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Make it work - The challenge to diversity in entrepreneurial teams: A configurational perspective

Christian Linder [a], Christian Lechner [b,*], Elisa Villani [c]

[a] SKEMA Business School, University of Côte d'Azur, Grand Paris Campus, 5, Quai Marcel Dassault, 92156, Suresnes, France
[b] Luiss Business School, Luiss Guido Carli University, Via Nomentana, 216, 00162, Roma, Italy
[c] Department of Management, University of Bologna, Via Capo di Lucca 34, 40126, Bologna, Italy

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ABSTRACT

Teams and timing are considered decisive for firm survival. We investigate the impact on firm survival of entrepreneurial team composition, in terms of diversity, and the speed of entering markets. Unlike research analysing the effects of low or high diversity, our research understands new venture teams as configurations of multiple, concurrent dimensions of diversity by untangling it in variety, separation, and disparity. By identifying distinct survival and failure configurations, we demonstrate that team variety is functional for firm survival if challenged by separation or disparity.

1. Introduction

It is doubtful that a new venture can survive without a functioning team (Khelil, 2016). New venture teams (NVTs) need to deal with crucial and complex issues and fulfill various tasks that change over time (Finkelstein & Hambrick, 1990). Thus, they need to anticipate resource needs to address the management capacity problem (MacPherson & Holt, 2007). Effective team decision-making requires considering a wide range of options (i.e., divergence of opinions). However, it also requires finding consensus on the preferred option (i.e., convergence) (Martin & Martin, 2009) on such diverse matters as opportunity identification, exploitation, organising and hiring, or long-term strategies (West & Noel, 2009). On the one hand, team diversity—that is, the variance of the individual characteristics of the team members (Williams & O'Reilly, 1998) —ensures a broad cognition and knowledge base, offering a broader range of options to address future challenges successfully; hence it is seen as one of the drivers for firm performance (Jin et al., 2017). On the other hand, diversity increases the likelihood of conflicts and decreases cohesion, which is crucial for teamwork ability and decision-making (Ndofor et al., 2015; Wise, 2014). So, diversity appears to drive divergence, creating a greater variety of options but might hinder convergence (Harrison & Klein, 2007), leading to the diversity paradox (Baron & Shane, 2007).

However, the relationship between team diversity and performance has remained unclear (Moog & Soost, 2022; van Knippenberg et al., 2004). We see four potential causes. First, diversity research has predominantly led to two distinct research streams on positive or negative effects, instead of considering both sides as conceived in the diversity paradox (George & Chattopadhyay, 2009). Indeed, recommendations from the team composition literature propose an intermediate level of diversity (West & Noel, 2009) but need to specify when the degree of diversity prevents or severely delays convergence. Second, literature on teams outside the entrepreneurship domain favours diversity because the adverse effects of diversity fade out over time (Chatman & Flynn, 2001); convergence has a time component (Harrison et al., 2002). More or less variety will impact the time (or the impossibility) to find consensus. However, the specific context of large organisations where a team might have little impact on the overall performance of the organisation does not apply to the entrepreneurship domain where timely decision-making and execution are related to the survival of entrepreneurial firms (Levesque & Stephan, 2020; Zachary et al., 2014). Entrepreneurial teams need to make the appropriate decisions and execute them on time. The time needed for divergence and then convergence is thus associated with time-to-market and firm survival. Third, diversity has been mainly used as an umbrella concept in entrepreneurship research. However, it can be expressed in different dimensions: variety as information diversity, separation as diversity in values, beliefs, and attitudes, and disparity as hierarchy based on status diversity (Harrison & Klein, 2007). Those dimensions can have different impacts on the divergence-convergence relationship.

* Corresponding author.
E-mail addresses: christian.linder@skema.edu (C. Linder), clechner@luiss.it (C. Lechner), e.villani@unibo.it (E. Villani).

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Consequently, aggregated diversity measures (e.g., high and low diversity) obscure the performance relationship by neglecting various effects. Fourth, diversity does not necessarily mean that benefits (e.g., voicing different options by all team members) are generated automatically, but they must be leveraged (Gray, Bunderson, van der Vegt, Rink, & Gedik, 2023). However, entrepreneurship research needs to explore the interplay between different diversity dimensions sufficiently. Therefore, the paper aims to understand: *To what extent do different NVT compositions positively affect new venture survival?* More precisely, *How do different dimensions of diversity in a new venture team impact new venture survival?*

We address this question by viewing NVT diversity as a multidimensional construct in which all dimensions can vary independently, overcoming the limitations of research focused on isolated team characteristics (Shrader & Siegel, 2007). Our alternative approach views every team as a combination of various characteristics, considers its overall compositional mix (Greckhamer et al., 2018; Misangyi et al., 2017; Ragin, 1987), and explores different NVT configurations that can lead to comparable outcomes. We build on the findings of existing surface-level studies, as those characteristics are easily observable and measurable in valid ways (Harrison et al., 1998), and the resulting theoretical contributions lead to more practical, managerial implications (Pelled et al., 1999). To understand various influences of diversity, we specify these characteristics and define different educational and functional backgrounds as variety, and entrepreneurial experience as disparity, since more entrepreneurial experience qualifies a member as high-status in NVT (Gifford et al., 2021; Xie et al., 2020), and age as separation. We choose to study only age as it is a more robust indicator for separation than gender and race (Pelled et al., 1999).

The current state of research on the interplay of these forms of diversity needs to allow for developing theoretical propositions upfront. We apply Qualitative Comparative Analysis (QCA) as an answer to calls in entrepreneurship to use analytical tools that reveal the complex, gestalt, and systematic nature of NVTs (Douglas et al., 2020; McKenny et al., 2018; Muñoz & Dimov, 2015). Finally, we focus on new venture survival and overcome the survival bias typical in diversity research in entrepreneurship (Jin et al., 2017). Therefore, the main contributions of our research are in extending theories about the effects of diversity by adding a configurational perspective. Moreover, we disentangle different dimensions of diversity and their impact on time-to-market and firm survival. Our results show that variety is not an absolute positive factor, as it is present in both survival and failure configurations. Only if challenged by separation (differences in age) or disparity (differences in entrepreneurial experience) can variety lead to effective NVTs. Separation leads to long processes of reaching convergence. Disparity (hierarchy) sets boundaries to variety and ensures decision-making.

The benefit of our exploratory, configurational approach is that it overcomes a unilateral view of variety or cohesion effects by considering the tension between divergence and convergence due to variety. Moreover, it allows us to disentangle different dimensions of diversity and their potential effects while considering them simultaneously. The exploration of configurations helps to reconcile inconclusive findings that have yet to specify the presence of potentially influencing diversity factors other than those specifically studied. This means that diversity factors are not positive or negative in absolute terms but in relative terms in combination with other factors and context-dependent. While the time component and the overall impact of a single team on the organisation are less crucial for established organisations, their consideration sheds new light on firm survival. This indicates that considering the context of teams is essential for understanding the role of diversity in teams. We believe this research can give an impetus for a fresh start and more exploration in research on teams.

2. Theoretical background

Most new ventures are founded and led by teams rather than by individuals (Xie et al., 2020). A NVT consists of "two or more individuals who pursue a new business idea, are involved in its subsequent management, and share ownership" (Lazar et al., 2020, p. 29). On the benefits versus the challenges of working with people different from oneself, scholars have generally diverse opinions (Mayo et al., 2017; Moog & Soost, 2022). Team diversity allows access to different resources particularly relevant to solving nonroutine problems and fostering creativity and innovation (Beckman, 2006; Gifford et al., 2021), but it is associated with increased coordination costs and potential conflict (Knight et al., 1999; Ren et al., 2015) as well as decreased cooperation and cohesion (Knight et al., 2020; Ko et al., 2021). Individuals with similar attributes might be attracted to each other, resulting in more efficient team processes such as decision-making and execution, and increased productivity (Buengeler et al., 2021). In more general terms, while effective decision-making requires a phase of divergence to allow for developing and exploring different options, it has to be followed by a phase of convergence to reach consensus on which option to choose and how to execute it (Martin & Martin, 2009). Although discussion is ongoing in entrepreneurship research on the effects of team diversity, we do know that diversity can be positive or negative (Huang et al., 2023; Knight et al., 2020), and its effects are nonlinear in nature (Hoogendoorn et al., 2017). Thus, more clarity is required on the concept of diversity in NVTs (Mayo et al., 2017).

Research on team diversity initially focused on the attributes distinguishing team members (demographic, job-related, etc.). Harrison and Klein (2007) described team diversity in terms of both "(1) the attribute on which members in a group vary and (2) the shape or distribution of differences on the attribute in a group" (Buengeler et al., 2021, p. 263; see also Harrison & Klein, 2007). Diversity can represent an asset as "variety" (i.e., a resource for differentiated skills, perspectives, and knowledge), but it can also be a liability as "separation" (i.e., a source of conflicting attitudes and social categorisation) (Mayo et al., 2017; Ren et al., 2015). Finally, diversity can be described as "disparity" in terms of status, power, or access to task-related information (Buengeler et al., 2021; Xie et al., 2020). Therefore, based on these three conceptualisations, there is a typology for diversity with three distinguishable constructs: separation, variety, and disparity (Harrison & Klein, 2007).

