Ambitious founders plan to establish a company that will have a relatively large impact on the economy. For instance, they have a strategic approach in terms of market growth and technological innovation and a stronger involvement in the firm's success. In addition, they are more willing to make sacrifices for the company and are more powerful in leadership. They plan the firm's growth in advance and care about its image, quality, and financing [38]. Mangematin et al. [64] also share the Schumpeterian perspective and differentiate between low and high ambitions based on the level of the project's innovativeness (incremental or radical).

We support the distinction between low and high ambitions e.g. [38, 62, 20] but seek to clarify it even more as a continuum. In addition to the strength, we differentiate the ambitions regarding content e.g. [65, 35, 40]. Entrepreneurial ambitions should refer not only to the degree of innovation of the product or the idea but also to the associated growth and development of the company in the market/competition, financing [38] and maybe different exit scenarios to cover the company/founder life cycle [38, 20]. In later phases of a business, entrepreneurial ambition can then forecast actual output [34] and is a predictor for the performance of SMEs [66]. But without ambitions at the beginning, founders are also unlikely to achieve growth in the later phases [67].

The entrepreneur is considered as an individual and not as a team or organization [5]. Since ambitions belong to personal characteristics [68], they are individual and can, therefore, be assigned to founders. As top executives, founders are relevant for their startup in the sense of the upper echelons theory [33]. Because a company is the reflection of its top managers, organizational outcomes in terms of strategies and effectiveness are the reflection of the cognitive foundations and values of the organization's powerful actors [32]. The upper echelons theory also predicts aspects of decision-making and performance. Each powerful actor shapes the organization through her or his individual orientation [33].

In this context, each business orientation is linked to the ambitions of the business owner [69, 39]. Because founders are the architects of the startup's structure and strategy [13, 14], startup types can be derived from the entrepreneurial ambitions of the founders. Therefore, we equate the ambitions of the founders with those of their startup.

2.3. Manifestations of Entrepreneurial Ambitions

In the field of entrepreneurship, founders pursue various ambitions such as growth- [35], exit- [40], cooperation- [15], innovation- [70, 34], social- [71], and sustainability-ambitions [72]. This study focuses on the three ambitions that we consider most relevant for a startup and its founders from its inception and that every startup should think about. Three of the most discussed manifestations in literature [73, 15, 23], which are of central importance for startups e.g. [74, 75], will be explained in further detail below.

Long- vs. Short-Term Growth

The ambition to grow is an essential and widespread desire of founders [39]. In the context of ambitious entrepreneurship, a founder with this ambition might be "someone who starts a new firm and expands it" [56], p. 139. Verheul and Van Mil [23] view business growth as a goal that is pursued individually by the entrepreneur. Overall, nearly every entrepreneur strives for growth; however, there are differences in terms of the length of the growth period [76].

On the one hand, entrepreneurs could prioritize building their startup rather slowly and sustainably over a long period of time [76, 77]. Moreover, extremely high growth is not always associated with a company's profitability if, for example, the high investments in customer acquisition have not yet been matched by the related sales and profits [78]. The associated pressure on financial liquidity and stress is not wanted by every founder. Hence, entrepreneurs avoid too fast growth since they fear the potential loss of control and an increased workload as a result of growth [77]. However, the ambition of long-term growth has received little attention so far despite its importance [76].

Otherwise, other founders are not afraid of this possible lack of control and have the ambition to grow exponentially over a short period of time [79-86]. For example, high-growth-orientated ambitions are relevant in terms of market expansion, new technologies, and a strong commitment to the company's success [38]. So-called "productive" entrepreneurs strive for rapid growth and global expansion of their businesses [80, 87, 88].

Keep vs. Exit the Company

Ownership that entrepreneurs can regard as a goal can create a strong sense of connection to the company and it increases the likelihood of acting for its highest good [89, 90]. Most companies worldwide are so-called "family firms" as they are owned by one shareholder, who is usually the founder, and/or his family [91, 92]. Because of this psychological attachment to the company and the company-specific human capital, many owners seek to maintain their company [93, 94]. This ambition is pursued when, for example, the company has performed very successfully in the past, the entrepreneur has made a personal investment in the company, there are limited career options for the entrepreneur, and/or the environment is very complex or dynamic [95, 96].

Another established ambition of founders is the pursuit of an exit [93, 97, 40]. DeTienne [98], p. 203 defines an exit as "the process by which the founders of privately held firms leave the firm they helped to create; thereby removing themselves, in

varying degree, from the primary ownership and decision-making structure of the firm" and explains it as an essential part of the entrepreneurial process. Hence, entrepreneurial success is connected to exit aspirations [99]. Therefore, founders may seek an indication of success, as it may be the liquidation of financial investment and/or career decisions [40]. There are several ways to exit a company, which founders may strive for: First, one important stage in the development of a public company is the initial public offering (IPO), through which the company seeks to obtain additional capital [100]. Second, a management buy- out (MBO) implies the sale of the company to members of the existing management team. Third, a management buy-in (MBI) refers to the sale of the company to an external management team [101]. Fourth, mergers and acquisitions (M&A) involve the full or partial fusion of at least two companies [102]. Therefore, it can be seen that several directions in terms of ownership and exit are possible.

