

The Impact of Psychological Micro-Foundations on Entrepreneurship Research

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vorgelegt von
M. Sc. Ann-Christin Grözinger

Erstgutachterin:	Prof. Dr. Petra Moog
Zweitgutachter:	Prof. Dr. Arndt Werner
Drittgutachter:	Prof. Dr. David B. Audretsch
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Abstract

This dissertation explores the integration of psychological micro-foundations in entrepreneurship research for the first time, focusing on the affective, cognitive, and behavioral dimensions that influence entrepreneurial behavior and success. The concept of psychological micro-foundations, stemming from strategic management literature, refers to the psychological aspects of humans that drive organizational phenomena. Central to this investigation is the notion that understanding the psychological components at the individual and collective levels can provide valuable insights into the complexities of entrepreneurship beyond the traditional focus on economic outcomes.

The dissertation is structured around three studies that examine the role of Psychological Capital and Organizational Psychological Capital (PsyCap) among small and medium-sized enterprises (SMEs) during crisis scenarios, particularly the COVID-19 pandemic, and the conceptualization of the Mittelstand Mindset.

The first study assesses the impact of SME leaders' PsyCap on strategic decision-making and company performance during a crisis. Findings suggest that higher levels of PsyCap correlate with a preference for investment measures over cost-cutting measures, highlighting the influence of psychological micro-foundations on strategic choices and business outcomes.

The second study extends the analysis to the collective level, investigating the effects of Organizational Psychological Capital (OPC) on SME performance during the pandemic. Results indicate that OPC enhances economic performance and fosters creative innovation and socially valuable behaviors such as organizational citizenship, cooperation, and solidarity. This underscores the significant role of collective psychological micro-foundations in navigating business crises and promoting a resilient organizational culture.

The third paper conceptualizes the 'Mittelstand Mindset,' a unique psychological orientation that defines certain German companies known for moderate growth and significant contributions to economic stability. This study utilizes qualitative analysis to delineate the cognitive, affective, and behavioral elements of the Mittelstand Mindset, proposing it as a model of entrepreneurship that prioritizes long-term sustainability and social responsibility over rapid scaling.

Synthesizing these studies, the dissertation underscores the importance of psychological micro-foundations in understanding and enhancing entrepreneurial performance. It demonstrates how affective, cognitive, and behavioral dimensions interact and influence entrepreneurial activities, suggesting that these foundations can serve as crucial tools for navigating complex and challenging business environments. Overall, this research contributes to entrepreneurship theory by highlighting the value of psychological insights in understanding the dynamics of entrepreneurial behavior. It calls for a broader incorporation of psychological micro-foundations in entrepreneurship research, advocating for a multi-level approach that recognizes the interplay between individual factors, collective resources, and business outcomes. This perspective enriches academic discussions and offers practical implications for enhancing entrepreneurial effectiveness and resilience in various economic contexts.

Acknowledgments

Early on in my journey of pursuing my Ph.D., a wise man asked me: What do you think is more important, the journey or the destination? I didn't have to really think about my answer, as I had always known that for me, this pursuit was never about the destination. It was about the journey—the curiosity, the growth, the personal evolution. So, without hesitation, I answered confidently: "Of course, the journey." He smiled, amused that he had led me astray, and gently corrected me: "Kiki, it's the people you go with."

Though this wise man had borrowed the question from James Norbury¹ (and as a side note, those who know him will likely smile, knowing he often 'borrows' big words from great minds, perhaps in a modest attempt to downplay his brilliance—but that's a story for another time), those words became the profound truth of my journey.

So, this section is dedicated to celebrating the people who walked beside me on this path—the ones with whom I shared the bright, sunny moments, but more importantly, those who sat with me in the rain.

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¹ James Norbury is a writer and illustrator. The mentioned quote can be found in his book "*Big panda and tiny dragon*" (Norbury, 2021).

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List of Abbreviations

APA	American Psychological Association
AVE	Average Variance Extracted
BCa	Bias-Corrected and Accelerated
CFI	Comparative Fit Index
COVID-19	Coronavirus Disease 2019
CRM	Customer Relationship Management
df	Degrees of Freedom
ed./eds.	Editor/s
e.g.	Exempli Gratia (for Example)
EM	Entrepreneurial Mindset
et al.	Et alii (and others)
etc.	Et Cetera (and so forth)
EU	European Union
f	F-Value
f ²	Cohen's f ² Effect Size
H	Hypothesis
HR	Human Resources
i.e.	Id Est (that is)
IfM Bonn	Institut für Mittelstandsforschung Bonn (Institute for SME Research Bonn)
LMX	Leader-Member Exchange
M	Model
Max	Maximum
Min	Minimum
N	Sample Size
OB	Organizational Behavior

OCB	Organizational Citizenship Behavior
OLS	Ordinary Least Squares
OPC	Organizational Psychological Capital
p.	Page
p(-value)	Probability Value
PCQ	Psychological Capital Questionnaire
PLS-SEM	Partial Least Squares Structural Equation Modeling
POB	Positive Organizational Behavior
PsyCap	Psychological Capital
q ²	Stone-Geisser Q-Squared
RBV	Resource-Based View
RBT	Resource-Based Theory
RMSEA	Root Mean Square Error of Approximation
R ²	Coefficient of Determination
SD	Standard Deviation
SDGs	Sustainable Development Goals
SME	Small and Medium-Sized Enterprise
SMEs	Small and Medium-Sized Enterprises
SRMR	Standardized Root Mean Square Residual
t(-values)	Test Statistics Value
TLI	Tucker Lewis Index
VIF	Variance Inflation Factor
vs.	Versus
WHO	World Health Organization

1 Introduction

In his article *“Who is an Entrepreneur is the wrong question”*, which today is possibly one of the classics of contemporary entrepreneurship literature of our time, William Gartner (1988) raises the question of whether the field has become too hung up on the question of what characteristics make an entrepreneur. Back then, *“Entrepreneurs were largely viewed as being born and not made”* (Audretsch, 2023, p. 496). We now know that the model type of entrepreneur does not exist (Moog, 2004), and that probably no specific character traits make up an entrepreneur. Instead, we know that there is variety among entrepreneurs, which can lead to the development of entrepreneurial agency - or not, due to a complex interplay of internal and external factors within a person (McMullen et al., 2021). Gartner's (1988) article paved the way for research into what types of entrepreneurship we observe (Dilli et al., 2018; Herrmann, 2019; Kuratko & Audretsch, 2022), how context shapes these types (Welter, 2011; Zahra, 2007), and that being entrepreneurial can be taught to people (Katz, 2003; Kuratko, 2005; Solomon & Fernald, 1991). However, the discussion of different types of entrepreneurship is not without its criticism. In their article, McMullen et al. (2021) discuss how this view leads to fragmentation and silo development within the entrepreneurship research community, how the silos are moving away from each other, and the question of whether contextualization is the only answer to the question of what constitutes entrepreneurship.

Regardless of which perspective one takes on the topic, the discussion certainly highlights one point: Entrepreneurship research continues to focus on its core, namely the understanding of the entire entrepreneurial process, including individual driving factors (Bull & Willard, 1993; Gartner, 2001). One thing that is undoubtedly indisputable in this discussion is that entrepreneurs worldwide have one thing in common: They are human beings. Broad entrepreneurship literature has a long history of putting the individual at the center of analysis (Rauch & Frese, 2007), as entrepreneurship at its core is a human-centered activity (Shane & Venkataraman, 2000). Thus, entrepreneurs are people who comprise complex psychological dynamics consisting of an interplay of cognitive, affective, and behavioral elements (Andersen & Chen, 2002; Dweck & Leggett, 1988; Fishbein, 1966). Although these are not the same in every individual entrepreneur in terms of their manifestations, they are the same in that these imprints and inner

resources influence people and their actions. This realization leaves no doubt that psychological research in entrepreneurship can make a fundamental contribution to better understanding entrepreneurial action on various levels and, in doing so, helps to explain what makes entrepreneurs and their businesses successful (Audretsch, 2023; Daspit et al., 2023).

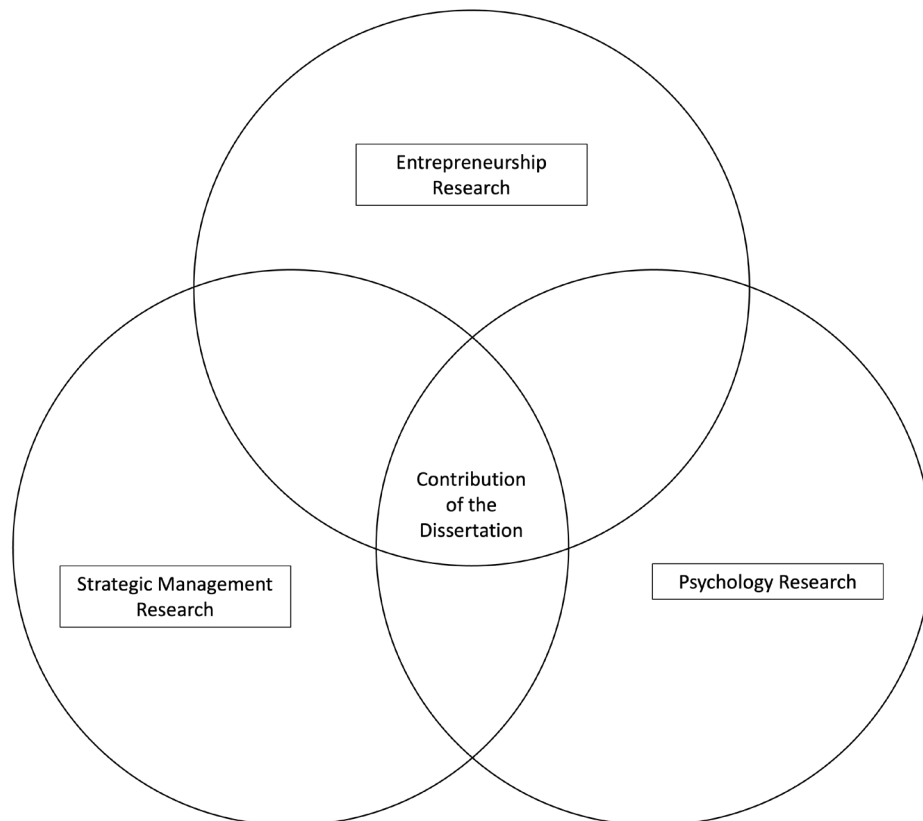
However, the psychology of entrepreneurship is still a fragmented research stream, as the systematic literature review by Gorgievski & Stephan (2016) shows. In the article, the authors find that past research in this area has focused primarily on how the careers of entrepreneurs evolve over time, as well as on understanding the personality traits of these entrepreneurs. In the area Gorgievski & Stephan (2016) call “cognitions and behavior”, which deals with aspects of the human mind that influence behavior, comparatively little research has been done to date. In addition to the cognitive and behavioral aspects, the core psychology literature also deals with the human psyche's affective elements (i.e., emotions, etc.) (Barrett & Bliss-Moreau, 2009). In most cases, outcomes arise from a complex interplay of cognition, affect, and behavior, which has been discussed in psychological research since the 1960s (Fishbein, 1966). This dissertation adopts the perspective that there is potential for research in the field of entrepreneurship, as the characteristics investigated are generally less stable throughout a lifetime than personality traits and are therefore subject to change but also, and this is particularly intriguing, belong to the malleable aspects of the human psychological system (Dweck, 2008, 2017; Luthans, Avolio, et al., 2007).

In summary, cognition, affect, and behavior constitute psychological micro-foundations underpinning human action, significantly impacting organizational phenomena. Thus, psychological micro-foundations refer to the individual-level psychological factors—such as cognition, emotions, motivations, and behaviors—that collectively underlie and drive broader organizational or economic outcomes (Barney & Felin, 2013; Felin & Foss, 2019; Guerras-Martín et al., 2014; Molina-Azorín, 2014; Ployhart & Hale, 2014). While there is a growing body of literature on the role of psychological micro-foundations in management (Ployhart & Hale, 2014), there is a need for more research on the specific mechanisms through which these micro-foundations influence entrepreneurial outcomes. Despite their foundational role, holistic exploration of psychological micro-foundations

contribution to entrepreneurship research remains largely unexplored. Consequently, this dissertation introduces the overarching research question:

“How can psychological micro-foundations that address the relationships between cognition, affect, and behavior be integrated into entrepreneurship research?”

Figure 1. Conceptual Contribution of the Dissertation.



Source: Own illustration.

This dissertation looks at this question from various viewpoints and on different levels of analysis to grasp the potential those micro-foundations might hold for entrepreneurs, their ventures, and the broad society. Thus, as shown in Figure 1 this dissertation aims to extend the theoretical concept of psychological micro-foundations (Barney & Felin, 2013), rooted in strategic management, by further developing it based on psychological literature, particularly focusing on affective, cognitive, and behavioral dimensions (Phan & Wright, 2018). It provides a meaningful contribution to entrepreneurship theory by integrating the concept of psychological micro-foundations for the first time. By applying this refined conceptual framework to entrepreneurship research, the dissertation seeks

to explore its potential value across multiple levels of analysis—micro, meso, and macro (Hitt et al., 2007).

In addition to the conceptual elaboration, this is addressed through three individual studies, each testing the potential psychological micro-foundations - such as Psychological Capital (PsyCap) (Luthans & Youssef, 2007), Organizational Psychological Capital (OPC) (McKenny et al., 2013), and the Mittelstand Mindset (as a manifestation of the Entrepreneurial Mindset (EM) (Kuratko et al., 2021)) - on their impact across different levels of analysis. Through this approach, the dissertation provides a more nuanced understanding of how psychological micro-foundations can enrich the study of entrepreneurial behavior and organizational dynamics. Additionally, it explores the pivotal role of various manifestations of psychological micro-foundations as both individual and collective psychological factors. The dissertation shows how those psychological micro-foundations influence entrepreneurial outcomes, thereby arguing for a psychological perspective alongside external factors in entrepreneurship theories. Highlighting psychological micro-foundations dynamic nature, the research underscores their potential for development and strategic advantage (Ployhart, 2012), expanding the discussion in entrepreneurship literature to include these as foundational tools that can evolve (Dweck, 2008, 2017; Luthans & Youssef-Morgan, 2017). Furthermore, by exploring psychological micro-foundations in crisis management and conceptualizing the Mittelstand Mindset for the first time, the dissertation provides novel insights into how psychological aspects underpin entrepreneurial success and societal contributions, advocating for a multidimensional approach to understanding and fostering entrepreneurship.

The remainder of the dissertation is structured as follows: Chapter 1 lays the theoretical and conceptual groundwork to address the research question of how psychological micro-foundations can be incorporated into entrepreneurship research. This begins by establishing and defining entrepreneurship as a distinct field of study and a definition of entrepreneurship. Subsequently, the concept of (psychological) micro-foundations, which stems from strategic management literature, is introduced and elaborated. In the next step, the three central psychological micro-foundations examined in the studies of this dissertation - PsyCap, OPC, EM - are introduced and defined. Each subchapter provides a short historical context of the individual psychological micro-foundation and a literature

review of the concepts in the psychological literature as well as in management and/or entrepreneurship literature. Chapter 3 introduces and details the conceptual model that underpins the entire dissertation, illustrating how psychological micro-foundations integrate affective, cognitive, and behavioral dimensions to influence entrepreneurial activities and outcomes. Thereby, Chapter 3 sets the stage for the following empirical investigations, outlining the theoretical framework that guides the analysis in subsequent chapters.

Subsequently, the three studies, which form the dissertation's core, are presented in Chapters 4 to 6. Each chapter is structured to begin with an introduction to the study, followed by a detailed theoretical background. The method section describes the empirical approach and data collection procedures, followed by a results section analyzing the findings. Each study concludes by discussing the implications, limitations, and future research directions. Chapter 7 synthesizes the findings from the empirical studies, offering a comprehensive summary that underscores the impact of psychological micro-foundations on entrepreneurship. It discusses theoretical implications and practical applications, identifies the limitations of the dissertation, and suggests avenues for future studies, thereby positioning the dissertation's contributions within the broader field of entrepreneurship research.

Table 1. Integrated Studies.

Authorship	Research Gap	Main Theoretical Concepts	Methodology and Sample	Publication Status	Contribution
Paper 1. The impact of SME leader's psychological capital on strategic responses during crisis					
Grözinger, Ann-Christin Wolff, Sven Ruf, Philipp Julian Audretsch, David Moog, Petra	Influence of SME leader's PsyCap on strategic orientation and performance	Individual resource-based theory, micro-foundations, positive psychology	Quantitative, 372 SMEs, Germany, OLS regression analysis	Published in Business Research Quarterly in 2023: https://doi.org/10.1177/23409444231184481	Theory and conceptual development, data collection, analysis, and writing
Paper 2. The power of shared positivity: organizational psychological capital and firm performance during exogenous crises.					
Grözinger, Ann-Christin Wolff, Sven Ruf, Philipp Julian Moog, Petra	Influence of OPC on performance during crisis	Resource-based approach, positive psychology	Quantitative, 379 SMEs, Germany, OLS regression analysis, factor analysis	Published in Small Business Economics Journal in 2021: https://doi.org/10.1007/s11187-021-00506-4	Theory and conceptual development, data collection, analysis, and writing
Paper 3: The Mittelstand Mindset: Unpacking the Intangible Core of Germany's Economic Backbone					
Grözinger, Ann-Christin Becker, Felix Rudolf Moog, Petra Kuratko, Donald Audretsch, David	Conceptualizing Mittelstand Mindset	Entrepreneurial Mindset	Qualitative, 64 case studies, 17 research articles Germany, Semi-structured interviews	Currently under review. Presented at: Academy of Management 2023	Theory and conceptual development, data collection, analysis, and writing

Source: Own representation.

2 Theoretical Background

2.1 Defining and Understanding Entrepreneurship Research

“The term “entrepreneurship” apparently means different things to different people including scholars and thought leaders in business and policy alike.”

(Audretsch et al., 2015, p. 704)

The roots of the entrepreneurship studies field date back to Richard Cantillon's (1755) writings in his published work *“Essai sur la nature du commerce en general”*. Even though the word entrepreneur has been used in French since the 12th century, Cantillon's writing gave the entrepreneur its economic meaning. Back then, the word was used for a heroic figure who undertook warlike and violent activities and would risk his life. Later in the 17th century, the word was used for people who took risks in their activities (Landström, 1999). In the late 19th and early 20th century, some of the great thinkers in economics dealt with the entrepreneur: Schumpeter (1912) established the entrepreneur as a driving force for economic development, in that they challenge the status quo with innovation, while Knight (1921) defined the entrepreneur as someone that is able to manage uncertainty. In contrast, Baumol(1968) made a case to embed the entrepreneur and his work into mainstream economic theory, as in his view, the entrepreneur was absent in those considerations at the time. In addition, Kirzner (1973) described the entrepreneur's alertness and, thus, his potential to recognize unseen opportunities. However, the actual birth and establishment of the field of entrepreneurship can probably be traced back to the 1990s (Cornelius et al., 2006). As Meyer et al. (2014) show, scientific publications increased sharply from the early 1990s. Today, researchers agree that entrepreneurship has achieved scientific legitimacy as a field of study (Wiklund et al., 2011). However, the field is still grappling with the question of how entrepreneurship can be defined.

Due to the highly interdisciplinary nature of the field, a simple answer to the definition of entrepreneurship is probably almost impossible. *“For example, economics, business, management, psychology and sociology scholars have all contributed definitions to the entrepreneurship literature, each from the perspectives of the varying ontological paradigms that underlie these different disciplines”* (Prince et al., 2021, p. 27). These different conceptualizations of entrepreneurship lead to varying assumptions as well as different units and levels of analysis, depending on the discipline, viewpoint, or the

individual goal of the study: For example, in some studies, entrepreneurship is analyzed at the individual level (micro-level), in others at the firm level (meso-level) (Rocha & Birkinshaw, 2006) and more recently also an ecosystem level (macro-level) (Stam & Van De Ven, 2021). In addition to these different understandings and levels of analysis, some researchers see entrepreneurship as opportunity recognition and new value creation, often through innovation (Hébert & Link, 2006; Shane & Venkataraman, 2000) and thus from a behavioral perspective (Prince et al., 2021), regardless the level of analysis. While the majority of those studies might be rooted in the “core” of the field of entrepreneurship and aim at understanding the entrepreneurial process (i.e., focusing on the takeaways for entrepreneurs), there might be studies that consider the phenomenon from a broader perspective like economics or sociology (i.e. aiming at the takeaways for economic and societal development as well as policy): Such studies suggest that entrepreneurship influences the overall economic development (Carree & Thurik, 2010) or might be a stabilizing force for democracy (Audretsch & Moog, 2022). To complicate matters further, the phenomenon of entrepreneurship is heavily dependent on (social) contexts (Baker & Welter, 2017; Zahra, 2007) and, therefore, the structural, institutional, and cultural realities (Berger & Luckmann, 1966) of the respective entrepreneurs. This short discussion highlights the challenge of defining entrepreneurship through its interdisciplinary nature. It suggests that entrepreneurship should be seen as a broad and overarching concept that can be interpreted from very different points of view. Thus, it demands a thorough explanation of the viewpoint a given study takes.

Considering the discussion in the literature on the definition of entrepreneurship, one can recognize that there are probably two opposing views. The first view in which the seminal work of Shane & Venkataraman (2000), *“The Promise of Entrepreneurship as a Field of Research,”* must be acknowledged. This influential article has more than 23,000 citations, according to Google Scholar (October 7th, 2024), underscoring its pivotal role in shaping scholarly discourse in entrepreneurship research. In their article, the authors call for a focused and narrow definition of entrepreneurship and define it as the *“discovery and exploitation of profitable opportunities”* (Shane & Venkataraman, 2000, p. 217). The second view may not be summarized in one central article but rather by a loose group of researchers who advocate a fundamentally more open definition that does justice to entrepreneurial diversity (Dilli et al., 2018; Herrmann, 2019; McMullen et al., 2021). In this context, Audretsch et al. (2015) propose an eclectic view of entrepreneurship, which

combines the three most common perspectives: entrepreneurship as status (such as firm size, age, or ownership), entrepreneurship as behavior, and entrepreneurship as performance. The behavioral perspective reflects the previously mentioned definition by Shane & Venkataraman (2000). However, considering the three perspectives, Audretsch et al. (2015) argue that such a dynamic view of entrepreneurship provides greater granularity in researching entrepreneurship.

One of the main arguments of the researchers who advocate the broad definition of entrepreneurship is the fact that the field, influenced by the call for a very narrow definition of entrepreneurship, has placed a significant focus on the hyper-successful billionaire tech firms, which in total cover only a fraction of the entrepreneurial activity represented according to the broad view (Audretsch, 2021; Baker & Welter, 2017; Dilli et al., 2018; Herrmann, 2019; Kuratko & Audretsch, 2022). This leads to a distortion. Another point of criticism is that the very narrow focus only sees the economic perspective (financial profits and, thus, economic growth) as the objective of entrepreneurship (Welter et al., 2017; Zahra & Wright, 2016). This is in stark contrast to the recently emerged phenomena of social entrepreneurship (Bacq & Janssen, 2011) and sustainable entrepreneurship (Binder & Belz, 2015), in which other objectives besides economics also play a significant role. In a very narrow definition of entrepreneurship, it would be debatable whether these forms of entrepreneurship actually reflect entrepreneurship.

Nevertheless, the narrow view of the definition of entrepreneurship also has its *raison d'être*, and thus, it is included in the eclectic view of entrepreneurship by Audretsch et al. (2015). Consequently, the matter is complicated, so in terms of defining entrepreneurship, the suggestion by Gartner (1990, 2001) seems plausible (which can certainly also be assigned to the broad definition approach). In 1990, he failed to find a definition of entrepreneurship through a broad scientific survey of leading scientists, business leaders, and politicians. He concludes:

“Entrepreneurship is a very complex idea. [...]. A definition of entrepreneurship that is so simple that it fails to reflect the thing we are concerned about does not have to be created. But if no existing definition can be agreed upon by most researchers and practitioners, then it is important to say what we mean. If many different meanings for entrepreneurship exist, then it behooves us to make sure that others know what we are talking about.” (Gartner, 1990, p. 28)

The preceding summary of the debate surrounding the definition of entrepreneurship illustrates the complexity of the subject. This dissertation does not aim to provide a new definition of entrepreneurship; instead, it follows Gartner's (1990, 2001) suggestion and chooses a broad definition of entrepreneurship to do justice to the phenomenon's complexity. It adopts a modified version of the approach taken by Brockhaus (1980). Thus, entrepreneurship is defined as *“major ownership and management of a business venture [...]”* (Brockhaus, 1980, p. 510). In the original, the definition has the addition *“[...] without employment elsewhere”* (Brockhaus, 1980, p. 510). However, this is intentionally omitted for this dissertation, not for practical reasons but because the phenomenon of hybrid entrepreneurship has reached legitimacy in the field today. Hybrid entrepreneurship refers to part-time entrepreneurship where individuals continue working as employees in a company, primarily to secure their immediate economic stability. Research shows that many entrepreneurs maintain their companies this way in the first few years to test the entrepreneurial waters (Folta et al., 2010).

