



Entrepreneurial team diversity – A systematic review and research agenda

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ABSTRACT

Research on entrepreneurial team diversity (ETD) has reached a critical juncture as inconsistent findings hinder further theory development. The main reasons for these inconsistencies are one-dimensional theoretical perspectives that make it difficult to comprehensively theorize the benefits and barriers of ETD from a cross-disciplinary perspective. To address this shortcoming, we systematically identify existing literature and classify 44 studies into an ‘inputs-mediators-outcomes’ (IMO) framework. We find that the field is considerably fragmented, especially with regard to disciplinary perspectives, study contexts, diversity dimensions, and outcome variables. To invigorate and advance the research stream, we highlight unresolved issues and knowledge gaps in the current literature and propose a multi-disciplinary research agenda presented in the form of an IMO framework. We conclude that, while existing research on ETD offers a solid foundation, it is far from having reached its full potential.

1. Introduction

As the vast majority of start-ups (85%) are launched by entrepreneurial teams rather than by individuals, the performance of such teams has been the subject of scholarly inquiry over the past three decades (Carland et al., 1984; Lazar et al., 2019; Steffens et al., 2012). The insights that contribute to this stream of research stem primarily from the disciplines of entrepreneurship, management, and organizational behaviour (see Table 1). The general scientific consensus that has emerged over the years is that entrepreneurial team diversity (ETD) is a double-edged sword, as it can both enhance and impair team and new venture performance (Van Knippenberg et al., 2004; West, 2007). In the search for boundary conditions that account for either positive or negative effects of diversity in entrepreneurial teams, the relevant literature has produced a variety of ambiguous findings (Jin et al., 2017; Van Knippenberg et al., 2004). Exemplary are the findings of Chowdhury (2005), who finds no significant relationship between gender diversity and entrepreneurial team effectiveness, and Dai et al. (2019), who find evidence for a positive impact of mixed-gender teams on new venture performance. Similarly, diversity in terms of professional experience has been found, on the one hand, to enhance team efficiency (Foo et al., 2006; Zhou et al., 2015), while on the other hand, it has been linked to high team turnover (Chandler et al., 2005) and negative impacts on venture growth (Amason et al., 2006).

Current literature provides only insufficient explanations for the

determinants of these inconsistent findings, suggesting that research on entrepreneurial team diversity and its implications has reached a critical juncture where theory development is impeded (Jin et al., 2017; Klotz et al., 2014; Sundermeier et al., 2020). In search for explanations, our own preliminary assessment of the literature indicated that the research stream is considerably siloed, particularly in terms of disciplinary perspectives, methodological approaches, types of diversity dimensions, and levels of analysis. This fragmentation has several implications for theory development on ETD and its implications (Van Knippenberg et al., 2004): first, it hinders the comparability of research outcomes across disciplines, particularly as findings are often interpreted through the lens of a specific domain without fruitful exchange that would allow to generate a comprehensive understanding of ETD from different theoretical angles. Second, there is a lack of a comprehensive, cross-disciplinary understanding of how and under what conditions ETD affects new venture creation. Third, little is known about how to manage the underlying mechanisms that influence the effects of diversity to encourage positive outcomes and mitigate detrimental ones.

To address these shortcomings and enable cross-disciplinary theory building about ETD and its implications, we set three objectives for this article (Paul & Criado, 2020; Paul et al., 2021). First, relevant literature is systematically synthesized to generate an overview of the current state of theory development regarding the implications of ETD for new venture creation processes across different disciplines. Following the approach suggested by Tranfield et al. (2003), relevant studies are

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systematically identified and classified in accordance with the ‘inputs–mediators–outcomes’ (IMO) framework that allows to systematically assess the implications (outcomes) that result from distinct diversity dimensions (inputs) among team members and the mediators influencing these relationships. Second, the current state of literature is critically assessed by highlighting inconsistencies and gaps that may account for ambiguous and conflicting research outcomes that could potentially be resolved by bringing together findings from different disciplines (Gilal et al., 2021). Third, a research agenda is proposed that addresses unresolved issues and fills knowledge gaps in the current literature (Leidner, 2018; Paul et al., 2021).

2. Conceptualizing entrepreneurial team diversity

Diversity is a multifaceted construct that describes the heterogeneity of individuals in relation to specific characteristics (Kollmann et al., 2017; Van Knippenberg et al., 2004). On a team level, heterogeneity refers to ‘the distribution of differences among the members of a unit with respect to a common attribute’ (Harrison & Klein, 2007, p. 1200). In newly founded firms, there are only low impediments to the implications of diversity, making entrepreneurial teams a unique context for studying diversity among team members (Ensley et al., 2006; Welter et al., 2017).

Nevertheless, undertaking an in-depth study of diversity still presents various potential difficulties, particularly as there is no commonly shared conceptualization of diversity across disciplines. Diversity dimensions cover a broad range and can be subdivided into demographic (e.g., gender, age, and race), functional (e.g., educational background, work experience, and skills), and deep-level diversity (e.g., values, beliefs, personality traits) dimensions (Van Knippenberg & Schippers, 2007). The entrepreneurship literature currently lacks a holistic framework that covers all relevant dimensions of interest. We therefore decided to draw upon a framework by Gardenswartz and Rowe (1994) who suggest capturing the heterogeneity of work teams along four layers of diversity dimensions: personality, internal, external, and organizational (see Fig. 1).

The core layer, *personality*, encompasses characteristics of individuals that are mostly unobservable, such as personality traits, values and beliefs. The second layer, *internal dimensions*, covers all demographic attributes, such as age, gender, sexual orientation, physical ability, ethnicity, and race. Both these layers encompass largely invariant attributes of individuals. In contrast, the layer, *external dimensions*, covers social factors and life experiences that are subject to change over time, such as geographic location, income, personal habits, recreational habits, religion, educational background, work experience, appearance, and parental and marital status. The fourth and outer layer categorizes an individual’s *organizational embeddedness*, such as the functional level, work field, departmental unit, seniority, work location, and management status. For the purpose of this paper, these four diversity layers and their respective diversity dimensions are used to systematically synthesize the current literature on ETD.

3. Methodology

To achieve this objective, the study follows Tranfield et al.’s (2003)

transparent and reproducible approach to systematically review existing literature. The first step was to carefully plan the review (Paul et al., 2021), which involved several intensive discussions with two scholars and three practitioners who are experts in the area of ETD. These discussions aimed to iteratively refine and clarify the focus and objective of the review (Clarke & Oxman, 2001).

For the basis of the selection (Fig. 2), the review follows Klotz et al. (2014) who conducted a literature review on new venture teams by searching for peer-reviewed empirical studies in leading journals in management (*Academy of Management Journal*, *Academy of Management Review*, *Strategic Management Journal*, *Journal of Management*, *Organization Science*, *Management Science*, *Administrative Science Quarterly*), entrepreneurship (*Journal of Business Venturing*, *Entrepreneurship Theory and Practice*, *Journal of Small Business Management*, and *Strategic Entrepreneurship Journal*) and organizational behaviour (*Journal of Applied Psychology*, *Organizational Behaviour and Human Decision Processes*, *Journal of Organizational Behaviour*, and *Leadership Quarterly*). In the second step, two scholars who recently published studies on entrepreneurial diversity in one of these outlets were asked to complete the list with additional journals that they consider relevant to the overall topic and purpose of the literature review. The experts recommended to extend the list by adding *European Management Journal*, *Small Business Economics*, *International Entrepreneurship and Management Journal*, *International Journal of Entrepreneurship Behaviour and Research* as well as *Management Decision*.

The focus was led on peer-reviewed articles that included a combination of the word ‘team*’ and ‘startup*’, ‘entrepreneur*’, ‘new venture*’, ‘founding’, or ‘nascent’ in their titles, subjects, abstracts, and/or keywords. After deletion of any duplicates, the initial search yielded 214 articles that were manually sorted and selected according to explicitly formulated inclusion and exclusion criteria. Only articles that have met the following inclusion criteria were included (Paul & Criado, 2020): (1) empirical papers published in peer-reviewed academic journals, (2) written in English, (3) with a focus on new venture creation processes, and (4) with a diversity dimension as an independent variable. Further, articles were excluded if the research was not focused on the examination of heterogeneity among entrepreneurial teams but homogeneity instead (e.g. Steffens et al. (2012)). In addition, overview articles, call for paper-publications, and editor notes were excluded to ensure that the sample contains only research articles that were non-invited and peer-reviewed. The final data set contains 44 articles.

To ensure a comprehensible and robust analysis of the identified literature, we followed Paul and Criado’s (2020) recommendation to structure the synthesis of the papers according to a well-established framework. To this end, each article was analysed independently by three scientists who coded all studies in accordance with the IMO framework that is frequently used to examine team processes in a structured manner (Klotz et al., 2014; Mathieu et al., 2008; McGrath, 1964). The framework aims to understand outcomes (O) of group processes determined by certain inputs (I) and mediators (M) that influence them. The inputs of relevance for the review are the diversity dimensions examined which are classified according to the distinct diversity dimensions as defined by Gardenswartz and Rowe (1994) (see Fig. 1).

Table 1

Total number of articles on entrepreneurial team diversity across disciplines.

Year	Total Number of Articles	Total Number of Articles in ^a		
		Management Journals	Entrepreneurship Journals	Organizational Behaviour Journals
1990–2000	1	1	0	0
2001–2010	13	4	8	1
2011–2022	30	13	16	1
Totals	44	18	24	2

^a A detailed description of the procedure to identify and select relevant literature can be found in the methodology section.