Current team diversity research faces challenges when it comes to analysing these multiple dimensions in combination (Mayo et al., 2016, 2017); however, as they have different inner logics, they likely have different effects on team performance, too (Guillaume et al., 2017). Thus, all three dimensions need to be considered for understanding the full range of effects that team diversity might have on new venture outcomes (Huang et al., 2023). In every NVT, categorical differences in knowledge, education, or competencies among team members (variety) are interconnected to differences in opinions, values, and perceptions (separation). These elements appear under different degrees of concentration of valuable assets and resources, decision-making power, access to information or networks, or status (disparity) (Harrison & Klein, 2007). The interplay of these three dimensions is precisely the object of our explanatory investigation.

2.1. Diversity as variety in NVT

"Variety refers to team members' possession of different, nominal categories of information, knowledge, and experience (e.g., functional background, training, or problem-solving perspective toward team tasks)" (Ren et al., 2015, p. 391). Research on NVT has used an information processing approach to explain the effects of NVT diversity—as variety of information among members—on new venture outcomes (Mayo et al., 2017), thus providing the team with a variety of knowledge, experience, competences, and skills that can make it more effective and productive (Bell et al., 2011; Tekleab et al., 2016). Teams whose members draw from different pools of informational resources—education, functional background, human capital—rely on better

decision-making processes and come up with more creative ideas than teams whose members draw from the same pool of resources (Gifford et al., 2021; Harrison & Klein, 2007; Knockaert et al., 2011). Indeed, team members from different backgrounds can add problem-solving heterogeneity to their teams' experiences, thus broadening the cognitive resources at their disposal for solving problems and making decisions (Ren et al., 2015). Variety drives divergence. Evidence from empirical studies confirms these effects. For example, Vissa and Chacar (2009) found that variety in members' decision-relevant information and knowledge, represented by social ties, is an essential driver of venture performance. Similarly, Foo et al. (2005) assessed the importance of cognitive diversity in teams, describing it as a way for members to debate issues from various perspectives, confront new information from people with different backgrounds, and rethink their positions after considering additional factors. Also, cultural diversity has been considered a source of variety. Maznevski (1994) found that culturally diverse teams can achieve better team decision-making and decrease groupthink, generating more alternatives to deal with recognised problems (Watson et al., 2003).

It has been generally acknowledged that the breadth of perspectives and functions represented in a NVT characterised by variety (i.e., different educational and functional backgrounds) is an asset in situations of financial constraints, uncertainty, complex environments, and nonroutine tasks, where more flexibility and comprehensive decisions are required (Hmieleski & Ensley, 2007; Huang et al., 2023; Steffens et al., 2012).

2.2. Diversity as separation in NVT

"Separation refers to team members holding different opinions or positions along a psychological or evaluative dimension (e.g., attitudes, values, beliefs)" (Ren et al., 2015, p. 391). Research on NVT has used social categorisation and social-identity theory (Barinaga, 2007) to explain the effects of NVT diversity—as separation in subgroups or horizontal fault lines—on new venture outcomes (Biga-Diambeidou et al., 2021; Huang et al., 2023). These theoretical lenses assume that people define themselves against others by using easily observable social categories such as age, sex, and race (Dai et al., 2019; Mayo et al., 2017). Since team members identify primarily with large social groups instead of the work team, this often results in in-group favouritism and out-group discrimination within NVT. Ndofor et al. (2015) showed that high team diversity leads to the tendency to categorise other team members into in-group and out-group categories based on demographic characteristics. This bias led team members to prefer their in-group to the detriment of any out-group member, thus rendering diverse teams less effective in tasks that require a high degree of cooperation and cohesion (Schjoedt et al., 2013). Thus, separation seems to drive divergence but makes convergence difficult, creating a group-against-group situation.

Age has been associated with separation. Gender and race differences appear to affect less separation than age (Pelled et al., 1999). Moreover, and more recently, diversity policies made the manifestation of discriminating opposition based on gender and race less accepted (Scarborough et al., 2019). Finally, in the entrepreneurship domain, influential stakeholders seem not to discriminate against gender or race (Gornall & Strebulaev, 2023). Therefore, age appears to be the most vital factor for separation in entrepreneurial teams. However, empirical evidence on the effects of age diversity on performance is mixed. Diversity in age has been reported as negative (Foo et al., 2005; Simons et al., 1999), positive (Foo, 2011; Steffens et al., 2012), or nonsignificant for team effectiveness. Whether age diversity can help in making NVT members aware of new markets, market needs, and ways to reach the target segment—thanks to their different perspectives—for greater effectiveness (Foo, 2011), age diversity might also promote conflict within the team, as it can trigger differences in interests and perspectives unrelated to team tasks (Jehn & Mannix, 2001). For example, overconfidence is observed more in young than in older entrepreneurs (Forbes, 2006). Accordingly, a NVT with members from different ages can contrast this bias and increase firm effectiveness (Steffens et al., 2012). Different research, conversely, demonstrated that low separation favours teams' cohesion and closer social relationships, which turn into higher levels of trust among team members favouring psychological safety and higher levels of satisfaction within the team (Ensley et al., 2002). Jackson et al. (1991) found that age heterogeneity is a cause of turnover for organisations because people perceive a lower degree of social integration. Closer social relationships are commonly based on homophily (low separation): people having close social relationships like each other because they are similar (Baron & Shane, 2007).

Thus, on the one hand, diversity as separation can be a source of richness for NVT and, consequently, of better performance (Huang et al., 2023); it might also cause categorisations and interpersonal conflicts within founding teams, inducing anxiety and stress, psychological unsafety, mistrust, and dissatisfaction and undermining individuals' cognitive functioning (Jehn & Mannix, 2001). Being task-unrelated, age is predominantly considered a factor of separation (Pelled et al., 1999).

2.3. Diversity as disparity in NVT

"Disparity refers to team members' distribution along a vertical hierarchy of power or status (e.g., pay, seniority)" (Ren et al., 2015, p. 391). Research addressing the disparity phenomenon has used the disparity and (in)justice perspectives to explore the relationship between the degree of heterogeneity in power, status, and prestige and NVT effectiveness and performance (Mayo et al., 2017; Xie et al., 2020). We observe maximum disparity when one team member outranks all the other team members regarding a significant asset or resource (Mayo et al., 2017). Thus, members having control over socially valued resources are perceived as more powerful and, therefore, more influential within teams (Bunderson et al., 2016; Magee & Galinsky, 2008). Consequently, disparity captures whether the control of valued resources and the capacity to influence others is concentrated in one or more team members (Xie et al., 2020).

Sources of disparity in NVT can be unique, whereby the availability of previous start-up experience of team members is one of the most important ones (Jin et al., 2017). Disparity captures founding members' start-up experience, as it is a salient signal of competence. Indeed, compared to a novice entrepreneur, an entrepreneur with prior founding experience has superior managerial skills, more extensive networks, a greater ability to recognise opportunities, and better problem-solving abilities (Zhang, 2011; Zheng, 2012) and hence is more likely to be recognised as a high-power and high-status member in NVT (Gifford et al., 2021; Xie et al., 2020). Since NVT are constrained by limited resources, entrepreneurs often perform a variety of roles and tasks within the new business (Huang et al., 2023; Lazar et al., 2020). Start-up experience enables founders to access a repertoire of experience-based skills, allowing them to react to a wide range of problems that the firm may encounter, thus enhancing the chances of survival for the new firm (Gifford et al., 2021; Unger et al., 2011). New ventures are small, with undeveloped organisational routines, and mostly unstructured. They face significant uncertainty, making predicting team members' behaviours difficult. Accordingly, having previous start-up experience leads to a leadership capacity to better navigate NVT complexities (Xie et al., 2020). This capacity could explain why diversity in entrepreneurial experience among team members likely leads to disparity in NVT. For example, Shepherd et al. (2021) discussed how founders with entrepreneurial experience enjoy a higher status within the team—compared to members with no experience—as they are quicker in making decisions and committing their venture to action (Forbes, 2006), they have developed legitimacy, more functional social capital, and human capital, as well as a higher likelihood of attracting investment for the start-up (Amaral et al., 2009; Hsu, 2007).

Research on disparity in NVT has yet to reach consistent results

concerning the role of founders with start-up experience. On the one hand, disparity can increase the efficiency of team interactions, as members' conflicting opinions can be reconciled by conforming to the decisions of those with more power and status (e.g., members with start-up experience). Accordingly, diversity in disparity would speed up collective decision-making processes in NVT and enhance performance (Xie et al., 2020). On the other hand, disparity might be a source of biased decisions as members could over-rely on the ideas of founders with higher status and power, disregarding other team members' opinions. Accordingly, disparity could lead to poor decision quality (Xie et al., 2020).