Cooperation vs. Competition

Both cooperation and competition are meaningful for economic development and the innovation process [103, 104]. Companies in this process can have either a more competitive or cooperative view of the market. Cooperation is defined as "firms jointly pursuing mutual interests and common benefits" [15], p. 3164. Companies may aim to collaborate and thereby gain innovation [105, 106], to add value [15], to expand profit [107], to save costs [108], or to spread possible risks [109].

In many sectors, companies are even forced to cooperate, for example, to gain access to resources for innovation [110, 15, 111]. In the development of new processes and products, companies may strive for cooperation as it is essential to define technical standards that can be used by multiple companies, thereby reducing research and development costs [103]. Furthermore, the ambition to cooperate could create new markets. In this context, the form and development of startups are determined by relationships, particularly equity partnerships [112]. There are even more reasons to see cooperation as a goal: Cooperative relationships with regional networks can bring success, lead to growth as well as promote success in the marketplace. Through cooperative relationships, there is an opportunity to learn from partners and enjoy reputation and customer relationships [113]. Especially older companies desire cooperation with research institutions to gain access to new technologies, which in turn can be used for new products [113].

However, if companies cooperate excessively, not enough value may be created for survival [15]. Traditionally, the market aims for competition [65]. Therefore, some founders pursue more competitive measures, being defined as "the pursuit of a market position by firms that offer comparable products to a targeted set of customers" [114], p. 3033 and thus "pursuing their own interests at the expense of others" [15], p. 3164. In doing so, companies with this ambition try to create value and outplay other companies [15, 115] or realize a relative cost advantage [107]. Also, because a successful company receives more attention [116], companies strive for competition. They may be aiming for a so-called "winner-takes-all market", where the best-performing companies claim a very large proportion of the available profit for themselves. This leaves little for other competitors [117]. Also, since competitive behavior has been proven to bring success [15], there is the ambition for competition. It shows here that cooperation and competition are possible.

The goal of this study is to cluster these three ambitions most discussed in the literature [73, 15, 23]. We do not differentiate between good and bad ambitions, instead, we see them as a value-free continuum. Thus, we examine entrepreneurial ambitions multidimensionally with different content e.g. [37, 38] and strengths e.g. [35, 20]. In this way, different types of ambitions and, thus, a framework for startup types emerge, which founders pursue simultaneously. Subsequently, we interpret this framework for startup types.

3. Methodology

3.1. Sample and Data Collection

In three subsequent years, we conducted a repeated cross-sectional study [118] using data from startups participating in the German Startup Monitor (original: Deutscher Startup Monitor), which is the largest annual large-scale survey on startups in Germany, conducted by the German Startup Association, a federal association representing both the entire German startup ecosystem and the interests of startups towards legislation, administration, and the public. This survey aims to capture the current state of the German startup ecosystem with a special focus on high-potential startups. Other components of the German Startup Monitor have already been analyzed in entrepreneurship research e.g. [119, 120]. As a scientific partner of the German Startup Monitor, we were not only able to enrich the survey with theoretical questions and scales, but also had exclusive access to the resulting data. This was the reason why we initially focussed our study on startups from Germany, as they had extensive access to several years of data.

In line with the general definition of startups [121], we investigated startups that are younger than ten years, growth-oriented in terms of their sales and/or employees, and/or innovative in terms of their products/services, business models, and/or technologies [119, 122, 123]. The online-based survey was conducted in three consecutive years between May and June 2020, 2021, and 2022 and distributed through a professional partner of the German Startup Association. Table 1 provides an overview of the descriptive statistics of the datasets over the three years.

Table 1. *Descriptive Statistics of the Datasets from 2020 to 2022.*

year		**2020**	**2021**	**2022**
final sample		**761**	**671**	**553**
startup age in years	*mean*	2.4	2.6	2.8
	SD	2.04	2.04	2.3
	min	0	0	0
	max	9.92	9.33	9.83
	sum	1,910	1,750	1,372
number of founders	*mean*	2.51	2.61	2.48
	SD	1.12	1.17	1.15
	min	1	1	1
	max	7	10	10
	sum	9,526	8,639	12,436
number of current employees	*mean*	13.25	13.31	23.24
	SD	36.27	34.4	102.4
	min	0	0	0
	max	480	450	1,450

The 2020 sample is distributed over the top five industries: 33.5% in information and communication technology, 8.5% in medicine and healthcare, 6.2% in nutrition and food, 4.9% in building and real estate, and 4.9% in consumer goods. The sample in 2021 is spread over the top five industries: 33.5% in information and communication technology, 9.9% in medicine and healthcare, 4.5% in nutrition and food, 4.3% in automobiles and mobility, and 4.0% in consumer goods. In 2022, the sample is allocated over the top five industries: 30.4% in information and communication technology, 8.5% in medicine and healthcare, 5.1% in energy and electricity, 4.5% in industrial goods, and 4.2% in consumer goods.