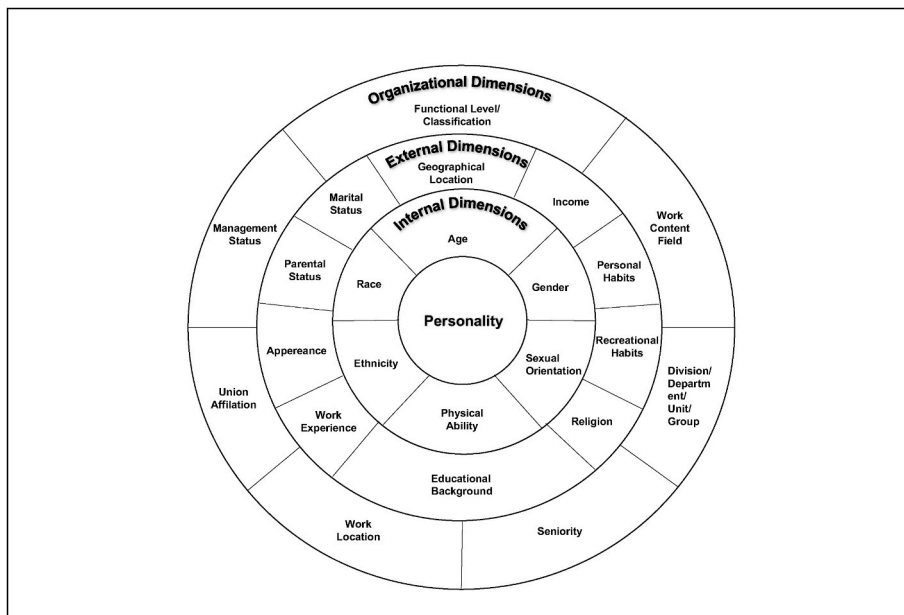


Fig. 1. The four layers of diversity by Gardenswartz and Rowe (1994, p. 33).

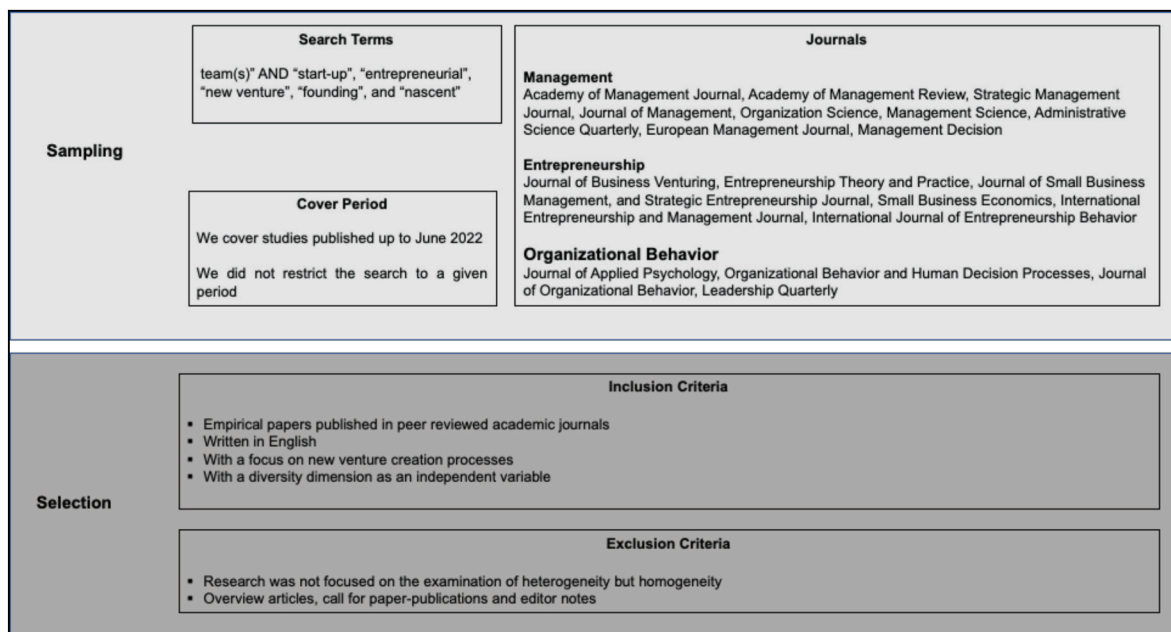


Fig. 2. Literature selection process.

4. Status of research on entrepreneurial team diversity

4.1. Development of research stream

The development of research on ETD was traced in the fields of entrepreneurship, management and organizational behaviour as displayed in Fig. 3. The first paper in the sample was authored by Kathleen Eisenhardt and Claudia Schoonhoven and published in 1990 by Administrative Science Quarterly. Despite the considerable reputation of the outlet, the topic has hardly received noteworthy attention in the 15 years following its initial publications, apart from only two exceptions, namely McGee et al. (1995) and Ucbasaran et al. (2003). The latter were the first to introduce the topic in a dedicated entrepreneurship journal. Since then, the topic has received attention in both

entrepreneurship (n = 24) and management (n = 18) outlets. Only two studies were found in the organizational behaviour literature, which, however, have received considerable attention (n = 2).

4.2. Overall framing of studies

To assess the extent to which differences in the overall framing of studies account for inconsistencies in the implications of ETD, the approach of McKelvie and Wiklund (2010) is used as a starting point to systematically assess the disciplinary perspectives, study contexts, and methodologies of each study.

4.2.1. Disciplinary perspectives for analysing entrepreneurial team diversity

The outcomes of the review indicate that studies in the field of ETD



Fig. 3. Development of research on entrepreneurial team diversity (status June 2022).

draw on three distinct disciplinary perspectives that can be subdivided into economic, sociological, and psychological lenses (see Table 2 for more detailed information).

Economic lens. The economic lens is rooted in the work of Schumpeter (1934). Scholars drawing on this lens aim to explain outcomes of ETD are primarily concerned with the implications of heterogeneous resources and particularly capabilities among founding team members for new venture creation processes. The great majority of studies focus on examining outcomes of human capital diversity by invoking human capital theory (e.g. (Chaganti et al., 2008; Dai et al., 2019; Zhou et al., 2015), capability- and resource-based views (Beckman & Burton, 2008; Hart, 2014; Hoogendoorn et al., 2017), upper echelons theory (Foo et al., 2006; Moog & Soost, 2020; Zhou et al., 2015), growth theory (Kirschenhofer & Lechner, 2012), and contingency theory (Xie et al., 2020). Some studies also use demographic diversity dimensions, such as ethnic background (Chaganti et al., 2008), gender (Dai et al., 2019), and nationality (Hart, 2014), as proxies for human capital diversity. The excessive focus on human capital diversity can be explained by the longstanding tradition of related theories in entrepreneurship literature in which human capital is seen as vital for entrepreneurial success (Marvel et al., 2016).

The analysis of the sample indicates that this predominant positive interconnection between human capital and new venture creation processes can be only partly replicated in research on ETD. While various studies confirm the positive relationship between human capital diversity and team (Foo et al., 2006; Kirschenhofer & Lechner, 2012; Zhou et al., 2015) as well new venture performance (Hmieleski & Ensley,

2007; McGee et al., 1995; Xie et al., 2020), several studies found only moderate (Chaganti et al., 2008; Hart, 2014) or even negative implications of human capital diversity for new venture performance (Amason et al., 2006; Hoogendoorn et al., 2017) and team turnover (Ucbasaran et al., 2003). Despite these mixed findings related to the outcomes of human capital diversity among founding team members, literature drawing on purely economic theories remain silent regarding the underlying mechanisms accounting for partly beneficial and partly detrimental implications in this regard (Lazar et al., 2019). It seems that human capital and related theories alone are insufficient to explain mechanisms that account for variances in the outcomes of human capital diversity.

Sociological and psychological lenses. Research on work groups of all kinds has a long tradition in sociology and psychology (for overviews see O'Reilly et al., 1989; van Knippenberg et al., 2004). These domains have generated a vast amount of empirical evidence for the underlying mechanisms that determine outcomes of work group diversity that can also be transferred to entrepreneurial teams (Kollmann et al., 2017). Scholars examining entrepreneurial team diversity by drawing on these lenses apply distinct theories that can be aggregated into two distinct but complementary logics that allow to theoretically explain the varying effects of entrepreneurial team diversity in a much more nuanced manner. One, the *social categorization logic*, sheds lights on relational aspects that are influenced by diversity by invoking homophily (Eisenhardt & Schoonhoven, 1990), social identity (de Mol et al., 2019; Kim & Song, 2020; Ko et al., 2021), social and cognitive categorization (Khan et al., 2015; Kollmann et al., 2017; Mannor et al., 2019), and social integration theory (Chandler et al., 2005). Central to this logic are categorization processes that can be studied as social activities through which individuals assign other human beings into groups according to perceived differences in terms of gender, ethnicity, values, social statuses, privilege etc. (Reynolds & Turner, 2006; Tajfel & Turner, 1986). Since individuals tend to identify and socialize with similar others that they perceive as belonging to their own group, team processes are found to be more favourable and efficient in homogenous groups (Harrison & Klein, 2007; Van Knippenberg et al., 2004). Higher levels of diversity, in contrast, reduce social integration and favour interpersonal conflicts that decrease team performance (Khan et al., 2015; Kollmann et al., 2017).