2.4. The diversity paradox

Combining these three views of diversity leads to complex interrelationships of the underlying dimensions. While variety generates positive effects by enlarging the solution space through divergence (Page, 2007), separation drives team conflict through a lack of convergence. Hierarchy (and thus disparity) is reducing psychological safety—decreasing the potential solution space—and leading to suboptimal solutions (Harrison & Klein, 2007). If we combine these theoretically proposed effects, functional teams should score high in variety, low in separation, and low in disparity. Nevertheless, the role of disparity is ambiguous; it might also provide the necessary discipline for reaching consensus (Xie et al., 2020). However, the lack of empirical studies combining these conditions, or at least specifying them, has led to largely inconclusive results (van Knippenberg et al., 2004). As the interplay between these three dimensions has not been simultaneously explored, the answer to this question is only speculative.

Moreover, the research is primarily affected by survival bias (Jin et al., 2017) and might not help to explain what makes new ventures survive in the first place. We know about several surface-level factors and their direct impact on firm performance. However, evidence on the pros and cons of low versus high diversity in teams is still inconclusive, unclear, and sometimes conflicting (Carpenter, 2002).

Today, research has found that high and low diversity in core NVT compositional dimensions has both beneficial and dysfunctional effects on new venture performance. Priem et al. (1999) persuasively argue that while team characteristics, such as low diversity in age, may be linked to a firm's performance, they do not imply that the team possesses all the complementary capabilities needed to sufficiently compensate for gaps in team members' skills, values, and knowledge. While low separation benefits team-working capacity (Ndofor et al., 2015), high variety addresses the management capacity problem (MacPherson & Holt, 2007). The question then becomes, what combination of variety, separation, and disparity matters most? Given the current state of research, we can only speculate.

2.5. Context, time-to-market and technology

The role of NVTs is to develop and execute the new venture's strategy, get the venture operational, and ensure, in the first place, survival. Time is a critical element in this endeavour, as limited resources restrict how long a venture can stay in the game without an inflow of additional resources (Coad et al., 2013). Criticalities of time-to-market have been investigated in NVT composition studies with regard to the time needed to enter a market (Beckman, 2006; Ucbasaran et al., 2003), the time to develop products (Knockaert et al., 2011), the time to initial public offerings (Amason et al., 2006), the time to receive venture capital money, and the speed with which new ventures develop stable structures (Beckman & Burton, 2008). However, if a NVT did not have sufficient time to prepare products or services, developing routines and bringing up organisational structures, performance and survival are at odds. This means that the process of decision-making and execution—that in the entrepreneurship domain requires a variety of options through divergence and, finally, consensus through convergence (Martin & Martin, 2009)—needs to happen in a timely fashion (Levesque & Stephan, 2020).

However, Carpenter et al. (2004) suggest that compositional dimensions are only proxies for larger, more complex, and hard-to-get-at constructs, which are not the critical theoretical drivers for performance. These dimensions frame the strategic context of new ventures. Prior research has demonstrated that NVT composition is linked to innovation and new technologies (Ensley et al., 2002; Hmieleski & Ensley, 2007). The idea of innovation is even further rooted in the entrepreneurship literature. New ventures usually do not have their technology market-ready at their start and may need to find the means to accelerate market readiness (Lechner & Dowling, 2003). Moreover, initial market acceptance might be slow for new technologies, as potential customers have yet to become acquainted. Consequently, new ventures can face a trade-off between innovation and their time-to-market (Cohen et al., 1996). While innovation may lead to more sales in the long term, it might not lead to faster sales in the short term.

A further factor refers to how a venture is structured in a way that influences its operability. Teams might prefer running the business with either more or less structured processes. This choice could influence time-to-market. On the one hand, structured processes can indicate that the NVT has already agreed on roles and responsibilities after a process of internal negotiation (Jung et al., 2017). The effects of structured processes should lead to greater efficiency in new ventures due to task specialisation (Lechner & Leyronas, 2009). Conversely, structured processes also require some form of routinisation, which is typically absent at the launch of a new venture. Thus, on the other hand, unstructured processes allow the flexibility needed to deal with the complex and uncertain context of new ventures (Jung et al., 2017).

We argue that choice regarding technology and structure affects time-to-market, which accounts for survival. To analyse the role of NVT composition, we consider the dimensions of function, education, experience, and demographics and relate them to variety, disparity, and separation and ultimately to entrepreneurial outcomes. These surface-level dimensions have been widely used in research, and we see an opportunity to study them through a configurational approach, allowing for causal complexity and equifinality.

3. Methodology

Building on the notion that there is no "average" entrepreneur or "average" venture (Davidsson, 2003), the call for contextualising empirical research has mounted (Newbert et al., 2022; Welter, 2011) and a reconsideration of methods and methodological assumptions—and their appropriateness—for entrepreneurship phenomena has emerged (Douglas et al., 2020; Kreiser et al., 2021; Linder, Ghosh Moulick, & Lechner, 2023). Proponents argue to involve temporal and contextual factors in research projects, as these are boundaries of generalisability that constitute the range of theories (Whetten, 1989). Our research is not context-free. In fact, besides technology involvement, process structuring, and time, each diversity dimension can be seen as contextualising other dimensions. A team, for example, has a particular experiential diversity but also simultaneously, and inevitably, a particular diversity in age. So, age diversity can be the context in which experiential diversity becomes effective.

3.1. Methodological considerations on the diversity paradox and motivation for a configurational approach

The fundamental motivation for our methodological approach results from recognising the diversity paradox as a configurational problem. Each NVT varies in terms of variety, separation, and disparity, and the configuration of these dimensions eventually makes a NVT more or less effective (Bell et al., 2011). This points to three analytical and methodological issues that we attempt to overcome with a configurational approach. First, analytically, the causal mechanism through

which theoretical concepts of team composition produce their effects is contingent on other causal mechanisms (Linder, Ghosh Moulick, & Lechner, 2023). For example, variety in cognitive frames triggers team members' search for arguments to comprehensively explain their solutions to others. This reflective search process could be beneficial for solution quality. In combination with power disparity, however, variety in cognitive frames might produce tensions or misunderstanding as hierarchy implies decision logic based on power distribution rather than better or more comprehensible arguments (Hollenbeck et al., 1998). The causal mechanism through which variety in cognitive frames becomes effective changes significantly when hierarchy is present. From a methodological point of view, team composition is best understood as a configuration that shows its effect through combinations of core theoretical concepts rather than through the (effect) strength of any given isolated dimension.

This leads to our second concern. Viewing NVTs as a set of disaggregated attributes treats these attributes in isolation and hence deprived of any context. However, an isolated attribute, such as diversity in age, is insufficient to explain NVT performance alone (Hoogendoorn et al., 2017; Huang et al., 2023; Knight et al., 2020), as it does not specify the existence of other relevant dimensions (Priem et al., 1999). Current literature applies methods such as hierarchical regression analysis or other conventional linear regression approaches to test assumptions based on isolation. These methods imply additive, independent, and symmetric effects among the theoretical concepts of team composition. Our theorising, however, does not make such an assumption. Instead, we assume that variety, separation, and disparity are not symmetric mechanisms; or, more precisely, when more of one dimension is beneficial, less of the same dimension must not lead automatically to a disadvantage in other settings but can still be beneficial. Our theorising avoids the symmetric and optimal composition assumptions that suggest unifinality (i.e., that one best team composition exists) and builds on the idea that various equally successful team compositions are possible. Thus, we emphasise the concept of equifinality, which is best assessed in a configurational framework (Douglas et al., 2020; Fiss, 2007; Furnari et al., 2021). By doing so, we overcome the isolation view on theoretical dimensions.

Third, theory further suggests that NVTs are mixes of several dimensions. If team diversity is treated as a multidimensional concept, all dimensions can acquire different values, leading to various outcomes. There has been a call for researching the interplay of different dimensions of diversity rather than the effect size on an outcome (Bunderson & van der Vegt, 2018) to solve contradictions in current knowledge. This requires a holistic, combinatory, and configurational analysis of the phenomenon (Fiss, 2007; Ragin, 2008).

For these reasons, we apply a configurational approach (Fiss, 2011), which allows us to open the black box of NVT diversity, providing the opportunity for dealing with both causal complexity and equifinality. In doing so, we explain the interaction of certain team features and provide a holistic understanding of NVTs through all the configurations that are capable of assessing the relevance of contexts (Douglas et al., 2020; Knockaert et al., 2011; Ndofor et al., 2015).

4. Method

4.1. Data

We utilised data from the Panel Study of Entrepreneurial Dynamics II (PSED II),[1] a comprehensive longitudinal data set encompassing prospective entrepreneurs initiating new business ventures (Davidsson & Reynolds, 2009; Reynolds & Curtin, 2008). The PSED II initiative involved the meticulous identification, selection, and subsequent surveying of individuals actively involved in the nascent stages of entrepreneurship (Curtin, 2008; Reynolds & Curtin, 2008). The data collection process spanned two distinct phases between 2004 and 2010. During the initial phase, a market research firm employed random digit dialing via telephone to pinpoint individuals in the United States actively pursuing entrepreneurial endeavours. Individuals meeting the requisite criteria were extended invitations to partake in the comprehensive survey. In total, 31,845 individuals were contacted, among whom 1214 expressed their intent to embark on entrepreneurial endeavours. Subsequently, in the second phase, these 1214 individuals, called nascent entrepreneurs, underwent initial telephonic interviews and were tracked longitudinally over time.