The chosen definition assumes that an individual is an entrepreneur when the person establishes, owns, and manages a business on their own risk and thus includes a broad variety of entrepreneurship like the hyper-successful tech firms, also sometimes called Silicon Valley entrepreneurship (Herrmann, 2019), social entrepreneurship (Bacq & Janssen, 2011), sustainable entrepreneurship (Binder & Belz, 2015), hybrid entrepreneurship (Folta et al., 2010), Mittelstand entrepreneurship (Pahnke et al., 2022) as well as the so-called everyday(-everyone) entrepreneurship (van Gelderen et al., 2021). This type of business arguably represents something more of the norm of entrepreneurial ventures, namely those companies that are not super successful and innovative, do not make big headlines in the media, and thus cover many of the world's small and medium-sized enterprises (Brouthers et al., 2015; Welter et al., 2017). Given that this dissertation

focuses particularly on such firms, specifically SMEs and Mittelstand companies, the selected definition is well-suited.

2.2 Defining and Understanding Micro-Foundations

Research on psychological factors within entrepreneurs and their businesses has emerged recently. While the broad strategic management literature suggests that psychological micro-foundations act as the bedrock upon which organizational actions are constructed (Felin & Foss, 2019; Guerras-Martín et al., 2014; Molina-Azorín, 2014), it is surprising that entrepreneurship literature has not considered micro-foundations in great detail yet. These intrinsic psychological factors have the potential to determine how the individual entrepreneur perceives opportunities, faces challenges, interacts with stakeholders, and leads their ventures. Moreover, these very attributes, when harnessed effectively, can have the power not just to create economic value but also ensure political and societal progress and stability, as demonstrated, for instance, through the work of lobbyists (Baron, 2008; Gartner, 1988; Hmieleski & Corbett, 2008; Obschonka & Stuetzer, 2017). Thus, these micro-level factors influence the individual and have profound implications at the meso- and macro-level. However, this multi-level perspective has received limited attention in entrepreneurship research and, more crucially, lacks a coherent conceptual foundation. To address this gap, the dissertation introduces the concept of psychological micro-foundations - widely used in strategic management - into entrepreneurship research for the first time. Furthermore, it conceptually examines these foundations' cognitive, affective, and behavioral dimensions using insights from psychological research (Chapter 3). This conceptual model is empirically tested through three subsequent studies. The following sections will discuss the origins of psychological micro-foundations in strategic management, along with the three proxy constructs - PsyCap, OPC, and EM - that will be utilized in the empirical studies.

It is essential to distinguish between micro-foundations, which are often used in economic and strategic management literature, and psychological micro-foundations, understood in organizational behavior (OB). The aim of micro-foundations in the economic and strategic management literature is to understand phenomena at the macro-level (collective level, like organizations or social systems) through the characteristics, abilities, and interactions of individuals (the micro-level), and thus to build a bridge between micro-

and macro-theories (Barney & Felin, 2013; Felin & Foss, 2005). Examples for those general micro-foundations include individual routines (e.g., decision-making, or goal setting (Foss & Lindenberg, 2013)), as well as individual capabilities (e.g., technology management capabilities, leadership and management capabilities, interactions (Abell et al., 2008; Iden & Bygstad, 2024; Jafari-Sadeghi et al., 2023)). In contrast, OB research, when referring to psychological micro-foundations, refers to individual psychological factors such as cognitive or affective processes and behavioral patterns within individuals (Ployhart & Hale, 2014). Examples for psychological micro-foundations include heuristics, motivation or cognition (Foss & Lindenberg, 2013). Thus, even though the differentiation seems minor, psychological micro-foundations refer in particular to the psychological factors of individuals, while micro-foundations, in general, have a broader focus. This suggests that psychological micro-foundations represent a sub-area of the general micro-foundations research and, therefore, lead to overlaps in terms of terminology. As the micro-foundations investigated in this dissertation are all of a psychological nature, the focus in the following will be on psychological micro-foundations and their significance for entrepreneurship research. Thus, strategic management and psychology research are combined and applied to entrepreneurship research.

While the strategic management literature has been exploring micro-foundations within organizations for some time (Felin & Foss, 2005), it is noteworthy that entrepreneurship research has not focused on this aspect extensively. Over the past two decades, there have been various calls for research on micro-foundations in general within strategic management (Felin & Foss, 2019, 2005; Molina-Azorín, 2014, 2014), but this emphasis has not been prevalent in entrepreneurship research. However, it can be assumed that entrepreneurship research has not deliberately “*ignored*” the micro-foundations perspective but has maintained a strong focus on this type of research. As mentioned earlier, entrepreneurship research is a human-centered branch and has been dealing with the general micro-foundations of entrepreneurship since its inception, albeit without explicitly labeling it as such, focusing on the entrepreneurs themselves. Currently, there is a shift observed in entrepreneurship research, with more emphasis on collective levels of research, as evidenced by research on entrepreneurship and context (Baker & Welter, 2020; Shepherd et al., 2019; Welter, 2011) or entrepreneurial ecosystems (Cantner et al., 2021; Stam & Van De Ven, 2021). Interestingly, even in the literature on entrepreneurial ecosystems, there are calls to include the individual entrepreneur and, thus, the micro-

level perspective (Roundy & Lyons, 2022). The entrepreneurship field has likely approached research focus differently than colleagues in strategic management. The strategic management literature speaks of a “*significant revolution*” that “[...] *seeks to understand how individuals and the relationships among them contribute to firm heterogeneity, performance, and competitive advantage*” (Ployhart & Hale, 2014, p. 146). Thereby, researchers conducting research on micro-foundations address the core of research in the strategic management field: explaining why some companies perform better than others and the reasons behind the heterogeneity of firms, but from the micro-level of individuals and attempting to link this to the macro-level. The goal is not, as often applied in OB research, to measure phenomena at the group level, such as team performance, but rather to directly connect micro-factors with the firm level (e.g., firm performance) (Barney & Felin, 2013; Ployhart & Hale, 2014; Schneider et al., 2000).

Arguably, the perspective of which phenomenon can be assigned to the micro-, meso- or macro-level depends on the researcher's view. In the writings of strategic management and OB, as outlined above, there is some confusion about this. The attentive reader will raise the question of whether the organizational level, which is frequently assigned to the macro-level in the articles mentioned (Barney & Felin, 2013; Felin & Foss, 2005; Molina-Azorín, 2014), is perhaps not the meso-level, and whether the macro-level is not ultimately even larger and, for example, reflects the overall economic context, or at least contextual entrepreneurial ecosystems (Roundy & Lyons, 2022). In order to prevent any such confusion, this dissertation categorizes the different levels as outlined by Bies et al. (2007): The micro-level pertains to the individual, focusing on personal attributes, behaviors, and psychological processes that influence entrepreneurial activities. Correspondingly, the meso-level reflects the company level. At this level, the focus shifts to the collective dynamics within an organization, encompassing all individuals' interactions and aggregated behaviors within a specific company. Lastly, the macro-level extends beyond individual organizations to encompass broader societal, economic, and cultural contexts. It includes analyses of entire industries, economies, or entrepreneurial ecosystems.

In entrepreneurship research, there has been a fundamental focus on individuals, striving to illustrate how the characteristics of these individuals and their interactions impact entrepreneurial activity and behavior without finding a comprehensive answer (Gartner,

1988; Shane & Venkataraman, 2000). Suppose we apply the argumentative logic used by strategic management researchers regarding psychological micro-foundations and apply this to entrepreneurship. In that case, it suggests adopting a more granular perspective - "*turning inward*" (Ployhart & Hale, 2014) - to explore the entrepreneur's inner nature and psychological micro-foundations. Following the logic of Barney & Felin (2013), this could provide insights into heterogeneity, performance, and competitive advantages (Molina-Azorín, 2014; Ployhart & Hale, 2014). However, it is surprising that little effort has been made to understand psychological micro-foundations systematically. For a long time, entrepreneurship research has focused on the field centered around individual characteristics such as the Big Five personality traits to comprehend the prototype of entrepreneurial traits (Gorgievski & Stephan, 2016). This focus overlooked the broader psychological micro-foundations inherent in all individuals and their potential impact on entrepreneurial behavior. This dissertation introduces three psychological micro-foundations (PsyCap, OPC, and Mittelstand Mindset) that entail the potential to contribute to the understanding of entrepreneurship research and may also serve as a competitive advantage for individual entrepreneurial businesses (Ployhart & Hale, 2014). The following sections elucidate and discuss the three concepts of psychological micro-foundations (PsyCap, OPC, and Mittelstand Mindset) examined in this dissertation, providing an overview of their significance and contribution to entrepreneurship research.

2.3 Defining and Understanding Psychological Constructs in Entrepreneurship Research

2.3.1 Defining and Understanding Psychological Capital and Organizational Psychological Capital

The concept of PsyCap stems from a research stream in psychological literature. While the psychological literature, particularly after the Second World War, focused on generating knowledge concerning mental disorders, the research movement of positive psychology developed. It focuses on the aspects of the human psyche that ensure the optimal functioning and flourishing of individuals, groups, and institutions. For example, it explores why people feel joy or show altruism (Gable & Haidt, 2005).

After Abraham Maslow introduced the term positive psychology in 1954 (Maslow, 1954), in a book chapter that was later omitted in the newer editions of the book *“Motivation and personality”* (e.g., see Maslow, 1987), psychological research delved into the *“positive side”* after over 40 years, with Seligman & Csikszentmihalyi (2000) reintroducing the term. The approach aimed to utilize the tools and techniques to understand and treat psychological illnesses to explore factors promoting human well-being (Lopez & Snyder, 2011). Maslow (1954), as well as Seligman & Csikszentmihalyi (2000), categorized psychological research into positive and negative, but this division may create a misconception as psychology is generally neutral (Gable & Haidt, 2005). Pre-World War II, psychology focused on curing mental illnesses, improving lives, and fostering high potentials. Post-war, the emphasis shifted, particularly in clinical psychology, towards mental disorders and treatment methods. However, this focus reflects compassion, aiming to help those struggling, even though knowledge of human strengths can also prevent disorders (Seligman & Csikszentmihalyi, 2000). Since 2002, this research stream has extended into economic and management literature as Positive Organizational Behavior (POB), the study and application of positively oriented human resource strengths and psychological capacities, aiming to measure, develop, and effectively manage them for performance improvement (Luthans, 2002a, 2002b). The field is related to positive psychology but incorporates a cost-benefit perspective, seeking to enhance a company's economic performance (T. A. Wright, 2003). Criteria for a psychological construct to be integrated into POB include (1) being based on theory and evidence, (2) having a valid measure, (3) aligning with positive psychology, (4) being developable with a state-like character, and (5) positively influencing work-related performance and satisfaction (Luthans, 2002b; Newman et al., 2014). Meeting all of these criteria, the concept of PsyCap emerged within the POB stream and has been extensively researched in the context of employees ever since (Luthans & Youssef-Morgan, 2017).

PsyCap is defined as a person's positive psychological state, consisting of four resources: hope, self-efficacy, resilience, and optimism (Luthans, Youssef, et al., 2007). These four resources form a superordinate construct with interrelated dynamics (Luthans & Youssef-Morgan, 2017). The theoretical basis for the four individual resources is a broad and well-founded research base in psychological research.

The dimension of hope is based on the work of psychologist Charles Richard Snyder and is defined as the perceived ability to find ways to achieve desired goals and the motivation to use these ways (Snyder et al., 1991). Thus, the theory of hope emphasizes the importance of goals, pathways, and agency in understanding and cultivating hope (Rand & Cheavens, 2009). Goals are conceptualized as mental objectives that direct human action (Snyder et al., 1997). Agency encompasses an individual's commitment and perceived ability to maintain and achieve these goals (Bandura, 2008), while pathways refer to an individual's ability to visualize different approaches to achieving the goal (Snyder et al., 1991). Individuals with solid hope exhibit diverse work-related goals, motivation, and creativity in achieving them (Hmieleski et al., 2015).

The psychological factor of self-efficacy, or efficacy, draws its foundation from Bandura's social cognitive theory (Bandura, 1986). It characterizes individuals' capacity to harness motivation and cognitive skills, enabling them to tackle forthcoming challenges proficiently (Bandura, 1982). Individuals with elevated efficacy levels exhibit a strong belief in their capabilities and tend to establish more ambitious goals than those with lower efficacy levels (Bandura, 2012).

The concept of resilience, which originates from clinical psychology (Masten, 2001; Masten & Reed, 2002), has gained importance in organizational psychology (Luthans & Youssef-Morgan, 2017). Resilience is defined as the positive psychological ability to recover from challenges, uncertainties, conflicts, failures, and even positive changes, progress, and increased responsibility (Masten & Cicchetti, 2016). People with high resilience show an improved ability to accept unfavorable developments. By effectively addressing and resolving challenging situations, they tend to improve their performance compared to their usual baseline (Luthans et al., 2006).

Psychologist Martin Seligman laid the theoretical foundation for optimism (Seligman, 1998). Optimism involves how individuals cope with challenging circumstances. Those with an optimistic outlook anticipate positive outcomes and, consequently, approach difficulties constructively (Scheier et al., 2001). This perspective attributes positive events to internal, permanent, and pervasive causes while associating adverse events with external, temporary, and situation-specific factors (Luthans & Youssef, 2004).

The use of the term capital in the context of PsyCap is not coincidental. According to the researchers coining the term, it is based on Barney's (1991) resource-based view (RBV) and can be assigned to its extension, and thus, in particular, to the resource-based theory of the individual according to Alvarez & Busenitz (2001). In today's world, which is characterized by increasing complexity, rapidity, and crises (Ireland & Hitt, 1999), it is becoming more critical for companies to develop sustainable and unique competitive advantages (Crook et al., 2008). Focusing on traditional resources such as financial, physical, and technological capital may no longer be sufficient in this growing complexity. Therefore, human capital, social capital, and also psychological factors may be a source for creating sustainable competitive advantages. In their article, Luthans & Youssef (2004) show that PsyCap, in particular, constitutes a strategic resource and the basis for a competitive advantage, as the construct fulfills the criteria of long-term, uniqueness, cumulativeness, interconnectedness, and removableness, which are frequently cited as criteria for competitive advantages in the literature on RBV. In particular, the fact that the resources of the PsyCap are relatively simple to develop and increase offers human resource management within companies a particularly favorable opportunity to strengthen the PsyCap within the employees and thus expand the competitive advantage (Luthans & Youssef-Morgan, 2017). Unlike human or social capital, which involve external investments in skills or relationships, PsyCap involves cultivating internal psychological strengths (Luthans & Youssef, 2004). However, as Salanova & Ortega-Maldonado (2019) show, there is a wide variety of interventions companies and individuals can use to invest in the development of PsyCap: There are micro-interventions targeted at the PsyCap as a whole or at the specific dimensions (hope, self-efficacy, resilience, and optimism), as well as broader positive psychology interventions (such as development of strengths and personal resources, career development, job crafting and more). All of those have been shown to affect work-related outcomes positively. Considerable research has been conducted on the positive effects of a strong PsyCap; those will be briefly summarized in the following to underline the potential of PsyCap:

Numerous studies underscore PsyCap's positive impact on employee attitudes, behaviors, performance, and well-being within the business context (Newman et al., 2014). Positive associations have been identified between PsyCap and desirable attitudes, such as job satisfaction and organizational commitment (Avey et al., 2008, 2011; Luthans, Norman, et al., 2008). Conversely, Avey, Reichard et al. (2011) noted negative associations between

factors such as stress, anxiety, and cynicism. PsyCap has been linked to positive employee behavior, including organizational citizenship behavior, while reducing counterproductive workplace behaviors (Avey et al., 2008; Avey, Luthans, & Youssef, 2010; Norman et al., 2010). Extensive research has shown a positive relationship between PsyCap and individual performance, economic performance, and creative performance (Avey, Nimnicht, et al., 2010; Hmieleski et al., 2015; Luthans, Norman, et al., 2008; Rego et al., 2012; Sweetman et al., 2011). Avey, Nimnicht, et al. (2010) demonstrated that employees with higher PsyCap levels were evaluated more positively by their managers in terms of performance, and several other studies highlight the enhancement of PsyCap leading to increased performance (Avey, Nimnicht, et al., 2010; Luthans et al., 2005; Luthans, Norman, et al., 2008; Luthans et al., 2010). Research also explored the relationship between PsyCap and well-being, indicating a positive correlation between an individual's PsyCap and their well-being (Avey, Luthans, Smith, et al., 2010; Baron et al., 2016; McMurray et al., 2010). Additionally, Luthans et al. (2013) demonstrated that PsyCap benefits physical health indicators like body mass index and cholesterol levels.

In addition to these studies at the individual level, there are indications in the literature that PsyCap also exists in collective structures. Studies already show that PsyCap exists at the group level (Broad & Luthans, 2017; Dawkins et al., 2015, 2018; Mathe et al., 2017; Peterson & Zhang, 2011), but also at the organizational level. The authors McKenney et al. (2013) introduce the term OPC into the literature and define it analogously to PsyCap *“as the organization’s level of positive psychological resources: hope, optimism, resilience, and confidence”* (McKenny et al., 2013, p. 157). The four PsyCap resources are also defined according to the PsyCap but at the organizational level. At the organizational level, OPC is recognized as a potentially distinctive internal resource besides human and social capital, which is challenging for competitors to replicate. This uniqueness can bestow a company with a competitive advantage that is hard to imitate (Caspersz & Thomas, 2015; Luthans et al., 2005). Despite limited literature on the OPC, McKenny et al. (2013) introduced and defined the concept, and they discovered a positive correlation between OPC and the performance of major publicly listed companies. However, they suggest this relationship might be more robust in smaller, privately held companies, calling for further exploration. Memili et al. (2013) followed with a commentary emphasizing the theoretical significance of OPC, particularly for family businesses. Another contribution by Memili et al. (2014) develops a conceptual model for the

relationship between Leader-Member exchange (LMX), OPC, and innovativeness in family franchise firms. They propose that in these firms, a positive influence of LMX on OPC will impact innovativeness, with these relationships being moderated by the family-owned business's transgenerational succession intentions. Jancenelle (2018) also provides additional empirical results on OPC. Utilizing computer-assisted text analysis, the article analyzes earnings conference calls and finds that references to OPC by top managers during such calls soften investors' reactions to unexpected earnings surprises.

To conclude, this highlights the potential of PsyCap and OPC as essential psychological micro-foundations in entrepreneurship research (Chapter 3 will provide a more in-depth discussion). Both concepts, rooted in positive psychology, emphasize the importance of hope, self-efficacy, resilience, and optimism as crucial drivers of individual and organizational performance. As shown, these psychological resources are not only crucial for personal well-being but also serve as strategic assets for creating sustainable competitive advantages in a rapidly changing business environment. The recognition of PsyCap and OPC in business and entrepreneurship research underscores the value of integrating psychological insights into the study of entrepreneurial success, offering a nuanced understanding of how internal psychological strengths can be cultivated and leveraged to enhance both individual and organizational outcomes.

2.3.2 Defining and Understanding Entrepreneurial Mindset

Another psychological micro-foundation is the mindset of a given person. A mindset is a set of beliefs, attitudes, and cognitions that determine how a person interprets and interacts with the world around them (Dweck, 1991). The term "*mindset*" originated from early psychological experiments, particularly from the Würzburg School of Cognitive Psychology (French II, 2016). The original mindset concept involved the cognitive processes activated during intense engagement with a specific task, aiming to determine the cognitive orientation conducive to successful task performance (Gollwitzer & Bayer, 1999). Over time, divergent conceptualizations of mindset emerged, with some scholars neglecting or providing limited attention to its cognitive psychology origins (French II, 2016). However, research on mindset can be assigned to the sub-fields of social and educational psychology, but it has found its way into other sub-fields (Schroder, 2021) and management studies (Gupta & Govindarajan, 2002). While there are various research

directions and different mindsets, Dweck's (1991) mindset theory on the fixed and growth mindset is probably the most widely used. This mindset theory posits that the two mindsets are distinctively linked to goal orientations and reactions to setbacks. Specifically, individuals with a growth mindset tend to embrace learning goals, focusing on mastering new tasks (Grant & Dweck, 2003). Conversely, those with a fixed mindset typically favor performance-oriented goals, aiming to surpass others without necessarily emphasizing competency and mastery development (Dweck & Leggett, 1988). While the theory of growth versus fixed mindset mainly focuses on an individual's belief in their intelligence and learning capability (Dweck, 2006), it neglects the potential of other use cases of mindsets. Thus, mindsets can shape individuals' behavior as they assist in judging situations and decision-making, helping to mitigate decision errors (French II, 2016). It mainly focuses on goals and goal-oriented behavior of individuals and how achieving them is influenced by the beliefs and values of the respective individual and assumes the malleability of those beliefs (Dweck & Leggett, 1988).

When considering the entirety of psychological research on mindset, three different schools of thought can be observed: cognitive psychology, social psychology, and positive psychology (sometimes also called organizational leadership) (French II, 2016). In cognitive psychology, mindset is primarily understood as a cognitive orientation that guides an individual's approach to specific tasks or goals. This perspective has its roots in the Würzburg concept of mindset, notably exemplified by Gollwitzer's (1990) theory of mindset or, more specifically, the mindset theory of action phases. In this framework, mindset is defined as the sum of activated cognitive procedures tailored to facilitate accomplishing a particular task or set of tasks (Gollwitzer & Bayer, 1999). This perspective has been widely accepted within cognitive psychology, resulting in a substantial body of research exploring the cognitive processes associated with different action phases and the connected mindsets, such as deliberative mindset (before the decision is made), implemental mindset (before the action is taken), actional mindset (during the action) and evaluative mindset (after the action has taken place), which serve distinct functions in the pursuit of goals (French II, 2016).

In social psychology and organizational leadership, the understanding of mindset differs significantly from that in cognitive psychology. Rather than focusing on specific cognitive processes related to tasks, social psychology and organizational leadership scholars define

mindset as a cognitive filter or orientation that shapes an individual's or organization's overall cognition (Benson & Dresdow, 2003; Gupta & Govindarajan, 2002). This perspective emphasizes how mindsets serve as filters through which individuals or groups perceive and interpret the world, allowing them to simplify complex environments and apply pre-established frames of reference to their understanding (Oyserman et al., 2009).

In positive psychology, mindset is conceptualized as individual or collective beliefs that shape one's outlook on abilities and personal growth (Brooks et al., 2012). This perspective emphasizes that mindsets are not only cognitive but also encompass inherent beliefs or views of reality, mainly focusing on the contrast between “*growth*” mindsets, which believe in the potential for development and improvement, and “*fixed*” mindsets, which perceive abilities as unchangeable (Dweck, 2006; Dweck & Leggett, 1988).

Considering entrepreneurship research, the concept of EM has been a subject of study (Naumann, 2017). It represents a distinctive way of thinking and approaching opportunities within complex and uncertain environments (McGrath & MacMillan, 2000). The question of how the entrepreneur's mind differs from that of non-entrepreneurs and what it means to be entrepreneurial has engaged researchers for some time (Carsrud & Brännback, 2009; Krueger, 2007). This led to the development of research around the EM, which has now reached considerable scope (Brännback et al., 2017; Hattenberg et al., 2021). However, a drawback of research in this area is the lack of consensus on the conceptualization of the EM, resulting in highly fragmented research (Krohn et al., 2021; Podsakoff et al., 2016). While various definitions exist in the literature, they collectively highlight the central role of adaptable thinking and decision-making in navigating the challenges of entrepreneurship (Naumann, 2017). However, although different research on mindsets in entrepreneurship has been conducted, there is no common understanding so far (Kuratko et al., 2021).

At its core, the EM is characterized by the “*ability to rapidly sense, act, and mobilize, even under highly uncertain conditions*” (McGrath & MacMillan, 2000, p. 15). Entrepreneurs exhibit a heightened awareness of emerging opportunities while simultaneously managing limited resources effectively. They strategically allocate their resources to projects aligned with their overarching goals, aiming to maximize returns (McGrath & MacMillan, 2000). One key aspect of the EM is its capacity to transform uncertainty into

a source of competitive advantage (Ireland et al., 2001). It involves cognitive abilities that allow individuals, whether entrepreneurs or professionals within established organizations, to create meaning and seize opportunities in ambiguous and complex situations (Davis et al., 2016; McMullen & Kier, 2016; Shepherd et al., 2010). Literature on EM also involves meta-cognitive awareness, enabling individuals to adapt their thinking processes to changing contexts and demands. This flexibility in thinking patterns is crucial for entrepreneurs navigating an ever-evolving business landscape (Haynie & Shepherd, 2007).