3.2. Measures

Single-item and multi-item measures offer advantages and disadvantages. A single-item measure may not perform that well in one situation, even though it achieves likewise the multi-item measures in another context [124]. In contrast to single-item scales, multiple-item measures generally provide more information and are more reliable, so they are often preferred in research [125].

The use of single-item scales is practically justified [125] and is capable of overcoming conceptual, methodological, and empirical challenges [126]. For example, practical problems are surmounted by reducing respondent burden, survey length, and item repetition [126-128]. Non-response and survey abandonment can be avoided through single-item measures, retaining respondents who may not be interested in a long survey [129, 126]. Our surveys, in cooperation with the German Startup Association, were practice-oriented questionnaires in which scientific scales could only be used to a limited extent. Due to the questionnaire's structure and scope, we used single-item scales. However, since we were able to test these single-item scales in no less than three surveys over three years (2020, 2021, 2022) with almost 2,000 responses, we consider them robust enough to assume the reliability and validity of the measured clusters in order to build our findings on them.

To record entrepreneurial ambitions, we followed the theoretical considerations introduced above and asked three questions that reflected the respective dimensions of entrepreneurial ambitions: 1) long-term linear increase in value vs. short-term exponential increase in value ("We strive for a long-term linear increase in value" vs. "We strive for a short-term exponential increase in value"), 2) ownership vs. exit ("We plan to fully own/maintain the company shares" vs. "We plan a complete exit/sale/IPO of the company shares"), and 3) cooperation vs. competition ("We see other market participants as potential partners" vs. "We see other market participants as potential competitors"). We used a semantic differential-based scoring method [130] to identify the degree of contrast between two extremes in each case [131]. Hence, this response format reduces acquiescence bias [130]. Furthermore, to ensure that the position of the answers did not matter, the two items 1) long-term linear vs. short-term exponential increase in value and 2) ownership vs. exit were

asked inverted in the post-hoc analyses in 2021 and 2022. Our semantic differential-based scoring has two poles, each of which has the value of "strongly agree" (values -3 and 3) to "agree" (values -2 and 2) to "rather agree" (values -1 and 1) asking the entrepreneurs how much certain statements apply to their startup. In addition, we provided one neutral response option (value 0) in order not to force the subjects in any direction pressuring them or creating incorrect response tendencies in case of uncertainty [132].

3.3. Method of Analysis

There are mentions of startup types e.g. [44, 49, 36, 46] but no theory that determines how many types exist and what they are. Therefore, this study is an exploratory approach. The original dataset includes 1,946 startups in 2020, 2,013 startups in 2021, and 1,976 startups in 2022. After eliminating incomplete data from the original dataset, the sample contains 1,359 startups in 2020, 1,434 startups in 2021, and 1,228 startups in 2022. We used K-means as a nonhierarchical statistical clustering method [133-135] since it is especially appropriate for large numbers of cases (e.g., N > 300-400 [133]) and is the most commonly used non-hierarchical clustering algorithm [136-139]. In K-means, observations are divided into a user-defined number of clusters and then iteratively reallocated until a numerical target in terms of cluster distinctness is reached [133].

Because of the least squares method, the K-means clustering method is very sensitive to outliers. K-means cannot eliminate the outliers on its own and, thus, categorizes all cases [140, 141]. Therefore, outliers were identified and eliminated by using the mean values with a standard deviation of one from the exploratory cluster analysis in 2020. The final sample consists of 761 startups in 2020, 671 startups in 2021, and 553 startups in 2022. We aimed to find new startup types and confirm our theoretical model with evidence from the data. K-means was used to explore the clusters and their number for the dataset in 2020 [133]. For this, we examined different counts of clusters. As a result, a four-group model under the K-means algorithm [134, 135] with three variables provided the best fit. In post-hoc analyses with datasets from 2021 and 2022, we verified and confirmed the clusters [133]. In our case, this standard deviation also ensured that no items exceeded zero and thus described an opposite ambition.

Reliability and validity were assessed to ensure that this is a powerful set of clusters [133]. To ensure reliability, cross-validation is performed with a randomly determined sample size of 50 percent. Validity is assessed by an ANOVA to find statistically significant differences between the clusters for the three ambitions [133]. The analyses were performed using IBM SPSS Statistics 27 software.

4. Results

In terms of entrepreneurial ambitions, we set the assumption that there are no conflicts in the founding teams. The statistical results of the K-means cluster analysis will be presented in section 4.1 for the dataset in 2020. Section 4.2 presents post-hoc analyses for datasets in 2021 and 2022. Section 4.3 analyses the four-cluster solution in particular.