In the context of our research, the utilisation of the PSED II data set confers several noteworthy advantages. Foremost among these advantages is the data set's unique capability to capture responses from nascent entrepreneurs prior to the actual commencement of their businesses. This feature facilitates the analysis of entrepreneurial intentions and motivations, untainted by retrospective biases (Carter et al., 2003). Furthermore, the PSED II data set enables comparative investigations between entrepreneurs concerning their subsequent business decisions, such as realising or abandoning their business ideas. This not only circumvents the issue of survivor bias but also facilitates meaningful comparisons between these two distinct groups. Additionally, using PSED II data provides a relatively homogeneous context, including factors like institutional settings and economic conditions, thereby reducing extraneous variability and enhancing the generalisability of research findings. The data set also furnishes a multitude of variables for examination, including team member characteristics (e.g., Hopp & Stephan, 2012). Finally, the wealth of demographic and perceptual measures, coupled with the longitudinal nature of PSED II and its commitment to representativeness (Curtin, 2008; Reynolds & Curtin, 2008), is particularly advantageous in ensuring broader applicability and relevance of research outcomes.

4.2. Sampling strategy and sample

4.2.1. Sampling strategy

Because different industry settings require specific capabilities of NVTs, we examined the effects of the industry setting on the dependent variable. We followed the suggestions of Short et al. (2002) for our sampling strategy to avoid critical biases in the sample. Thus, we exclusively utilised nascent entrepreneurial teams in the service industry to avoid industry-related biases. The choice of nascent entrepreneurs over entrepreneurs in already operational businesses has the advantage of capturing the whole start-up process from ideation to market entry. We assume that team composition is decisive for the speed at which an entrepreneurial team can establish a legal entity (i.e., the step succeeding first sales and finally bringing the offering to market). Nascent entrepreneurs are ideal for our purpose because they must bring critical components for creating entrepreneurial opportunities, such as knowledge and expertise, during the start-up process. The selection of the service industry as a reference sector offers distinct advantages. In service-oriented start-ups, teams are the primary conduit for executing work (Werr & Stjernberg, 2003). Notably, in service start-ups, the effectiveness of a team is readily discernible by customers, in stark contrast to start-ups, where products constitute the outward face or point of contact with customers. This distinction is crucial, as even in cases where start-ups possess outstanding products with strong market fits, inadequately functioning teams may still exist. Consequently, opting for service start-ups affords us unfiltered insights into team performance.

4.2.2. Sample

Our final sample consists of 123 NVTs with 304 individuals operating in the service sector (see Table 1). Reynolds and Curtin (2008) recommended weights to increase the generalisability of any studies using the

[1] More information about PSED II can be found here: http://www.psed.isr.umich.edu/psed/home.

Table 1
Sample characteristics.

	Mean or absolute value	SD or percent
Legal form of the new venture		
General Partnership	15	0.122
Limited Liability Corporation or LLC	10	0.081
Sub Chapter S Corporation	16	0.13
General Corporation	8	0.065
Not Yet Determined	74	0.602
Team size	2.47	0.822
Employees		
New Ventures with Paid Employees	12	0.098
Not Yet, Will in Future	50	0.507
Business Plan[a]		
Unwritten	8	0.157
Informally Written	20	0.392
Formally Prepared	23	0.451
Financial		
Outside Funding Received	19	0.154
No Outside Funding	104	0.846

Notes: N = 123 NVTs, representing 304 individuals.
[a] = missing values. Because set-theoretic approaches require precise assignment of cases to a particular set, missing data cannot be processed with a tool like QCA. Hence, all analyses for our study are run on a data set in which cases with missing data have been removed.

PSED II data set. We ensured that our data set was consistent with these recommendations. We found that 40 NVTs (37.5 percent) had to close their businesses because they failed to achieve the primary goals of the business, or because new personal opportunities—other than being an entrepreneur—appeared. Thus, these NVTs represent the contrast regarding new venture performance. The NVT dimensions in our study ranged from two founders to six members.

4.3. Qualitative Comparative Analysis

The methodology employed in this study, Qualitative Comparative Analysis (QCA), is grounded in the premise that relationships between different constructs are often better elucidated through set-theoretic relations than traditional correlation-based approaches (Fiss, 2011). Consequently, QCA relies on Boolean algebra and aims to discern necessary or sufficient combinations of conditions associated with a particular outcome of interest, particularly in medium-sized data sets (Fiss, 2007). Scholars such as Douglas et al. (2020) have highlighted QCA's suitability for comprehending complex phenomena in entrepreneurship, as it employs an inductive research methodology based on principles like conjunction, equifinality, and causal asymmetry (also discussed by Misangyi et al., 2017).

In this context, we adopt the concept of causal asymmetry, positing that a specific set of incentives may lead to survival but not necessarily to another. We also embrace the principle of conjunction, examining incentives in conjunction with organisational characteristics rather than in isolation. Our analysis revolves around identifying equifinality, wherein more than one configuration of causal conditions can result in the same outcome, or different sets of team compositional elements can be equally effective in promoting firm survival. The characteristics of QCA align seamlessly with our research objectives and focus.

To ensure consistency between theory, method, and data, we followed a quantitative-oriented procedure for applying QCA. In recent years, researchers have applied QCA increasingly to examine large-N phenomena (e.g., Dwivedi et al., 2018; Fiss, 2011; McKnight & Zietsma, 2018; Muñoz & Dimov, 2015). This inspired a discussion about whether there exist, in fact, "two QCAs" (Greckhamer et al., 2013) that differ in their focus on small- and large-N phenomena, as well as in their assumptions, objectives, and analysis processes (see also, Fiss et al., 2013). This discussion addresses, for example, problems of calibrating membership in fuzzy sets in a context where detailed case knowledge is not available (Cooper, 2005) or how the lack of intimate familiarity with cases can produce measurement errors (Fiss et al., 2013).

To avoid any potential shortcomings in our application of QCA, we followed suggestions for quantitative large-N analysis, the interpretation of results, and the set of recommended robustness checks. In the ensuing sections, we expound upon our QCA methodology by sequentially addressing the three critical stages: calibration, necessity analysis, and sufficiency analysis, which are integral to identifying causal configurations. Subsequently, we present a set of robustness checks.

4.4. Measures and calibration

4.4.1. Outcome level

Our chosen performance metric revolves around the concept of "survival," and we aim to investigate whether team composition exerts a positive influence on survival outcomes, encompassing the establishment of an operational venture and its subsequent persistence (Aspelund et al., 2005). In this context, the "survival" variable gauges the founder's capacity to initiate and sustain an operational business (Davidsson, 2016). More specifically, it measured using the following criteria:

1. Operational ventures with full-time founder involvement: This pertains to operational ventures in which the founder actively engages full-time.
2. Sustained positive cash flow: This encompasses ventures that consistently generate monthly revenues exceeding their monthly expenses for over six months within 12 months.
3. Long-term persistence: This element reflects the entrepreneur's tenacity, as evidenced by the operational business's existence for at least five years.

The amalgamation of these constituent elements collectively encapsulates the multidimensional construct of "survival" in the context of our study (Davidsson & Honig, 2003).

4.4.2. Diversity dimensions and diversity variables

We focus on commonly used surface-level dimensions that express diversity. The diversity dimensions in our study are age, education, functional background, and start-up experience (Harrison & Klein, 2007). Whereas any attribute might inherently express all three dimensions of diversity, some are more predominantly related to one form or the other (Harrison & Klein, 2007). It appears more likely that more observable attributes, such as age, should lead to separation than more subtle attributes, such as functional or educational diversity (van Knippenberg et al., 2004).

4.4.3. Diversity dimensions, variables, and measurement

Harrison and Klein (2007) stated that their measurement methods should also reflect the dimensions of variety, separation, and hierarchy. They recommended measuring variety through the Blau (1977) index, as it expresses the distribution of values along a continuum. We follow this recommendation for educational and functional diversity. However, as explained in the following, we also use the Blau index for all the other dimensions. For separation, the use of the standard deviation or mean Euclidean distance has been proposed, as separation based on categorisation would follow a bimodular logic. However, as human beings tend to categorise (Ndofor et al., 2015), everything is based on similarity and dissimilarity (Baron & Shane, 2007); any form of similarity leads to categorisation. Even if only minor differences are present within a group, they can lead to categorisation (Granovetter, 1978). Minor differences will lead to inside categorisation, while only—comparatively—slightly more significant differences would lead to outside categorisation. We argue that even fine-grained differences lead to categorisation and thus separation: any distribution of values will lead to this effect. Age was considered an expression of separation—also measured with the Blau index. The same line of reasoning has also been applied to disparity in terms of entrepreneurial experience.

4.5. Compositional level

Age distribution is a central demographic characteristic often comprehended across NVTs (Ucbasaran et al., 2003; Zimmerman, 2008). Age is a double-edged sword as it has been related to different experiences, knowledge, insights, and perspectives, but also to different beliefs, attitudes, and behaviours (Harrison & Klein, 2007). Intergenerational conflicts relate to distinct belief systems (Dencker et al., 2007). Generally, the conflictual view, in this case, dominates a variety of views. Thus, age is predominantly a separation dimension with a smaller variety weight.