While there are variations in the specific definitions proposed by scholars, they all converge on the idea that EM revolves around thinking, decision-making, and goal-setting (Naumann, 2017). Entrepreneurs are known for their distinctive thinking patterns, which enable them to connect seemingly unrelated information and exploit opportunities in novel ways. This mental agility is shaped by their experiences, knowledge, networks, and heuristics (Baron, 2006). In summary, all the definitions of EM underscore the cognitive dimension of EM, emphasizing how entrepreneurs think, reason, and set goals. Some definitions extend beyond thinking to include behavior and the unique way entrepreneurs leverage resources to exploit opportunities. As currently understood, EM is fundamentally rooted in a cognitive perspective (Naumann, 2017). A comparison of the focus on EM with research in psychology on mindset reveals that both focus on the cognitive and behavioral aspects of mindset. In EM, however, the perspective of the beliefs and affective elements, or, in other words, the focus of positive psychology, has been omitted until recently. In a very recent publication on the foundations of EM research, Shaver (2024) describes those very foundations as follows:

“Entrepreneurial mindset is the set of perceptions, beliefs, and motives that initiates, engages, and regulates the behavior needed to recognize and exploit opportunities. [...] It involves cognition but is not purely cognitive. It involves affect but is not purely emotional. It leads to behavior but is not purely behavioral. It is a complex psychological state, which leads us to examine its psychological foundations.” (Shaver, 2024, p. 1)

Moreover, in this context, Kuratko et al. (2021) developed a model of the EM that combines the three mentioned dimensions. The authors argue that EM consists of three

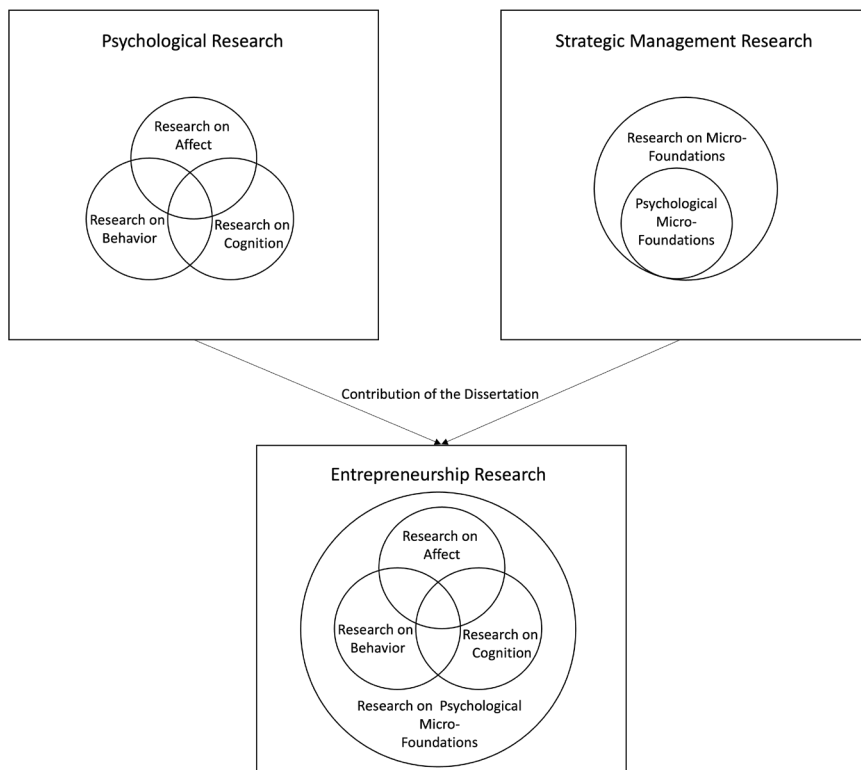
dimensions: cognitive, emotional, and behavioral. Whereas a conceptual foundation of EM has been lacking, this model has the potential to serve as a first approach to conceptualizing the fuzzy phenomenon of EM. As Kuratko et al. (2021) argue, a perspective including the three elements of cognition, emotion, and behavior is helpful as considering only one of the aspects entails the risk that the complex interplay of the EM results in an inaccurate picture. Against the background of research in psychology on the mindset, the consideration of this triad is emphasized even more clearly, especially since research in psychology increasingly indicates that not only cognitive aspects are relevant to explain successful performance in different domains (Schroder, 2021).

3 Conceptual Model of this Dissertation

3.1 Conceptualizing Psychological Micro-Foundations in Entrepreneurship Research

Psychological research is fundamentally aimed at understanding people's inner nature and applying this knowledge to their behavior in the outer world and vice versa (J. B. Watson, 1913). In contrast, strategic management literature mainly deals with explaining phenomena that occur at the company level (Barney & Felin, 2013; Felin & Foss, 2005). The concept of psychological micro-foundations integrates these two perspectives, namely the explanation of meso- and macro-level phenomena on the basis of micro-level factors. However, psychological micro-foundations have not yet been established on a solid theoretical basis drawn from psychological literature. This dissertation adopts both perspectives and, more specifically, combines psychological research into cognition, affect, and behavior with the concept of psychological micro-foundations stemming from strategic management research to gain insights for entrepreneurship research. This conceptual contribution is illustrated in Figure 2 and will be addressed in the following chapter.

Figure 2. Detailed Conceptual Contribution of the Dissertation.



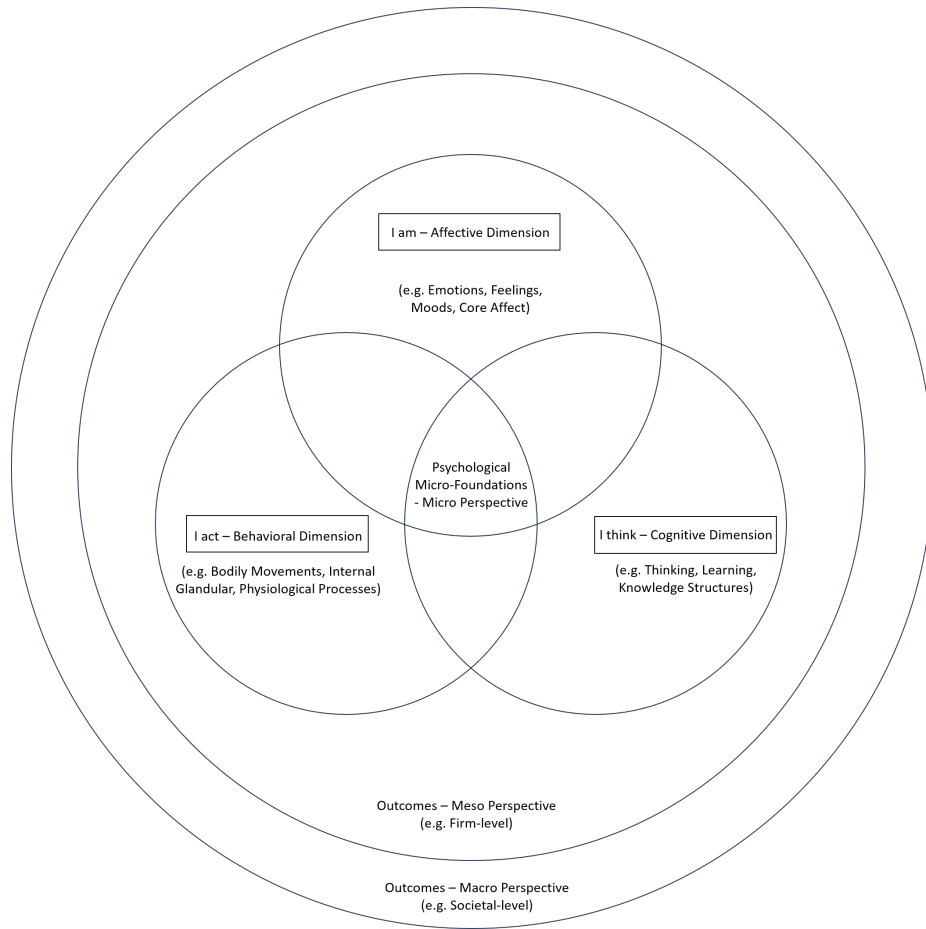
Source: Own illustration.

The notion of combining cognition with affect in the management literature is not entirely new and can be justified by more than just psychological research. In their article, Phan & Wright (2018) discuss René Descartes' (1637) well-known philosophical statement, "*I think therefore I am*", and thereby highlight the mind-brain complex. More specifically, they contend that directing attention towards the interaction between the "*I am*" (mind) and "*I think*" (brain) in management research, particularly in entrepreneurship research, is a promising avenue for future research. Phan & Wright (2018, p. 179) continue: "*It is not an exaggeration to say that cognition and behavior are at the core of management research*". Consequently, without focusing on this in their article, they introduce a further dimension into the discussion, namely the behavioral dimension, or to remain in the style of Descartes (1637), "*I act*", and call for research to investigate this view.

This triad is common in psychological research, consisting of human beings' affective, cognitive, and behavioral aspects (Andersen & Chen, 2002; Dweck & Leggett, 1988; Fishbein, 1966). It serves as the foundation for entire therapeutic methodologies. It is applied, for instance, in treating patients with somatization (Allen & Woolfolk, 2006). As outlined above, psychological micro-foundations aim to connect humans' cognitive, emotional, and behavioral aspects and bridge those to the macro-level. The literature agrees that psychological micro-foundations include cognitive, affective, and behavioral elements (Felin & Foss, 2019; Hodgkinson & Healey, 2011).

Thus, the dissertation's conceptual model (Figure 3) is based on the three dimensions of *I am* (affective dimension), *I think* (cognitive dimension), and *I act* (behavioral dimension). The entrepreneur's underlying emotions, moods, and feelings are assigned to the circle of the *I am* dimension. In the *I think* dimension are the cognitive elements and cognitive processes that the entrepreneur possesses. Whereas the *I act* dimension comprises the elements of behavior and interactions that the entrepreneur maintains. The three circles are subject to a complex interplay and overlap. The interplay of *I act*, *I think*, and *I behave* constitutes the micro-perspective and deals with the inner nature of the entrepreneur. The circles that enclose the micro-perspective constitute the meso- and macro-level and are intended to illustrate that the interplay at the micro-level influences the meso- (e.g., firm level) and macro-level (e.g., societal level). This is in accordance with the micro-foundation perspective in strategic management.

Figure 3. Conceptual Model of the Dissertation.



Source: Own illustration.

The following chapter will briefly define the cognitive, affective, and behavioral dimensions. A general classification and definition within psychological research is provided, followed by an expansion to include perspectives from business administration, with particular emphasis on entrepreneurship research. Subsequently, in Chapter 3.3, the psychological micro-foundations examined in this dissertation will be assigned to the respective areas of the conceptual model. The chapter concludes with a discussion of the conceptual model and the importance of psychological micro-foundations research for entrepreneurship research on different levels. Chapter 3.4 then provides a brief overview of the subsequent chapters of the dissertation, specifically the three studies conducted in this context.

3.2 Cognition, Affect, and Behavior

3.2.1 Cognition

The term cognition in psychology encompasses the mental processes of knowing, which include learning, problem-solving, remembering, and thinking, as well as the content of these processes, such as concepts or memories (Colman, 2015; Morley et al., 2015; Sternberg, 2016). Cognitive science, an interdisciplinary field, extends the term cognition to any mental operation or structure, the latter being information of the mind rather than physical structures in the brain (Helfat & Peteraf, 2015; Schneider et al., 2000). In management research, the focus is often on cognition as knowledge structures (Rajagopalan & Spreitzer, 1997), with various terms such as cognitive maps, mental models, frames, and schemas being used to refer to these structures that are essential to the mental representation of external reality (Helfat & Peteraf, 2015). In entrepreneurship research, the cognitive processes of entrepreneurs are explored within the area known as Entrepreneurial Cognition, which primarily investigates why entrepreneurs do what they do. The entrepreneurial cognitive perspective provides a valuable framework for understanding entrepreneurs' unique thinking and behavior, filling a significant gap created by disenchantment with the trait approach (McMullen et al., 2021; Mitchell et al., 2002). It suggests that recognizing the unique cognitive processes of entrepreneurs is critical to developing a theoretically rigorous explanation of their distinctiveness and thus argues for a multidisciplinary approach to further exploring this uniqueness (Grégoire et al., 2011). Entrepreneurial cognition can be defined as *“the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth”* (Mitchell et al., 2002, p. 97). Thus, a significant portion of the research on *Entrepreneurial Cognition* examines mental models that facilitate entrepreneurs' decision-making regarding entrepreneurial business, focusing mainly on mental processes (Helfat & Peteraf, 2015).

However, the cognitive perspective varies across disciplines, prompting debates about whether cognition is an internal computational process, an embodied phenomenon influenced by mind-brain-body interaction, and between economic rationality and psychological factors in management science (Grégoire et al., 2011). Despite these debates, Bandura's (1986) work on social cognitive theory provides an interesting insight

into the relevance of cognition. According to the theory, people have the ability to actively influence the way they function and consequently affect the course of environmental events. Thus, people possess the capacity to act, with which they intentionally influence their life circumstances, and they are not simply bystanders in their own lives (Bandura, 2008). Therefore, cognition is crucial in enabling humans to adapt effectively to the surrounding environments (Sternberg, 2016). There is a common understanding that analyzing human behavior requires the exploration of mental representations and processes at multiple levels of analysis (Grégoire et al., 2011).

3.2.2 Affect

The affective dimension of the conceptual model describes research related to affect. In the past, the term affect was used as a synonym for feelings in psychological research. Today, research understands that the affective elements of the human mind go beyond just feelings. The term now refers to how a person's mind reflects emotional states and thus the related experience of those (Barrett & Bliss-Moreau, 2009). Research in this field, therefore, includes emotions, feelings, moods, core affect, affective states, and affective traits (Delgado García et al., 2015) that can be described as the fundamental drive that influences a person's attitude and actions without the individual necessarily being aware of it (E. Fox, 2018). In scholarly research, these elements are distinctively categorized along several contrasting dimensions: arousal levels (ranging from high activity and attention to low), duration (spanning from short-term to long-term), and diffuseness (whether associated with a specific event or not) (Frijda, 2001). Additionally, distinctions are made based on hedonic valence, delineating states from pleasurable to not pleasurable (E. Fox, 2018, p. 20).

Consequently, emotions are differentiated from moods and feelings in that they are typically fleeting (lasting seconds to minutes), marked by high arousal, and directly tied to distinct events. It is posited that the primary function of emotions is to modulate action. In contrast, moods exhibit greater temporal stability (persisting for hours or days), feature reduced arousal levels, and reflect one's overall internal or external milieu, not dictated by singular events, with an implied role in shaping cognitive processes. Feelings, distinct from emotions and moods, incorporate a conscious experience, possess a variable duration, though generally considered to be short-term, and are influenced not by specific

external events but by activation within the interoceptive system (Delgado García et al., 2015; E. Fox, 2018). In contrast, core affect, integral to the dimensions outlined above, is defined as a pre-cognitive, universal state reflecting the simplest form of emotional experience, characterized by the dimensions of valence and arousal but not directed at any specific object (Russell, 2003, 2009). In general, the term affect represents a superordinate term used to describe reactions concerning emotions, feelings, moods, and the foundational state of core affect (E. Fox, 2008).

Additionally, research distinguishes between affective states and affective traits (Baron, 2008), focusing on the temporal nature and stability of emotional experiences. Specifically, this consideration extends the timeframe and examines stability over time (Rhoades et al., 2001). Moods are classified as affective states and represent diffuse affective states (Forgas, 1995). In contrast, affective traits are assumed to remain stable over years or even decades (Rhoades et al., 2001; D. Watson & Walker, 1996). Examples of affective traits include general positive or negative affectivity (D. Watson & Walker, 1996), indicating whether a person is generally optimistic or pessimistic, as well as the concept of self-efficacy (Arora et al., 2013). It is assumed that moods and emotions arise, at least partially, from an individual's affective traits (D. Watson et al., 1992).

The relationship between affect and cognition is a focus of ongoing debate and research in psychology, which in the 1980s was primarily characterized by the contrasting views of Zajonc (1980) and Lazarus (1982). This dialogue has fostered the development of appraisal theory (Arnold 1969; Lazarus 1991) and network theory of affect (Bower 1981, 1991), highlighting the bidirectional influence between cognition and affect. These theories emphasize that emotions arise from cognitive appraisals and that, conversely, affect can stimulate cognitive operations. This extensive work suggests that understanding human behavior and decision-making requires an appreciation of how strongly affect and cognition are intertwined (Delgado García et al., 2015). Besides, neuroscience research increasingly shows that emotional aspects influence cognitive aspects (T. W. Robbins, 2011), suggesting that a clear separation of the two in reality is challenging. In the realm of entrepreneurship, this interplay exerts a profound influence on various cognitive processes in humans, thereby shaping entrepreneurs' perception (Forgas & George, 2001), heuristic thinking (Park & Banaji, 2000), memory, and stress coping strategies (Carver & Scheier, 2001), as well as the creation of ventures (Baron, 2007; Hayton &

Cholakova, 2012)². Collectively, these aspects underscore the critical role of affect in entrepreneurial cognition and highlight its importance in the nuanced processes of decision-making, problem-solving, and management.

3.2.3 Behavior

Although defining human behavior might initially seem trivial, a clear definition is significantly more complex than one might assume. Human behavior is so familiar to us that achieving the necessary distance, essential in scientific work to define a construct, can be challenging (Longino, 2013). Besides, humans are very adaptive in their nature, and thus, behavior is highly flexible (H. A. Simon, 1990). The challenge in defining and measuring behavior stems from the complexity of its causes and manifestations, requiring diverse approaches based on the specific research questions being asked. The choice of what to measure and how depends on whether the inquiry focuses on genetic, physiological, or behavioral aspects, indicating that the conceptualization of behavior varies with the investigative lens applied. Consequently, no universal method exists to study behavior; the approach must be tailored to the particular cognitive and practical interests driving the research (Longino, 2013). Since the dissertation focuses on the psychological perspective of behavior, the relevant definition is discussed below.

The complexity of behavior has led to various definitions within psychological research: *“A Dictionary of Psychology”*, published by *Oxford University Press*, defines behavior as *“The physical activity of an organism, including overt bodily movements and internal glandular and other physiological processes, constituting the sum total of the organism’s physical responses to its environment”* (Colman, 2015, p. 83). In contrast, the *American Psychological Association* (APA) defines behavior as follows: *“an organism’s activities in response to external or internal stimuli, including objectively observable activities, introspectively observable activities, and nonconscious processes”* (VandenBos & American Psychological Association, 2015, p. 112). While both definitions describe behavior as the organism's response to its environment, encompassing both observable actions and internal processes, the APA definition provides a more detailed breakdown that includes unconscious processes and introspectively observable activities, thus

² For a comprehensive overview see Delgado García et al. (2015) and Baron (2008).

referring to cognitive and affective processes. Therefore, this dissertation follows the APA definition of behavior.

Without the behavior of entrepreneurs, there would be no entrepreneurship (Baron, 2007). However, which behavior should be observed in entrepreneurship research is a matter of debate. It is argued that research should focus solely on behaviors closely associated with the new venture creation process. Delving into behaviors that characterize all human action is viewed as non-contributory to this specific research aim (Shane, 2003). It is suggested that behaviors influencing the generation of new ideas, identification of opportunities, and securing resources should be at the forefront of research, along with decision-making and strategy formulation (Baron, 2007). However, contemporary understanding acknowledges that entrepreneurship's contribution to society transcends mere economic value (Audretsch & Moog, 2022; Welter et al., 2017). In other words, in addition to the traditional primary focus on profit and economic gain, modern businesses now also pursue other important goals (e.g., social goals). However, financial sustainability remains essential, as a company must generate sufficient revenue or surpluses to survive (Binder & Belz, 2015; Zahra et al., 2009). The original purpose of financial viability cannot be entirely disregarded unless the business operates under a fundamentally different financing model (e.g., NGOs), which would necessitate alternative strategies and decision-making processes at various levels (Akingbola, 2006; Anheier et al., 1997). With societal objectives expanding beyond economic measures, particularly in light of the Sustainable Development Goals (SDGs) (OECD, 2021; United Nations, 2022), this dissertation broadens its understanding of behavior in the context of entrepreneurship to include the social behaviors of entrepreneurs and their enterprises. These behaviors are increasingly significant within a societal framework (Belz & Binder, 2017), offering potential avenues to address our world's grand challenges (Markman et al., 2019).

3.3 Conceptual Model, Psychological Micro-Foundations, and Levels of Analysis

As outlined above in Chapter 2.2, research within the domain of entrepreneurship, recognized as fundamentally human-centric, has highlighted the crucial role of psychological factors (psychological research) in entrepreneurs and their ventures, indicating that psychological micro-foundations (strategic management research) serve

as the foundational elements driving entrepreneurial actions (Felin & Foss, 2019, 2005; Guerras-Martín et al., 2014; Molina-Azorín, 2014; T. C. Powell et al., 2011; Shane & Venkataraman, 2000). These attributes significantly influence how entrepreneurs perceive opportunities, tackle challenges, and lead their ventures, with the potential to generate not only economic value but also contribute to societal progress and stability (Baron, 2008; Gartner, 1988; Hmieleski & Corbett, 2008; Obschonka & Stuetzer, 2017), thus profoundly impacting entrepreneurial outcomes. Entrepreneurial outcomes refer to the results or consequences of the behavior of entrepreneurs and their businesses. These outcomes can be manifold, reflecting the multifaceted nature of entrepreneurship itself (Bruyat & Julien, 2001; Shepherd & Wiklund, 2009; Wiklund et al., 2011; Zahra & Dess, 2001)

In the realm of this dissertation, three psychological micro-foundations (PsyCap, OPC, and Mittelstand Mindset) are examined, which, as Figure 3 as well as Table 2 shows, can be assigned to the conceptual model of the dissertation as follows:

Table 2. Assignment of the Constructs to the Conceptual Framework.

Study	Construct	Source	Dimension	Level
1	PsyCap of SME leader	Luthans, Youssef, et al. (2007)	Cognitive & Affective	Micro
	Tendency to employ Investment Measures	Smart & Vertinsky (1984)	Behavioral	Micro
	Tendency to employ Cost-Cutting Measures	Smart & Vertinsky (1984)	Behavioral	Micro
	Performance	Scale consisting of self-assessment relative to competitors	Outcomes	Meso
2	OPC	Luthans, Youssef, et al. (2007) and McKenny et al. (2013)	Cognitive and Affective	Meso
	Organizational Citizenship behavior	S. Fox & Spector (2011)	Behavioral	Meso
	Cooperation	Belderbos et al. (2006)	Behavioral	Meso
	Solidarity	Pérez & Rodríguez del Bosque (2013)	Behavioral	Meso
	Creative innovation	Zhou & George (2001)	Outcomes	Meso
	Performance	Scale consisting of self-assessment relative to competitors	Outcomes	Meso
3	Mittelstand Mindset	Kuratko et al. (2021)	Cognitive, Affective, and Behavioral	Micro/Meso/Macro

Source: Own representation.

In the interdisciplinary exploration of entrepreneurship, the integration of PsyCap and OPC (as a higher-order construct of PsyCap) within the affective and cognitive dimensions of the conceptual model presents a compelling argument for its foundational role in the behavior of entrepreneurs and the outcomes. The multifaceted nature of PsyCap and OPC is illuminated by examining hope, optimism, self-efficacy, and resilience.

Examining hope within entrepreneurial research through cognitive-based models (Snyder et al., 1991) and emotion-based perspectives (Averill et al., 1990) elucidates PsyCap's dual nature. Cognitive models posit hope as a goal-oriented motivator (Snyder, 2002), while emotional models and younger research view it as an intrinsic energizer toward desired outcomes (Bruininks & Malle, 2005). This dichotomy can be harmonized in the realization that hope, as an element of PsyCap, embodies both the drive (affective aspect) and the direction (cognitive aspect) (Bandura, 2008; Snyder et al., 1997) necessary for engaging with future outcomes. Self-efficacy is embedded within social cognitive theory (Bandura, 1986) and thus plays a pivotal role in cognitive domains. It affects cognitive strategies by enabling goal-setting, investment of effort, and persistence in facing challenges (Bandura, 1997). However, recent studies demonstrate a relationship between self-efficacy and the expression of positive affect (Mesurado et al., 2018) or as an affective trait (Arora et al., 2013). Resilience, the capacity to bounce back from adversity, encapsulates the dual nature of PsyCap by integrating emotional strength to withstand stress and cognitive flexibility to adapt to changing circumstances (Masten, 2001; Masten & Cicchetti, 2016). It involves the adaptable regulation of motivation and action, encompassing both affect and cognition (Schwager & Rothermund, 2013). Optimism, characterized by a positive outlook on future outcomes (Seligman, 1998), is not only considered an affective trait (Scheier et al., 2001; D. Watson & Walker, 1996) but also a cognitive process (Mesurado et al., 2018).