Two, the *informational/decision-making logic* suggests positive outcomes of diversity for team performance. Scholars drawing on this logic use social capital (Aven & Hillmann, 2018; Beckman, 2016) and social learning theory (Khan et al., 2014) as their theoretical grounding to explain that heterogeneous teams possess a broader range of task-related knowledge, skills, and abilities that positively influence group processes

Table 2
Disciplinary perspectives in research on entrepreneurial team diversity.

Disciplinary Perspectives	Count ^a
Economic lens	21
- Human capital theory	
- Capability- and resource-based view	
- Upper echelons theory	
Sociological and psychological lens	24
- Social categorization logic	
- Homophily theory	
- Social identity theory	
- Social and cognitive categorization theory	
- Social integration theory	
- Informational/decision-making logic	
- Social capital theory	
- Social learning theory	

^a One study explicitly combines interdisciplinary lenses.

often assessed through the outcomes of activities that entrepreneurial teams have to perform. Nevertheless, the findings of the study by Khan et al. (2014) indicate that these positive outcomes may be outweighed by conflicts arising from social categorization processes. Theoretical knowledge for the interplay between these two logics is, however, still scarce since most studies draw on one of the two logics to explain either positive or negative effects of entrepreneurial team diversity.

4.2.2. Study contexts

To determine the context of studies, each identified paper was coded according to the type of industry and country focus used in the sampling of entrepreneurial teams. Only minor variations regarding the industries in which the outcomes of entrepreneurial team diversity had been examined are found (Table 3). Studies that focused on a particular industry primarily sampled entrepreneurial teams from technology-oriented industries. Most studies, however, collected data from entrepreneurial teams operating in a multitude of different industries.

The studies which specified the country in which the examined entrepreneurial teams operated in had collected their data in the US (16), China (4), India (2), Russia (1), Austria (3), Germany (4), Netherlands (2), Australia (1), Colombia (1), Great Britain (1), Sweden (1), and South Korea (1). Another five publications did not specify the country of origin of the entrepreneurial teams. Another three studies explicitly collected data from two different countries, but none of these attempted to conduct a comparative study that takes country-level specificities into consideration.

4.2.3. Methods and analyses

Regarding methodological and analytical approaches, the analysis of the existing literature found high homogeneity across the identified studies. Of the 44 studies, 37 adopted pure quantitative research designs. Only seven studies used a mixed-methods approach (see online appendix for more detailed information).

4.3. Inputs-mediators-outcomes framework for research on entrepreneurial team diversity

In accordance with the IMO framework, all identified studies are classified in terms of the diversity dimensions (inputs), and their implications identified together with the mediators that influence the relationship between the diversity dimensions and their outcomes. An overview of this classification can be found in Table 4.

4.3.1. Inputs: dimensions of entrepreneurial team diversity

The diversity dimensions identified are categorized according to the underlying conceptualization of entrepreneurial diversity in this paper (see section 2). Many studies consider several diversity dimensions in their examinations. In comparison, most research efforts had been undertaken on the implications of external diversity dimensions followed by internal and personality dimensions. Organizational diversity did not

Table 3

Industry and country focus in samples of studies on entrepreneurial team diversity.

Industry	Count	Country
Air transportation	1	Not specified (1)
Biotechnology	3	US (1), India/Australia (1), Switzerland/Germany (1)
High-Tech	7	US (6), Netherlands (1)
Information Technology	11	Austria (2), China (3), US (2), Germany (1), India (1), Colombia (1). Not specified (1)
Semi-Conductor	1	US (1)
Solar Photovoltaic	1	US (1)
Multiple Industries (>5)	19	US (5), Sweden/US (1), Russia (1), China (1), Germany/Austria (2), Australia (1), Netherlands (1), Great Britain (1), South Korea (1), Far East Asia (1), not specified (4)

feature in the sample.

4.3.1.1. Personality dimensions. The personality dimensions examined in the literature include *cognitive abilities* (Hoogendoorn et al., 2017; Lix et al., 2022), *entrepreneurial passion* (de Mol et al., 2019) and *orientation* (Kollmann et al., 2017), *internal locus of control* (Khan et al., 2014), *leadership orientation* (Schoss et al., 2020), *need for achievement* (Khan et al., 2015; Schoss et al., 2020), *imaginativeness* (Kier & McMullen, 2020), and *task orientation* (Zhou et al., 2015). All these studies had been conducted in technology-oriented industries within countries in Europe that are fairly similar in terms of culture (Hofstede, 1983).

Differing levels of *entrepreneurial orientation*, *internal locus of control*, *need for achievement* and, *leadership orientation* had been examined in relation to their implications for team-level outcomes. To that end, all used subjective performance measures and determined that heterogeneous levels of *internal locus of control* and *need for achievement* among founding team members have negative implications for team effectiveness.

The authors draw on theories related to the social categorization logic to argue that such personality differences foster separation among team members who perceive themselves as being different from each other in these regards. In particular, those high in their ‘readiness to confront challenging, uncomfortable, or even threatening situations’ (Shye, 1978, p. 332) and sense of control over their actions perceive their contributions to team performance in comparison to members with a low need of achievement and internal locus of control to be considerably greater (Khan et al., 2014, 2015). Concerning the heterogeneous distribution of need for achievement, it was found to create relationship conflicts among team members which in turn impairs perceived team effectiveness. Following this line of argument, Kollmann et al. (2017) also identify negative implications for heterogeneous levels of risk-taking and proactiveness, which are two of the three dimensions that determine an individual’s entrepreneurial orientation. Positive impacts for perceived team performance were only found in connection with differing levels of innovativeness. By drawing on the informational/decision-making logic, the authors argue that varying levels of innovativeness among team members can be seen as a crucial resource as the development of new ventures requires individuals not only with a strong predisposition for producing radically new ideas (innovators) but also with the ability to adapt existing solutions (adaptors).

Three of the remaining studies that examine personality diversity dimensions conceptualized personality diversity as human capital diversity and found negative implications for firm-level outcomes. In particular, diversity in terms of *cognitive abilities* (Hoogendoorn et al., 2017), *entrepreneurial passion* (de Mol et al., 2019), and *task orientation* (Zhou et al., 2015) are found to have negative implications for firm and sales growth as well as the amount of capital that is raised by founding teams. All three studies use a purely economic lens to theoretically ground their findings. While Hoogendoorn et al. (2017) provided vague explanations for their surprising findings, de Mol et al. (2019) argue that the differing levels of entrepreneurial passion may result in the lack of a clear strategic focus to efficiently allocate resources. Only Kier and McMullen (2020) found a positive relationship between imaginativeness diversity and the quality of new ideas that are generated.

4.3.1.2. Internal dimensions. Studies that incorporate dimensions from the layer of internal diversity focus on the examination of differences in terms of *age* (Amason et al., 2006; Chowdhury, 2005; Franke et al., 2008; Ko et al., 2021; Luksyte et al., 2021; Moog & Soost, 2020), *ethnicity* (Chaganti et al., 2008), *gender* (Chowdhury, 2005; Dai et al., 2019; Ko et al., 2021; Uzuegbunam et al., 2021), and *nationality* (Hart, 2014; Moog & Soost, 2020). Only the contribution by Chowdhury (2005) focuses on implications for team-level outcomes in this regard, while the other studies attempt to determine firm-level outcomes

Table 4
Overview of inputs-mediators-outcomes in research on entrepreneurial team diversity.

Mediators			Output											
			Team-Level		Firm-Level									
			Effectiveness	Turnover	(Sales) Growth	New venture employment	Capital acquisition	Evaluation of VCs	Division of equity	Innovation performance	Product/Market Choice	Achievement of milestones	External cooperation	Learning
¹ Relationship conflict														
² Leadership style														
³ Firm's stage of life and decision-making structure														
⁴ Characteristics of the environment														
⁵ Average brokering potential														
⁶ Degree of shared leadership														
Input	Personality Diversity Dimensions	Cognitive abilities (Hoogendoorn et al. 2017)			-									
		Entrepreneurial passion (de Mol et al., 2019)												
		Internal locus of control (Khan et al. 2014)	-											
		Need for achievement (Khan et al., 2015)	-											
		Entrepreneurial orientation (Kollmann et al., 2017)	+/-											
	Internal Diversity Dimensions	Age (Amason et al., 2006; Chowdhury, 2005; Franke et al., 2008)	no		-			-						
		Gender (Chowdhury, 2005; Dai et al. 2019)	no							+				
		Nationality (Hart, 2014)				+								
		Ethnicity (Chaganti et al., 2008)			no									
	External Diversity	Educational background (Amason et al., 2006; Chandler et al., 2005; Foo et al., 2006; Franke et al., 2008; Hmieleski & Ensley, 2007; Tzabbar & Margolis, 2017)	+	-	+/-			+		+				
		Functional experience (Amason et al., 2006; Beckman & Burton, 2008; Beckman et al., 2007; Chandler et al., 2005; Chowdhury, 2005; Eisenhardt & Schoonhoven, 1990; Foo et al., 2006; Hellmann & Wassermann, 2017; Hmieleski & Ensley, 2007; Mannor et al., 2019; McGee et al., 1995; Ucbasaran et al., 2003; Vissa & Chacar, 2009; Zhou et al., 2015)	+/no	-	+/-		+	+	+			+	+	
		Brokering ability (Aven & Hillmann, 2018)						+						
		Religious affiliations (Chandler et al., 2005)		+										
		Prior funding experience (Tzabbar & Margolis, 2017; Ucbasaran et al., 2003)		+						+				
		Managerial skills (Sardana & Scott-Kemmis, 2010; Zhou et al., 2015)	+											+
		Work experience (Fern et al., 2015; Sardana & Scott-Kemmis, 2010)									+			+
		Prior company affiliations (Beckman, 2016; Beckman et al., 2007)				+		+						

resulting from demographic diversity dimensions among founding team members.