A review of the contemporary literature about team diversity reveals a prevalent trend among researchers, wherein diversity is frequently assessed through education, functional background, and start-up experience. Notably, studies in this domain tend to concentrate on all or a subset of these specific dimensions. Given the prominence of these factors within the research landscape on team diversity in start-up contexts, we have structured our operationalisation in alignment with the prevailing literature in this field.

Demographic diversity in age was examined using biographical data to determine the ages of all founders. We applied the coefficient of variation, a scale-invariant method of dispersion for variables of interval data with a theoretical fixed zero point (Certo et al., 2006). Specifically, we measured founder team age diversity using the Blau index.

The *educational diversity* of NTVs indicates how an individual's knowledge and skills relate to the team's information processing capacity (Zimmerman, 2008). Diversity in education has been attributed to positive outcomes, as variety facilitates adaptation, strategic change, and innovation (Wiersema & Bantel, 1992). However, it has also been attributed to negative performance, as variety in team members' educational backgrounds can lead to conflict when implementing critical decisions (Ensley et al., 2002). However, available research does not provide a conclusive answer to whether diversity in educational background benefits new ventures' time-to-market. By prior studies (Chowdhury, 2005; Ensley & Hmieleski, 2005), we assessed *educational diversity* using the item, "What is the highest level of education completed?," with optional answers in nine classes ranging from "Up to eighth grade" to "Law, MD, PhD, EDD degree." Education and functional diversity are commonly seen as predominantly variety dimensions with a small weight of separation and disparity. We measured education using the same coefficient of variation as that used for age.

The *functional diversity* of NVTs accounts for the differences in capabilities and expertise that team members have accumulated by playing different functional roles in other organisations before joining the new venture (Leung et al., 2013). Prior heterogeneous work experience acquired in technical, legal, financial, or marketing-related occupations is associated with different perspectives, attitudes, and values. Evidence shows that significant differences within NVTs add to cognitive diversity and decision comprehensiveness (Carpenter, 2002). *Functional diversity* was measured as a categorical variable. We used the primary occupation of each NVT member as identified by three-digit master occupation codes. Using the Blau diversity index, we conceptualised functional diversity as the proportion of group members in a category. Categories represent the group members' responsibilities in their previous jobs. We coded members' experiences, such as sales management, accounting, or marketing. We used the index of diversity as a measure to express diversity in the NVT concerning these categories (Ucbasaran et al., 2003). The function is as follows: FUNCTIONAL DIVERSITY $= 1 - \sum p_i^2$, where p is the proportion of group members in a category and i is the number of different categories represented in the NVT.

Finally, previous entrepreneurial experience is commonly seen as one of the most important types of experience. However, it remains to be understood whether diversity in entrepreneurial experience within the NVT is positive or negative. We have already laid out why diversity in entrepreneurial experience leads to status differences (hierarchy) and expresses diversity as disparity. We measured *diversity in start-up experience* using the same logic by applying the Blau index. Experience represents a team member's prior start-up involvement. We coded team members with high levels of start-up experiences, medium experiences, low experiences, and no experience through involvement in prior start-up activities. Our index expresses NVT's diversity concerning these four categories.

4.6. Strategic context: technology and time-to-market

Technology use was assessed as the extent to which the new venture offering relies on new technologies. Therefore, we used the dichotomous item, "Were the technologies or procedures required for this product or service generally available more than five years ago?" and coded "1" for yes ("0" otherwise). To assess the degree of process structuring, we also applied the Blau index of diversity, using the responsibility of each team member as a proxy. In doing so, we assumed that the process is unstructured in NVTs without clearly defined tasks and responsibilities. In teams with a high diversity of responsibilities (for sales, accounting, finance, and so on), every member has a task necessary for the business. Therefore, the distribution of responsibilities for a process or subprocess is the degree to which a NVT has decided to structure its processes. As already stated, new technology will likely increase task complexity and, thus, time-to-market (Cohen et al., 1996). Task complexity might induce less structured processes due to high uncertainty, but also allow for more entrepreneurial learning (Ravasi & Turati, 2005). Regardless, we assume that the use of technology (or not) and structuring processes could influence time-to-market, even if the impact is theoretically unclear and beyond the scope of this research. Thus, we consider them as types of controls.

Time-to-market has been previously assessed in various entrepreneurial settings comparable to those in our approach. For example, Acedo and Jones (2007) looked at time to international market entry. Oviatt and McDougall (2005) assessed enabling forces such as technology for market entry, and Clausen and Korneliussen (2012) investigated the role of cognition for time-to-market. Based on longitudinal data and the sampling of nascent entrepreneurs, we were able to trace founding activities over time and evaluated *time-to-market* as the average time investment per team member into the business *before* the official start-up (measured as the legal registration of the new venture as a tax-relevant entity) (Ajide, 2020; Dau & Cuervo-Cazurra, 2014).

4.7. Calibration

In the context of QCA, the outcome condition and the explanatory conditions are conceptualised as sets in which each case may exhibit membership. For the calibration of our data set, we employed a four-value fuzzy set calibration approach for all the explanatory conditions. As per established research practices, we employed crisp set membership coding (i.e., "fully in" or "fully out") for the binary outcome. Fuzzy set membership conditions were coded based on three distinct thresholds: full membership (1.00), the crossover point (0.50), and full nonmembership (0.00) by Ragin (2008). This approach results in four levels of fuzzy set memberships in Boolean logic, which are characterised as fully in (membership score $= 1$), more in than out ($1 <$ and ≥ 0.50), more out than in ($0.50 <$ and > 0), and fully out (membership score $= 0$) (cf., McKnight & Zietsma, 2018; Misangyi et al., 2017). We followed a similar approach using a 75th percentile and a 25th percentile as the extreme points. Accordingly, we assumed the 25th percentile for nonmembership. This set contained 25 percent of NVTs with the lowest prior experience in starting a business. The fuzzy set approach allowed us to assign the remaining 50 percent to the crossover set that uses continuous values (between 0 and 1) to express an observation's closeness to one of the extreme sets. We applied this principle for all dimensions except "new technology" because this variable is binary-coded in PSED II. When using this calibration technique for large-N samples, it is necessary to ensure that there are no abnormalities

in the data distribution that might prevent the calibration processes from being suitable (i.e., not being sensitive to minor value changes) (Fiss et al., 2013). Thus, we carefully checked the relevant distribution parameters for all fuzzy set conditions. We identified the skewness and kurtosis of our sample, observing that all values are below the critical thresholds of ±2, which indicates that our values are normally distributed. We also performed a Kolmogorov–Smirnov test for normal distribution with the same result. The process of calibration and subsequent analysis was carried out using the direct calibration method implemented through fs/QCA software 3.0, following Ragin's (2008) methodology. The details of the data calibration and the resulting calibration rules can be found in Table 2.

4.8. Analysis

We tested set membership for all possible combinations of the four antecedent factors: diversity in age, diversity in education, functional diversity, and diversity in start-up experience. We used the truth table and the Quine-McCluskey algorithm for Boolean minimisation to disclose the outcome of interests by eliminating logically redundant configurations (Ragin, 1987). This analytical step elaborates theory by identifying necessary and/or sufficient conditions for an outcome of interest to occur.

4.8.1. Necessity analysis

The causal claim being made regarding the necessary condition is that it is required for a particular outcome to occur (Schneider & Wagemann, 2012); that is, the outcome of interest is never present when the necessary condition is absent. Technically, an individual condition with membership scores consistently greater than or equal to outcome scores is considered necessary. Necessity is a quality of a condition different from sufficiency. Its detection is one core strength of QCA. In the case of a condition being necessary, we would find that this condition is present in all cases where the outcome was present (Fiss, 2007). Hence, without the necessary cause, the outcome will not exist (Dul, 2016). Graphically, this is given if one condition is present or absent in all configurations. The results show no necessary conditions in our configurations for survival. Its detection is one core strength of QCA. We follow conventional approaches, which see a condition as necessary if the consistency score exceeds the threshold of 0.90 (Ragin, 2008). Table 3 indicates that consistency scores range for the occurrence or presence of the outcome between 0.170 and 0.536. As all conditions do not exceed the critical threshold, we can assume that the conditions in question are not necessary for causing the outcome.

4.8.2. Sufficiency analysis

In the logic of QCA, an antecedent factor is sufficient for new venture performance if the occurrence of the factor is always accomplished or accompanied by the output. The sufficiency of the antecedent conditions' combination for observing the output is satisfied if membership scores in the proposed combination of the six antecedent factors are consistently less than or equal to the membership scores in the set of cases with high/low TtM. Technically, sufficiency implies that these conditions or their combinations are a subset of the outcome. Table 4 shows configurations with a distinction regarding short and long TtM. We followed a commonly applied notation where ● represents conditions that are central to the occurrence of the outcome. The conditions that are not central for the outcome to occur are denoted by ○, representing their absence. Finally, "——" indicates that a given condition is not causally related to the outcome. We used an intermediate solution that offers a parsimonious approach while controlling for counterfactual analysis (Soda & Furnari, 2012) for interpreting QCA results (Ragin, 2008).