Integrating these insights, it becomes evident that PsyCap's and OPC's roles transcend the boundaries of affective and cognitive categorizations, acting instead as a bridge that synergizes them. Positioned within the overlapping spheres of the affective and cognitive dimensions (Table 2 and Figure 3), PsyCap enriches the entrepreneurial narrative by offering a comprehensive lens through which entrepreneurs' perception, heuristic thinking, memory, and stress-coping strategies are not only understood but leveraged towards the creation of ventures (Baron, 2007; Carver & Scheier, 2001; Hayton &

Cholakova, 2012). This is why this concept is valuable for entrepreneurship research and contributes innovative insights in the research field.

In the context of entrepreneurship, the Mittelstand Mindset serves as a specific manifestation of the broader concept of the EM, reflecting its composite dimensions of cognitive, affective, and behavioral aspects as proposed in the conceptual model of this dissertation. In the past two decades, considerable effort has been made to understand EM (Naumann, 2017). In the beginning, the EM was conceptualized as a metacognitive state (Haynie et al., 2010; Haynie & Shepherd, 2007; Noble, 2015) - a reflective process where entrepreneurs engage in *“thinking about thinking”* or *“knowing what to think about”* (Daspit et al., 2023, p. 20). Thus, metacognition includes the capacity to adapt by employing various cognitive strategies and controlling their learning processes (Flavell, 1979). Metacognition facilitates a deeper awareness and control over decision-making structures, which is pivotal for navigating the complexities of entrepreneurship (Haynie et al., 2010). In recent developments, however, the definition of EM has expanded to encompass a triad of interrelated components: cognitive, emotional (i.e., affective), and behavioral (Kuratko et al., 2021; Shaver, 2024). This multifaceted approach aligns closely with the dissertation's conceptual model, illustrating that entrepreneurial effectiveness derives not solely from cognitive abilities but equally from emotional resilience and behavioral adaptability. The Mittelstand Mindset, as an embodiment of EM within the context of German Mittelstand companies, mirrors these principles. The conceptualization of the Mittelstand Mindset based on cognitive, affective, and behavioral dimensions will be examined in study 3, aiming to present a broader understanding of entrepreneurship and entrepreneurial action and behavior (Table 2 and Figure 3).

Naturally, the research into psychological micro-foundations aims at bridging levels of analysis, namely the micro- and the macro-level (Barney & Felin, 2013; Felin & Foss, 2019), as already described above in Chapter 2.2, and calls for investigation of multi-level influences. Such calls for research on a multi-level basis can also be observed in other areas, such as general management (Hitt et al. 2007) or, more specifically, in cognition research in entrepreneurship (Grégoire et al., 2011). Multilevel thinking underscores the concept that organizational entities are part of a complex, nested structure, ranging from individuals within work groups to broader organizational units and even larger networks

of inter-organizational relationships, all situated within the overarching performance environment. This nested arrangement suggests that the dynamics at one level influence and are influenced by those at other levels. However, research into the interaction between micro-, meso-, and macro-levels in management research highlights a gap where micro-level studies often overlook the social dynamics from broader levels and, thus, are partly scarce. However, multi-level research offers significant benefits, stemming from both theoretical and methodological grounds, by facilitating the examination of phenomena across different levels of analysis. (Hitt et al., 2007).

Multilevel research in entrepreneurship is advocated for its capacity to integrate micro-, meso-, and macro-perspectives, acknowledging that entrepreneurship simultaneously influences and is influenced by various societal levels. Thus, by studying entrepreneurship across different levels of analysis - from individual entrepreneurs, to company-level, and the broader economy - researchers can capture the multifaceted nature of entrepreneurial phenomena, as suggested by scholars (Davidsson & Wiklund, 2001). In addition, research into cognition and entrepreneurship underscores the operation of cognition at various levels of analysis, emphasizing that mental representations and cognitive constructs extend beyond the individual to encompass groups, organizations, and society (Grégoire et al., 2011).

This points to a significant opportunity within entrepreneurship to explore the dynamics of not only cognition but psychological micro-foundations as a whole within the context of a multi-level approach. This dissertation adopts the view that micro-foundations extend beyond individual actors to include the complexities of interactions among them and the organizational context, emphasizing that individual actions are not merely additive but can lead to emergent and unpredictable outcomes at the aggregate level (Barney & Felin, 2013), influencing different levels of analysis. The various levels examined within this dissertation can be found in Table 2.

3.4 Studies of the Dissertation

The following sections present the three studies (Chapters 4-6) that constitute the core of this dissertation. Collectively, they aim to address the central research question of how psychological micro-foundations that address the relationships between cognition, affect, and behavior can be integrated into entrepreneurship research. Each study also stands as

an independent scientific contribution, offering unique insights into entrepreneurship research. Consequently, each study explores its distinct research question.

Each chapter dedicated to a study will begin with an abstract summarizing the research. Then, a brief integration of the study within the conceptual framework of the dissertation will be provided to position each study. Subsequently, the chapter will present the study itself, including sections on introduction, theoretical background (and hypothesis development, if applicable), and methods. Each study closes with a discussion of its specific research question and a conclusion chapter addressing implications and limitations.

Study 1 (Chapter 4) investigates the impact of SME leaders' Psychological Capital (PsyCap) on their strategic responses during the COVID-19 pandemic and its subsequent effects on company performance. The conceptual model (Figure 3) illustrates how PsyCap (at the micro-level), encompassing both affective and cognitive dimensions, influences behavioral decisions such as investment and cost-cutting measures, ultimately affecting organizational performance at the meso-level.

In contrast, Study 2 (Chapter 5) examines the effect of Organizational Psychological Capital (OPC) on key organizational behaviors such as citizenship behavior, solidarity, and cooperation and their impact on creative innovation and company performance. OPC is a collective construct that emerges from individual PsyCap but transcends it through shared values, norms, and interactions, representing a meso-level phenomenon. By analyzing OPC (cognitive and affective dimensions) and behavioral dimensions from a meso-level perspective (Figure 3), this study differs from Study 1 by focusing on how shared emotional and cognitive resources at the organizational level influence collective behaviors. This meso-level analysis provides a broader understanding of how these dimensions drive organizational actions and outcomes, extending beyond the individual-level focus of Study 1.

Study 3 (Chapter 6) explores the psychological mindset characteristic of the Mittelstand, emphasizing the interconnected dimensions of affect (feeling), cognition (thinking), and behavior (acting). By examining how these cognitive, affective, and behavioral factors drive long-term strategic success and social sustainability, the study situates the Mittelstand Mindset within the broader conceptual model of the dissertation (Figure 3).

The study highlights how this psychological micro-foundation shapes entrepreneurial behaviors at the meso-level while also influencing broader societal outcomes at the macro-level.

The dissertation's final chapter (Chapter 7) will comprehensively analyze and contextualize the leading research question, drawing on the three studies presented. It will also discuss the overall implications and limitations of the dissertation.

4 The Impact of SME Leader's Psychological Capital on Strategic Responses During Crisis³

Ann-Christin Grözinger, Sven Wolff, Philipp Julian Ruf, David B Audretsch and Petra Moog

ABSTRACT

This study investigates how the Psychological Capital (PsyCap) of small and medium enterprise (SME) leaders has influenced their strategic responses, ultimately impacting the performance of their companies, during the COVID-19 pandemic. Embedded within research on behavioral micro-foundations in strategy and based on the resource-based theory (RBT) of the individual entrepreneur as well as positive organizational behavior literature, we hypothesize that SME leaders' psychological resources can act as a strategic advantage during crises by making them adopt cost-cutting and investment measures for their company's performance. By using a sample of 372 SMEs, we find that while leaders mostly use both measures, leaders with a high PsyCap prefer adopting investment measures, which positively influences the performance of their companies during a crisis. However, adopting cost-cutting measures lowers performance. We contribute to the entrepreneurship literature by using PsyCap in the context of the RBT of the individual entrepreneur and shedding light on which measures sustain or increase SMEs' performance during a crisis.

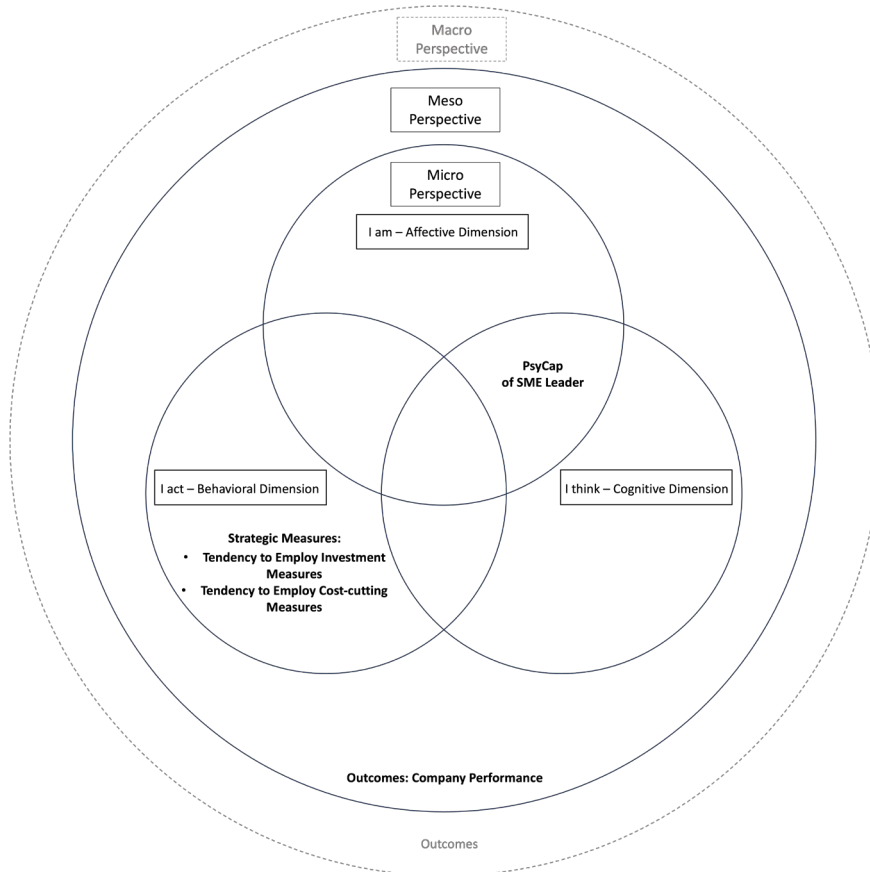
Keywords: COVID-19 crisis, psychological capital, strategic response, SMEs

JEL Classifications: D91; L25; L26; M10

³ Grözinger, A.-C., Wolff, S., Ruf, P. J., Audretsch, D. B., & Moog, P. (2023). The impact of SME leader's psychological capital on strategic responses during crisis. *BRQ Business Research Quarterly*, 23409444231184481. <https://doi.org/10.1177/23409444231184481>. *Reproduced with permission from Sage Publishing.*

4.1 Integrating Study 1 within the Conceptual Model of the Dissertation

Figure 4. Conceptual Model of Study 1.



Source: Own illustration.

Study 1 is titled "The Impact of SME Leader's Psychological Capital on Strategic Responses During Crisis" and examines how PsyCap of SME leaders has shaped the strategic measures implemented during the COVID-19 pandemic, ultimately affecting the performance of their companies. As described above, as well as shown in Figure 4, PsyCap can be considered a construct that contains affective and cognitive elements and is, therefore, located in the overlapping area of the two dimensions on the micro-level. In the study, the strategic measures under investigation include the tendency to employ investment measures and the tendency to employ cost-cutting measures. Both strategic measures are typically aimed at safeguarding company performance during crises, such as the COVID-19 pandemic. Since both measures involve concrete decisions and actions taken by the SME leader during the crisis, they are categorized under the behavioral dimension in the conceptual model. Lastly, the study highlights these measures' impact on the companies' respective performance, defined as the meso-level outcome.

4.2 Introduction

Research on measures to manage and overcome crises as a business leader of a small and medium-sized (SME) company has gained momentum since the COVID-19 pandemic disrupted the global equilibrium in 2020. As a result of the global health crisis, many companies faced the same problems, such as lockdowns, temporary closing of non-essential businesses (Cowling et al., 2020), closed borders, and enforced social distancing. Global supply chains failed (Madhok, 2021), and the very existence of entrepreneurs and their businesses remain endangered due to the measures that were necessary to contain the virus (Kraus et al., 2020; Kuckertz et al., 2020). In these times, companies are forced to rapidly react and adapt to an ever-changing environment (Colpan, 2008; van der Vegt et al., 2015) to at least maintain their performance. Responses usually range from investment measures, such as offensive expansion into new niche markets, to more defensive cost-cutting measures, such as layoffs and investment reductions (Latham, 2009; Lopez-Cabrales & Denisi, 2021). Besides, responses often depend on the competitive advantages as well as the physical and intangible resources of companies (Ghemawat, 1986; Latham, 2009).

However, crisis research, so far, has mainly focused on business measures and physical resources needed to reduce the impact on a firm's performance, neglecting the importance of individual actors in such times. We argue that Alvarez & Busenitz's (2001) extension of the resource-based theory of the firm (RBT) (Barney, 1991), focusing on the individual entrepreneur, offers a suitable theoretical lens to broaden the knowledge, especially in the context of SMEs. We thus place our article in the discussion surrounding behavioral micro-foundations of strategic management (Guerras-Martín et al., 2014; Molina-Azorín, 2014), and here particularly in the field of psychological and cognitive aspects of individuals that influence firm strategy (Hodgkinson & Healey, 2011; Molina-Azorín, 2014; Roundy & Lyons, 2022). In SMEs, most strategic decisions are usually made by the leader(s), and it is widely acknowledged that this leader centrality has a direct and extreme influence on the behavior of businesses (Blackburn et al., 2013; Dyer, 1988; B. Hansen & Hamilton, 2011; Jennings & Beaver, 1997; Kelly et al., 2000; Schein, 1983; H. Zhou et al., 2017). Additionally, their decisions may not only cause the loss of financial resources (in the worst case, their company may not survive) but might also lead them to lose their independence or self-confidence, increasing stress, fatigue, and fear (Doern,

2016). As such, the lack of empirical research that deals with underlying factors focusing on the role of individuals (Foo, 2011; Miocevic, 2021) and their decision-making regarding certain strategic choices is surprising. Some studies attempted to focus on psychological constructs to explain the behavior and decision-making of SME leaders⁴ (e.g., Estrada Cruz et al., 2019; Simsek et al., 2010; Wang et al., 2016). Miocevic (2021) provided the first empirical evidence that positive and negative emotions within leaders shape their response intentions in a way that positive emotions significantly influence investment, while negative emotions influence divestment. In line with this, we theorize that the selection of investment versus cost-cutting measures during times of adversity is based on the psychological mindset of SME leaders (Bullough et al., 2014; Latham, 2009).

Thus, the purpose of this study is to address the following research question, *“Does psychological capital of SME leaders influence both the direction of strategic response that is taken during a crisis and performance of these firms?”* Scholarly research has identified the concept of Psychological Capital (PsyCap) to reflect the nature and state of psychological resources in individuals. Thus, PsyCap represents an individual’s positive mental condition (Luthans, Avolio, et al., 2007) that comprises four psychological resources of hope (Snyder et al., 1991), efficacy (Bandura, 1997), optimism (Seligman, 1998), and resilience (Masten, 2001). As the PsyCap of an individual is malleable (Luthans, Avolio, et al., 2007) and conducive to development (Dello Russo & Stoykova, 2015), it offers great potential for management research (Luthans & Youssef-Morgan, 2017). Recently, studies on entrepreneurs’ PsyCap have been conducted (Baron et al., 2016; Hmieleski et al., 2015; Jensen, 2012), showing that it reduces their perception of stress and ultimately contributes to well-being and fosters desirable outcomes (Baron et al., 2016; Jensen, 2012). To test our hypotheses, we use partial least squares structural equation modeling (PLS-SEM) on a dataset of 372 SMEs.

Our research contributes to the discourse of contemporary entrepreneurship literature by first adding to the literature on micro-foundations of strategic management (Molina-Azorín, 2014), which is embedded in RBT (Foss, 2011). Here, we emphasize the RBT of the

⁴ For the purposes of this study, and to encompass all SMEs, the term "SME leader" is defined as either the owner-manager or an individual with managerial responsibility who is not an owner. This distinction is necessary, as not all SMEs are owner-managed; some are led by hired managers, while ownership resides with external individuals. The purpose of this study was to include all SMEs.

individual entrepreneur (Alvarez & Busenitz, 2001), more precisely, the SME leader, by showing that positive psychological characteristics of SME leaders contribute to the competitive advantages of their businesses. On the one hand, we find a direct positive link between the SME leaders' level of PsyCap and performance of their companies during the recent COVID-19 pandemic. On the other hand, we show that the relationship between PsyCap of SME leaders and performance is mediated by the implemented strategic measures. Second, we add to the positive psychology literature by showing that the level of psychological resources influences the mix of strategic responses during a crisis. SME leaders with a higher PsyCap emphasize implementing investment measures during a crisis, whereas SME leaders with a lower PsyCap emphasize cost-cutting measures. We observe a positive relation between investment measures and performance, while cost-cutting measures impact performance negatively. Thus, by investing in improving their PsyCap, SME leaders can contribute to strengthening the sustained competitive advantage of their firms, which is not restricted by size, financial resources, or network capabilities. Our findings ultimately contribute to understanding why some companies might perform better in adverse circumstances than others.

4.3 Theoretical Background and Hypothesis Development

A long tradition of research suggests that sustained competitive advantages are crucial for firms' success and become even more important in crises. Embedded in RBT (Barney, 1991), it is broadly acknowledged that firms' idiosyncratic resources establish sustained competitive advantages (Crook et al., 2008). However, SMEs face greater constraints compared to larger companies, stemming from limited access to traditional resources, like physical, financial, and human resources (Bartz & Winkler, 2016; Fort et al., 2013; Smallbone et al., 2012). This so-called liability of smallness (Aldrich & Auster, 1986) makes gaining some advantages more difficult to almost impossible. Nonetheless, their smaller size enables them to gain other idiosyncratic resources, which can become even more important in the task of combating exogenous crises (Beliaeva et al., 2020). Due to their size, SMEs are usually more flexible, less formalized, and have flat hierarchies which promote and enable a quick reaction to adverse events.

Besides, in entrepreneurship research, it is broadly acknowledged that strategic responses in SMEs are concentrated within their leaders, thus giving them a pivotal role

and the opportunity to shape the behavior of these companies (Blackburn et al., 2013; B. Hansen & Hamilton, 2011; Jennings & Beaver, 1997; Kelly et al., 2000; Kotey & Meredith, 1997; Roundy & Lyons, 2022; Schein, 1983). For example, Smallbone et al. (1995) show that high growth in SMEs is more influenced by managers' behavior than by firm characteristics such as age or size, while Wiklund & Shepherd (2003) show that the growth of small businesses is directly linked to personal growth intentions of their leaders. The idea of leader centrality within SMEs, and thus putting individuals at the core of explaining organizational behavior, goes in line with the literature on behavioral micro-foundations in strategic management (Guerras-Martín et al., 2014; Molina-Azorín, 2014; T. C. Powell et al., 2011; Roundy & Lyons, 2022). While strategic literature for a long time focused on the firm level concerning strategy, since the early 2000s, scholars have started to consider the role of individuals in this regard (Felin & Foss, 2005; Molina-Azorín, 2014). Scholars in this line focus on psychology and organization behavior research aiming at developing realistic assumptions about strategy and human behavior (T. C. Powell et al., 2011) and thus explaining why and how companies differ from one another. In doing so the research on behavioral micro-foundations in strategic management is closely tied to the RBT, as it considers internal resources and capabilities of individuals that create a unique bundle of resources with the potential of creating competitive advantages (Foss, 2011; Molina-Azorín, 2014). Consequently, it is not surprising that Alvarez & Busenitz (2001) extend the RBT by empathizing with the long-overlooked role of individual entrepreneurs as a strategic resource in entrepreneurial businesses. They show "*...how individuals sometimes embody bundles of heterogeneous resources that allow them to repetitiously create new entrepreneurial opportunities through the firm*" (Alvarez & Busenitz, 2001, p. 771).

As Hodgkinson and Healey (2011) stress, the stream of behavioral micro-foundations in strategic management has, to a large extent, focused on behavioral and cognitive factors and overlooked emotional and affective factors to a large part. They argue that this contributes to a distorted picture of how individuals influence strategy within companies. While in the past years, an increase in research on the role of emotions in strategic management can be observed (Brundin et al., 2022; Daniels, 1998; Huy, 2012), we argue that research into micro-foundations of strategy needs an even broader view. In psychology, various psychological characteristics of individuals can be grouped on the so-called state-trait continuum, referring to the degree of the characteristic being subject to malleability (Luthans & Youssef, 2007; Luthans & Youssef-Morgan, 2017). On the state-

trait continuum, emotions are located on the very left side of the continuum, being pure states that are temporary, changeable, and volatile. Moving to the right side of the continuum, the psychological characteristics get more permanent with state-like resources that are more stable than states but still open for development and malleable (e.g., PsyCap). Next, the trait-like characteristics are relatively stable within an individual and are not easy to change (e.g., Big Five personality traits). On the far right of the continuum are pure traits that are not open to development as they are mainly genetically based (e.g., intelligence) (Luthans, Avolio, et al., 2007; Luthans & Youssef-Morgan, 2017). We stress that especially the research on behavioral micro-foundations for state-like characteristics is still lacking, but offers, like the research on emotions, the potential to explain the role of individuals in strategy.

Simultaneously to the increase of research into behavioral micro-foundations, scholars in RBT have started to explore new resources on the firm as well as the individual level that have the potential for creating sustained competitive advantages. Those resources encompass social capital, technological capital, positive organizational behavior (POB), and PsyCap (Luthans & Youssef, 2004). The latter two can be considered as psychological micro-foundations influencing organizational behavior and thus serve as a potential unique resource in the sense of RBT (Luthans & Youssef, 2004; Newman et al., 2014).

POB as a research stream focuses on “...*the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement*” (Luthans, 2002a, p. 59) and has been used in broad management research for almost two decades (Luthans, 2002a; Newman et al., 2014). PsyCap, as a sub-research field of POB, is defined as “[...] *an individual’s positive psychological state of development [...]*” (Luthans, Youssef, et al., 2007, p. 3) and represents a higher-order core construct of the four psychological resources of hope, (self-) efficacy, resilience, and optimism (Luthans, Avolio, et al., 2007; Luthans et al., 2005).

Hope is contextualized by a set of two cognitive factors that interact reciprocally: agency and pathways. Whereas agency represents an individual’s belief in his or her capability to initiate and control required measures to reach his or her goal, pathways reflect the capability to imagine and generate different ways to achieve them (Snyder et al., 1991,

1996). Thus, hope describes a psychological state of goal-directed willpower and the ways to reach those. In the context of organizations, individuals with a high level of hope have several work-related long- and short-term goals, which they are motivated to reach by creating different paths (Hmieleski et al., 2015).

The psychological resource of efficacy reflects the personal assessment of an individual's capabilities and thus the confidence in their abilities (Bandura, 1982; Stajkovic & Luthans, 1998). The concept is rooted in social cognitive theory (Bandura, 1997, 2012) and reflects the degree to which a person can mobilize his or her cognitive abilities and motivation to master tasks (Bandura, 1982). This enables individuals with a high level of efficacy to pursue more ambitious goals for showing a strong reliance on their abilities than those with low efficacy (Bandura, 2012).

Resilience in a work-related context provides the ability “[...] *to rebound, to “bounce back” from adversity, uncertainty, conflict, failure or even positive change, progress and increased responsibility*” (Luthans, 2002b, p. 702). Individuals with high resilience are better able to tolerate adverse circumstances and aim to resolve a situation (Luthans et al., 2006; Luthans & Youssef, 2004).

Finally, the psychological resource of optimism (Seligman, 1998) refers to people dealing with adverse situations with an optimistic mindset. Optimistic people expect favorable outcomes and, in doing so, face obstacles in a constructive manner (Scheier et al., 2001). This resource can, therefore, be described as *“a positive explanatory style that attributes positive events to internal, permanent, and pervasive causes, and negative events to external, temporary, and situation-specific ones”* (Luthans & Youssef, 2004, p. 153). Accordingly, individuals experiencing a high level of optimism seem to adapt more easily to changing environments and adverse developments (Luthans et al., 2006).

What makes PsyCap so interesting for organizational behavior research is that it represents a state-like concept, meaning that it can be cultivated even through small interventions (Dello Russo & Stoykova, 2015). This also differentiates it from concepts, such as the big five personality traits, which mostly remain stable in an individual's lifetime and thus are resistant to development (Luthans, Avolio, et al., 2007).