Indeed, some interesting ambiguous effects are determined in this regard. For instance, *age* diversity is found to have no significant implications for perceived team effectiveness (Chowdhury, 2005), while negative economic outcomes were found in terms of sales performance (Amason et al., 2006; Moog & Soost, 2020) and the evaluation of a start-up's viability by venture capitalists (Franke et al., 2008). The studies of Chowdhury (2005) and Amason et al. (2006) are comparable in terms of study contexts as both relied on samples of entrepreneurial teams operating in the US. The former draws on the social categorization and informational/decision-making logic to argue that age diversity has multiple complex effects that offset each other. While age differences are assumed to negatively affect relational aspects among founding team members, i.e., by making it more difficult for members to identify with each other, they can also become an informational resource as younger and older individuals are likely to differ in their thinking styles and perspectives, which has positive implications for overall team performance. Chowdhury (2005) assumes that the beneficial and detrimental implications of age diversity offset each other. Related hypotheses are supported by his empirical evidence since no significant effects for term performance were identified. Some of these arguments are also found in the study by Amason et al. (2006) as well as Moog and Soost (2020) who conceptualize age difference among founding team members as human capital diversity. The scholars argue that teams differing in terms of age lack common experiences and face difficulties in communicating with each other. In their empirical examinations, however, the scholars did not focus on such team processes but determined economic implications as a proxy for team outcomes, instead indicating that sales growth is impeded in teams with significant age differences. Similar findings were also found in assessments of venture capitalists (VCs) in Germany and Austria, where teams more heterogeneous in terms of age performed worse than teams in which all founders fell into the 35–45 year age bracket (Franke et al., 2008).

Ambiguous effects are also determined for *gender* diversity. Following the same line of argument as for age diversity, Chowdhury (2005) found no significant relationship between gender diversity and team performance, while Dai et al. (2019) conceptualize gender diversity as human capital diversity with positive implications for the innovation performance of new ventures. It needs to be taken into consideration, however, that the latter study was conducted in China and, since comparative studies are still missing, it cannot be ruled out that cultural factors influence these findings. The empirical insights from Uzegbunam et al. (2021) suggest that cultural aspects are important to consider for the interpretation of ambiguities in these regards. Additional economic implications emerged in studies by Hart (2014), who identified modest impacts of nationality diversity on firm performance in terms of employment growth in US ventures, and a study by Chaganti et al. (2008), where a non-significant relationship was found between ethnicity diversity and new venture growth in Asian start-up teams.

4.3.1.3. External dimensions. The majority of studies examining implications of external diversity dimensions for firm and team-level outcomes focus on differences in terms of *functional experience* (e.g. Amason et al., 2006; Honoré, 2022; Mannor et al., 2019; Zhou et al., 2015), followed by *educational background* (e.g. Chandler et al., 2005; Foo et al., 2006; Hmieleski & Ensley, 2007), *prior founding and working experience* (Fern et al., 2015; Furr, 2019; Sardana & Scott-Kemmis, 2010; Tzabbar & Margolis, 2017; Ucbasaran et al., 2003), *company affiliations* (Beckman, 2016; Beckman et al., 2007), *managerial skills* (Sardana & Scott-Kemmis, 2010; Zhou et al., 2015), *entrepreneurial competencies* (Fuel et al., 2021), *brokerage abilities* (Aven & Hillmann, 2018), and *religious affiliations* (Chandler et al., 2005). Especially the findings in relation to functional experiences and educational backgrounds are

ambiguous and varying.

With regard to heterogeneous *educational backgrounds* and *functional specialization* among founding team members, three studies found both dimensions to positively influence perceived team effectiveness (Foo et al., 2006; Zhou et al., 2015) and team creativity (Kim & Song, 2020). Only the study by Chowdhury (2005) could not determine a significant relationship in this regard, similar to his findings on age and gender diversity. Taking these findings into consideration, it is rather surprising that Chandler et al. (2005) find a positive relationship between educational and functional specification diversity and team turnover. By drawing on a sample of 532 entrepreneurial teams, the scholars conclude that the members of teams that differ in terms of educational and functional backgrounds are more likely to depart. Theoretical explanations for these rather ambiguous team-level outcomes are still scarce since the findings were generated in studies widely differing in terms of study context and theoretical perspective. While negative implications for the departure of team members were generated based on samples of entrepreneurial teams in Sweden and the US (Chandler et al., 2005), positive implications for perceived team performance were found in samples of teams in China (Zhou et al., 2015) and across a multitude of different countries (Foo et al., 2006). The relevance of cultural influences accounting for these findings cannot be ruled out, therefore, but appear less likely given the cultural distances of the samples used (Hofstede, 1983). With regard to the theoretical perspectives applied, positive implications for team performance are, interestingly, examined by drawing on human capital and upper echelons theory (economic lens), while Chandler et al. (2005) draw on the social categorization logic to explain that heterogeneity in these regards reduces social integration which aligns with the social categorization logic.

Firm-level outcomes were primarily associated with positive effects arising from *educational* and *functional diversity* and their outcomes for capital acquisition (Beckman & Burton, 2008; Beckman et al., 2007), evaluations of venture capitalists (Mannor et al., 2019), division of founder equity (Hellmann & Wassermann, 2017), innovation performance (Tzabbar & Margolis, 2017), product adaptation (Furr, 2019), achievement of firm milestones (Beckman & Burton, 2008), and business model design (Zhao et al., 2021), among others. Ambiguous findings are only found with regard to (sales) growth for which three studies found positive outcomes (Eisenhardt & Schoonhoven, 1990; Hmieleski & Ensley, 2007; Vissa & Chacar, 2009), while one study concludes that heterogeneous educational backgrounds and functional experiences have a negative influence on sales growth (Amason et al., 2006). The scholars of that study argue that particularly recently launched ventures struggle with the liability of newness, which implies that the expected negative outcomes of diversity in functional experience outweigh the expected benefits, especially for new ventures that are more likely to face problems with communication and coordination due to their lack of stable communication and coordination structures.

For all the other above-mentioned external diversity dimensions, uniformly positive implications were found for team and firm-level outcomes. Nevertheless, these findings should not be taken for granted as only a maximum of two studies was conducted in relation to each of the examined external diversity dimensions, apart from educational and functional diversity. These studies differ in terms of outcome variables, disciplinary perspectives, and samples. This fragmentation in the overall framing and comparably scarce empirical evidence that was generated for various team and firm-level outcomes hinders the comparability of research findings.

4.3.2. Mediators of entrepreneurial team diversity

A variety of mediators were found to influence the relationship between entrepreneurial team diversity and team as well as firm-level outcomes. Two studies concordantly identified that heterogeneous distributions of certain personality traits, such as *need for achievement* (Khan et al., 2015) and *risk-taking propensity* (Kollmann et al., 2017), tend to be linked to relationship conflicts among team members which

ultimately has negative implications for the perceived team performance.

In terms of external diversity dimensions, the *leadership style* was found to act as a mediator by influencing the implications of educational and functional experience diversity on firm-level outcomes (Hmieleski & Ensley, 2007). It emerged that such heterogeneous teams operating in dynamic industry environments perform best when led by a directive leader that instructs and commands followers to carry out designated tasks. Shared leadership, in contrast, has been proven to act as a mediator that determines the positive implications of managerial skill diversity and perceived team performance for entrepreneurial teams operating in China (Zhou et al., 2015). Regarding the economic performance of a new venture, it has been found that the implications of educational diversity on the innovation performance depend on the *firm's stage of life*, as positive effects are stronger in a start-up's growth stage instead of its early stages (Tzabbar & Margolis, 2017). Positive implications of functional diversity are in turn only positively evaluated by venture capitalists when entrepreneurial teams operate in opportunistic instead of threatening environments in which diversity can more easily become a liability (Mannor et al., 2019). Aven and Hillmann (2018) determined that the positive outcome of diverse brokering abilities on the acquisition of capital is mediated by the *team's average brokering potential*. In addition, Uzuegbunam et al. (2021) reported that a positive relationship between gender diversity and commercialization intent occurs in tight cultures.

4.3.3. Outcomes of entrepreneurial team diversity

The analysis of the identified studies indicates that the outcomes of interest for research on entrepreneurial team diversity can be divided into firm-level and team-level outcomes (cf. Table 2). The majority of studies attempt to determine economic implications for new venture performances (e.g. (de Mol et al., 2019; Eisenhardt & Schoonhoven, 1990; Hart, 2014)), frequently measured through proxies such as (*sales growth, profitability, and market performance* (e.g. (Amason et al., 2006; Beckman & Burton, 2008; Vissa & Chacar, 2009))). In contrast, a small number of studies attempts to gain a more nuanced understanding of the economic implications of entrepreneurial team diversity by analysing outcomes for, respectively, the *acquisition of (venture) capital* (Aven & Hillmann, 2018; Beckman & Burton, 2008; Franke et al., 2008), *innovation performance* (Dai et al., 2019), *strategic orientation* (Chaganti et al., 2008), *achievement of firm milestones* (Beckman & Burton, 2008; Beckman et al., 2007), *product adaptation* (Furr, 2019), *geographic market selection, product market and resource choices* (Fern et al., 2015). Such studies are of particular importance as they seek to explore the specific outcomes of diversity for core entrepreneurial activities influencing venture performance and competitiveness (Klotz et al., 2014; Lazar et al., 2019), especially given that broader performance variables are difficult to measure in the early development phases of new ventures (Baron & Shane, 2005).