4.1. Results of the K-means Cluster Analysis

Based on an exploratory K-means cluster analysis, a final four-cluster solution was developed (n = 761). The centroids for each cluster on the three variables regarding entrepreneurial ambitions are displayed in Table 2. The individual cluster centers indicate in which direction of the semantic differential the ambitions are directed. For example, the first cluster has a value of -1.71 for the variable "long-term linear vs. short-term exponential increase in value", which means that the first cluster is pursuing the ambition *long-term linear increase in value*. The fourth cluster has a cluster center of 1.94 for the same variable, which means that this startup type is pursuing the ambition *short-term exponential increase in value*.

Based on the cluster centroids and the cluster sizes, the clusters were labeled as follows:

Table 2. *Final Cluster Centers.*

cluster	(1)	(2)	(3)	(4)
long-term linear vs. short-term exponential increase in value	-1.71	1.11	1.5	1.94
ownership vs. exit	-2.15	-1.91	1.76	1.95
cooperation vs. competition	-1.23	-1.22	-1.63	1.1

Note. The opposite poles of the variables have been scored accordingly: Score -3 = "strongly agree", Score -2 = "agree", Score -1 = "rather agree", Score 0 = "neutral", Score 1 = "rather agree", Score 2 = "agree", Score 3 = "strongly agree".

The first cluster represents 21.4% (*n*=163) of the cases. It consists of the ambitions for *long-term linear increase in value*, *ownership*, and *cooperation*. The second cluster represents 22.2% (*n*=169) of the cases and consists of *short-term exponential increase in value*, *ownership*, and *cooperation*. The third cluster represents 24.3% (*n*=185) of the cases. It is

formed by *short-term exponential increase in value*, *exit*, and *cooperation*. The fourth cluster represents 32.1% (*n*=244) of the cases and contains *short-term exponential increase in value*, *exit*, and *competition*.

Reliability and validity are assessed to ensure that this is a strong set of clusters: First, cross-validation is performed with a randomly determined sample size of 50 percent. For that, a renewed cluster analysis was conducted using K-means. The cluster assignments of the smaller dataset (N=380) were compared to the cluster solution of the original dataset (N= 761). Given that less than ten percent of the observations are assigned to another cluster, this is a stable solution [133].

Second, validity is evaluated by an ANOVA (see Table 3). The findings reveal that there are statistically significant differences between the four clusters for the three variables. The significant F-statistics deliver evidence that all four clusters are individual [133].

Table 3. *K-means Cluster Analysis ANOVA.*

ANOVA						
measure	**cluster**		**error**			
	mean of the squares	***df***	**mean of the squares**	***df***	***F***	**Sig.**
long-term linear vs. short-term exponential increase in value	481.822	3	.485	757	992.776	.000
ownership vs. exit	947.446	3	.606	757	1563.266	.000
cooperation vs. competition	344.433	3	.516	757	668.038	.000

4.2. Post-hoc Analysis

To verify the cluster solutions from 2020, we conducted two post-hoc analyses two years later, in 2021 and 2022. We found 671 cases in 2021 and 553 cases in 2022, each corresponding to one of the mentioned types. In 2021, the first cluster represents 46.5% of the cases (n = 312), the second cluster represents 10.7% (n = 72), the third cluster 22.7% (n = 152), and the fourth cluster 20.1% (n = 135). In 2022, the first cluster characterizes 46.8% of the cases (n = 259), the second cluster denotes 8.5% (n = 47), the third cluster 23.3% (n = 129), and the fourth cluster 21.3% (n = 118). The result of the post-hoc analyses shows that the distribution among the individual clusters is consistently different than in the analysis from 2020. Over 46% of the cases are in the post-hoc analyses in the first cluster.

With regard to the question of how strong a dataset with founders from Germany can be in terms of the associated ambitions and the resulting startup types/clusters, we carried out further analyses in advance. In doing so, we benefited from the fact that the dataset also included founders with a migration background (i.e., "What citizenship do you and your parents have by birth"). The proportion of founders with a migration background was approx. 21% across all original datasets over the years (approx. 20% in the respective regression analysis). Influences from different international cultural backgrounds (EU/non-EU) can/could, therefore, also be captured in the approach and indeed have/had a significant influence on forming the corresponding ambitions. However, this has/had no impact on the formation of the four resulting startup types/clusters. The same classes for founders with and without a migration background (even if the startup types/ clusters were slightly different in terms of the degree to which founders belonged to them) were/are produced - with confirmation of all quality criteria - which speaks in favour of the robustness of the following "Typology of Startups resp. Startup-Zoo-Framework" (based on the hole dataset) and which can/could also be used internationally in other countries.

4.3. Typology of Startups Based on Founders' Ambitions

In the following, we analyze the profile of each cluster. In practice, we can already observe examples that seem to have achieved the ambitions of two clusters. The first cluster, with the ambitions of long-term linear increase in value, ownership, and cooperation, corresponds to the specifications of a Zebra [49, 50]. Simultaneously, the fourth cluster, with the ambitions of short-term exponential increase in value, exit, and competition, matches the specifications of a Unicorn, which Brandel et al. [49] and Shaw [50] have already outlined. Unicorns, which in practice have a valuation of at least $1 billion [44, 142], have such ambitions [49, 50]. Thus, we can confirm the existence of Zebras and Unicorns.