High PsyCap has been linked to several desirable work-place related outcomes like individual performance, attitudes, and behaviors of employees (for a comprehensive overview see Newman et al., 2014). After examining the PsyCap of employees, scholars started to investigate the construct in the context of entrepreneurs and business owners. Jensen & Luthans (2006) find that SME leaders' PsyCap positively influences their self-assessed authentic leadership behavior, allowing them *"to not only survive but thrive within a challenging and dynamic environment"* (Jensen & Luthans, 2006, p. 266). Besides, Rego et al. (2019) show that leaders with a high PsyCap energized their staff members and might have positively enhanced their performance. Furthermore, Hmieleski et al. (2015) find that PsyCap of entrepreneurs seems to be of particular importance for creation contexts, which are characterized by dynamic conditions of an industry facing a high level of uncertainty, similar to crisis contexts. These scholars find a positive influence of entrepreneurs' PsyCap on firm performance in such contexts. In line with these findings and the above discussion concerning RBT and SME research, the relevance of individual SME leaders' PsyCap as a source of sustained competitive advantage during crises becomes evident. In our study, we follow the theoretical perspective suggested by the extension of RBT, focusing on the PsyCap of individual SME leaders in crisis contexts.

4.3.1 PsyCap of SME Leaders and Their Strategic Responses During Crisis

An exogenous crisis poses difficult circumstances for companies as the external context changes in the sense that companies cannot influence the changes taking place within their environment (Cowling et al., 2018; Latham, 2009). The consequences of these changes in a company's context can throw out of balance the well-adapted and aligned value chains and cost structures (Madhok, 2021). Meanwhile, these consequences can be due to changes in a company's business environment, customers' needs, or even society as a whole (Colpan, 2008). Hence, for companies, crises entail an inherent compulsion to change. Complicating matters further, the unbalanced environmental context also modifies the opportunity structure available (Kuppuswamy & Villalonga, 2016). To survive in challenging circumstances, SME leaders must act and grasp the opportunities posed by changing circumstances (Grégoire et al., 2010; Kraus et al., 2020; Vaghely & Julien, 2010). In light of the ubiquitous influence of SME leaders, which means they often have to make decisions about strategic orientations very promptly when facing crises, it is essential to understand different perceptions and reactions of SME leaders in the context of crisis

(Herbane, 2010; Jones & Macpherson, 2006). This decision-making process is often characterized by a lack of information, which increases uncertainty (Herbane, 2010; Vargo & Seville, 2011) and raises pressure on leaders. They not only have to deal with unexpected losses in the business dimension, which in a worst-case scenario can lead to bankruptcy, but also personal losses like a decrease in independence, self-esteem, and private liquidity as well. However, leaders that can build on a rich resource base, also in terms of personal and psychological resources, are better able to avoid these losses (Doern, 2016).

Consequentially and in light of the RBT, according to Alvarez & Busenitz (2001), we argue that an individual leader's psychological resource base can act as a sustained competitive advantage during times of adversity. We, thus, stress that SME leaders' mental state in times of adversity and their individual perception of crisis (Herbane, 2010) can become a crucial resource during this time, as psychological characteristics seem to influence not only the personal well-being of leaders but also their behavior, which ultimately reflects in their companies' ability to deal with a situation (Vargo & Seville, 2011, p. 5620).

According to research, psychological factors influence the choices of individuals in various areas and thus have an impact on their decision-making and behavior (Huijts et al., 2012; McGuire, 1976; Molina-Azorín, 2014; Roundy & Lyons, 2022; Thompson, 2014). Translating this context to entrepreneurship research seems to be of particular relevance for SME leaders because their centrality influences their companies to an extraordinary extent (H. Zhou et al., 2017). Moreover, time pressure caused by changed environmental conditions in a crisis inevitably makes it necessary for leaders to make a decision so that their organizations' behavior can be adapted to the changes (van der Vegt et al., 2015).

Management scholars stress the importance of a positive psychology approach to enhance our understanding of SME leaders' responses during such times (Giones et al., 2020; James et al., 2011; Pearson & Clair, 1998). First, results by Milosevic et al. (2017) underpin the importance of research in this direction: In their study, they investigated how leaders leverage their PsyCap to navigate through a crisis and analyzed Sir Winston Churchill's behavior during World War II. They find that PsyCap in leaders represents a crucial element when leading through such times, as the composition of psychological resources *"fuel activities needed to persevere and overcome a crisis"* (Milosevic et al.,

2017, p. 140). From this, we theorize that the decision SME leaders make about the strategic alignment of their companies in such circumstances is influenced by their level of PsyCap.

The responses considered can be divided into two options (neither of which are mutually exclusive but can be highly effective in combination): investment measures and cost-cutting measures. The first option involves making strategic adjustments during a crisis and implementing externally-focused investment measures (Hofer, 1980; Latham, 2009). These measures include revenue-generating and market-oriented actions, seizing opportunities, like an aggressive expansion into new niche markets, diversification, competitive actions, entrepreneurial actions, or improving product quality (Kottika et al., 2020; Lonial & Carter, 2015; Shen et al., 2018; Smart & Vertinsky, 1984). However, implementing such measures depends on an entrepreneur's capacity to recognize such opportunities (Wall & Bellamy, 2019). As individual resources of entrepreneurs influence their ability to recognize opportunities (Alvarez & Busenitz, 2001), we argue that a high PsyCap, which reflects an individual's positive psychological state, positively influences such decisions.

Smart & Vertinsky (1984) theorized that in times of crisis, even risk-takers would rather take cost-cutting measures, as uncertainty in such situations does not outweigh the benefits gained from risky choices. According to them, people high in the psychological resource of optimism engage in investment actions because they tend to see the turbulent environment as only a temporary setback, which they counteract by trying to control the situation. Adding to that, SME leaders, high in hope and optimism, prefer to implement strategic directions that foster growth (Wall & Bellamy, 2019). Kottika et al. (2020) show that in the context of a crisis, entrepreneurs with a positive mindset tend to engage in investment measures like becoming more competitive, more customer-oriented, or adopting innovation. This indicates that entrepreneurs who grasp opportunities seem to have a high level of PsyCap. Given that investment measures are largely focused in an external direction, that is, involving the use of resources in an uncertain environment (Chattopadhyay et al., 2001) with no certainty of recovering the investment, we argue that a strong link between a high level of positive psychological resources and investment measures can be expected.

Hypothesis 1 (H1): SME leaders that exhibit a high psychological capital are likely to implement investment measures during a crisis.

The second option, contradicting the external-focused investment measures, is to implement strategic measures that are focused on internal affairs by aiming at aligning a company's structure to its situation (Cater & Schwab, 2008; Morrow et al., 2004). Such measures are considered to be rather conservative (Chattopadhyay et al., 2001; Hofer, 1980; Latham, 2009), and they typically include retrenchment, layoffs, and cost-cutting in different areas like marketing, purchasing, and product development (Collett et al., 2014). Usually, such measures entail less risk than investment measures, as their purpose is the realignment of a company's structure without raising capital in any form (Morrow et al., 2004). Wall & Bellamy (2019) find that individuals who are less optimistic and less hopeful about a crisis tend to act more carefully and stay within the range of actions that are already known. Additionally, less optimistic individuals are more afraid of failure in threatening situations (Engel et al., 2019), leading to more conservative responses. Thus, SME leaders who cannot draw on strong and positive psychological resources might refrain from seizing opportunities in crises and instead focus on internal affairs and adapting structures by cutting costs within an organization. In this context, Bullough et al. (2014) show that entrepreneurs with low levels of PsyCap resources of resilience and efficacy are less likely to take entrepreneurial actions. As a consequence, we argue that leaders with a lower level of PsyCap resources prefer to implement cost-cutting measures.

Hypothesis 2 (H2): SME leaders that exhibit a low psychological capital are likely to implement cost-cutting measures during a crisis.

4.3.2 Measures to Mitigate Crises and Their Effect on Performance

The survival of SMEs during adverse times is inevitably linked to their performance (D. K. Robbins & Pearce, 1992, 1993). As argued above, crises confront SMEs with the inherent need for change. Thus, SMEs and their leaders must act and seek opportunities to align with the changing environmental circumstances and maintain performance. This leaves them with uncertainty, fatigue, and stress, as they fear for their existence in terms of running out of money (Doern, 2016). Thus, they succumb to being the victim of a crisis rather than actively engaging with an opportunity. Instead of being passive, if they are active in such situations, they will harness opportunities which are intended to stabilize

the performance (Beliaeva et al., 2020). When they start losing customers and stop being profitable, SME leaders need to find the right alignment strategy for their situations (Eggers, 2020). In doing so, they can draw on the two measures discussed above, both of which generally serve to strengthen a company's performance.

Even in non-crisis circumstances, there is an inherent need for SMEs to harness investments, grow, expand, or simply stay competitive. If companies stop investing, they may stagnate or get outpaced by their competitors (Klein, 2008). It is evident that during a crisis, the need to implement investment measures might become more important (Zúñiga-Vicente et al., 2019) as the equilibrium that usually exists within a company structure gets disrupted (Cowling et al., 2020). The circumstances of an external crisis change the business environment for companies. Consequently, established processes and cashflows of such companies may fail to generate their performance goals. Thus, SMEs must act, change, and find opportunities, which means they must invest to not succumb to being the victim of their circumstances. Research shows that SMEs are more prone to implementing investment measures in comparison to cost-cutting measures during a crisis (Shama, 1993; Smallbone et al., 2012). This draws from the fact that smaller companies exhibit special characteristics, such as low formalization, less bureaucracy, as well as informal knowledge transfer (Schulze et al., 2001; Sirmon & Hitt, 2003; Zahra, 2012). Therefore, they can react in a more flexible and fast way to the changing market demands and seize opportunities. By implementing investment measures, they can boost their performance during adverse times (Bartz & Winkler, 2016; Beliaeva et al., 2020; Lonial & Carter, 2015; Shen et al., 2018; Smallbone et al., 2012). Hence, we propose that flexibility and the concentrated decision-making power of SMEs help to adapt faster throughout a crisis and grasp business opportunities by investing, which ultimately improves their performance (H. Zhou et al., 2017).

Hypothesis 3 (H3): SME leaders that implement investment measures during crisis exhibit higher performance in their companies.

Another feasible step to take during a crisis is to realign a company's internal affairs to changing circumstances by trying to reduce the use of resources (Cater & Schwab, 2008). SMEs use such cost-cutting measures as well (Chu & Siu, 2001; Collett et al., 2014; DeDee & Vorbies, 1998). When a company implements "rightsizing" or cost-cutting approach

(Hitt et al., 1994), it does not imply that it is less efficient than companies that take investment measures - retrenchment can stabilize a company's financial situation, especially when an industry is declining (Morrow et al., 2004).

Usually, companies implement cost-cutting measures to increase their efficiency, productivity, and competitiveness or aim for strategic realignment (Hitt et al., 1994). Considering the broad literature about downsizing, we find that implementing cost-cutting measures does not always have a positive effect on the company's performance (Cascio & Young, 2003; Guthrie & Datta, 2008) or results seem to be mixed (Cascio et al., 1997; De Meuse et al., 1994; Sheaffer et al., 2009). However, looking at the samples, the context, and the way that the downsizing activities were measured, we find that most of the studies take place in large publicly held companies during stable times (i.e. not in times of economic crises) and the downsizing is mostly measured by the change in employee numbers between two years (Cascio et al., 1997; Cascio & Young, 2003; Guthrie & Datta, 2008; Sheaffer et al., 2009). Especially the latter is to be seen as problematic, as this measure does not include an indication of whether the employee changes were on a voluntary level (i.e., employees choose to go due to personal reasons) or if they were forced by the management (Cascio & Young, 2003). Besides this, in relatively stable economic contexts as well as in publicly held companies, the reasons for deciding to implement cost-cutting measures differ severely than in the context of our study. As our study focuses on a global crisis and SMEs, we argue that our study needs a narrower focus on the special context we are surveying.

If the motivation for implementing cost-cutting measures stems from a crisis, companies usually aim to "*right-size*" in such a way that their performance at least resembles that of the pre-crisis period (DeDee & Vorbies, 1998; Hofer, 1980). However, it must be noted that not every SME is suited for implementing cost-cutting measures in the same way, as size does play a significant role in this regard. The smaller a company, the lesser its scope to cut costs without affecting its business activity in a manner that negatively impacts its performance (Chu & Siu, 2001; Fisher et al., 2004). In non-crisis situations, the internal processes of an SME are usually adjusted in a manner that there is a balance between cost structures, business activities, and performance. However, as a result of a crisis, SMEs are forced into a situation where this balance can no longer be maintained (Cowling et al., 2020; Hofer, 1980), as the changed environmental conditions lead, for example, to

customers leaving a company or to significantly lower demand. This affects the revenue of a company while its cost remains the same (Eggers, 2020).

However, by implementing cost-cutting measures, companies aim to rationalize business activities and cost structures, which can have a positive effect on their financial performance (Hofer & Schendel, 1978; D. K. Robbins & Pearce, 1992). Activities that do not correspond to this core focus are discontinued to save unnecessary costs. Consequently, the objective of such cost-cutting measures is to increase the efficiency of an organization, thereby maintaining or increasing its performance (Hofer, 1980). Therefore, we propose the following hypothesis.

Hypothesis 4 (H4): SME leaders that implement cost-cutting measures during a crisis exhibit higher performance in their companies.

4.3.3 PsyCap of SME Leaders and the Performance of Their Companies

The entrepreneurship literature assumes that the characteristics, behaviors, and actions of entrepreneurs are a reflection of their firm's performance (Covin & Slevin, 1991; Hmieleski et al., 2015). This assumption follows the logic of Alvarez & Busenitz (2001), who postulate based on RBT that an entrepreneur represents a strategic competitive advantage. The sum of entrepreneurs' characteristics and behaviors can, therefore, have a direct or indirect influence on the performance of their companies (Hambrick, 2007). In SMEs, leaders are inseparably intermingled with their companies and thus perform a crucial role. For example, we know that entrepreneurs influence their companies' culture (Schein, 1983). Additionally, their characteristics and motivations have been proven to influence the growth of their companies (Baum et al., 2001).

Given that the literature refers to PsyCap as a sustained competitive advantage (Luthans & Youssef, 2004; Toor & Ofori, 2010), we will follow this reasoning. According to Barney (1991), sustained competitive advantages can be acquired when firms exploit their internal idiosyncratic strengths as a means to respond to environmental opportunities. For a resource to act as a sustained competitive advantage, it needs to fulfill four criteria, namely, it must be valuable, imperfectly imitable, rare, and non-substitutional.

PsyCap is valuable due to the following reasons. It has already been connected to firm performance on multiple occasions. According to Grözinger et al. (2022), organizational

PsyCap (OPC), which is a higher-level construct of individual psychological capital, does show a positive and significant influence on firm performance. The individual PsyCap of entrepreneurs has been connected to enterprise performance by Gao et al. (2020). Results show that all dimensions of the individual PsyCap are positively correlated to performance. However, Barney (1991) also states that context matters and that resources are not valuable in general. Thus, the question remains if individual PsyCap is valuable within a crisis context. Here, it is noteworthy that Grözinger et al. (2022) have shown that OPC fosters creative innovation during times of crisis, which is an essential part of overcoming such situations. Furthermore, Luthans et al. (2011) presented the first evidence that PsyCap helps individuals' problem-solving abilities, which is essential in crises. As such, we argue that PsyCap is valuable in times of crisis according to Barney's (1991) definition. PsyCap is also imperfectly imitable. The composition of PsyCap resources within an individual is unique to the person in question, as it emerges from a complex interaction of a sum of influences, like their social environment, experiences, and psychological processes (Luthans & Youssef, 2004). Thus, it meets Barney's (1991) proposed conditions for a resource being imperfectly imitable. As PsyCap of an individual not only consists of a mix of four different psychological characteristics (Luthans, Youssef, et al., 2007) but also develops through a mix of different factors, it can be considered a rare resource according to Barney's (1991) reasoning. Besides, PsyCap also meets the criterion of being non-substitutable, as the four psychological resources which form PsyCap are unique psychological characteristics of human beings (Bandura, 1997; Masten, 2001; Seligman, 1998; Snyder et al., 1991).

A high PsyCap of a person indicates that this individual is functioning optimally (Luthans, Youssef, et al., 2007), which influences personal performance (Avey et al., 2011; Avey, Nimnicht, et al., 2010; Luthans, Avey, et al., 2008; Luthans, Avolio, et al., 2007; Luthans et al., 2005, 2010; Luthans, Norman, et al., 2008; Peterson et al., 2011). Exemplary empirical studies find a positive relationship between PsyCap of employees and factors, such as their individual job-level performance (Luthans, Avolio, et al., 2007), manager/supervisor-rated performance (Avey, Nimnicht, et al., 2010; Peterson et al., 2011), and creative performance (Rego et al., 2012).

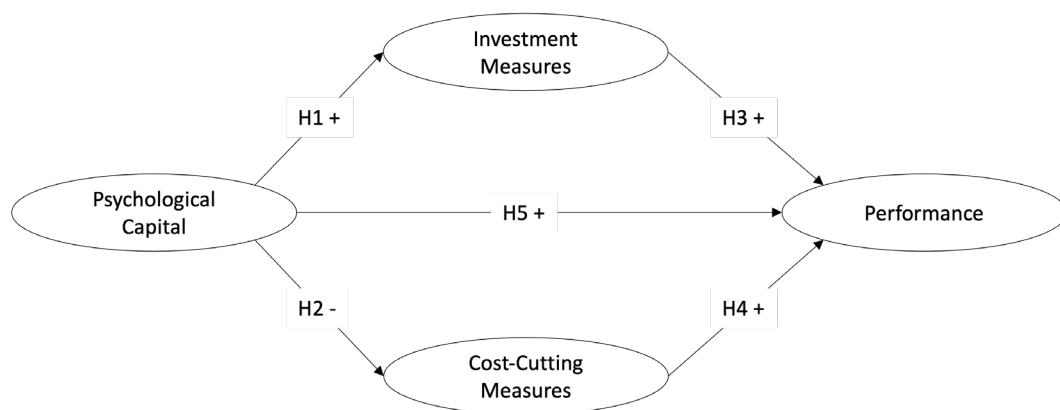
Combining the perspectives that PsyCap can be a sustained competitive advantage for companies and the significant influence that SME leaders have on their companies, it is

reasonable to assume that the PsyCap of SME leaders has a direct influence on the performance of their companies in a crisis. First results in this context were provided by Hmieleski et al. (2015). Building on the notion of creation versus discovery contexts, these scholars show that higher PsyCap of entrepreneurs positively influences performance in the creation context. Such contexts are characterized by dynamic conditions and a high level of uncertainty, like crisis contexts. This suggests that the PsyCap of entrepreneurs is especially valuable in uncertain and dynamic environments to facilitate performance in difficult times. Thus, we argue that if SME leaders can utilize a high PsyCap in crisis by increasing their individual performance, it will positively influence the performance of their companies.

Hypothesis 5 (H5): The greater the PsyCap of an SME leader, the better the firm’s performance during a crisis.

Figure 5 shows an overview of all hypotheses and their presumed relationships.

Figure 5. Hypotheses.



Source: Own illustration.

4.4 Method

4.4.1 Data set and sample of study

In July 2020, we conducted an online survey to test our hypothesis. We decided to focus only on one country, as various countries were affected differently by the COVID-19 crisis. We decided to choose Germany due to its important economic role and the nationwide equal political countermeasures against the crisis in the months studied. We sent e-mail invitations for participation in our study to 20,000 companies overall, which we extracted

from the Amadeus database (Buerau van Dijk, 2020). The questionnaire was addressed to managers and owners of the companies. First, they were addressed as such in the cover letter, and later, they were questioned about several aspects, including their position in the companies. The questionnaire was started by 1,501 people. Of them, 696 people completed it. Based on the completed questionnaires, the response rate was 3.48%. To consistently perform our analyses with the same number of cases, we used a filter that excluded all cases from our final sample where filled questionnaires had missing data or where the questionnaire was not filled out by the owner or manager of a company. To only include SMEs, we excluded firms with more than 249 employees (European Commission, 2003). This resulted in a final sample of 372 owners or managers, of which 231 are both owners and managers.

Our analysis included a test for non-response bias. Consequently, we performed an analysis to determine if the responses of the first respondents differed from those of the last respondents. As a result, we split the data set into three sections according to the response time and compared the three categories. We observed no statistically significant differences regarding our explanatory variables (Armstrong & Overton, 1977; Chrisman et al., 2004; Dehlen et al., 2014).

To confirm the representativeness of our sample, we first compared respondents to the original draw to which we sent the survey. For this, we only used firms with fewer than 250 employees in both datasets and compared the distribution of the number of employees and the industries. No significant differences were found between the data sets regarding the number of employees. Regarding the distribution of industries, the mean value for the service industry also did not differ significantly between the two samples. However, the mean values for manufacturing and other industries differ significantly. The effect size of these differences can be classified as small, with values below 0.2 (Cohen, 1988). In detail, the respondents assigned themselves somewhat more to the other industry (+4,0 %) and somewhat less to the manufacturing industry (-3,7%). This may also be the case because the assignment is not always easy for the respondents, as their companies are often active in several industries at the same time, or the assignment can be very complex. We also compared our data set with descriptive data from other published articles about surveys of SMEs in Germany. Regarding the age of the

respondents, comparable values can be found in previous studies [49.4 years in our study compared to 45 years in Dehlen et al. (2014) and 51.6 years in Zellweger et al. (2012)].

Counteracting any potential common method bias, we took several preventive measures (Fuller et al., 2016). First, we assured all participants anonymity and scientific integrity to obtain honest answers and counteract a possible influence through effects such as social desirability (Podsakoff et al., 2003). Furthermore, we phrased the questions in a manner that did not allow conclusions to be drawn about the researchers' expectations. In addition, the question sequences were randomized for the participants (Podsakoff et al., 2003).

4.4.2 Variables

We use a respondent's self-assessment of a firm's performance. Prior research shows that this approximation can be used as an equivalent substitute for measuring performance, as self-assessment is substantially akin to performance measurement via key figures (Dess & Robinson, 1984; Eddleston et al., 2007; Love et al., 2002). Purposefully, we asked respondents in our survey to assess the performance of their companies in six areas compared to their competitors since the beginning of the COVID-19 crisis in January 2020. We employed a 5-point Likert scale ranging from "*much worse = 1*" to "*much better = 5*" for the measurement. Concerning the six areas, we asked for information on (1) sales; (2) revenue; (3) number of employees; (4) net profit margin; (5) market share; and (6) cash flow. These parameters were used for measuring performance in several studies and thus provided a reliable foundation for our analysis (Eddleston et al., 2007; Naldi et al., 2007; Smolka et al., 2016; Wiklund & Shepherd, 2003, 2005).

We measured PsyCap with the validated self-form of the Psychological Capital Questionnaire (PCQ) by Luthans, Youssef, et al. (2007)⁵. As we collected our data in

⁵ Research Edition Translation of the Psychological Capital Questionnaire - Self Form performed by Ann-Christin Grözinger, Dr. Sven Wolff and Prof. Dr. Petra Moog. Translated into German and reproduced with the special permission of the publisher, Mind Garden, Inc., www.mindgarden.com, from the Psychological Capital Questionnaire - Self Form by Fred L. Luthans, Bruce J. Avolio and James B. Avey. Copyright © 2007 Psychological Capital (PsyCap) Questionnaire (PCQ) Fred L. Luthans, Bruce J. Avolio and James B. Avey. All rights reserved in all mediums. Further reproduction is prohibited without the publisher's written consent.

Germany, we translated the instrument into German with the special permission of the publisher. We used the original questions for translation to German and validated the correctness of the translation by a bilingual native speaker. The questionnaire consisted of 24 questions representing the four dimensions of hope, efficacy, resilience, and optimism, as described by Luthans, Youssef, et al. (2007). We, therefore, asked the respondents to assess how much they agree with a statement about their behavior and thinking in a special situation. For this purpose, we used a 6-point Likert scale⁶ as proposed by the original authors, ranging from “*strongly disagree = 1*” to “*strongly agree = 6*”. We then calculated the respective answers to a *mean value* for the respective dimension. The computed values were used as *indicator variables* for the psychological capital construct. Cronbach’s alpha for the dimensions of hope, efficacy, resilience, and optimism varied between 0.701 and 0.862.

As additional latent variables in our model, we used *investment* and *cost-cutting measures* taken by the surveyed companies during a crisis. The set of potential options for strategic responses went back to the suggestions of Smart & Vertinsky (1984), an exemplary study that examined how strategic measures in a crisis are related to the environment of a company. We adapted the questions to the COVID-19 circumstances by introducing questions as follows: “*To deal with the challenges of the COVID-19 crisis, our company has....*” The respondents then had to rate a statement on their company’s strategy during the crisis on a 5-point Likert scale ranging from “*strongly disagree = 1*” to “*strongly agree = 5*.” Finally, based on our literature analysis, we sorted the questions according to cost-cutting and investment measures and checked this classification by factor analysis. The investment measure consisted of⁷: (1) aggressive marketing strategy, (2) investments in more efficient plants and processes increased, (3) research and development activities expanded, (4) information acquisition intensified, (5) management approach with target agreements and profit incentives introduced, and (6) major organizational changes. The *cost-cutting measures* included (1) cutting back the operating budgets of all divisions, (2) across-the-board cuts in the operating budgets of all divisions or departments, (3) staff

⁶ PsyCap was measured on a 6-point Likert scale, all other constructs were measured on a 5-point Likert scale. We did this for two reasons: First, to build on existing knowledge and tested scales we decided to use all scales as they were originally proposed and validated by the respective authors. Second, within the latent constructs, the same scale widths are given and thus, we avoided an error due to incorrect weighting of the questions within the latent variables.