Studies focusing on team-level outcomes tend to examine the *perceived performance and effectiveness of entrepreneurial teams* by measuring both objective and, less frequently, subjective assessments, such as team commitment and comprehensiveness (Chowdhury, 2005), team turnover (Chandler et al., 2005; Ucbasaran et al., 2003), perceived team viability (Foo et al., 2006), and group outcomes in terms of the quality of work that has been conducted (Hoogendoorn et al., 2017; Khan et al., 2014; Kollmann et al., 2017; Zhou et al., 2015). Implications for team processes are frequently examined through sociological and psychological lenses and the identified outcomes are largely consistent. This rather homogenous picture might be partly explained by the thorough theoretical grounding of these studies and partly by the fact that literature in this area leaves plenty of room for future research since most outcome variables have been examined only once so far.

4.4. Discussion and future research

The previously presented overview of the status of research on entrepreneurial team diversity reveals a variety of opportunities for future inquiry. Mirroring the structure of the review, the discussion of future research directions is organized in respect of, first, the overall framing of studies, and second, the three components of the IMO framework, respectively, diversity dimensions, their implications, and their mediators.

4.5. Future directions for the overall framing of studies

4.5.1. Disciplinary perspectives on entrepreneurial team diversity

The analysis of disciplinary perspectives that are used to theoretically inform research on the outcomes of ETD indicates several potentials for future research. First, additional theory is required to generate more comprehensive evidence regarding the underlying mechanisms that account for varying implications of diversity among founding team members. This objective can only be achieved through the integration of interdisciplinary perspectives (Lazar et al., 2019), which has been widely neglected within the sample of studies. The need for interdisciplinary perspectives can be illustrated through the aggregation of existing findings that indicates various implications of entrepreneurial team diversity on distinct levels of analysis. In particular, it is found that it affects both *team-level outcomes*, such as intragroup collaborations (Khan et al., 2015; Kollmann et al., 2017), team turnover (Chandler et al., 2005; Ucbasaran et al., 2003), and the perceived effectiveness of the joint team work (Chowdhury, 2005; Foo et al., 2006; Hoogendoorn et al., 2017), as well as *firm-level outcomes*, such as external assessments of investors (Beckman et al., 2007; Franke et al., 2008), innovation performance (Dai et al., 2019; Tzabbar & Margolis, 2017), and strategic choices (Amason et al., 2006; Chaganti et al., 2008; Fern et al., 2015), among others.

It is argued that capturing this complexity of outcomes across levels of analysis requires interdisciplinary perspectives to theoretically inform the various implications of entrepreneurial team diversity on both team and firm-level outcomes as well the interconnection between the two. Existing theoretical advances that are published in isolation from each other fail to fully account for why, for instance, diversity in terms of age and gender is found to have no significant influence on team performance (Chowdhury, 2005), while comparable studies determine significant implications for the economic performance of new ventures (Amason et al., 2006; Dai et al., 2019). Entrepreneurship literature already contains evidence that team and firm-level outcomes are not necessarily aligned (Hmieleski & Corbett, 2008), but literature still lacks theory on the underlying mechanisms that account for differences in the implications of entrepreneurial team diversity for distinct levels of analysis. Key question in this regard include: *Which (integration of) theories are required to explain such underlying mechanisms across levels of analysis? Which (integration of) theories allow to explain possible differences in how these mechanisms influence the implications of distinct diversity dimensions? How can the integration of different theoretical perspectives succeed without endangering their explanatory power through incommensurability?*

Second, besides integrating distinct theoretical perspectives to holistically assess the implications of entrepreneurial team diversity, promising potential is seen to strengthen individual lenses. While literature from sociology and psychology already provides a thorough theoretical grounding that allows to explain varying effects of the distinct effects of entrepreneurial team diversity through the social categorization and informational/decision-making logics, the economic perspective still lacks nuanced explanations for the varying effects. For firm-level outcomes, having identified almost a dozen different variables that have been examined in existing research, it can be argued that a more focused systematization of dependent variables is required to theoretically inform variances in the economic outcomes of

entrepreneurial team diversity. The examination of performance and growth variables undoubtedly provides important indicators for how well entrepreneurial teams perform in economic terms, but relevant data is often difficult to assess, especially for early stage start-ups, for which the developmental progress is more difficult to measure (Klotz et al., 2014). In addition, it neglects the fact that venture performance is determined through how well teams perform core entrepreneurial activities related to the exploration and exploitation of innovation potentials (Baron & Shane, 2005; Shane & Venkataraman, 2000).

To systematize core entrepreneurial activities, we draw on recent work by Sundermeier (2021) who identified four economic activities that entrepreneurial teams need to perform in order to successfully explore and exploit innovation potentials, namely (1) the discovery of innovation, (2) risk management (3) internal coordination, and (4) the identification of arbitrage opportunities. The first two activities comprise all tasks related to the exploration of innovation potentials (Knight, 1921; Schumpeter, 1934), including not only their discovery and protection but also the creation of ‘visionary scenarios that are used to assemble and mobilize a “supporting cast” of participants who become committed to the vision’ (Gupta et al., 2004, p. 242). The exploitation of identified innovation potentials is part of the internal coordination of value-added activities that entrepreneurial teams must perform and requires the efficient allocation of resources for the production process (Cole, 1949; Gartner, 1989). This can only be successful if complemented by sense-making initiatives that guide and motivate team members (Cogliser & Brigham, 2004). Eventually selling the products and services requires the team to stay alert and to identify profit opportunities in different markets (Kirzner, 1973; Mises, 1949).

Using the IMO model for the framing of the systematization of economic implications resulting from entrepreneurial team diversity (Fig. 4), allows to strengthen the explanatory power of the economic lens, thus facilitating theory development in relation to the following questions: *How do different dimensions of team diversity affect the performance of core entrepreneurial activities? How do the outcomes in this regard differ across diversity dimensions? How does the performance of these activities affect team and firm-level outcomes, such as overall venture performance and growth?*

4.5.2. Study contexts

Regarding the contexts in which knowledge on entrepreneurial team diversity is generated, most studies were conducted in technology-oriented industries. This focus is still dominant in entrepreneurship

research and has been recently labelled the ‘Silicon Valley model of entrepreneurship’ (Welter et al., 2017, p. 2). The lack of studies that explicitly compare outcomes of entrepreneurial team diversity across different industries provides interesting avenues for future research. For instance, previous research has found that founders launching ventures in the high-tech industry are comparable in terms of internal and external diversity dimensions (Colombo & Delmastro, 2001). This observation questions the suitability of samples from such industries to holistically examine outcomes of entrepreneurial team diversity, as the extent of diversity dimensions among team members might be limited and considerably greater in other industries (Audretsch et al., 2015). In addition, technology-oriented ventures are often run by entrepreneurs with considerable growth aspirations, even if the actual motives for starting a new venture are much more diverse (Cooper & Artz, 1995). Hence, a broader industry focus would allow to take into consideration the diverse values, motives and other personality dimensions that drive entrepreneurs to start their own ventures (Lazar et al., 2019).

One type of venture in which diversity seems to be particularly prevalent, but which has not yet been examined from this perspective, are social enterprises. These ventures strive to combine both social and commercial institutional logics and, on account of being hybrid organizations with contrasting logics, require different resource requirements, therefore, often experience internal tensions (Battilana & Lee, 2014). For these reasons, social enterprises particularly benefit from a diverse workforce with different team members identifying with either one or both institutional logics. Hence, it may be argued that social enterprises provide a unique context for studying entrepreneurial team diversity and would encourage future research to conduct studies in this domain. Additional theory in this regard would provide the basis for comparing differences in the outcomes of entrepreneurial team diversity across industries and to understand the relevance of environmental characteristics for variances in outcomes. The context is of considerable importance as economic and regulatory systems shape the cultural values and, therefore, influence the performance of core entrepreneurial activities (Welter, 2011).

In sum, the contexts in which studies on entrepreneurial team diversity are examined leaves plenty of room for future research that addresses the following questions: *How do outcomes of entrepreneurial team diversity vary across different industries and what are the underlying mechanisms that account for possible variations? Do social enterprises provide a unique context for studying entrepreneurial diversity and, if so, which diversity dimensions are of relevance to these kinds of ventures, and do their*

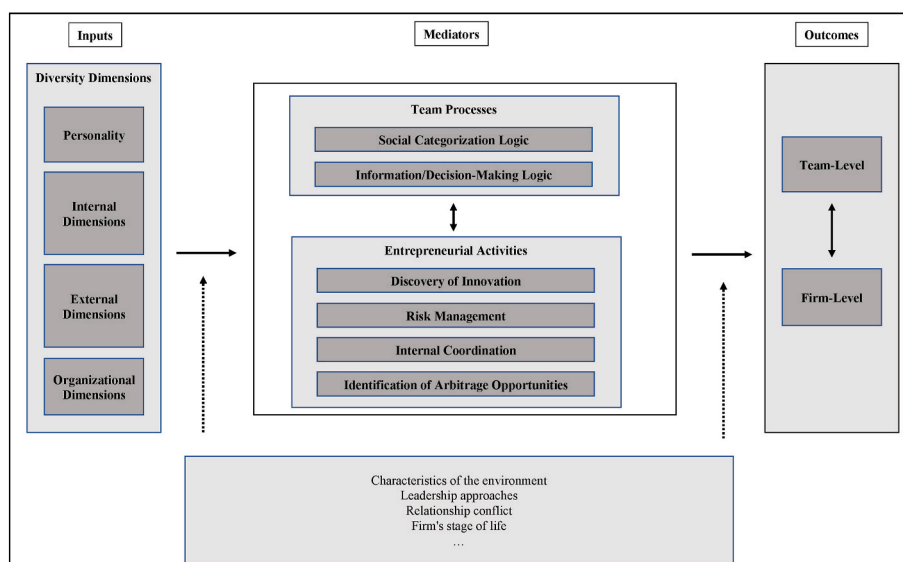


Fig. 4. Framework for future research on entrepreneurial team diversity.

outcomes differ in comparison to technology-oriented ventures? How do cultural dimensions affect the outcomes of entrepreneurial diversity for team and firm-level outcomes?