In addition to these two types, Kollmann/Kleine-Stegemann [143] have found initial indications of two further clusters that

can be located between Unicorns and Zebras: The second cluster, cluster 2, differs significantly from cluster 1, the Zebras, in terms of growth, as it aims for short-term exponential growth instead of long-term linear growth. At the same time, it differs from cluster 4, the Unicorns, in terms of cooperation and ownership. The focus is on fast growth, which conveys a short-term exponential increase in value. Because of the characteristics of the variables, we refer - in accordance with Kollmann/Kleine-Stegemann [143] - to cluster 2 as Cows. To describe reality, analogies and metaphors are effective rhetorical means [36]. The term "Cow" was chosen as a metaphor for cluster 2 on the one hand because of Cows' herd behaviour, which conveys cooperation, and on the other hand because of its use in agriculture over a long period of time, which expresses ownership. In addition, production outputs from real Cows (e.g., milk) are sold for revenue generation.

The other discovered cluster, cluster 3, differs from cluster 1, the Zebras, in terms of exponential growth and exit and differs from cluster 4, the Unicorns, in terms of cooperation. Because of the strong similarity to Unicorn startups, the Horses analogy was chosen for cluster 3 since Horses lack horns, which represent competitiveness and rarity [143]. As herd animals, they exhibit social and cooperative behavior, for example about grazing together. Against this background, we found a set of four types of entrepreneurial ambitions that can be named after specific animals. Hence, we call our classification "Startup-Zoo," the framework we interpret in the following (see Figure 1).

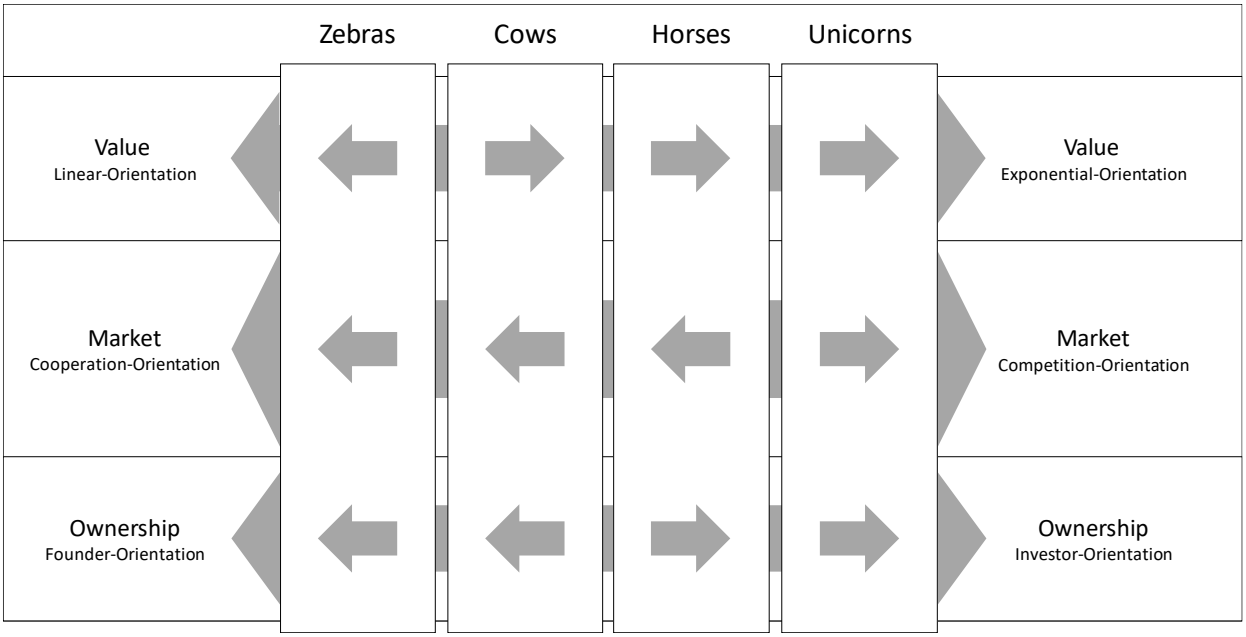

Figure 1. *The Startup-Zoo-Framework.*

4.3.1. Zebras

Zebras can be characterized by the variables long-term linear increase in value, ownership, and cooperation. Founders' ambitions of *Zebra*s are centered around long-term and sustainable growth. They have a long-term linear value enhancement perspective, a strong willingness to cooperate with competitors, and thus a strong market tolerance towards competitors. *Zebras* operate in "all-takes-it-all markets", which implies that there are numerous shares in the market for many market participants. They focus very strongly on founder-related ownership and aim for an investor exit via management buy-in/management buy-out (MBO/MBI) or buy-back (see Figure 2).