⁷ For a full overview see Appendix 1: Questions on investment and cost-cutting measures.

reduced, (4) products that are only marginally profitable eliminated, (5) cut back expenses for office materials, entertainment allowances, and travel, (6) authority of field managers and department heads reduced, and (7) managers whose divisions have poor performance fired (Smart & Vertinsky, 1984).

4.4.3 Control Variables⁸

In our analysis, we included several control variables, which have been established in the literature, to influence firm performance. We used the number of employees as an indicator of firm size, which has a significant impact on the performance of companies (Smolka et al., 2016). By including the age of the firm, we controlled for the possible effects of experiences with previous crises on the choice of measures used and performance during the COVID-19 crisis (Smolka et al., 2016). To control for industry influences (Chrisman et al., 2004), we surveyed the aggregated 10 categories version of the top-level industry allocation according to the statistical classification of economic activities in the European Union (Eurostat, 2008). For our analysis, we further aggregated these 10 categories and added dummy variables for major economic sectors, including the manufacturing industry, service sector, and a miscellaneous sector called “*other*”. We also analyzed the basic features of the respondents and used their age and gender in our analysis. Gender was added as a dummy variable called female. Finally, we examined the extent to which companies were affected by the crisis, as the crisis-affectedness should force companies to take strategic measures. Therefore, respondents had to rate the statement that the “*company is severely affected by the COVID-19 crisis*” on a 5-point Likert scale ranging from “*strongly disagree = 1*” to “*strongly agree = 5*”. Table 3 shows an overview of all variables, while Table 4 provides the descriptive statistics and correlation matrix.

⁸ For a full overview see Appendix 2: Controls.

Table 3. Variable Description.

Variable	Description
1. Psychological capital	Scale consisting of the four PsyCap dimensions according Luthans, Avolio, et al., (2007): hope, efficacy, resilience, and optimism. Each dimension was measured using six questions on a 6-point Likert scale, ranging from “strongly disagree = 1” to “Strongly agree = 6”.
2. Investment Measures	Scale consisting of six investment measures taken by companies during the COVID-19 crisis based on these items proposed by Smart & Vertinsky (1984): (1) aggressive marketing strategy, (2) investments in more efficient plants and processes increased, (3) research and development activities expanded, (4) information acquisition intensified, (5) management approach with target agreements and profit incentives introduced, and (6) major organizational changes. Each dimension was measured using six questions on a 5-point <i>Likert</i> scale, ranging from “ <i>strongly disagree</i> = 1” to “ <i>strongly agree</i> = 5”.
3. Cost-Cutting Measures	Scale consisting of seven cost-cutting measures taken by companies during the COVID-19 crisis based on these items proposed by Smart & Vertinsky (1984). (1) cut back the operating budgets of all divisions, (2) across-the-board cuts in the operating budgets of all divisions or departments, (3) staff reduced, (4) products that are only marginally profitable eliminated, (5) cut back expenses for office materials, entertainment allowances, and travel, (6) authority of field managers and department heads reduced, and (7) managers whose divisions have poor performance fired. Each dimension was measured with six questions on a 5-point <i>Likert</i> scale, ranging from “ <i>strongly disagree</i> = 1” to “ <i>strongly agree</i> = 5”.
4. Performance	Scale consisting of self-assessment relative to competitors since the start of the COVID-19 crisis (January 2020) in the following areas: (1) sales, (2) revenue, (3) number of employees, (4) net profit margin, (5) market share; and (6) cash flow on a 5-point <i>Likert</i> scale, ranging from “ <i>much worse</i> = 1” to “ <i>much better</i> = 5”.
5. Employees	Number of employees.
6. Firm age	Current age of the firm.
7. Industry – Manufacturing industry	Industry dummy is equal to 1 for manufacturing industry.
8. Industry - Service	Industry sector dummy is equal to 1 for service.
9. Industry – Other	Industry sector dummy is equal to 1 for other as manufacturing/service (reference category).
10. Age	Age of the respondent.
11. Female	Dummy equals 1 for females.
12. Crisis-affected	Self-assessment whether the company was affected significantly by the COVID-19 crisis on a 5-point <i>Likert</i> scale, ranging from “ <i>strongly disagree</i> = 1” to “ <i>strongly agree</i> = 5”.

Source: Own representation.

4.4.4 Data Analysis

We decided to use structural equation modeling (SEM) as it allows us to examine multiple causal relationships between latent variables simultaneously (Astrachan et al., 2014; L. J. Williams et al., 2009). Moreover, it allows us to consider multilevel relationships as well as relationships between dependent variables (Astrachan et al., 2014; Shook et al., 2004). We specifically chose the partial least squares structural equation modeling (PLS-SEM) method because it is the appropriate methodology for our model, which is relatively complex due to a large number of constructs, variables, and relationships. Our latent variables are not normally distributed and the sample size of 372 cases is not particularly large (Hair et al., 2019). We utilized the software *SmartPLS 3.3.3* for our analyses with the calculation settings recommended by Hair et al. (2016). We used the path-weighting scheme with the standard start weights, a stop criterion at 10^{-7} as well as a maximum number of 300 iterations for the standard PLS-SEM algorithm. For bootstrapping, we calculated 5,000 subsamples with the full bootstrapping option, bias-corrected and accelerated (BCa) bootstrapping, and used a two-sided significance test with a significance level of 0.05.

We controlled for potential endogeneity issues by following the recommendations of Hult et al. (2018) and tested for potential endogeneity using the Gaussian Copula Approach. We checked that our variables, which potentially exhibited endogeneity, were non-normally distributed by running the Kolmogorov-Smirnov test with Lilliefors correction, which is the condition for the Gaussian Copula Approach (Hult et al., 2018). The results of the Gaussian Copula Endogeneity Assessment show that none of the Gaussian copulas in the models were significant, which proves that there was no endogeneity issue.

Table 4. Descriptive Statistics and Correlation Matrix.

Variables	Min.	Max.	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Psychological capital	3.04	6.00	5.00	0.55											
2. Investment Measures	1.00	4.33	2.40	0.80	.101										
3. Cost-Cutting Measures	1.00	4.57	1.90	0.82	-.180**	.459**									
4. Performance	1.00	5.00	2.99	0.81	.299**	.093	-.335**								
5. Employees	2.00	245.00	33.67	36.55	.084	.055	-.016	.008							
6. Firm age	2.00	311.00	40.52	35.38	-.145**	-.149**	-.029	-.077	.064						
7. Industry – Manufacturing industry	0.00	1.00	0.33	0.47	-.015	-.133*	-.161**	.011	-.026	.318**					
8. Industry - Service	0.00	1.00	0.58	0.49	-.009	.117*	.198**	-.052	.043	-.214**	-.832**				
9. Industry – Other	0.00	1.00	0.09	0.28	.040	.016	-.078	.072	-.033	-.156**	-.216**	-.363**			
10. Age	24.00	74.00	52.42	9.86	-.006	-.069	-.030	-.010	.051	.041	-.007	.045	-.068		
11. Female	0.00	1.00	0.17	0.38	.018	-.006	.055	-.080	-.078	.020	-.037	.059	-.040	-.178**	
12. Crisis-affected	1.00	5.00	2.58	1.41	-.193**	.108*	.484**	-.486**	-.028	.007	-.139**	.189**	-.099	-.017	.073

Note: Significance levels: * p<.05, ** p<.01 (two-tailed); N=372.

Source: Own calculation.

4.5 Results

Table 4 provides the descriptive statistics and correlation matrix.

4.5.1 Outer Model Reflective Measurements

The reflective measurement constructs in our model are represented in Tables 5 and 6. All used constructs (i.e., latent variables) are reflective ones, for which we selected mode A in Smart PLS to determine the construct values, following the recommendations of Hair et al. (Hair et al., 2016) for the PLS algorithm. This mode used the covariance between indicators and the latent variable to determine construct values. Nevertheless, to prove our results, we also performed our calculations with sum values for latent variables (i.e., identical weights for all indicators) and obtained comparable results. We followed the structured approach proposed by Hair et al. (2019), checking for Cronbach's alpha, average variances extracted, and composite reliability. All reported measurements are well within the recommended borders, except for the average variances extracted of investment and cost-cutting measures. However, the AVE is acceptable in this case, as the composite reliability and Cronbach's alpha for all constructs are significantly high, and thus, the convergent validity of the constructs is acceptable (Fornell & Larcker, 1981; Hair et al., 2016).

Table 5. Cronbach's Alpha, Composite Reliability, and Average Variances Extracted for Reflective Measurement Models.

Construct	Composite reliability	Cronbach's alpha	Average variance extracted
Psychological capital	0.818	0.723	0.537
Investment Measures	0.798	0.720	0.401
Cost-Cutting Measures	0.867	0.823	0.484
Performance	0.921	0.896	0.665

Source: Own calculation.

To test for discriminant validity, we verified that all cross-loadings were smaller than indicator loads, which serves as a confirmation of discriminant validity for our model. Additionally, we used the Fornell-Larcker criterion, which is fulfilled as shown in Table 6 (Fornell & Larcker, 1981).

Table 6. Larcker Test for Discriminant Validity.

Construct	Psychological capital	Investment Measures	Cost-Cutting Measures	Performance
Psychological capital	0.733			
Investment Measures	0.117	0.633		
Cost-Cutting Measures	-0.208	0.438	0.696	
Performance	0.339	0.093	-0.343	0.816

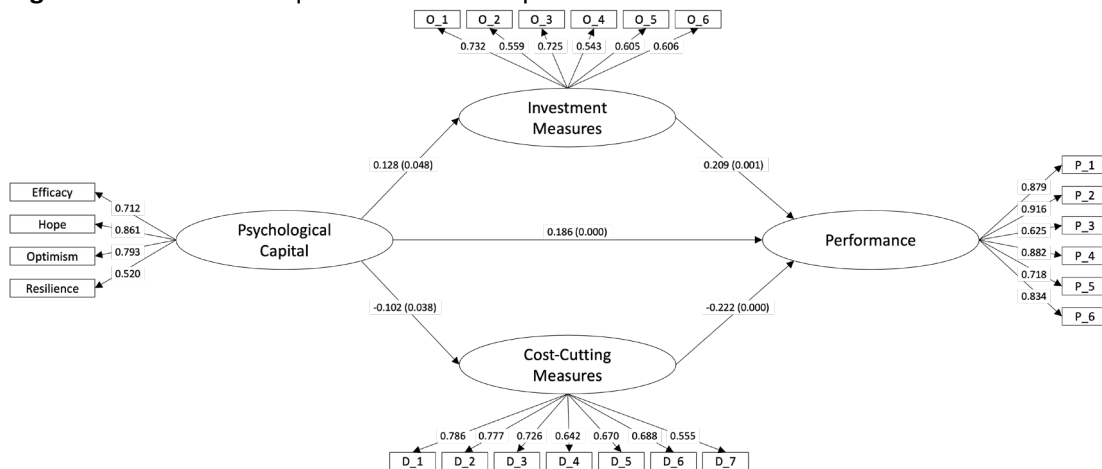
Note: Off-diagonal values are squared inter-construct correlations, while diagonal values in bold are the square root of the average variance extracted.

Source: Own calculation.

4.5.2 Hypotheses Testing

Figure 6 shows our model, the results, path coefficients, and p-values. Table 7 gives a more in-depth overview, also displaying the t-values, f^2 , and q^2 effect size.

Figure 6. Partial Least Squares Structural Equation Model.



Source: Own illustration.

Reviewing our hypotheses for the influence of psychological capital on the usage of investment measures, we observe a positive effect (.128, $p < .048$), confirming Hypothesis 1. The assumed negative effect of psychological capital on the usage of cost-cutting measures (-.102, $p < .038$) is also supported, and Hypothesis 2 is confirmed. The presumed positive effect of the application of investment measures on performance (.209, $p < .001$) can be confirmed, and thus Hypothesis 3 is accepted. In contrast, we observe a significant negative effect of the application of cost-cutting measures on performance (-.222, $p < .000$), and therefore Hypothesis 4 is rejected. Furthermore, a direct positive effect of psychological capital on the

performance of the company (.186, $p < .000$) is identified, which confirms Hypothesis 5. The model also provides the opportunity to look at the indirect effects of psychological capital on performance across the mediators. The influence of the psychological capital via the mediator investment measures on performance (.027 $p < .098$) and the influence of the psychological capital via the mediator cost-cutting measures on performance (.023 $p < .080$) can be observed. A significant influence of the control variables can be largely excluded. Firm's age has a negative influence on the use of investment measures (-.146, $p < .05$). In the analysis, we also included how much the respective companies are affected by the crisis. As expected, the crisis-affectedness shows a strong negative impact on the performance in the crisis (-.366, $p < .000$). At the same time, the higher the degree of affectedness by the crisis, the more investment (.151, $p < .05$) and cost-cutting measures (.452, $p < .000$) are pursued, whereby the influence of the degree of affectedness by the crisis on cost-cutting measures is significantly stronger.

Table 7. Results of Hypotheses Tests.

Hypotheses paths	Hypotheses	Path coefficients	T-values (p-values)	f ²	Effect significant
Psychological Capital → Investment Measures	H1	.128	1.982 (0.048)	.017	Yes
Psychological Capital → Cost-Cutting Measures	H2	-.102	2.077 (0.038)	.013	Yes
Investment Measures → Performance	H3	.209	3.397 (0.001)	.047	Yes
Cost-Cutting Measures → Performance	H4	-.222	3.779 (0.000)	.043	Yes
Psychological Capital → Performance	H5	.188	3.923 (0.000)	.046	Yes
Psychological Capital → Investment Measures → Performance		.027	1.656 (0.098)		Yes (10%)
Psychological Capital → Cost-Cutting Measures → Performance		.023	1.754 (0.080)		Yes (10%)
Investment Measures (R ²)		(.090)			
Cost-Cutting Measures (R ²)		(.269)			
Performance (R ²)		(.340)			

Source: Own calculation.

4.5.3 Robustness Test

To prove the robustness of our results, we performed the analysis again with a subsample that included only companies with fewer than 50 employees and where the respondents are both managers and owners of the company (N=127). As shown in Table 8, the obtained results and effects are comparable in their direction, size, and significance. Only the direct effect of psychological capital on performance is slightly below the 5% level of significance for this subsample.

Table 8. Results of the Robustness Test.

Hypotheses paths	Hypotheses	Path coefficients	T-values (p-values)	f ²	Effect significant
Psychological Capital → Investment Measures	H1	.223	1.982 (0.010)	.056	Yes
Psychological Capital → Cost-Cutting Measures	H2	-.170	2.077 (0.020)	.038	Yes
Investment Measures → Performance	H3	.246	3.397 (0.009)	.025	Yes
Cost-Cutting Measures → Performance	H4	-.332	3.779 (0.001)	.094	Yes
Psychological Capital → Performance	H5	.145	3.923 (0.056)	.060	Yes (10%)
Psychological Capital → Investment Measures → Performance		.055	1.693 (0.090)		Yes (10%)
Psychological Capital → Cost-Cutting Measures → Performance		.056	1.727 (0.084)		Yes (10%)
Investment Measures (R ²)		(.219)			
Cost-Cutting Measures (R ²)		(.327)			
Performance (R ²)		(.364)			

Source: Own calculation.

4.6 Discussion

Crises pose a tremendous threat to the survivability of companies (Kuckertz et al., 2020). In crises, executives must make quick decisions, often under great uncertainty, and implement strategic measures, which entail different effects on a company's performance (Latham, 2009; Petzold et al., 2019; Smart & Vertinsky, 1984). Based on the RBT of the individual entrepreneur (Alvarez & Busenitz, 2001) and in light of research on behavioral micro-

foundations in strategy (Guerras-Martín et al., 2014), we argue that especially in SMEs, executives perform a central role that influences strategic responses and success of companies (Blackburn et al., 2013; B. Hansen & Hamilton, 2011; Jennings & Beaver, 1997). So far, we do not know much about which factors influence the choice of strategic responses taken by those executives in such periods (Herbane, 2010; Trahms et al., 2013). However, research suggests that psychological factors and, in the context of our study, positive psychological factors may play a crucial role (Miocevic, 2021; E. E. Powell & Baker, 2014; Simsek et al., 2010) in providing a strategic advantage for firms. This idea is in line with the research on behavioral micro-foundations in strategic management, which aims at understanding how psychological and cognitive aspects within individuals influence strategy in companies (T. C. Powell et al., 2011). Thus, the goal of this study is to investigate how PsyCap of SME leaders affects the mix of strategic responses taken by their companies during a crisis.

In our analysis, we find partial support for our assumptions, as four of our hypotheses (H1, H2, H3, and H5) are accepted, but H4 is rejected. Thus, we contribute to the contemporary literature on behavioral micro-foundations in strategy as well as entrepreneurship literature in general, as we show that SME leaders' PsyCap influences strategic decision-making of their companies during a crisis, thus acting as a sustained competitive advantage in this circumstance. PsyCap of SME leaders, which represents their positive psychological state and consists of the four psychological resources of hope, efficacy, resilience, and optimism, was shown to be related to several desirable outcome variables (Baron et al., 2016; Jensen & Luthans, 2006; Rego et al., 2019). With our study, we contribute to the positive psychology literature by showing that . Further, our study provides a deeper understanding of how psychological differences within individual SME leaders affect strategic decisions during a time of distress. By providing these results, we introduce state-like psychological resources (Luthans, Youssef, et al., 2007; Luthans & Youssef, 2007) to the debate in strategy research on behavioral micro-foundations (Guerras-Martín et al., 2014; Molina-Azorín, 2014).

PsyCap has a significant and positive relationship with investment measures (H1), meaning that SME leaders who exhibit a high PsyCap are more likely to deploy investment measures and less likely to implement cost-cutting measures. In addition, with H2 we display a

significant negative relationship between PsyCap and cost-cutting measures, which shows that SME leaders exhibiting a low level of PsyCap tend to implement more cost-cutting measures and are less likely to implement investment measures. With these results, we follow the call of Herbane (2010) in understanding how different perceptions of SME leaders during crises translate into behavior. In the COVID-19 context, positive and negative emotions significantly influence SME leaders' decisions regarding investment and divestment, respectively (Miocevic, 2021). We broaden this understanding by showing that SME leaders with a high PsyCap tend to implement more investment measures and fewer cost-cutting measures (H1). These results can be explained in such a way that individuals high in psychological resources might frame a crisis in a more positive light by thinking of it as a temporary state (Smart & Vertinsky, 1984), which holds opportunities for growth (Kottika et al., 2020). We show that the individual resources of entrepreneurs influence their opportunity recognition (Alvarez & Busenitz, 2001), and therefore SME leaders with a high PsyCap tend to prioritize seizing those opportunities by investing. In contrast, we show that SME leaders exhibiting a lower level of PsyCap might perceive a crisis as threatening to the survival of their companies and act more carefully by focusing on defensive cost-cutting measures (Wall & Bellamy, 2019) rather than investment measures (H2). Furthermore, we add to the results of Milosevic et al. (2017), which show that leaders leverage their PsyCap to navigate through crises. We support this notion by delivering evidence that PsyCap of SME leaders especially matters in contexts of crisis, giving a more nuanced understanding of underlying psychological resources that influence strategic responses of SMEs during a crisis. While we find evidence for those significant relationships, the results should not be interpreted in the sense that high-level PsyCap leaders only take investment measures and low-level PsyCap leaders only take cost-cutting measures. The interpretation must be nuanced here as we explain which measure choice is more pronounced in which group of SME leaders.

As the environment of SMEs changes due to major exogenous crises, their opportunity structure changes. During a crisis, one of their major concerns is to maintain or improve performance, as it is inevitably linked to survival (D. K. Robbins & Pearce, 1993). To do so, SMEs must recognize new opportunities posed by circumstances and act on them to stay vital. While SMEs face size-related obstacles when choosing a strategic orientation, during crises,

they should take advantage of low levels of formalization and bureaucracy as well as informal knowledge transfer (Schulze et al., 2001; Sirmon & Hitt, 2003; Zahra, 2012). This gives them the ability to quickly adjust to changing circumstances (Bartz & Winkler, 2016; Beliaeva et al., 2020) and seize opportunities by investing (Shama, 1993; Smallbone et al., 2012). We show that investment measures have a significant, positively correlated relationship with performance during a crisis (H3).

Another strategy usually adopted by SMEs to maintain their performance during a crisis is “rightsizing” their internal affairs by implementing cost-cutting measures (Hitt et al., 1994). While the broad literature on cost-cutting measures shows mixed results regarding the implementation of such measures and the performance of the companies (Cascio et al., 1997; Cascio & Young, 2003; De Meuse et al., 1994; Guthrie & Datta, 2008; Sheaffer et al., 2009), these studies do not apply to the context of our study. The broad literature usually studies the impact of cost-cutting measures on performance in stable economic conditions, as well as in big publicly traded companies. As our study focused on a global health-crisis context and SMEs, studies in this regard imply that cost-cutting measures can improve the performance of SMEs during crises (Chu & Siu, 2001; Collett et al., 2014; DeDee & Vorbies, 1998). However, we find that cost-cutting measures show a negative relationship with performance of SMEs (H4).

The reasons for our findings can be manifold. As early research shows, some companies might not meet their intended goals concerning cost-cutting measures, especially if they are implemented as a reaction to a threat (Hitt et al., 2004). Besides, Robbins & Pearce (1992) described two phases when implementing cost-cutting measures - the actual phase of cutting costs is followed by a recovery stage. Thus, it might be that the companies in our sample were still in the first phase of the process and the time delay effect, which reflects in performance recovery, had perhaps not kicked in yet. Another reason could be that the companies in our sample might not have the latitude to “right-size” in a manner that positive effects of cost-cutting measures can be achieved (Chu & Siu, 2001). However, with our findings, we address considerable ambiguity stemming from the fragmented research on the diverse reactions of SMEs during times of adversity, showing that from a performance perspective, investment measures represent the better option to face a global crisis.

We also find evidence that PsyCap can be used as a resource to overcome difficult times, as a high PsyCap of SME leaders is conducive to better performance (H5). We, thus, highlight the role of an individual SME leader's psychological resources as a source of sustained competitive advantage by contributing a new perspective to the RBT of the individual entrepreneur (Alvarez & Busenitz, 2001). Our findings are in line with the results of Hmieleski (2015), who show that high PsyCap of entrepreneurs matters, especially in a creation context that is marked by conditions of uncertainty and high risk in an industry. They find that PsyCap positively influences the performance of companies in creation contexts, and we have broadened this knowledge to a crisis context. We find a positive relationship between the PsyCap of SME leaders and performance of their companies in crisis. As Hmieleski (2015) also find that, in discovery contexts (stable conditions within an industry accompanied by risk), PsyCap of small business leaders does not have a significant influence on performance, we stress that psychological resources could be of particular relevance in a crisis context. However, this effect is not surprising for two reasons. First, research shows that SME leaders that can rely on a broader resource base in terms of personal and psychological resources are better able to avoid losses during times of crisis (Doern, 2016). In our study, this translates into SME leaders having a broad psychological resource base in terms of hope, efficacy, resilience, and optimism that helps them to enhance their performance. Second, as SME leaders with a high PsyCap might perceive a crisis in a more positive light, they tend to frame the situation accordingly when articulating it to their employees by encouraging them in challenging and uncertain times (Penrose, 2000). Studies indicate that positivity of SME leaders spreads to their employees (Rego et al., 2019; Wall & Bellamy, 2019).

Besides our main findings, we also show a strong negative relationship (-0.366 , $p < .000$) between the perceived affectedness of a crisis by leaders and the performance of their companies and a significant relationship between crisis-affectedness and the implementation of investment ($.151$, $p < .05$) and cost-cutting measures ($.452$, $p < .000$).

These strong effects are interesting in the context of our study but not surprising. Crisis-affectedness as a variable, which reflects the external influencing factors in our study, seems to play a big role in the studied context. As illustrated by the COVID-19 pandemic, crises are highly challenging situations for all those affected, with a very strong influence on personal

actions (Cowling et al., 2018; Herbane, 2010). Thus, concerning SME leaders and the overall economy, crises also have a direct influence on the economic situation of companies and the overall economic system. In particular, a crisis like the COVID-19 pandemic affected large parts of the economy (Kuckertz et al., 2020; Madhok, 2021), and therefore, a strong effect on the performance of SMEs is not surprising. An individual company and entrepreneur can only influence their situation in such a global crisis up to the point their external environment permits (Cowling et al., 2018; Latham, 2009). The good news, especially for SME leaders, who must deal with additional constraining factors due to their firms' size (Fort et al., 2013; Smallbone et al., 2012) and could therefore see themselves as incapable of acting in such situations, is that nevertheless there are levers that can buffer the effects of these mechanisms to a certain point.