4.9. Robustness tests

We performed a series of post hoc and additional tests to ensure maximum validity and reliability of our results. This procedure is built on the current academic debate on how to best support the results of configurational analysis by additional statistical test procedures (Maggetti & Levi-Faur, 2013). We, therefore, explored the robustness of our findings by performing 1) negated case analysis, 2) proportional reduction in inconsistency, 3) necessary conditions and set coincidence, 4) subset analyses, and 5) altering the calibration threshold values.

First, in a *negated case analysis*, we tested whether altering the outcome condition from present (persistent business) to absent (business fails to persist) is produced by the same configuration (see Table 5). The basic assumption is that only those configurations exclusively

Table 2
Measures and threshold for set membership.

			Measurement descriptive[b]					
Category	Calibration rule	Set membership	*Skewness*	*Kurtosis*	*Mean*	*SD*	*Min*	*Max*
Diversity in Age (HA)	If HA>0.150	1 (full nonmembership)	1.668	2.166	0.101	0.121	0	0.531
	If HA<0.030	0 (full membership)						
	If $HA = 0.050$	0.5 (crossover point)						
Educational Diversity (EH)	If $EH > 0.078$	1 (full nonmembership)	1.554	2.373	2.47	0.823	2	6
	If $EH < 0.344$	0 (full membership)						
	If $EH = 0.108$	0.5 (crossover point)						
Functional Diversity (FH)	If $FH > 0.060$	1 (full nonmembership)	0.369	−0.428	0.114	0.133	0	0.462
	If $FH < 0.040$	0 (full membership)						
	If $FH = 0.160$	0.5 (crossover point)						
Start-up Experience (SE)	If $SE > 0.000$	1 (full nonmembership)	3.498	18.939	0.854	1.32	0	10
	If $SE < 1.000$	0 (full membership)						
	If $SE = .309$	0.5 (crossover point)						
New Technology (NT)[a]	If $NT = 1.000$	1 (full nonmembership)	—	—	0.74	0.441	0	1
	If $NT = 0.000$	0 (full membership)						
Structured Processes (SP)	If $SP > 0.000$	1 (full nonmembership)	0.368	−1.164	0.067	0.061	0	0.18
	If $SP < 0.120$	0 (full membership)						
	If $SP = 0.070$	0.5 (crossover point)						
Time-to-market (TtM)	If TtM>1425	1 (full nonmembership)	6.035	5.633	457	1138	0	10,642
	If TtM<251	0 (full membership)						
	If $TtM = 591$	0.5 (crossover point)						

Notes: N = 123 NVTs, representing 304 individuals; means are calibrated; the average item scores are defined as the crossover point, while the 75th percentile is the threshold for the full membership and the 25th percentile for the nonmembership. We applied, except for "new technology," the QCA fuzzy set approach. As opposed to crisp sets, fuzzy sets allow not only binary data (set membership yes/no) but also partial membership.

[a] Binary data due to the structure of PSED II.

Table 3
Analysis of necessary conditions and subset analysis and set coincidence.

Condition	Necessary condition analysis for presence of condition		Set coincidence	Subset analysis		
	Consistency	*Coverage*		*Consistency*	*Coverage*	*Combined*
Diversity in age	0.237	0.640	0.394	0.625	0.480	0.317
Educational Diversity	0.170	0.638	0.339	0.627	0.510	0.327
Functional Diversity	0.510	0.627	0.376	0.691	0.536	0.496
Start-up Experience	0.536	0.691	0.499	0.650	0.270	0.280
New Technology	0.270	0.650	0.549	0.640	0.237	0.244
Time-to-market	0.445	0.520	0.391	0.638	0.170	0.206

Notes: N = 123 NVTs, representing 304 individuals. Analysis of necessary conditions set coincidence was calculated with outcome variable "persistence".

Table 4
Causal receipts for persistence of new ventures under the condition of long/short time-to-market.

Model		Team configuration				Strategic choice				
	TtM	*Diversity in age*	*Diversity in education*	*Functional diversity*	*Start-up Experience diversity*	*New Technologies*	*Structured Process*	Raw coverage	Unique coverage	Consistency
Ia	short	–	●	●	●	●	○	0.035	0.004	0.896
IIa	short	○	●	○	○	●	○	0.020	0.002	0.878
IIIa	short	○	○	○	●	●	○	0.065	0.037	0.879
IVa	long	●	○	●	○	○	●	0.037	0.005	0.872
Va	long	●	○	○	●	●	●	0.028	0.003	0.870
VIa	long	●	○	–	–	●	○	0.033	0.006	0.863
VIIa	long	●	○	–	○	–	○	0.049	0.007	0.843
VIIIa	long	●	○	○	○	●	–	0.023	0.004	0.894
IXa	long	●	●	–	●	–	○	0.032	0.008	0.864
Solution coverage		0.141								
Solution consistency		0.829								

Notes: N = 123 NVTs, representing 304 individuals; all calculations are done in one step. Therefore, we used set membership in either long or short time-to-market as a difference maker and assigned teams accordingly. This variable is binary coded and contains the intersection of those firms that a) have a short time-to-market (full set membership) and those b) that survived (measured as existence after five years). Central conditions are represented by ● (presence) and ⊙ (absence). Presence indicates high diversity, while absence represents diversity; "—" = presence or absence of the condition is irrelevant for the particular configuration.

Table 5
Causal receipts for failure of new ventures under the condition of long/short time-to-market.

		Team configuration				Strategic choice				
Model	TtM	*Diversity in Age*	*Diversity in Education*	*Functional Diversity*	*Start-up Experience Diversity*	*New Technologies*	*Structured Process*	Raw coverage	Unique coverage	Consistency
Ib	short	○	●	–	–	●	○	0.043	0.011	0.699
IIb	short	○	○	○	○	○	●	0.026	0.009	0.724
IIIb	short	●	○	●	○	○	○	0.026	0.014	0.704
IVb	long	○	●	○	○	●	○	0.040	0.008	0.672
Solution coverage		0.135								
Solution consistency		0.702								

Notes: N = 123 NVTs, representing 304 individuals; all calculations are done in one step. Therefore, we used set membership in either long or short TtM as a difference maker and assigned teams accordingly. This variable is binary coded and contains the intersection of those firms that a) have a short TtM (full set membership) and those that b) survived (measured as existence after five years). Central conditions are represented by ● (presence) and ⊙ (absence). Presence indicates high diversity, while absence represents diversity; "—" = presence or absence of the condition is irrelevant for the particular configuration.

accountable for survival are meaningful. A configuration that produces both success and failure has little exploratory power, as its consequence is unspecified. This robustness check has not led to any configuration that is accountable for the presence and absence of the outcome. Hence, we can adhere to the uniqueness of our findings in predicting persistence due to team composition.

Second, a *proportional reduction in inconsistency* (PRI) analysis was performed to learn whether skewed set memberships biased our results (Schneider & Wagemann, 2012). This analysis is somewhat similar to the negated case analysis but assesses whether a condition is sufficient for observing both the presence and absence of the outcome. Skewed set membership relations become critical if they produce such logically unacceptable results (Cooper, 2005). We computed the degree to which cases satisfy both $x \leq y$ and $x \leq \sim y$ from the computation of the consistency and evidence from the subset analysis (Ragin, 2008) to uncover logically inconsistent relations. Results show that skewed set membership relations do not produce any inconsistencies in our findings (see Table 6). Results show that all proportional reductions in inconsistency values exceed the threshold of 0.50.

Third, to ensure coherence of the data, the extent to which specific causal factors or configurations are subsets of the outcome is measured by consistency score. We performed a *set-coincidence analysis* to understand the subset relationship by systematically assessing the degree of overlapping of two or multiple sets. Values can range between 0 and 1, where low values indicate low set coincidence. This analytical step resulted in low values (<0.549), indicating that one condition alone

Table 6
Truth table and proportional reduction in inconsistency.

Diversity in Age	Diversity in Education	Functional Diversity	Start-up Experience Diversity	New Technologies	Structured Process	Time-to-Market	PRI Consistency
0	1	0	1	1	1	0	0.753
1	0	1	1	1	0	0	0.719
1	1	0	0	1	0	1	0.717
1	0	0	0	1	1	1	0.707
1	1	0	1	1	0	1	0.697
1	1	0	0	1	1	0	0.696
1	0	1	0	1	1	1	0.695
1	0	0	1	1	1	0	0.691
1	0	1	1	1	1	0	0.690
0	0	1	1	1	0	1	0.684
1	0	1	0	1	0	1	0.684
0	0	0	0	1	1	0	0.684
1	1	1	1	1	1	0	0.678

Notes: N = 123 NVTs, representing 304 individuals. Only the first 15 cases with sufficient consistency are included; 1 = condition is present: 0 = condition is absent: RPI = Proportional Reduction in Inconsistency.

cannot claim a full explanation of the outcome (see Table 3). Accordingly, the outcome occurs because of distinct configurations of conditions.