4.3.2. Cows

Cows are located between *Zebras* and *Unicorns*. Founders of this startup type aim for medium-term and moderate growth and have a medium-term linear value growth perspective. *Cows* want to grow fast but may not be focused on such fast growth as *Unicorns*. Founders with *Cow* ambitions are cooperative thinkers. Thus, they have an open willingness to cooperate with competitors and have an open market tolerance towards competitors. They operate in "many-takes-it-all markets," which means that there are many shares in the market for many market participants but fewer shares than in "all-takes-it-all markets." Furthermore, they have a strong founder-related ownership orientation. A conceivable exit option for investors could be a secondary purchase or MBO/MBI (see Figure 2).

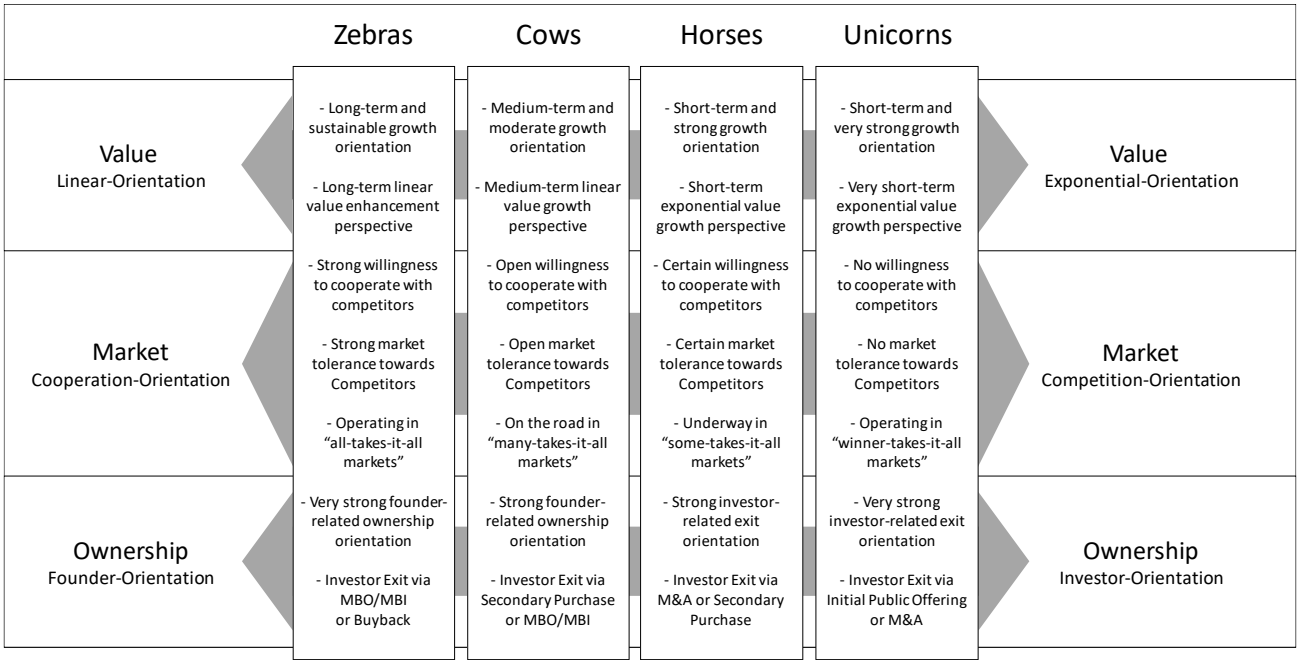

Figure 2. *Interpretation of Startup Types in the Startup-Zoo-Framework.*

4.3.3. Horses

Horses can also be found between *Zebras* and *Unicorns* and are thus characteristically a mixture of both animals. Founders with *Horse* ambitions seek short-term and strong growth. Additionally, they strive for short-term exponential value growth. They are characterized by a certain willingness to cooperate with competitors and a certain market tolerance towards competitors. "Some-takes-it-all markets" are very interesting for them. In this type of market, only a few market participants survive and divide the market among themselves. Moreover, founders with *Horse* ambitions have a strong investor-related exit orientation. Investors can possibly strive for an exit via mergers and acquisitions (M&A) or a secondary purchase (see Figure 2).

4.3.4. Unicorns

Founders with *Unicorn* ambitions are focused on short-term and very strong growth and, thus, short-term exponential value growth. At the same time, they have a competitive nature. Founders with *Unicorn* ambitions take high risks for market dominance and use the capital for fast growth. Hence, they have no willingness to cooperate with competitors and no market tolerance towards competitors. They operate in "winner-takes-it-all markets," which means that high-performing companies claim a large share of the profit. They strive very strongly for an investor-related exit. Possible exit scenarios for investors are an initial public offering (IPO) and an M&A (see Figure 2).

Table 4 presents an overview of descriptive statistics of the startup types.