4.5.3. Methods and analyses

The holistic examination of the implications of entrepreneurial team diversity requires scholars to determine patterns of causality between distinct diversity dimensions and their outcomes for different levels of analysis. To determine such patterns, entrepreneurship scholars have emphasized methodological approaches that allow hypothesis testing. This has become the norm in studies that aim to determine factors that support or inhibit new venture performance and growth (Klotz et al., 2014; Low & Macmillan, 1988). These general trends in entrepreneurship literature explain the pronounced focus on quantitative research designs in the literature on entrepreneurial team diversity. Although these methodological approaches have contributed to the generation of meaningful findings, several gaps have been identified. First, literature to date lacks a longitudinal perspective on the outcomes of entrepreneurial team diversity. Some empirical evidence already indicates that certain diversity dimensions influence team processes and economic outcomes, especially in certain stages of the venture creation process (Amason et al., 2006; Tzabbar & Margolis, 2017). However, concise empirical evidence is still missing. Hence, future research is encouraged to apply methods and analyses that allow to assess the implications of distinct diversity dimensions over time.

Second, it is argued that more mixed-method or pure qualitative approaches would strengthen the explanatory power of the empirical evidence generated. For instance, literature still lacks theory regarding the interplay between team and firm-level outcomes of entrepreneurial diversity. The examination of its implications across different levels of analysis requires different methodological approaches. The main challenge here is the accessibility of data because team processes are generally not public and difficult to observe in all their dimensions. The research designs realized by Chowdhury (2005) and Hart (2014) indicate that interviews can yield rich empirical evidence and provide in-depths insights into team processes. Subjective descriptions of individual team members could be complemented by surveys and objective performance measures to generate a comprehensive picture of how entrepreneurial team diversity affects new venture creation processes over time and across different contexts.

4.6. Future directions of research grouped according to inputs-mediators-outcomes framework

4.6.1. Inputs: dimensions of entrepreneurial team diversity

Most studies in the sample focused on the implications of external diversity dimensions, particularly functional and educational diversity. This research focus is likely to be triggered by the accessibility of relevant data that can often be extracted through publicly available sources, such as LinkedIn. The comparability of research findings in relation to each dimension, however, is hindered due to the fragmentation of evidence in terms of outcomes variables and study contexts from which data are generated, unless cultural and context factors are explicitly taken into consideration.

In addition, some of the diversity dimensions in the conceptual framework of diversity that underpins this study's approach (Gardenswartz & Rowe, 1994, see Fig. 1) have so far been overlooked in research on entrepreneurial team diversity. Among these are, for instance, certain personality traits, sexual orientation, physical abilities, appearances, and parental status. While some of these dimensions may be less salient and more difficult to assess, they have in some instances been proven to be of relevance for venture creation processes (Rauch & Frese, 2007) and thus should not be neglected when aiming to gain a holistic understanding of diversity in entrepreneurial teams. Similarly, literature to date remains silent on the implications of organizational diversity dimensions. Some of these, such as union affiliation, management status,

and seniority, might be of less relevance for new ventures that usually establish only flat hierarchies and governance structures (Ensley et al., 2006; Hmieleski & Ensley, 2007). Nevertheless, these dimensions are gaining importance over time as growing ventures require structures in which teams from different units, functional levels, and responsibility levels.

4.6.1.1. Personality dimensions. Research on personality diversity in entrepreneurial teams has only started to attract scholarly attention around five years ago, although research on personality traits has already a longstanding tradition in entrepreneurship literature (Ensley et al., 2006; Rauch & Frese, 2007). Findings in this regard offer interesting potential to enrich existing evidence on the implications of personality diversity among team members for team and firm-level outcomes. First, prior research has determined that a variety of personality dimensions are particularly prevalent in start-up contexts, but these have not yet been examined from a diversity perspective. For instance, overconfidence, hubris and narcissism are personality traits that are frequently identified with start-up founders as they are seen to support them in their pursuit of seemingly far-fetched plans despite facing high levels of uncertainty, time constraints, and venture failure rates (Hayward et al., 2006; J. Sundermeier et al., 2020). Rather extreme personality traits, however, such as hubris and narcissism, are found to cause interpersonal conflicts (Kollmann et al., 2019). Future research is therefore required to determine *how diversity in terms of personality traits particularly prevalent in start-up contexts affects new venture creation processes*. While perceived team effectiveness might be impeded due to relationship conflicts, there could be positive implications for firm-level outcomes. In particular, it is argued that overconfident and hubristic personalities are often disliked, but their traits are needed to withstand the risk and deal with the uncertainties associated with new venture creation processes (Bollaert & Petit, 2010). Additional evidence is required to answer the question of *how implications of personality dimensions diversity differ for firm and team-level outcomes, and how these effects interact across levels of analysis*.

Second, as indicated above, great potential is seen in examining the interplay between personality diversity on the one hand, and team and firm-level outcomes on the other hand. The social categorization logic provides theoretical explanations for the negative implications of personality diversity for team-level outcomes, but literature still lacks sufficient evidence of how these translate to or interrelate with economic outcomes. In terms of risk management activities, for instance, diversity linked to risk-taking propensity is found to have negative implications for perceived team performance (Kollmann et al., 2017), but questions like *Which kind of risk-taking strategies are implemented by founding teams whose members differ in their risk-taking propensity and which consequences do these strategies have for venture performance?* Remain unanswered. Therefore, it cannot be ruled out that such founding teams ultimately decide to compromise to diversify the risks that need to be taken. Such compromises might not satisfy all members but increase the likelihood that the venture performs well in the long run.

Third, existing research findings on personality diversity in entrepreneurial teams have been generated based on samples that are similar in terms of country and industry focus. Additional evidence in this regard would allow to examine the extent to which cultural and contextual dimensions mediate the relationship between diversity in terms of personality and its hypothetically varying outcomes for team and firm-level outcomes.

4.6.1.2. Internal dimensions. Current evidence on the implications of internal diversity dimensions provides first indications that these have rather complex implications for team-level outcomes that outweigh each other under certain circumstances (Chowdhury, 2005). These circumstances and related mechanisms are, however, not well understood and leave room for future research to answer questions such as: *Under what*

circumstances can positive and negative implications from internal diversity among founding team members outweigh each other, and what mechanisms can help manage this diversity?

In addition, some internal diversity dimensions have not yet been covered in existing research, such as race, sexual orientation, and visible and non-visible abilities/disabilities. Leaving aside the difficulties involved in assessing such dimensions, it may be argued that the sample selection may account for missing evidence on these aspects. In particular, most studies draw on data from entrepreneurial teams operating in the high-tech industry, which have been found to be fairly homogenous in terms of diversity dimensions (Colombo & Delmastro, 2001). Broadening the industry focus in future research might bring under the scholars' radar more diverse entrepreneurial teams and, consequently, generate more holistic evidence.

4.6.1.3. External dimensions. External dimensions of entrepreneurial team diversity have attracted by far the most attention in related literature. Especially findings in relation to functional and educational background diversity are ambiguous and future research is required to determine underlying mechanisms that account for varying effects. The comparison of existing findings indicates that the implications are not necessarily conform across levels of analysis. In particular, diversity in these dimensions seems to increase perceived team performance in ventures that have already reached a certain stage of development. Still, team turnover seems higher in such teams, which leaves room for future inquiry concerning the questions: *Under which circumstances do external diversity dimensions favour team departure despite overall positive assessments of team performance by its members?*

4.7. Mediators of entrepreneurial team diversity

As discussed in the previous subchapters, great potential is seen for the explanatory evidence of existing findings to be strengthened if certain mediating variables are considered. Variables that could be assessed through comparative studies include cultural dimensions identified in entrepreneurial teams from distinct cultural backgrounds and contexts. The inclusion of cultural variables allows to assess whether certain diversity dimensions, such as gender, have more salient implications in certain cultures compared to others (Klotz et al., 2014). Another relevant variable is the development stage of a new venture. Primary evidence indicates that the implications of diversity among team members differ depending on how much the venture has progressed in its development. An examination of this mediator requires longitudinal data which is more difficult to assess but which could be generated using mixed-method approaches, as discussed before.