Fourth, we assessed the robustness of our findings by *altering calibration thresholds*. To qualify an observation as part of a potential cause or not, researchers need to decide which cases belong to the set of observations with a particular characteristic and which do not. For example, when time-to-market is of interest, researchers must decide which firms belong to the fast firms and which to the slow firms. Since this is a severe step in any QCA, we estimated whether our findings are sensitive to alternative case assignments by changing the threshold values for set membership. We assessed the sensitivity by altering the crossover point, as well as the thresholds for membership and nonmembership for all variables. We chose to enlarge the set size by 10 percent. This procedure discloses no significant changes in our solution, implying that the sufficient configurations are robust across the six independent variables.

Finally, because the basic assumption of our paper assumes the importance of time-to-market and survival on theoretical grounds, we also assessed whether this relation exists within our data. Thus, we performed between-subjects ANOVA on the calibrated data, evaluating time-to-market effects on firm survival (see Fig. 1). We can confirm a strong, significant correlation between the two variables.

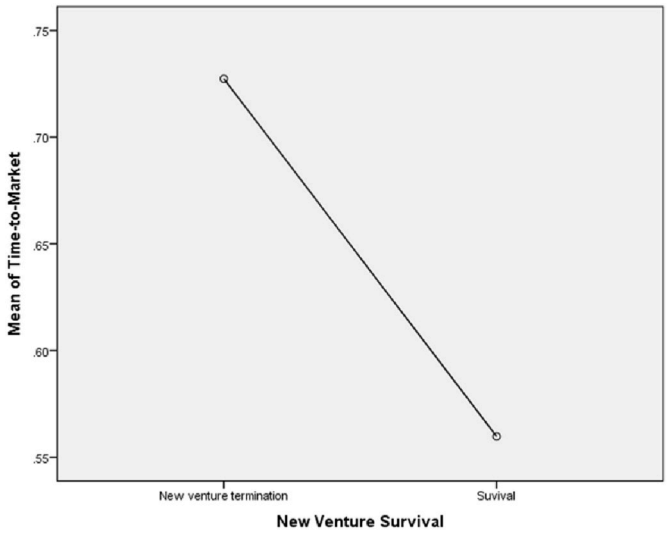

Fig. 1. Graphical expression of the relationship between mean time-to-market and new venture survival. **Notes**: Calculation is based on calibrated data.

5. Findings

In QCA, consistencies express the degree to which a relationship of necessity or sufficiency between a causal condition (or combination of conditions) and an outcome is met (Ragin, 2008). Our results exceeded the recommended threshold, indicating sufficient consistency of 0.80. Further, we reported the raw coverage, which expresses the proportion of membership in the set of those cases with short or long time-to-market, accounted by the combination of antecedent conditions. We also disclosed the unique coverage, an expression for the relative importance of each particular configuration (Schneider & Wagemann, 2012), by taking the proportion of membership in the outcome attributable only to the particular configuration into account. On the configuration level, all seven paths to firm performance show sufficient values for coverage and consistency. The overall solution coverage for both persisting (0.141) and failing (0.135) NVTs, as well as the overall solution consistency for persistence (0.829) and failure to persist (0.802), exceeded the recommended threshold and, accordingly, reached a sufficient level.

Our nine configurations (Ia to IXa) for persistence allow us to draw inferences about the degree of diversity within a NVT and the outcome under the context of technology involvement and structural processes. Three configurations (Ia to IIIa) have a relatively short period from the idea to the point when they can deliver to their clients, while six configurations (IVa to IXa) struggle with the time to bring their firm to a maturity level that makes them operable. One feature that distinguishes the team configurations that need a long time and those with a short time-to-market is the high level of diversity in age. Diversity in age leads in all configurations to a long time-to-market. However, the lack of diversity in age is sufficient for time-to-market only when combined with diversity in start-up experiences and new technologies in an unstructured environment. This supports our theorising as we argued that hierarchy due to experiential diversity provides direction and guidance that allows NVTs to manage new technologies effectively.

Our second set of configurations exposes pathways to failure to persist (Ib to IVb). First, these configurations indicate that persistence and failure to persist need distinct sets of configurations. This means that NVT configurations for persistence are unique to success and not subsequently responsible for failure. Second, the combination of time-to-market and age diversity differs, as well as the presence of start-up experience diversity. Thus, about our prior reasoning, we can confirm that various unique combinations of NVT diversity characteristics illustrate different strategic choices responsible for persistence or failure to persist.

6. Discussion

Entrepreneurial teams are at the heart of any new venture, and effective timing means making timely decisions and having the appropriate resources ready and available at the appropriate moment (Kuratko & Hodgetts, 2016). NVTs need to address their management capacity problems (Phelps et al., 2007), while realising team-working abilities on time (Kirschenhofer & Lechner, 2012)—as framed in the diversity paradox—to achieve firm survival. This double requirement leads to the present research puzzle: "What is the most effective mix of team *diversity* for new venture survival?" Research on time effects suggests that the potentially dysfunctional effects of diversity on teamwork ability fade over time (Chatman & Flynn, 2001). However, the question is whether they fade fast enough for NVTs to survive. Indeed, we find a (inverse) relationship between time-to-market and new venture survival for our sample (see Fig. 1). We relate these time effects to diversity, as diversity drives divergence, but it is unclear what drives convergence and consensus. Our research contributes to a better understanding of the diversity paradox by disentangling the subdimensions of diversity. Most researchers tend to favour one perspective over the other while neglecting time effects in NVTs (Jin et al., 2017) and interaction effects between different dimensions of diversity (Bunderson & van der Vegt, 2018). We view diversity in NVTs as a multidimensional construct with theoretical, practical, and methodological implications.

The baseline of reasoning is that decision-making and execution in NVTs take time. Effective entrepreneurial action requires exploring various options through divergence and consensus through convergence (Martin & Martin, 2009). Diversity has potential time effects on both divergence and convergence. Our results help to reconcile contrasting and inconclusive results while advancing theory. Variety is not enough! Indeed, our research presents educational and functional diversity in both survival and failure configurations. So, what makes the difference? Interestingly, the diversity dimensions associated with negative effects were separation and disparity.

First, separation associated with age differences increases time-to-market, indicating longer decision-making processes and underlying conflicts until satisfying answers to start-up issues are found. Second, start-up experience and diversity of this experience (i.e., disparity through status differences leading to hierarchy) ensure fast processes. Those teams get operational faster and appear to find satisfactory solutions. Compared to research that has advanced the proposition that disparity helps establish consensus (Xie et al., 2020), we also show the effect on time and firm survival.

6.1. *A macro view on the diversity paradox and the management capacity problem*

Highly diverse teams across all dimensions appear not to be decisive for firm survival or for failure or simply do not exist in the reality of NVTs. We found that wide variety in only one category is acceptable for firm survival if accompanied by age differences (at the cost of time) alone or in combination with differences in entrepreneurial experience. However, having a NVT with a wide variety in both categories requires differences in entrepreneurial experience, indicating that hierarchy and lead entrepreneurs in the absence of age diversity can achieve a desirable outcome in a shorter time. Overall, the results indicate that variety alone might increase the solution space and—as Foo et al. (2005) propose—lead to a comprehensive exploration of options through divergence but also to mutual and inconclusive readoptions of positions. It appears that variety alone is as harmful in NVTs as the complete absence of diversity (see failure configurations Ia, IIa, and IVa). NVTs with high variety tend to rush into the market and fail or take too long and fail. Only in conflict-laden configurations, with diversity in age leading to a long time-to-market, does variety play out its potential, or when some experienced lead entrepreneurs channel variety through disparity (survival configuration IVa and failure configuration IIb). Our results suggest that variety needs to be challenged and/or channeled.

However, in contrast to other research (Xie et al., 2020), low variety teams do pretty well if there is some disparity in entrepreneurial experience and/or age. As age predominantly indicates separation but also carries some variety, it might be self-sufficient to combine experience (in terms of age) with freshness at the cost of speed (survival configurations VIa, VIIa, and VIIIa). Further, we show that entrepreneurial experience positively impacts the capacity to manage heterogeneous teams. The associated hierarchy stemming from disparity in start-up experience is a relevant element for explaining survival, compared to diversity research on survived firms (Xie et al., 2020) and in established ventures (Gray, Bunderson, van der Vegt, Rink, & Gedik, 2023) where (power) hierarchy is a taken-for-granted context factor.

Overall, the diversity paradox consists—according to our study—in the result that positively considered variety (Page, 2007) needs to be accompanied by negatively considered factors of separation (van Knippenberg et al., 2004) and/or disparity (Harrison & Klein, 2007). In this respect, whether diversity is effective is somewhat misleading. First, diversity cannot be used as a unidimensional concept but is better understood by breaking it into different subdimensions. Second, diversity is beneficial only in the presence of some low diversity factors. The management capacity problem concerns how a NVT can have a broad enough competence base to deal with current and future challenges (Phelps et al., 2007). However, it neglects whether the NVT can manage this competence base.