Table 4. *Descriptive Statistics of the Startup Types.*

		Zebra	***Cow***	***Horse***	***Unicorn***
startup age in years	*mean*	2.34	2.14	2.4	2.61
	SD	1.98	2.04	1.93	2.14
	min	0	0	0	0
	max	8.33	9.92	9.08	9.83
number of current employees	*mean*	5.76	5.5	15.71	21.17
	SD	14.28	8.09	38.61	50.64
	min	0	0	0	0
	max	130	52	350	480

5. Discussion

Entrepreneurial ambitions are proven to be a significant factor for success [60, 16, 144]. However, some founders have different ambitions than others [20]. Based on entrepreneurial ambitions, we derived and classified different startup types using K-means to create a common, differentiated framework based on three distinct manifestations of entrepreneurial ambitions. In this vein, we confirmed the possible ambitions of two known startup types, Zebras and Unicorns, and discovered - in accordance with Kollmann/Kleine- Stegemann [143] - two new ambition types: Cows and Horses.

5.1. Theoretical Implications

In theory, we contribute to the field of entrepreneurship research in various ways. First, we contribute to the literature on entrepreneurial action theory e.g. [43, 3, 4] by showing a differentiated picture of entrepreneurial action and its founding types on the basis of clustering entrepreneurial ambitions. As we have already noted, action can be more or less ambitious. So, if different startup types exist based on the different ambitions of the founders, then these startup types can also be used to differentiate and classify entrepreneurial actions. Entrepreneurial action can or must then be analyzed in relation to the respective startup type. In this respect, the entrepreneurial action theory can be applied in a more differentiated way and placed in relation to the various startup types.

Second, this study contributes to the literature on entrepreneurial ambitions e.g. [38, 24, 23] by presenting that ambitions can differ in content and by showing a startup typology for founders and investors based on entrepreneurial ambitions. Since past studies have only examined single dimensions of ambitions e.g. [38], research lacked an overarching framework for entrepreneurial ambitions that can map multiple dimensions at once. With the Startup-Zoo, we derive a classification that enriches entrepreneurship research by providing new insights into multiple entrepreneurial ambitions that are pursued simultaneously. This creates a differentiated picture so that entrepreneurship research in the future will be subdivided and studied separately in relation to different topics. Furthermore, we show that entrepreneurial ambitions can have a significant influence on further constructs, such as the number of employees to be hired in the next 12 months and the preferred capital sources of founders can be explained by the variable entrepreneurial ambitions (see section 5.2). In practice, there are already designations for startup types e.g. [49, 145] and we substantiate these with theory so that we give practice a scientific foundation.

Third, entrepreneurship research called for investigating more average startup types rather than rare and unusual Unicorns [44, 46] because they are considered a poorly defined idea and could suppress other worthy entrepreneurial activities and their multifaceted character [36]. Addressing these calls, we have not only shown possible ambitions of Unicorns and other well-known species like Zebras; we also retained existing dimensions of entrepreneurial ambitions and classified them, creating a typology that allows for a differentiated consideration of ambitions within the startup ecosystem. In this way, we manage to generate a more nuanced picture of the phenomenon of entrepreneurial ambitions.

5.2. Practical Implications

With the support of our model, founders get an overview of ambitions in the startup ecosystem. Since more than half of all startups are founded by more than one founder [146, 147], founders need to understand and align their ambitions with those of co-founders. This can prevent a team from falling apart in a crisis and possibly giving up. For example, if the founding team decides on an exit, such an exit should be planned early. Founders are enabled to better understand their entrepreneurial ambitions and to understand what goals motivate other founders. Additionally, they are able to better categorize their startup, plan for the future (e.g., planning an exit), and address investors' expectations.

Furthermore, founders are able to better classify their competitors and understand their behavior. At the same time, it becomes clear that all startup types have value for a startup ecosystem and, depending on their ambitions and associated risk of failure, contribute differently to the creation of a successful economy with many jobs in the future. To prove that, we conducted additionally a simple linear regression with the number of employees to be hired in the next 12 months as the dependent variable and entrepreneurial ambitions as the independent variable. This is significant ($F(1.512)=24.962$, $\beta=6.863$, $t(512)=4.996$, $p<.001$). 4.6% of the variance in the number of employees to be hired in the next 12 months can be explained by the variable ambitions. On average, Zebras plan to hire 3.87 employees in the next 12 months. Cows plan to hire even more employees than Zebras at 4.72. While Horses plan to hire 16.71 employees, Unicorns have the highest number of employees to recruit in the next 12 months at 24.65. This further analysis shows that all startup types are valuable to the entrepreneurial ecosystem.

In connection with this, perhaps the most important insight is that not every startup has to become a Unicorn. Respect goes to all founders with their different ambitions who want to build something and, in this course, can also be interesting for investors in different ways. Moreover, Zebras prefer private capital of founders (42.2%), business angels (40.2%), and venture capital (22.3%). Cows are in favor of business angels (46.7%), venture capital (37.8%), and savings of founders (31.1%). While Horses pursue venture capital (70.1%), business angels (52.8%), and private capital of founders (11%), Unicorns seek venture capital (80.7%), business angels (70.2%), and savings of founders (10.5%). The more the startup moves towards

Unicorn ambitions, the greater the desire for further financing/raising from venture capital and business angels. This corresponds to the willingness to sell shares of the startup to investors, as described above (see Figure 2). The more ambitions develop in the direction of Zebras, the more relevant the founders' private capital becomes. This also corresponds with the desire to give up fewer shares and to own the startup (see Figure 2).