Besides, we also find the effects of crisis-affectedness on the implementation of investment (.151, $p < .05$) and cost-cutting measures (.452, $p < .000$), with the latter being relatively strong. In general, this result underlines the reasoning that crises entail an inherent pressure for players to act (Colpan, 2008; van der Vegt et al., 2015). The greater the impact of a crisis on an organization, the greater the need for action and, thus, countermeasures. In light of our results, the interpretation of the strong positive effect of crisis-affectedness on cost-cutting measures is particularly interesting: the more an SME leader and his/her company is affected by a crisis, the more he/she resorts to cost-cutting measures. In contrast, our main findings suggest that investment measures are a more effective way to respond to a crisis than cost-cutting measures. The tendency to use cost-cutting measures when a crisis is more severe can therefore indicate a heuristic or psychological bias, which may imply that SME leaders do not take advantage of opportunities related to investment measures. Although further research is needed to ensure that this is the case, it is important to recognize this relationship. Our findings show that the more an SME is affected by a crisis, the more important it is for its leader to strengthen his/her own PsyCap.

4.7 Conclusions, Implications, and Limitations

Crises like the COVID-19 pandemic pose a great threat to SMEs (Alvarez & Barney, 2020), whose survival can be endangered due to their limited financial resources. The unique

advantage of SMEs during such times lay in their flexibility and the centralized decision-making ability of their leaders, which helps them quickly adapt to the changing circumstances. In the context of research on behavioral micro-foundations in strategic management, we argue the central position of SME leaders in such a situation represents an important factor in understanding strategic responses (Roundy & Lyons, 2022; H. Zhou et al., 2017), as crises pose difficult times for both companies and their leaders. In our study, we argue that psychological resources like the SME leaders' PsyCap play a crucial role as its influence on strategic responses (investment vs. cost-cutting) ultimately influences the performance of companies during a crisis. We find empirical evidence for our proposed model and thus contribute to a more nuanced understanding of strategic responses during a crisis and the important role of the psychological state of SME leaders. Furthermore, by showing SME leaders' PsyCap effects on performance, we contribute to the understanding of SME leaders and their PsyCap as a unique intangible resource for sustained competitive advantage of SMEs in times of adversity in the sense of RBT.

Our findings have significant implications for practitioners. With our study, we show that the individual psychological state of SME leaders influences their choice of strategic measures taken during difficult times, ultimately influencing the performance of the companies and thus potentially increasing the chances of survival of the companies in adverse circumstances. This is especially interesting for SME leaders as Luthans, Avolio, et al. (2007) show that PsyCap is a state-like concept that can be altered with appropriate psychological measures in such a way that an individual's PsyCap increases (Dello Russo & Stoykova, 2015). These findings suggest that SME leaders should become aware of the power of positive psychological resources to navigate crises and attempt to develop them before crises occur. The findings also imply that coaches and psychologists working with SME leaders should develop appropriate measures to help their clients raise their PsyCap. In addition, our findings suggest that choosing investment measures during crises represents the preferable strategy for SMEs, as those show a positive effect on the company's performance, while choosing cost-cutting measures leads to lower performance.

However, like every empirical study, our research suffers from limitations. For example, it cannot be generalized that implementing investment measures is always the better

alternative for SMEs. Such an analysis would require long-term data and information from different crisis settings. Besides, we strongly believe that a mix of investment and cost-cutting measures can lead to positive outcomes. One may conceive situations in which a reverse or simulative relationship exists between measures taken and performance. For example, when performance is high, more offensive measures are chosen, or when performance is low, more defensive measures are chosen. In addition, it must be mentioned that we cannot make any statements as to the extent to which the PsyCap of an individual SME leader has changed due to COVID-19. As PsyCap is relatively stable over time, we assume that no significant changes happened due to the crisis; however, we cannot control for that. In our study, we also could not control for how, in management teams, the PsyCap of all leaders may interact and influence the choice of measures and performance. More research on the impact of PsyCap in team interaction and its influence on decision-making is needed. Furthermore, our study is limited to Germany. As the measures implemented by governments to prevent the spread of COVID-19 differed across countries (Villanueva & Sapienza, 2021), different results might occur in other cultural settings. However, we believe that focusing on one country served the purpose of our research because all companies in Germany were confronted with the same business and political environment, which enabled comparison. Nonetheless, more studies in different cultural contexts can contribute to a more nuanced understanding of how PsyCap can act as a sustained competitive advantage for SMEs. Besides that, and in line with the suggestion for further research by Memili et al. (2013), we do believe that not only SMEs can benefit from developing a sustained competitive advantage through their PsyCap. An interesting research avenue could, for example, be the comparison between family businesses and non-family businesses. Due to their idiosyncratic identity, family businesses might offer a more nurturing environment for leaders' PsyCap than non-family businesses.

5 The Power of Shared Positivity: Organizational Psychological Capital and Firm Performance During Exogenous Crises⁹

Ann-Christin Grözinger, Sven Wolff, Philipp Julian Ruf and Petra Moog

ABSTRACT

This study examines the influence of Organizational Psychological Capital on the performance of small and medium-sized companies (SMEs) during crises. We argue that SMEs use their intangible resources to cope with difficult situations such as the COVID-19 pandemic. Therefore, we investigate how Organizational Psychological Capital impacts performance and creative innovation through such intangible resources, namely organizational citizenship behavior, solidarity, and cooperation. Methodologically, we combine structural equation modelling and regression analysis on a dataset of 379 SMEs. Our results support the notion that Organizational Psychological Capital positively influences creative innovation of SMEs and, thus, performance during crises. Our research contributes to the organizational behavior literature by showing that psychological resources of SMEs can strengthen performance in times of crisis and help to prepare for future ones.

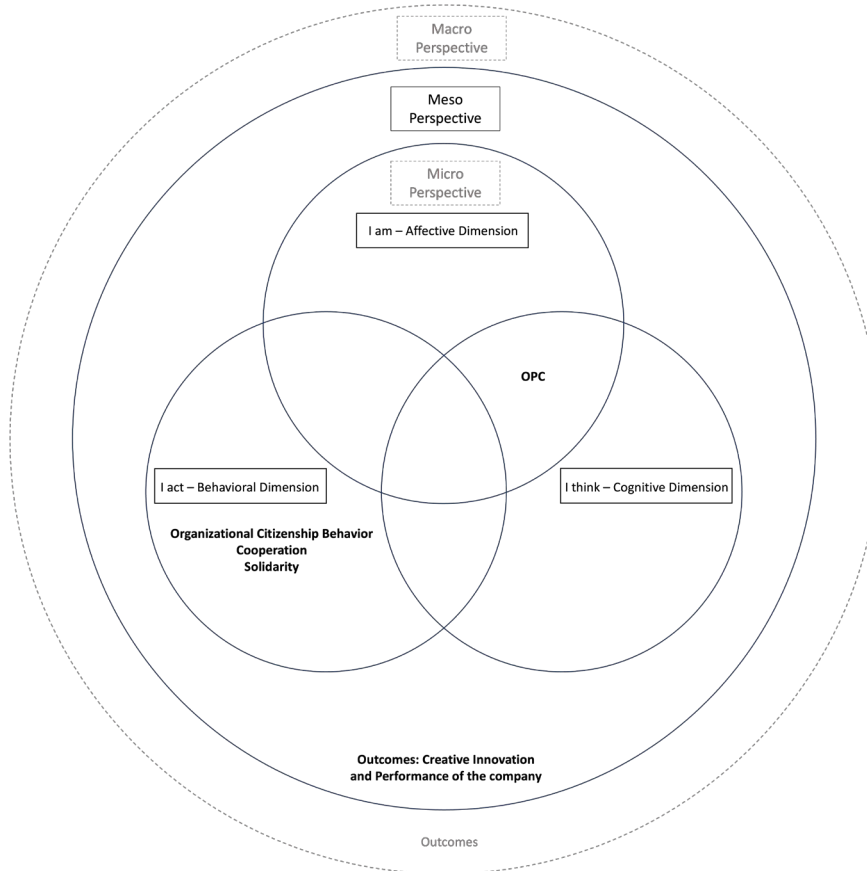
Keywords: Crisis, Individual Psychological Capital, Organizational Psychological Capital, Performance, Creativity, Organizational Citizenship Behavior

JEL Classifications: L20; L25; L26

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5.1 Integrating Study 2 within the Conceptual Model of the Dissertation

Figure 7. Conceptual Model of Study 2.



Source: Own illustration.

In study 2 (Chapter 5), titled “The Power of Shared Positivity: Organizational Psychological Capital and Firm Performance During Exogenous Crises”, the impact of OPC on key behaviors such as organizational citizenship behavior, solidarity, and cooperation, ultimately influencing creative innovation and performance is investigated. In order to justify the inclusion of OPC alongside individual-level PsyCap in addressing the dissertations’ research question, it is essential to recognize the complex interplay between individual and collective dynamics within organizations (Felin et al., 2012). OPC represents a collective construct that emerges from the psychological capital of individual members. However, it also transcends the sum of its parts by incorporating the shared values, norms, and interactions that characterize an organization (McKenny et al., 2013). As PsyCap is located on the micro-level, the OPC

represents a psychological meso-level structure that emerges from the individuals. This understanding is critical:

The literature on micro-foundations suggests that while individual-level factors like PsyCap are crucial, they do not operate in isolation; instead, they interact and aggregate in ways that lead to emergent organizational phenomena, such as OPC. These emergent properties, which are not merely additive but result from complex individual interactions, can significantly influence organizational outcomes (Felin et al., 2012; Felin & Foss, 2009). Thus, examining OPC, located on the intersection of the cognitive and affective dimension of the conceptual model, (Figure 7) not only underlines the critical role of individual psychological micro-foundations (as it only exists through the individuals possessing individual PsyCap). But it also helps to better understand how collective psychological resources contribute to an organization's adaptability, and overall performance, offering a more comprehensive perspective than focusing on individual PsyCap alone. In the study, OPC is, therefore, a meso-level psychological phenomenon that bridges the micro-level (individual PsyCap) and meso- as well as potentially macro-level behaviors and outcomes (organizational and societal) by capturing the emergent, collective psychological strengths that influence entrepreneurial activity and behavior. To capture those interactions, the study investigates macro-level behaviors like organizational citizenship behavior, solidarity, and cooperation, as well as macro-level outcomes (creative innovation and company performance). Including OPC in the analysis allows for a more nuanced understanding of how individual and collective psychological factors jointly shape strategic responses and performance, thereby enriching the broader field of entrepreneurship research.

5.2 Introduction

In early 2020, the world was hit by a global pandemic caused by the coronavirus (Bacq et al., 2020). This pandemic disturbs and challenges society and established economic systems throughout the world (Li & Tallman, 2011). In addition to overburdened health care systems, a recession is threatening the global economy (Global Data PLC, 2020), posing a major challenge for companies now and in the near future. Measures, such as social distancing to prevent the virus from spreading rapidly (Glass et al., 2006) and lockdowns in many countries,

changed the reality not only for society but also for organizations (Kuckertz et al., 2020). Due to the COVID-19 pandemic and resulting governmental regulations, many companies had to restrain their business activities completely, and revenues dropped significantly. Rapid change is needed for companies, industries, and markets to survive as uncertainty increases and financial security decreases (Beliaeva et al., 2020). Companies are forced to act to secure their employees, their market position, their performance, and ultimately, their survivability. Especially small and medium-sized companies (SMEs) are struggling with the situation as they are more vulnerable to shocks and their long-term effects (e.g., Cucculelli & Peruzzi, 2020), face difficulties in accessing financial capital (Karlsson, 2020) and oftentimes lack the physical resources to pull through such times of adversity. These difficulties of SMEs are also highlighted by the resource-based view (Barney, 1991; Crook et al., 2008) and the liability of smallness (Aldrich & Auster, 1986; Fackler et al., 2013), both arguing that due to their larger size, publicly-traded companies outperform their smaller and privately operated counterparts.

Especially during crises, when resource scarcity is even more evident, it is necessary to secure one's performance in order to survive. However, research into the drivers and factors influencing performance in SMEs is fragmented (Davidsson et al., 2010), which also holds true for the limited research results that are concerned with performance of SMEs in crises situations (Cowling et al., 2018). While it is widely acknowledged that the leaders of SMEs, with their personal capabilities and characteristics, can influence the performance of the companies (Anderson & Reeb, 2003; B. Hansen & Hamilton, 2011; Smallbone et al., 1995; Wiklund & Shepherd, 2003), Cowling et al. (2018) find that in the period immediately following the global financial crisis (2008 – 2010) such characteristics of entrepreneurs only showed a very minor influence on the performance of their companies. Furthermore, research focusing on whether cost cutting or revenue generating measures secure performance during crises shows, that SMEs actions are very diverse and result in different performance outcomes (Beliaeva et al., 2020; Collett et al., 2014; Kottika et al., 2020; Latham, 2009; Smallbone et al., 2012). Additionally, Helton & Head (2012) report that the psychological issues like stress and anxiety that arise from crises situations negatively influence performance, which raises the question on why some SMEs seem to be more

“immune” to this negative consequences accompanying the current situation. The above-mentioned facts raise several unanswered questions. What can SMEs do to overcome the COVID-19 pandemic and future, similar situations? What unique resources do they have and may utilize to maintain or even increase their performance while their very existence is being threatened, and why do certain SMEs perform better than other SMEs?

To answer some of these questions, recent research focused on the intangible resources which can provide companies with sustained competitive advantages (Luthans & Youssef, 2004). Next to the known concepts of Human Capital (Delery & Roumpi, 2017) and Social Capital (Lins et al., 2017), Organizational Psychological Capital (OPC), which represents the positive psychological state of an organization was introduced by McKenny et al. in 2013. OPC is derived from the individual Psychological Capital (PsyCap) (Luthans, Avolio, et al., 2007; McKenny et al., 2013), which is rooted within the positive organizational behavior research (POB) (Luthans, 2002a) and strongly related to psychological studies (Luthans, 2002b), investigating the influence of psychological resources within humans on the performance of firms (Luthans, 2002a). Methodically, OPC is derived and conceptualized on a collective level of analysis, while PsyCap is measured on an individual level. Besides the level of measurement, the constructs are very similar, consisting of four dimensions, namely hope, resilience, optimism, and efficacy (Luthans & Youssef-Morgan, 2017; Newman et al., 2014). First empirical evidence by McKenny et al. (2013) shows that OPC can be considered to be an intangible resource in organizations. This effect is argued to be strongest in SMEs (McKenny et al., 2013) and family businesses (Memili et al., 2013) and might give those companies an edge over larger publicly traded companies, especially in difficult times (Memili et al., 2013).

While a lot of recent crises literature focused on the resilience of companies (T. A. Williams et al., 2017), there are few studies about individual PsyCap in connection to crises (e.g. Raja et al., 2020), and so far, to the best of our knowledge no studies about the influence of a collective level of OPC during a crisis. This is surprising as both concepts contain resilience as a dimension (Luthans, Avolio, et al., 2007; McKenny et al., 2013) and deal with positivity, which is, especially in difficult times, extremely important (Memili et al., 2013). Of course, overcoming a global crisis does not solely depend on the psychological state of a company. As already mentioned, especially SMEs, due to the constraints of physical resources, depend

on the loyalty and support of employees and external stakeholders (Bin & Edwards, 2009; Ogawa & Tanaka, 2013) as well as mobilization of creativity within the company (Kuckertz et al., 2020; T. A. Williams et al., 2017). Due to PsyCap being closely related to the well-being of employees (Avey, Luthans, Smith, et al., 2010) and resulting employee behavior (Avey et al., 2011), we argue that OPC is actively fostering the mentioned means to overcome a crisis for SMEs. Therefore, while OPC is not the only factor which helps to cope with a crisis, it is one of the few fundamental states of a company which helps to boost behavior, favoring a survival of a company. Accordingly, we argue that a high OPC helps companies to maintain a positive attitude throughout the current COVID-19 pandemic and ultimately increases the performance of those. We specifically ask the question:

Does the Organizational Psychological Capital of SMEs influence the company's performance during the COVID-19 pandemic?

Our study contributes to literature in a threefold way: Foremost, we add to the entrepreneurship literature by addressing the question of why some SMEs perform better during difficult times than others. We apply a positive psychology perspective (Gable & Haidt, 2005) and introduce the concept of OPC as a unique resource of SMEs, enhancing performance, influencing creative innovation and other desirable firm behaviors like organizational citizenship behavior (OCB), solidarity and cooperation in the COVID-19 context. Besides that, we find a direct and indirect impact of OPC on the performance in this adverse circumstance. Thus, we create new insights on how SMEs can survive situations like the COVID-19 pandemic, even though they face certain resource constraints. Such knowledge is extremely important for SMEs currently experiencing crisis and also in the future. Research has shown that individual PsyCap can actively be developed through short training sessions (Dello Russo & Stoykova, 2015). If a higher OPC is able to increase performance of companies throughout situations such as the COVID-19 pandemic, companies should focus on steadily expanding their OPC in order to strengthen their resilience. This would increase the ability to deal with the current situation and the resistance to future crises. Second, we add to the small body of research on OPC and add empirical results. We show that the PsyCap is a construct which can be lifted to the organizational level (namely OPC). We also test the connection of OPC of SMEs on performance, creativity, desirable company behaviors, and cooperation

during crises. Third, most of the research in crisis management has focused on times before the crisis (preparation, causes) and the aftermath of a crisis (T. A. Williams et al., 2017). As the COVID-19 pandemic is still ongoing, we have the unique opportunity to investigate how SMEs behave and deal with an enduring crisis by showing that the collective level of positivity within this companies can become a viable factor in such circumstances.

5.3 Theoretical Background

5.3.1 Organizational Psychological Capital as an Intangible Resource in SMEs

In order to survive times of crises, companies can make use of their unique resources (Sirmon & Hitt, 2003). According to Barney (1991) and the RBV, competitive advantages and increased performance may result by leveraging a company's unique resources (Crook et al., 2008). The RBV favors big publicly traded companies in times of crisis, as their access to financial and human resources is substantially better. This is supported by empirical evidence that especially SMEs, as well as younger firms, suffer throughout crisis, as they are more vulnerable to shocks and the following long-term effects (e.g., Cucculelli & Peruzzi, 2020). In line with the concept of liability of smallness (Aldrich & Auster, 1986; Fackler et al., 2013), SMEs usually face constraints accessing financial capital (Karlsson, 2020), which is especially critical to situations like complete shutdowns as experienced throughout the COVID-19 pandemic. Many SMEs rely on their regular cash flow to finance their operations, which means that they depend on their revenues to survive (Runyan, 2006).

However, certain researchers stress that in our modern world, traditional resources, including financial, physical, and technological capital may no longer be sufficient to provide companies with a competitive edge and that rather intangible resources like human capital (Crook et al., 2008), social capital (Arregle et al., 2007) and psychological capital (PsyCap) (Luthans, 2002a, 2002b) entail the potential to increase or strengthen performance of companies (Luthans & Youssef, 2004). The latter, although initially defined as an individual construct, is lately receiving attention at higher levels of analysis as there is growing evidence that PsyCap also exists in collective structures (Broad & Luthans, 2017; Clapp-Smith et al., 2009; Dawkins et al., 2015, 2018). PsyCap on a company's level (i.e., OPC) was introduced by McKenny et al. (2013).

Both constructs, PsyCap and OPC, are rooted in POB research (Luthans, 2002a; T. A. Wright, 2003) and thus related to positive psychology (Gable & Haidt, 2005; Luthans, 2002b). They also clearly distinguish themselves from other constructs, such as emotions or the Big Five personality dimensions (Barrick & Mount, 1991). The Big Five personality traits are considered to be characteristics which are very stable in their nature, so that they tend to change rather little over the course of a lifetime and are therefore considered to be personality traits (Luthans, Avolio, et al., 2007). PsyCap and OPC, however, are psychological states which are subject to change. POB focuses on positive psychological resources and abilities within humans, which can be improved and managed, ultimately influencing performance (Luthans, 2002a). By considering a cost-benefit view, POB differs from positive psychology (Wright 2003), which only focuses on the positive psychological abilities and resources within individuals (Gable & Haidt, 2005), not taking potential gains into consideration. PsyCap was introduced to the management literature in the early 2000's (Luthans, 2002b, 2002a) with a broad body of studies published on the topic (for a comprehensive overview see: Luthans & Youssef-Morgan, 2017).

Lately, researches consider that PsyCap exists within collective structures (e.g., group, collective, and organizational level) (Broad & Luthans, 2017; Clapp-Smith et al., 2009; Dawkins et al., 2015, 2018; McKenny et al., 2013; Memili et al., 2013). As OPC does not perform perfectly isomorphic (Kozlowski & Klein, 2000) to PsyCap, which means that the sum of the individual PsyCap values of a group does not necessarily reflect the organizational level of the construct, adjustments for the collective level are required (Luthans & Youssef-Morgan, 2017). In their article, McKenny et al. (2013) conceptualize OPC using the referent-shift model according to Chan (1998). To provide scientific rigor, they validate the OPC construct according to the framework for validating multilevel constructs by Chen et al. (2004). In this regard, we follow the approach of McKenny et al. (2013) and base our definition on individual PsyCap by Luthans, Avolio, et al. (2007). We define OPC “ [...] as the organization's level of positive psychological resources: hope, optimism, resilience, and confidence [i.e. efficacy]” (McKenny et al., 2013, p. 157) and thus consider it to reflect the organization's positive psychological state.

We define the four dimensions on the company level as follows: The idea of organizational hope draws directly from the concept of hope by Snyder et al. (1991) and embodies the positive state of motivation within an organization. It is expressed in a common goal-oriented dynamic with a shared belief that the objectives can be achieved in different ways (Luthans, Avolio, et al., 2007). Thus, organizations showing a high level of organizational hope are able to develop and share several company-related goals, which contain both a long-term and a short-term horizon and share the common perception that these objectives can be achieved in a multitude of ways (Hmieleski et al., 2015; McKenny et al., 2013; Snyder et al., 1996). The concept of organizational efficacy is based on the work of Bandura (1997, 2012). It is expressed through a shared trust of the company in its own abilities and cognitive resources, which are necessary to perform certain tasks and the belief that these can be mobilized (Luthans & Youssef, 2004). This positive assessment of the companies abilities is reflected in a shared confidence in the capabilities of the organization (Stajkovic & Luthans, 1998). Consequently organizations that show a high level of organizational efficacy rely strongly on their capabilities and thus are able to pursue more ambitious goals than companies low in this psychological resource (Bandura, 2012; McKenny et al., 2013). Rooted in clinical psychology (Masten, 2001; Masten & Reed, 2002), the concept of organizational resilience characterizes the psychological capability that enables the organization to overcome setbacks and crises jointly and to recover, thereby improving its performance over the initial level (Luthans, 2002b). Thus, companies high in organizational resilience are better able to “*bounce back*” from adverse developments as they tolerate those developments and thus constructively deal with such situations by aiming to solve the situation (Luthans et al., 2006; McKenny et al., 2013). In contrast, the psychological resource of organizational optimism represents the organizations shared positive reasoning that assigns positive developments to lasting and persistent triggers and negative events to local, transient, and situation-specific occurrences (Luthans & Youssef, 2004). Thus, companies with a high level of organizational optimism use positive reasoning when facing obstacles, expecting positive outcomes (McKenny et al., 2013; Scheier et al., 2001). Those four positive organizational resources, when combined, represent the higher-order construct of OPC (Luthans et al., 2015).

However, little is known on how psychological resources on an organizational level (e.g., collective structures) influence the SMEs ability to deal with the quickly changing reality during crisis and how those companies can use positive psychological resources to survive or even thrive in adverse circumstances. First empirical evidence by McKenny et al. (2013) shows, that OPC impacts the performance of large and publicly-traded companies positively. They further argue that the influence of OPC might be even higher in SMEs due to the stronger and more direct influence of each employee working within the company. Thus, further research which considers OPC as an intangible resource is encouraged. Especially in difficult times, it might provide SMEs with a competitive edge, increasing their chances of survival (Memili et al., 2013; Sirmon & Hitt, 2003). The potential of OPC becomes even more evident, considering the malleable nature of PsyCap and, presumably, OPC. As previously mentioned, PsyCap can be regarded as a state-like resource, which can be altered (Luthans, Avolio, et al., 2007). Studies have already shown that the PsyCap can change over time (Avey, Luthans, et al., 2010a; Peterson et al., 2011) and that it can be increased through short training interventions (Dello Russo & Stoykova, 2015). This changeability of PsyCap has an immense potential for entrepreneurship and management research, given that a positive influence is exerted on various desirable outcomes such as employee's performance (Luthans et al., 2010), their behavior (Avey et al., 2011), and attitudes (Larson & Luthans, 2006).