6.2. *The role of entrepreneurial experience in NVTs*

Our research gives insights into how variety, as the underlying factor for management capacity, can be handled effectively. One of the configurations (Ia) that leads to a short time-to-market confirms Kirschenhofer and Lechner's (2012) findings that start-up experience paired with functional (and educational) diversity helps new ventures become operational more quickly. Teams with experienced entrepreneurs are faster in making decisions (Forbes, 2006). Experienced entrepreneurs have the potential to build better functionally diverse teams (Kirschenhofer & Lechner, 2012). Indeed, a lack of entrepreneurial experience and lack of disparity in this experience are generally associated with firm failure.

In addition, diversity in entrepreneurial experience indicates the existence of lead entrepreneurs in the team, with the assumed positive benefits (Shepherd et al., 2021). In a NVT, members are not randomly chosen; rather, they join voluntarily to achieve a common goal. In this setting, conflict avoidance for the sake of harmony might prevail. However, the benefits of variety need to be mobilised (Ma et al., 2022). Variety alone does not automatically lead to its expression, and—in this case—the lead entrepreneur can use the status to encourage and integrate diverse information, opinions, and views (Gray, Bunderson, van der Vegt, Rink, & Gedik, 2023). In this sense, configuration I represents the desired team composition of many venture capitalists: the same age, functional, and educational variety with experienced lead entrepreneurs. Indeed, we found that NVTs with this composition perform better in time-to-market than their counterparts. While the positive impact of entrepreneurial experience has been claimed, its effects remain largely mysterious (Bosma et al., 2004). Our research indicates that entrepreneurial capacity facilitates the management of variety.

6.3. *The particular role of diversity in age*

Age differences slow down NVTs but in a beneficial way. Indeed, all surviving entrepreneurial team configurations with a high degree of age diversity (IVa to IXa) were found among the new ventures with a longer time-to-market. While age differences should improve strategic decision-making (Zimmerman, 2008), they might lead to conflicts on the most fundamental issues in new ventures. However, if conflicts are avoided, the potential of variety cannot be exploited (van Knippenberg

et al., 2004). The longer time-to-market might indicate that intergenerational differences lead to conflicts that are somehow managed by the team. The popular idea of improving young teams with the addition of experienced managers needs to be placed in context (Kor, 2003). Diversity in age delays time-to-market, but it does not kill the venture. In contrast, it helps to better exploit the potential of variety in NVTs.

6.4. Timing and new venture survival

Suppose we understand timing as making the appropriate decisions and having resources at the appropriate moment. In that case, we can distinguish between two consequences for NVTs and venture failure: having the appropriate decisions and having the appropriate resources to solve start-up issues but being (too) late for market entry or entering the market too early without the appropriate decisions and resources. We could expect that having two diversity factors, such as age, as an expression of separation and variety, and education, as an additional factor of variety, would delay time-to-market (Bosma et al., 2004), and still address the management capacity problem (MacPherson & Holt, 2007). However, we can also derive another interesting insight: NVTs that try to enter the market quickly with one dimension high in variety are doomed to fail. Rushing in instead of slowing down and developing the team's working capacity while exploring enough relevant issues is bad timing, and this leads to failure. High separation (age differences) indicates potential for conflict: Teams that under this condition rush fast into the market are most likely avoiding conflicts instead of confronting them and exploring a more comprehensive range of options with the associated negative consequences (De Dreu & Weingart, 2003). In this sense, our research also responds to calls to integrate notions of time in entrepreneurship research (Levesque & Stephan, 2020) and claims from practitioners that timing might be the most important factor for start-up survival (Schroeder, 2019). Being fast or slow is not the real question, but the issue is instead about being fast or not too slow and making the appropriate decisions (i.e., ensuring quality decisions and actions in time); as time-to-market rises, the failure probability generally increases.

6.5. Strategic context and new venture survival

Finally, we can see that with an appropriate diversity balance, structured processes combined with the nonuse of technology and unstructured processes combined with the use of technology generally sustain performance. Strategic context and entrepreneurial behaviour need to be aligned. This aligns with our reasoning: using new technologies increases complexity, making unstructured processes more effective, while reduced complexity can allow for the routinisation necessary for structured processes. Some new ventures use new technologies, while others do *not* react quickly to market needs. We observed the same for structured processes. We found that structured processes work in the absence of technology use as an efficiency indicator but are detrimental when new technologies are used.

6.6. NVT composition and new venture survival paths

Based on our findings, we reject the assumption that NVTs can be treated as a unidimensional construct with underlying co-varying factors. On the contrary, compositional attributes explain an outcome together, not in isolation. Set-theoretic configurations represent complex causality. We have identified that NVTs can survive with both long and short time-to-market, and we outlined under which conditions. NVTs can have different but equally successful paths to performance. This is a new aspect widely overlooked in current research on NVT composition.

6.7. Implications

Our research on NVTs indicates that the absence of hierarchy (through disparity) is a decisive factor for firm failure in the presence of variety. Thus, hierarchy might be a decisive factor across organisations to extract the potential value of variety. If we understand teams as tension systems (Lewin, 1951), then functional teams need to have some form of conflict (age differences) and/or leadership (disparity in entrepreneurial experience) to perform. In the case of age, differences lead to longer time-to-market. This diversity paradox, that is, that team performance requires positively assumed variety in combination with negatively assumed separation and/or disparity, is the main implication from which further implications derive. The diversity paradox can be framed in the decision-making process as ensuring enough divergence while not preventing or excessively delaying convergence.

First, the current study offers insights into reconciling contradictory findings in research on team composition in entrepreneurship. For instance, demographic diversity is often regarded as a "double-edged sword" (Milliken & Martins, 1996). Our research contributes to the management capacity problem by showing under which conditions variety is beneficial even when delaying time-to-market. Second, the research emphasises the role of entrepreneurial experience and its disparity in effectively managing teams with a wide variety. Third, our research shows that disentangling the dimensions of diversity and specifying what variables express which dimensions improves the understanding of team performance. Fourth, while we agree that deep-level constructs of individual and team characteristics lead to a more detailed understanding, we opted for surface-level characteristics for two main reasons. From a theoretical perspective, the current state of research has not sufficiently considered the interactions between different team characteristics; our research is a step in this direction. Also, the managerial implications are more straightforward, as surface-level characteristics are more easily observed and manipulated: they can act as practical guidance when entrepreneurs consider aspects of team composition. Fifth, this research gave initial insights into timing by framing it as internal readiness for external requirements and conditions in time. Sixth, on a methodological level, our study implies that diversity dimensions cannot be treated in isolation or as an aggregate unidimensional construct. Similar discussions have been made for other constructs in entrepreneurship, such as entrepreneurial orientation (Wales et al., 2020), and by evidencing inconsistencies in unidimensional approaches (Lechner & Gudmundsson, 2014).

6.8. Limitations and directions for further research

The contribution of our research needs to be seen within its limitations. First, team composition generally comprises implicit, latent factors (i.e., elements of decision-making processes). More fine-grained analyses of team decision-making processes associated with diversity are needed (Carpenter et al., 2004). Second, PSED II covers only some items from the first wave through the survey. Therefore, we could not investigate the impact of new team members throughout the founding process, even though new team members have the potential to change the whole team's composition and impact team performance. Third, as PSED II is a country study, it neglects cultural differences that might be particularly relevant for managing diversity (Ma et al., 2022).

Consequently, our results may be biased by dimensions of national culture, such as individualist/collectivist team orientation. Fourth, we could not develop indications for whether structured or unstructured processes or the use or nonuse of new technologies increased or reduced time-to-market. The performance effects appear to be subject to both contingencies of strategic choices and their alignment with the NVT. Fifth, our findings are limited to the service context, and whether they would hold in other industrial sectors is unclear. Because specific characteristics of the service sector emphasise team requirements, team configurations are essential for successfully implementing any strategy.

The generalisability of the findings might be limited: in contexts where human resources are less critical, more diversity might be bearable. Our research focuses on time-to-market, as this is a crucial issue for the survival of start-ups. Research suggests that the harmful effects of diversity on team-working capacity might erode over time (Chatman & Flynn, 2001). Thus, our findings might be more relevant in a dynamic context, especially for temporary or project-based organisations (such as the filmmaking industry). Replication of this research in different settings holds some opportunities for future research.

A benefit of our exploratory approach is that the diversity literature tends to be inconclusive, potentially creating a need for a fresh start. We argued that diversity factors are not positive or negative in absolute terms but in relative terms in combination with other factors and context-dependent. Therefore, more exploration is needed, despite the existing body of quantitative research and hypothesis testing. Qualitative research and process-oriented case studies as well as anthropological approaches would be helpful in understanding how diversity factors and their effects unfold over time. In terms of decision-making, it might be worthwhile to explore the structures, systems, and processes in place that explain how teams move from a phase of divergence and exploration towards a phase of convergence and decision-making. In this sense, a better understanding of how to create psychological safety in entrepreneurial teams for leveraging the benefits is needed (Newman et al., 2017). Moreover, entrepreneurial teams tend to be dynamic, and it seems that diversity might favour adding new team members (Beckman & Burton, 2008). However, more exploration is needed on how diversity is related to team member exit, entry, and dynamic changes. Finally, more fine-grained diversity measures and the study of their interactions might be a fruitful route of inquiry. We hope our research is a first step and an impetus for new research on entrepreneurial teams.

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