Our concept can also be applied to startups that are already in the portfolio and to possible past investment decisions with or without a deal arising. Hence, it is possible to quickly identify whether startups under consideration are a good fit for investors and whether a joint future makes sense and promises success. Our framework also enables investors to classify startup types in advance and to specifically look for startups that fit their own ambitions. This reduces the risk of money- and time-consuming bad investments. If, for example, investors are (only and short-term) aiming for an exit (e.g., Venture Capital), Horse and Unicorn startups are of interest and if they have (partly and long-term) ownership ambitions (e.g., Corporate Venture Capital), Zebras and Cows would provide a good fit. Regardless, all startup types allow for an exit opportunity with different value-risk considerations, perhaps mitigating the sole search for "just" the next Unicorn from an investor's perspective. Thus, investors are also able to classify and consequently invest in startups with Cow and Horse ambitions, which are less risky than startups with Unicorn ambitions but grow faster than startups with Zebra ambitions. This allows investors to better manage their asset portfolio and, therefore, their investment strategies.

5.3. Limitations and Future Research Directions

Some potential limitations should be addressed as they point to additional avenues for future studies. First, our study mainly investigates and classifies German startups. Since ambitions can vary depending on cultural factors, our framework might be different in other countries. Therefore, future research should also target startups from other countries with cultural differences. An international comparison of entrepreneurial ambitions and startup types might be interesting for further research and practice. Second, our data were collected during the COVID-19-Pandemic, so the entrepreneurial ambitions might have been affected by this. Future research can validate the framework when the economic and social situation has normalized.

Third, Unicorns have been measured by their financial performance metrics in the past [44]. Our startup animals were classified based on entrepreneurial ambitions according to a future-oriented approach. The number of startups that are real Unicorns in practice is actually very small worldwide. As of October 2023, 1,220 Unicorns with a total cumulative valuation of around $3,831 billion exist in the market worldwide [148]. 32.1% of the startups in 2020, 20.1% of the startups in the post- hoc analysis in 2021, and 21.3% of the startups in 2022 have Unicorn ambitions. In reality, these ambitions will become reality only in very few cases. Thus, entrepreneurial ambitions and the financial valuation of startups do not necessarily coincide.

Fourth, in practice, entrepreneurs do not necessarily consider the contrasting ambition scales to be opposite. For example, companies may regard long-term linear growth as complementary to short-term exponential growth. Fifth, there may be more startup types than the four that we identified in our study. For example, there could be other forms being located between Zebras and Unicorns. To classify startups, on the one hand, further studies could be conducted that identify additional animals and, on the other hand, studies could be conducted with additional variables that enrich the Startup- Zoo and its entrepreneurial ambitions. In our study, we used the most elementary entrepreneurial ambitions. In addition, future research could integrate other entrepreneurial ambitions into the framework. Sixth, we only studied surviving startups. Accordingly, we did not examine the ambitions of founders whose startup failed and the ambitions of founders who have certain ambitions but have not yet founded a startup. Future research could additionally examine the ambitions of failed startups and of those founders who want to establish a startup in the future.

Next, because our data did not allow us to map how founders' ambitions might change over time, we were unable to conduct a process analysis. This also implies that the average age and the size of the startup types change over time (see section 4.3), so the startup types become older and possibly larger. Because of our data, we are unable to determine the age and the size of the individual startups over time. Since entrepreneurial ambitions also depend on external circumstances and are subject to change, we consider future research necessary to complement our findings by further investigating the dynamic structure of ambitions.

Moreover, we measured the founders' intrinsic perspective. Thus, the investors' extrinsic perspective in relation to chapter 5.2 was not included. Future research could examine the bidirectional investigation of how investors' ambitions influence the founders. In future research, entrepreneurial ambitions and, thus, the startup types could, for example, show significant differences in terms of financing and negotiation behavior for financing as well as leadership. Thus, entrepreneurial ambitions may significantly affect various theoretical concepts. Further, they could also have antecedents that have an effect on entrepreneurial ambitions, such as founders' gender. Overall, the Startup-Zoo-Framework serves as a basis for future research.

Abbreviations

SME	Small and Mid-sized Enterprise
IPO	Initial Public Offering
MBO	Management Buy-Out
MBI	Management Buy-In
M&A	Mergers and Acquisitions

ANOVA	Analysis of Variance
SPSS	Statistical Package for the Social Sciences
EU	European Union

Author Contributions

Tobias Kollmann: Conceptualization, Data curation, Investigation, Methodology, Project administration, Resources, Supervision, Visualization, Writing – original draft, Writing – review & editing

Anna Pröpper: Data curation, Formal Analysis, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

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