4.8. Outcomes of entrepreneurial team diversity

Since most studies focus on either team or firm-level outcomes, there is no easy explanation for the inconsistency of findings on the implications of diversity. This impedes the comparability of existing evidence. As already discussed, future research could strengthen the explanatory power of existing studies by examining *how firm and team-level outcomes interrelate*. Such knowledge is of particular importance since existing findings show that the implications for the different levels of analysis are not necessarily aligned (Hmieleski & Corbett, 2008). It is therefore recommended that future research applies methodological approaches that allow to determine the interrelations between the two levels of analysis with a view to identifying the mechanisms that account for variances in the outcomes of diversity dimensions.

To address the limited comparability of research outcomes, particularly with regard to firm-level outcomes, it is suggested to systematically examine implications of team diversity for the performance of core entrepreneurial activities (see Fig. 4), which in turn influence venture performance and growth. This systematization facilitates the

comparability of findings and the determination of correlations between team and firm-level outcomes. Relevant research questions could include, for instance: *Which diversity dimensions affect the discovery of innovation, the management of risks and uncertainties, the coordination of internal processes, and the identification of arbitrage opportunities?*

5. Conclusion

Despite growing rates of publication, this study found that the existing literature on ETD lacks comprehensive evidence to explain the underlying mechanisms that account for the variability of its implications for team and firm-level outcomes. Throughout the paper, existing literature is systematically synthesized and discussed in terms of the implications of its fragmentation, especially regarding the lack of interdisciplinary and comparative studies of entrepreneurial teams drawn from different industries and cultural contexts. In addition, it is suggested that the conceptualization of entrepreneurial diversity should encompass a broader variety of dimensions that have so far been neglected in existing research. Based on these shortcomings, a research agenda is derived that allows to systematically examine the outcomes of entrepreneurial team diversity across different levels of analysis and from different disciplinary perspectives. These avenues for future research are likely to represent only the tip of the iceberg in terms of the full research potential inherent in diversity research. Nonetheless, the proposed agenda can serve as a stimulus for future research and allows for the systematic advancement of theory development on team diversity in the entrepreneurship literature and related research fields.

References

- Amason, A. C., Shrader, R. C., & Tompson, G. H. (2006). Newness and novelty: Relating top management team composition to new venture performance. *Journal of Business Venturing*, 21(1), 125–148.
- Audretsch, D. B., Kuratko, D. F., & Link, A. N. (2015). Making sense of the elusive paradigm of entrepreneurship. *Small Business Economics*, 45(4), 703–712.
- Aven, B., & Hillmann, H. (2018). Structural role complementarity in entrepreneurial teams. *Management Science*, 64(12), 5688–5704.
- Baron, R. A., & Shane, S. A. (2005). Entrepreneurship: A process perspective. In J. R. Baum, M. Frese, & R. A. Baron (Eds.), *The psychology of entrepreneurship* (pp. 19–40). Psychology Press.
- Battilana, J., & Lee, M. (2014). Advancing research on hybrid organizing: Insights from the study of social enterprises. *The Academy of Management Annals*, 8(1), 397–441.
- Beckman, C. M. (2016). The influence of founding team company affiliations on firm behavior. *Academy of Management Journal*, 49(1), 741–758.
- Beckman, C. M., & Burton, M. D. (2008). Founding the future: Path dependence in the evolution of top management teams from founding to IPO. *Organization Science*, 19(1), 3–24.
- Beckman, C. M., Burton, M. D., & O'Reilly, C. (2007). Early teams: The impact of team demography on VC financing and going public. *Journal of Business Venturing*, 22(2), 147–173.
- Bollaert, H., & Petit, V. (2010). Beyond the dark side of executive psychology: Current research and new directions. *European Management Journal*, 28(5), 362–376.
- Carland, J. W., Hoy, F., Boulton, W. R., & Carland, J. A. C. (1984). Differentiating entrepreneurs from small business owners: A conceptualization. *Entrepreneur: Concepts, Theory and Perspective*, 9(2), 354–359.
- Chaganti, R., Raj, S., Watts, A. D., Chaganti, R., & Zimmerman-Treichel, M. (2008). Ethnic-immigrants in founding teams: Effects on prospector strategy and performance in new Internet ventures. *Journal of Business Venturing*, 23(1), 113–139.
- Chandler, G. N., Honig, B., & Wiklund, J. (2005). Antecedents, moderators, and performance consequences of membership change in new venture teams. *Journal of Business Venturing*, 20(5), 705–725.
- Chowdhury, S. (2005). Demographic diversity for building an effective entrepreneurial team: Is it important? *Journal of Business Venturing*, 20(6), 727–746.
- Clarke, M., & Oxman, A. D. (2001). *Cochrane reviewers' handbook*. Cochrane Library.
- Cogliser, C. C., & Brigham, K. H. (2004). The intersection of leadership and entrepreneurship: Mutual lessons to be learned. *The Leadership Quarterly*, 15(6), 771–799.
- Cole, A. (1949). Entrepreneurship and entrepreneurial history: The institutional setting. In Harvard University (Ed.), *Change and the entrepreneur: Postulates and the patterns for entrepreneurial history* (pp. 85–107). Harvard University Press.
- Colombo, M. G., & Delmastro, M. (2001). Technology-based entrepreneurs: Does internet make a difference? *Small Business Economics*, 16(3), 177–190.
- Cooper, A. C., & Artz, K. W. (1995). Determinants of satisfaction for entrepreneurs. *Journal of Business Venturing*, 10(6), 439–457.
- Dai, Y., Byun, G., & Ding, F. (2019). The direct and indirect impact of gender diversity in new venture teams on innovation performance. In *Entrepreneurship theory and Practice* (in press).

- Eisenhardt, K. M., & Schoonhoven, C. B. (1990). Organizational growth: Linking founding team, strategy, environment, and growth among U.S. semiconductor ventures, 1978-1988. *Administrative Science Quarterly*, 35(3), 504–529.
- Ensley, M. D., Pearce, C. L., & Hmieleski, K. M. (2006). The moderating effect of environmental dynamism on the relationship between entrepreneur leadership behavior and new venture performance. *Journal of Business Venturing*, 21(2), 243–263.
- Fern, M. J., Cardinal, L. B., & O'Neill, H. M. (2015). The genesis of strategy in new ventures: Escaping the constraints of founder and team knowledge. *Strategic Management Journal*, 127(1), 12–13.
- Foo, M. Der, Sin, H. P., & Yiong, L. P. (2006). Effects of team inputs and intrateam processes on perceptions of team viability and member satisfaction in nascent ventures. *Strategic Management Journal*, 27(4), 389–399.
- Franke, N., Gruber, M., Harhoff, D., & Henkel, J. (2008). Venture capitalists' evaluations of start-up teams: Trade-offs, knock-out criteria, and the impact of VC experience. *Entrepreneurship: Theory and Practice*, 32(3), 459–483.
- Fuel, P., Pardo-del-Val, M., & Revuelto-Taboada, L. (2021). Does the ideal entrepreneurial team exist? *The International Entrepreneurship and Management Journal*, 1–27.
- Furr, N. R. (2019). Product adaptation during new industry emergence: The role of start-up team preentry experience. *Organization Science*, 30(5), 1076–1096.
- Gardenswartz, L., & Rowe, A. (1994). *Diverse teams at work: Capitalizing on the power of diversity*. Irwin Professional Publishing.
- Gartner, W. B. (1989). Who is an entrepreneur? Is the wrong question. *Entrepreneurship: Theory and Practice*, 12(4), 11–32.
- Gilal, F. G., Paul, J., Gilal, N. G., & Gilal, R. G. (2021). *The role of organismic integration theory in marketing science*. forthcoming: European Management Journal.
- Gupta, V., MacMillan, I. C., & Surie, G. (2004). Entrepreneurial leadership: Developing and measuring a cross-cultural construct. *Journal of Business Venturing*, 19(2), 241–260.
- Harrison, D. A., & Klein, K. J. (2007). What's the difference? Diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review*, 32(4), 1199–1228.
- Hart, D. M. (2014). Founder nativity, founding team formation, and firm performance in the U.S. high-tech sector. *The International Entrepreneurship and Management Journal*, 10(1), 1–22.
- Hayward, M. L. A., Shepherd, D. A., & Griffin, D. (2006). A hubris theory of entrepreneurship. *Management Science*, 52(2), 160–172.
- Hellmann, T., & Wassermann, N. (2017). The first deal: The division of founder equity in new ventures. *Management Science*, 63(8), 2647–2666.
- Hmieleski, K. M., & Corbett, A. C. (2008). The contrasting interaction effects of improvisational behavior with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *Journal of Business Venturing*, 23(4), 482–496.
- Hmieleski, K. M., & Ensley, M. D. (2007). A contextual examination of new venture performance: Entrepreneur leadership behavior, top management team heterogeneity, and environmental dynamism. *Journal of Organizational Behavior*, 28(7), 865–889.
- Hofstede, G. (1983). National cultures in four dimensions: A research-based theory of cultural differences among nations. *International Studies of Management & Organization*, 8(1–2), 46–74.
- Honoré, F. (2022). Joining forces: How can founding members' prior experience variety and shared experience increase startup survival? *Academy of Management Journal*, 65(1), 248–272.
- Hoogendoorn, S., Parker, S. C., & van Praag, M. (2017). Smart or diverse start-up teams? Evidence from a field experiment. *Organization Science*, 28(6), 1010–1028.
- Jin, L., Madison, K., Krafczy, N. D., Kellermanns, F. W., Crook, T. R., & Xi, J. (2017). Entrepreneurial team composition characteristics and new venture performance: A meta-analysis. *Entrepreneurship: Theory and Practice*, 41(5), 743–771.
- Khan, M. S., Breitenacker, R. J., & Schwarz, E. J. (2014). Entrepreneurial team locus of control: Diversity and trust. *Management Decision*, 52(6), 1057–1081.
- Khan, M. S., Breitenacker, R. J., & Schwarz, E. J. (2015). Adding fuel to the fire: Need for achievement diversity and relationship conflict in entrepreneurial teams. *Management Decision*, 53(1), 75–99.
- Kier, A. S., & McMullen, J. S. (2020). Entrepreneurial imaginativeness and new venture ideation in newly forming teams. *Journal of Business Venturing*, 35(6), 106–148.
- Kim, J., & Song, C. (2020). The relationship between R&D team diversity and team creativity. *Management Decision*, 59(2), 175–189.
- Kirschenhofer, F., & Lechner, C. (2012). Performance drivers of serial entrepreneurs: Entrepreneurial and team experience. *International Journal of Entrepreneurial Behaviour & Research*, 18(3), 305–329.
- Kirzner, I. (1973). *Competition and entrepreneurship*. University Press.
- Klotz, A. C., Hmieleski, K. M., Bradley, B. H., & Busenitz, L. W. (2014). New venture teams: A review of the literature and roadmap for future research. *Journal of Management*, 40(1), 226–255.
- Knight, H. (1921). *Risk, uncertainty and profit*. Dover Publications.
- Kollmann, T., Stöckmann, C., & Linstaedt, J. W. (2019). Task conflict, narcissism and entrepreneurial capability in teams planning a business: A moderated moderation approach to explaining business planning performance. *Journal of Small Business Management*, 57(4), 1399–1423.
- Kollmann, T., Stöckmann, C., Meves, Y., & Kensbock, J. M. (2017). When members of entrepreneurial teams differ: Linking diversity in individual-level entrepreneurial orientation to team performance. *Small Business Economics*, 48(4), 843–859.
- Ko, E. J., Wiklund, J., & Pollack, J. M. (2021). Entrepreneurial team diversity and productivity: The role of family relationships in nascent ventures. *Entrepreneurship: Theory and Practice*, 45(2), 386–417.
- Lazar, M., Miron-Spektor, E., Agarwal, R., Erez, M., Goldfarb, B., & Chen, G. (2019). *Entrepreneurial team formation*. Forthcoming: Academy of Management Annals.
- Leidner, D. E. (2018). Review and theory symbiosis: An introspective retrospective. *Journal of the Association for Information Systems*, 19(6), 552–567.
- Lix, K., Goldberg, A., Srivastava, S. B., & Valentine, M. A. (2022). *Aligning differences: Discursive diversity and team performance*. forthcoming: Management Science.
- Low, M. B., & Macmillan, I. C. (1988). Entrepreneurship: Past research and future challenges. *Journal of Management*, 14(2), 139–161.
- Luksyte, A., Avery, D. R., Parker, S. K., Wang, Y., Johnson, L. U., & Crepeau, L. (2021). Age diversity in teams: Examining the impact of the least agreeable member. *Journal of Organizational Behavior*, 43(3), 546–565.
- Mannor, M. J., Matta, F. K., Block, E. S., Steinbach, A. L., & Davis, J. H. (2019). A liability of breadth? The conflicting influences of experiential breadth on perceptions of founding teams. *Journal of Management*, 45(4), 1540–1568.
- Marvel, M. R., Davis, J. L., & Sproul, C. R. (2016). Human capital and entrepreneurship research: A critical review and future directions. *Entrepreneurship: Theory and Practice*, 40(3), 599–626.
- Mathieu, J., Maynard, T. M., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997–2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, 34(3), 410–476.
- McGee, J. E., Dowling, M. J., & Megginson, W. L. (1995). Cooperative strategy and new venture performance: The role of business strategy and management experience. *Strategic Management Journal*, 16(7), 565–580.
- McGrath, J. E. (1964). *Social psychology: A brief introduction*. Holt, Rinehart & Winston of Canada Ltd.
- McKelvie, A., & Wiklund, J. (2010). Advancing firm growth research: A focus on growth mode instead of growth rate. *Entrepreneurship: Theory and Practice*, 34(2), 261–288.
- Mises, L. V. (1949). Human action. In *A treatise on economics*. William Hodge & Company.
- de Mol, E., Cardon, M. S., de Jong, B., Khapova, S. N., & Elfring, T. (2019). Entrepreneurial passion diversity in new venture teams: An empirical examination of short- and long-term performance implications. *Journal of Business Venturing* (in press).
- Moog, P., & Soost, C. (2020). Does team diversity really matter? The connection between networks, access to financial resources, and performance in the context of university spin-offs. *Small Business Economics*, 58(1), 323–351.
- O'Reilly, C. A., Caldwell, D. F., & Barnett, W. P. (1989). Work group demography, social integration, and turnover. *Administrative Science Quarterly*, 34(1), 21–37.
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101–117.
- Paul, J., Lim, W. M., O'Casey, A., Hao, A. W., & Bresciani, S. (2021). Scientific procedures and rationales for systematic literature reviews. *International Journal of Consumer Studies*, 45(4), 01–016.
- Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work & Organizational Psychology*, 16(4), 353–385.
- Reynolds, K. J., & Turner, J. C. (2006). Individuality and the prejudiced personality. *European Review of Social Psychology*, 17(1), 233–270.
- Sardana, D., & Scott-Kemmis, D. (2010). Who learns what? - a study based on entrepreneurs from biotechnology new ventures. *Journal of Small Business Management*, 48(3), 441–468.
- Schoss, S., Urbig, D., Brettel, M., & Mauer, R. (2020). Deep-level diversity in entrepreneurial teams and the mediating role of conflicts on team efficacy and satisfaction. *The International Entrepreneurship and Management Journal*, 18(1), 1173–1203.
- Schumpeter, J. (1934). *The theory of economic development*. Harvard University Press.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Shye, S. (1978). Achievement motive: A faceted definition and structural analysis. *Multivariate Behavioral Research*, 13(3), 327–346.
- Steffens, P., Terjesen, S., & Davidsson, P. (2012). Birds of a feather get lost together: New venture team composition and performance. *Small Business Economics*, 39(1), 727–743.
- Sundermeier, J. (2021). *Toward a comprehensive perspective on hubristic leadership: An aggregation of cross-disciplinary evidence and roadmap for future research*. forthcoming: European Management Journal.
- Sundermeier, Birkner, S., Ettl, K., Kensbock, J., & Tegtmeyer, S. (2020a). *Hello Diversity! Opportunities and challenges of entrepreneurial diversity in the digital age*. forthcoming: Communications of the Association for Information Systems.
- Sundermeier, J., Gersch, M., & Freiling, J. (2020b). Hubristic start-up founders: The neglected bright and inevitable dark manifestations of hubristic leadership in new venture creation processes. *Journal of Management Studies*, 57(5), 1037–1067.
- Tajfel, H., & Turner, J. (1986). The social identity of intergroup behavior. In W. A. S. Worchel (Ed.), *Psychology and intergroup relations*. Nelsen-Hall.
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14, 207–222.
- Tzabbar, D., & Margolis, J. (2017). Beyond the startup stage: The founding team's human capital, new venture's stage of life, founder-CEO duality, and breakthrough innovation. *Organization Science*, 28(5), 857–872.
- Ucbasaran, D., Lockett, A., Wright, M., & Westhead, P. (2003). Entrepreneurial founder teams: Factors associated with member entry and exit. *Entrepreneurship: Theory and Practice*, 28(2), 107–128.
- Uzuegbunam, I., Pathak, S., Taylor-Bianco, A., & Ofem, B. (2021). How cultural tightness interacts with gender in founding teams: Insights from the commercialization of social ventures. *Journal of Business Venturing*, 36(4), 106–127.

- Van Knippenberg, D., De Dreu, C. K. W., & Homan, A. C. (2004). Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology, 89*(6), 1008–1022.
- Van Knippenberg, D., & Schippers, M. C. (2007). Work group diversity. *Annual Review of Psychology, 58*(1), 515–541.
- Vissa, B., & Chacar, A. S. (2009). Leveraging ties: The contingent value of entrepreneurial teams' external advice networks on Indian software venture performance. *Strategic Management Journal, 30*(11), 1179–1191.
- Welter, F. (2011). Contextualizing entrepreneurship: Conceptual challenges and ways forward. *Entrepreneurship: Theory and Practice, 35*(1), 165–184.
- Welter, F., Baker, T., Audretsch, D. B., & Gartner, W. B. (2017). Everyday entrepreneurship: A call for entrepreneurship research to embrace entrepreneurial diversity. *Entrepreneurship: Theory and Practice, 41*(3), 311–321.
- West, G. P. (2007). Collective cognition: When entrepreneurial teams, not individuals, make decisions. *Entrepreneurship: Theory and Practice, 31*(1), 77–102.
- Xie, X. Y., Feng, W., & Hu, Q. (2020). Does new venture team power hierarchy enhance or impair new venture performance? A contingency perspective. *Journal of Business Venturing, 35*(6), 125–148.
- Zhao, J., Huang, Y., Xi, X., & Wang, S. (2021). How knowledge heterogeneity influences business model design: Mediating effects of strategic learning and bricolage. *The International Entrepreneurship and Management Journal, 17*(2), 889–919.
- Zhou, W., Hu, H., & Zey, M. (2015). Team composition of new venture founding teams: Does personality matter? *International Journal of Entrepreneurial Behaviour & Research, 21*(5), 673–689.