Complementary to McKenny et al. (2013), Pearson & Clair (1998) already proposed a psychological view on crisis management in 1998. They argue that individuals and groups play a crucial role in organizational crisis as their coping behaviors (i.e., cognitive, behavioral, and emotional responses) shape the direction of the crisis within the company. Even though crises are considered as negative events, James et al. (2011) suggest that a positive psychological view on crises can enhance the understanding of reactions to crises in organizations. In this context, research already shows that positive cognitive responses help to maintain the functioning of an organization in such critical times (Dewald & Bowen, 2010). Besides that, Penrose (2000) shows that the perception of opportunities, and thus, a positive view on the situation, improves the organizations dealing with a crisis. We, therefore, follow the call to include positive psychology in crisis research by focusing on OPC. To the best of our knowledge, no study has yet examined the possible influence of OPC on a company's behavior

during crisis. First empirical evidence on a possible influence exists for the individual PsyCap of leaders. Milosevic et al. (2017) investigate how Winston Churchill, in his role as a country leader, leveraged his PsyCap during World War II by analyzing transcripts of his speeches during that time. Results show that leveraging on PsyCap during crisis exhibits the opportunity to activate behaviors to overcome adverse situations.

5.3.2 Organizational Citizenship Behavior, Solidarity, Cooperation, and Creative Innovation During Crises

Besides the role of psychological resources, companies take actions which help them to thrive during crises. Many companies and individuals offered their support to assist those affected most by the situation to overcome those troublesome times. This assistance is usually called prosocial behavior (Jonas, 2012). For example, after hurricane Katrina, which hit the USA in 2005, Rodríguez et al. (2006) found that prosocial behavior was the dominant response for the broad majority. Apart from the psychological literature, a similar construct describing this behavior has been established in the management literature, namely organizational citizenship behavior (OCB) (Organ, 2018). OCB reflects a set of positive behaviors in the workplace which are not part of the work tasks of the respective employees but rather are taken voluntarily (Podsakoff et al., 1990). Another kind of prosocial behavior that was witnessed in the early research on the effects of the COVID-19 pandemic can be described as solidarity. Companies started to shift their manufacturing focus on products to help contain the virus, sometimes even donating parts of their production (He & Harris, 2020). Evidence focusing on SMEs shows that they widely engage in disaster relief for their community (Bin & Edwards, 2009), proving that besides governments and globally operation cooperation, also entrepreneurs and SMEs become active (Markman et al., 2019) and take responsibility as they understand solidarity actions as part of their societal mission and also like to return something to the community (Acs & Phillips, 2002). Furthermore, as shown in his very early research on the impact of the COVID-19 pandemic on young and relatively small firms, Kuckertz et al. (2020) find that the companies widely activated their networks to receive support from external stakeholders. In line with this results, Doern et al. (2019) show that the activation of the external network helps SME's to recover from crisis. Furthermore, they show that a

positive perspective of the respective firms also facilitated their recovery, also in the respect that they positively perceived the support of external sources.

Besides the shown behaviors of SMEs, further research suggests that in crisis context, those companies react in a more creative way to the emerging opportunities than larger companies (Williams et al. 2017), which can ultimately help SMEs to survive the adverse time (Battisti & Deakins, 2017). These opportunities arise as a result of changing conditions, which becomes evident by the following example in the COVID-19 crisis: People's consumption habits and needs shift during the pandemic, which lead to an increase in online shopping (Kottika et al., 2020). For stationary retailers and restaurants, the lockdowns presented a major challenge. These companies could not offer and sell their products as usual. It becomes evident that especially SMEs faced great challenges in this regard, as they are often small, independent stationary stores or restaurants that do not have online stores or do not offer a delivery service (Ibn-Mohammed et al., 2021). A large part of SMEs reacted to the governmental restrictions with creative changes in distribution, products, and other areas by implementing online accessibility of their products delivery solutions or started to produce products, whereas demand increase due to the pandemic (He & Harris, 2020; Welter et al., 2020). Thus, the COVID-19 circumstances offered a wide range of opportunities for companies to react in a flexible and creative way by using their bricolage (Kuckertz et al., 2020). This exploitation of opportunities by innovating has been proven to help SMEs survive in crisis circumstances (Mayr et al., 2017).

Creativity is broadly defined as the thinking and generating of novel ideas by individuals or groups, whereas innovation represents the successful implementation of such an idea (Amabile, 1988; Heunks, 1998; West & Farr, 1996). Thus, creativity forms the basis for innovation in companies, and both are part of the same progress (Amabile & Pratt, 2016). Since the creativity and innovation process during the COVID-19 pandemic was likely very rapid and integrative in the companies, and as in a general sense, both concepts are intertwined in the process (Amabile & Pratt, 2016), it would be difficult to clearly separate the two constructs in our study, thus we consequently use the term creative innovation in the following.

In the RBV, it is commonly accepted that the innovation ability of companies strongly depend on their resource base and their ability to make use of them (Kusunoki et al., 1998). Hitt et al. (2001) stress that intangible resources in companies will help to establish a stronger competitive advantage than other resources, as those are difficult to copy for the competitors. Consequently, we theorize that the OPC of companies, which is considered to provide especially SMEs with an intangible resource that can lead to a competitive advantage (McKenny et al., 2013; Memili et al., 2013), will help them to cope with the COVID-19 crisis. In the following, we hypothesize why OPC increases the OCB, solidarity, and cooperation of SMEs during times of crisis, ultimately leading to a higher creative innovation, thus increasing performance during a crisis.

5.4 Hypotheses Development

5.4.1 Organizational Psychological Capital and its Influence on Organizational Citizenship Behavior, Cooperation and Solidarity

In his research, Jonas (2012) shows that prosocial behavior, in general, increase in the event of a crisis. On an organizational level, there is the concept of organizational citizenship behavior (OCB), which reflects prosocial behavior of employees. OCB is defined as *“the maintenance and enhancement of the social and psychological context that supports task performance”* (Organ, 1997, p. 91). It describes activities taken by members of organizations that benefit their organization or other individuals in this organization without getting anything in return. According to Avolio & Gardner (2005), in turbulent times, companies need to create an excited and motivated workforce to ensure success. This is possible by using intangible resources such as PsyCap, social, and human capital (Arregle et al., 2007; Crook et al., 2008; Luthans & Youssef, 2004). Avey et al. (2008) and Gooty et al. (2009) therefore investigated how the positivity of employees, namely PsyCap, influences this prosocial behavior or, precisely, OCB of employees. Both studies found empirical evidence that PsyCap and OCB are positively related. A study by Norman et al. (2010) supports this notion. They found empirical evidence in their sample of 199 working adults that a higher PsyCap leads to more OCB activities within the company, thus arguing that a higher PsyCap in employees might foster desirable work behaviors which are not part of the job description but are rather

altruistic in nature. In accordance with the literature, we apply these findings for the individual level to the organizational level of analysis and theorize that OPC influences the OCB of employees during crises.

In line with this social perspective, we also believe that OPC fosters the solidarity which the companies show. The COVID-19 pandemic can be considered as one of the grand challenges humanity is facing right now (Howard-Grenville, 2021). To resolve those grand challenges, the common view is that rather governments of the world's leading countries and large multinational cooperation's will make the difference in dissolving these. It is clear that those big players are crucial in this matter, however, Markman et al. (2019) stress that it's also worthwhile to consider individuals, groups, and small ventures in this equation, as they are also able to contribute to the resolving or mitigate the suffering. In fact, there is evidence that after floods following hurricane Floyd in North Carolina in 1999, rather small companies engaged in local disaster relief (Bin & Edwards, 2009). Especially SMEs that are usually embedded in their local community (Backman & Palmberg, 2015), thus are likely to engage in acts of solidarity. On the one hand, the companies understand this solidarity actions as their obligation through the implicit social contract, on the other hand, they generate something worthwhile for society based on the philanthropic idea of wanting to give something back (Acs & Phillips, 2002). Thus, SMEs adopt a social perspective, fostering their connections to the community and adopting social practices (Bin & Edwards, 2009). He & Harris (2020) report that such behavior could also be witnessed during the COVID-19 pandemic. For example, some companies which are active in manufacturing started to reorganize and produce goods that were needed to prevent the pandemic from spreading, like disinfectant, protective clothing, or to save lives by producing urgently needed ventilators. However, to date, we know very little about factors that facilitate such acts of solidarity from SMEs when society is confronted with grand challenges (Markman et al. 2019) like the recent crisis. We hypothesize that OPC, as psychological resources, influence the solidarity of SMEs as solidarity on a collective level suggests an advanced level of systems thinking that promotes the overall wellbeing (Hogan, 2020).

Last, we believe that OPC fosters the engagement in cooperation with external stakeholders during the COVID-19 pandemic. In their study on the reactions of start-ups during the

pandemic, Kuckertz et al. (2020) find that those young and rather small companies activate their networks with stakeholders. The ability of SMEs to understand their connections and to activate their network is useful in times of crisis in order to use their resources effectively and thus to be able to achieve their goals (Battisti & Deakins, 2017). In crisis circumstances, one can assume that the main goal for most companies is to secure their survival. SMEs start to engage more in cooperation's with external stakeholders during crises due to several reasons. First, as SMEs are confronted with limitations in resources due to their small size (Bin & Edwards, 2009; Fackler et al., 2013; Ogawa & Tanaka, 2013), they try to compensate this disadvantage by cooperation (Jones & Macpherson, 2006). Furthermore, their embeddedness in the community stimulates the need to help (Bin & Edwards, 2009) and to fight the grand challenges. However, they know that they lack the knowledge, resources, and skills to counteract the crisis alone. Thus, they engage in collective actions (Markman et al., 2019). Second, crisis circumstances are characterized by quick dynamic changes which are inherently connected with a high degree of uncertainty and a lack of information (Herbane, 2010; Vargo & Seville, 2011). This leads to the need to quickly make complex decisions and to adopt to the changing uncertain circumstances, as the companies survival depends on that (Latham, 2009). In such situations, the gathering of information is crucial, and SMEs leverage on their cooperation with different stakeholders to collect more supporting information and knowledge about the situation in order to make better decisions (Jones & Macpherson, 2006; Mayr et al., 2017). Third and in line with empirical evidence, we believe that SMEs also turn to stakeholders for emotional support during a crisis, as a feeling of "*we are all in this together*" arises (Doern et al., 2019; Wall & Bellamy, 2019).

In summary, all these reasons have a common objective: to face the adversities created by the crisis and to cushion the impact of its effects. As OPC, and its underlying dimensions, reflect a company's positive psychological state and a shared level of agency (McKenny et al., 2013), which increases their motivation to achieve (higher) goals (Newman et al., 2014) and their believe in the abilities to mobilize the necessary resources, to bounce back and work harder in order to overcome adversity (Avey et al., 2011), we theorize the following relationships:

H1: The greater the degree of Organizational Psychological Capital, the greater will be the extent of organizational citizenship behavior, solidarity, and joint activities (cooperation) during crisis.

5.4.2 Organizational Psychological Capital and its Influence on Creative Innovation

The ability to discover new opportunities can be crucial for SMEs in times of crisis (Battisti & Deakins, 2017). In the RBV, this exploitation of opportunities depends on whether companies can mobilize their resources and react flexibly (Pal et al., 2014). In literature, such entrepreneurial opportunities have been widely linked with creativity (e.g., D. J. Hansen et al., 2011). Furthermore, it has been shown that in order to stay viable and healthy in difficult times, SMEs react more creatively than large companies (T. A. Williams et al., 2017), and innovation is the key to survive in such circumstances (Mayr et al., 2017). During the COVID-19 pandemic, many opportunities were created, giving SMEs the chance to respond creatively (Kuckertz et al., 2020). The question of what factors in SMEs drive creative innovation during times of crisis has, to our knowledge, not been discovered yet. Amabile & Pratt (2016) recently revised their componential model (Amabile, 1988) to find that creativity and innovation are closely interlinked. They also propose four psychological driving factors for the process on an individual and organizational level, which they believe are analogues to each other on both levels: *“a progress loop; meaningful work (and a related construct, work orientations); affect; and new insights into motivation”* (Amabile & Pratt, 2016, p. 166). Their argumentation especially empathizes on motivation as a driver, which is, according to the authors, closely related to the self-efficacy concept of Bandura (1997). However, in a positive psychology view, not only the psychological resource of efficacy is related to motivation but rather the core construct of PsyCap with the other three psychological resources of hope, resilience, and optimism (Peterson et al., 2011). Studies show that individual PsyCap predicts creativity in a direct relationship (Rego et al., 2012; Sweetman et al., 2011). In addition, mediation effects of PsyCap in the context of creativity have been displayed (Huang & Luthans, 2015). Furthermore, there is initial evidence by Luthans et al. (2011) that PsyCap shows a positive relationship with individuals problem solving ability and reported innovation. Research dealing with theories of social comparison suggest that through workplace interactions, the members of organizations align to a common level of positivity and agency

(Salancik & Pfeffer, 1978; Sullins, 1991). First evidence that OPC is also connected to creativity and innovation in companies is given by Wu & Chen (2018). They examined outcome factors for the collective PsyCap (collective level of analysis) and found a positive relationship between the collective level of PsyCap and the creativity of the groups. In light of the widely accepted fact that human capital provides a critical resource in terms of innovation and creativity (Barney, 1991; Hitt et al., 2001), by recognizing opportunities (Lumpkin & Lichtenstein, 2005) and in line with Amabile & Pratt (2016), we consider OPC as one of the main drivers behind creative innovation in times of crisis. We therefore hypothesize:

H2: The greater the degree of Organizational Psychological Capital, the greater will be innovative activity during crisis.

5.4.3 Organizational Citizenship Behavior, Cooperation, and Solidarity and their Influence on Creative Innovation

Besides the psychological resources that presumably support the creativity and innovation process Amabile & Pratt (2016) propose that the employees perceived meaningfulness of work represents another factor. Meaningful work in this context can be described as work that is perceived as positive and significant (Rosso et al., 2010). When individuals or groups consider the solving of a problem to be important, their creativity increases in order to contribute to the resolution of the problem (Staw, 1990). Put into the context of the COVID-19 pandemic as a grand challenge for humankind (Howard-Grenville, 2020); we believe that the resolving of this pandemic is considered as an important problem, and thus, SMEs would perceive working on problem resulting ideas as meaningful work. We already theorized on why it is likely that SMEs in this recent global crisis would want to engage in helping to resolve or alleviate the pandemic and how this facilitates prosocial behaviors like solidary actions as well as their OCB. However, it might be added that in this respect, solidarity at a group level implies a groups joint effort to resolve a problem (Hogan, 2020), whereas OCB shows links to perceived meaningfulness of work (Lam et al., 2016) both ultimately increasing the creative innovation output in SMEs during a crisis.

Besides that, we propose that also cooperation with stakeholders during the recent crisis impacts the creative innovation in SMEs. Due to resource scarcity, which implies a lack of resources and capabilities in SMEs, innovations can lead to the companies being overstretched (Acs & Audretsch, 1987). Thus, to develop and realize innovation, SMEs frequently engage in cooperation with external partners (Shan, 1990). Regarding the effects of such collaborations on the yield of innovation in SMEs, there are mixed findings. On the one hand, it should be noted that SMEs, due to their size, often find themselves in a weaker negotiating position than the larger cooperation partners and, therefore, have to accept poor conditions when sharing the returns of innovation (Rosenbusch et al., 2011). On the other hand, positive effects are expected in most cases (Rosenbusch et al., 2011), as the bundling of internal and external resources can deliver promising results (Tyler & Steensma, 1998). Gathering information from external stakeholders to generate knowledge is therefore crucial to generate ideas quickly (Andries & Czarnitzki, 2014; Wall & Bellamy, 2019), as the COVID-19 pandemic is accompanied by a need for rapid action. Further studies conducted in a crisis context show that collaborations are an important factor for SMEs to recover from crises. In summary, as important information and knowledge can be gathered (Wall & Bellamy, 2019), their bricolage can be mobilized (Kuckertz et al., 2020) to counteract negative developments and to join efforts to collectively face challenges (Markman et al., 2019), we hypothesize that increased collaboration with multiple stakeholders will positively influence creative innovation by SMEs during the COVID-19 pandemic.

H3: The greater the extent of organizational citizenship behavior, solidarity, and joint activities (cooperation) in SMEs, the greater will be creative innovative activity during times of crisis.

5.4.4 Creative Innovation and its Impact on Performance During Crises

The logical consequences of the positive cognitive responses described before are behavioral reactions. Especially positive behavioral reactions promote progress in crises. Companies which can adapt to the changed environment and introduce compatible routines will most likely do well (Lengnick-Hall & Beck, 2005). As the characteristics of SMEs like flat hierarchies, short communication paths, and quick decision-making power provide them with a high

degree of flexibility, they can adopt to the changing circumstances posed through the crisis in a faster manner than their large counterparts, which has a positive impact on their innovation potential. This way, they can counteract their limited resource basis in such times (Nootboom, 1994; Vossen, 1998). Regardless to their resource constrains SMEs often successfully innovate (Rosenbusch et al., 2011). Research into crises has already shown that in times of uncertainty, SMEs react with a combination of cost-reducing and performance-generating measures, focusing on the latter (Smallbone et al., 2012). However, it has to be noted that SMEs, usually due to their smaller size, have a limited scope in terms of cost-cutting measures (Latham, 2009). This is confirmed by Kuckertz et al. (2020) with regard to the COVID-19 pandemic. They show that young, relatively small companies also seek such a balance but do not engage in huge cost-cutting and retrenchment actions. On the one hand, they focus on profitable and value-generating activities and abandon loss-generating activities temporarily. In addition, they show that the companies surveyed increasingly discover new opportunities to solve problems related to the crisis. This is not surprising as engaging in creative innovations offers SMEs a chance to counteract the consequences of crises. Schumpeter (1934) stresses that innovations provide companies with the opportunity to gain revenues as a temporary monopoly can be created. Thus, considering the flexibility of SMEs, they can move fast to secure those revenues, at least for a limited amount of time. Additionally, Porter (1980) argues that niche markets in which SMEs often operate represent a great potential for innovation. Mayr et al. (2017) show that SMEs that use some kind of innovation are more likely to overcome crises through sustainable reorganization. Their research is in line with the results of the meta-analysis by Rosenbusch et al. (2011), which show that innovation has a positive effect on the performance of SMEs in non-crises situations. We apply those findings to crises situations and hypothesize:

H4: The greater the extent of creative innovation during times of crisis in SMEs, the better will be the performance of SMEs during this time.

5.4.5 Organizational Psychological Capital and its Influence on Performance During Crises

In times of crisis, SMEs are often confronted with very limited resources and must, therefore, try to use their unique competitive advantages to secure their market position (Beliaeva et

al., 2020). As already shown, OPC, which can be expressed as a positive psychological state of an organization and thus represents a positive psychological perspective, can be such an unique advantage in SMEs (McKenny et al., 2013). Psychological research suggests that anxiety and stress resulting from crises situations can disturb ideal functioning and thus lower the performance (Helton & Head, 2012). As PsyCap, and consequently, OPC, fosters the ideal functioning of individuals (Avey et al., 2008; Avey, Luthans, Smith, et al., 2010; Luthans, Avolio, et al., 2007) and organizations, we argue that OPC can help to understand how especially SME`s mobilize their resources when facing adversity, which positively impacts the performance of this companies in a crisis. For the individual level PsyCap, various studies already showed that it has a positive influence on the performance of the employees (Avey et al., 2008; Avey, Nimnicht, et al., 2010; Luthans, Avey, et al., 2008; Luthans et al., 2005; Peterson et al., 2011). Researchers explain this relationship in such a way that individuals high in PsyCap possess more resources they can activate in order to achieve their goals (Hobfoll, 2002) and thus increase their performance (Newman et al., 2014). However, as individual PsyCap can not represent the state of a company in general, research started to consider PsyCap on higher levels of analysis to explore the potential that is entailed in such considerations. For this purpose, PsyCap was conceptualized at the collective, group, team, or organizational level (Luthans & Youssef-Morgan, 2017) using Chan`s (1998) referent shift model logic. As with the individual PsyCap, possible links to performance of the collective level constructs were examined. In one of the early empirical studies on the group level PsyCap, Clapp-Smith et al. (2009) showed that there is a positive relationship between the group level PsyCap of employees and their performance. In line with this, Mathe et al. (2017) showed that the collective PsyCap of employees in quick-service restaurants has a direct relationship with service quality and revenue of the respective restaurants. Furthermore, Peterson & Zhang (2011) showed that the collective PsyCap of top management teams is significantly positively related to business unit performance.

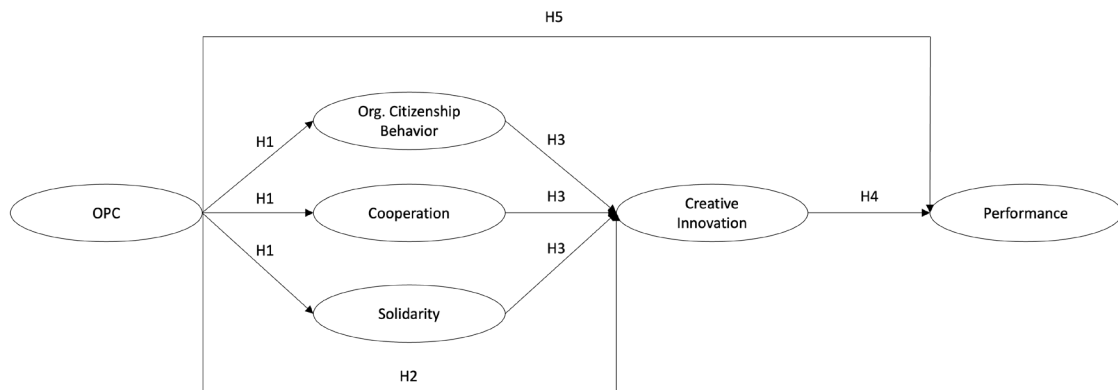
Regarding the organizational level of PsyCap, there is also first evidence which indicates a positive relationship between a company`s level of OPC and its performance. Elaborating a word list of OPC and using computer-aided text analysis, McKenny et al. (2013) examine public CEO letters to shareholders from large publicly traded companies. They find a positive

relationship between the OPC and the performance of those companies. However, since the OPC was only accountable for an additional 0.3% when controlling for past performance of the respective company, they suggest that this relationship might be stronger in smaller and privately held companies and called on research to explore this relationship in greater detail. We follow this call and use survey data to model this relationship. We therefore expect a similar relationship between OPC and performance of SMEs in times of crisis.

H5: The greater the degree of Organizational Psychological Capital during times of crisis in SMEs, the better will be their performance during this time.

Figure 8 shows an overview of all hypotheses and their presumed relationships.

Figure 8. Hypotheses.



Source: Own illustration.

5.5 Method

5.5.1 Data Set

The sample we use to test our hypotheses was collected in an online survey conducted in Germany at the end of July 2020. We decided to focus on one country in particular as of the different dissemination rates and diverse measures taken to deal with the COVID-19 crisis in the individual countries (WHO, 2020). We contacted 20,000 companies in Germany by e-mail and asked them to participate in the survey. The contacts were taken from the Amadeus

database (Buerau van Dijk, 2020) with the following requirements in place: The company had to have existed on the market for at least two years and had to have a minimum of two employees. We set these restrictions in order to exclude self-employed individuals and nascent start-ups from the analysis. We subjected the data obtained from the survey to a detailed analysis and excluded cases with missing values to perform the various analyses with a constant number of cases. This results in a total sample of 379 cases.

The dataset was tested against a non-response bias by assessing whether the answers of the first respondents differed significantly from those of the last respondents. For this purpose, we compared the first third of the survey responses with the last third of the survey responses and found no significant differences between these groups (Armstrong & Overton, 1977). We can confirm the representativeness of our sample by showing that comparable distributions in terms of industries, company size, company age, and the age of the respondent are present in validated peer reviewed articles about SMEs in Germany (Bongini et al., 2021; Dehlen et al., 2014; Werner et al., 2018). Furthermore, we assured all respondents absolute anonymity and scientific integrity to obtain the most honest responses possible and to prevent a possible social desirability bias (Podsakoff et al., 2003). Additionally, the questionnaire and the cover letter were designed in such a way that the respondents were not influenced by the underlying research question. This was achieved by optimizing the question sequence using pre-tests and by randomizing the question sequence within all question batteries (Podsakoff et al., 2003). Taken together, these measures counteract a possible common method bias (Fuller et al., 2016).

5.5.2 Dependent and mediating variables

The main dependent variable in this study represents the performance of the SMEs in the last 6 months, i.e., since the outbreak of the COVID-19 pandemic (Robert Koch Institut, 2020). We do not measure performance on the basis of key measures because these are often difficult to collect as they involve sensitive company data (Love et al., 2002). We use self-rated assessments of performance relative to competitors, which has been proven to be comparable to key measures (Dess & Robinson, 1984; Eddleston et al., 2007; Love et al., 2002). Respondents were asked to rate on a scale from "*much worse = 1*" to "*much better =*

5" how performance in the six areas of (1) sales; (2) revenue; (3) number of employees; (4) net profit margin; (5) market shares; and (6) cash flow, has developed over the period of the last 6 months compared to their competitors (Eddleston et al., 2007; Naldi et al., 2007; Smolka et al., 2016; Wiklund & Shepherd, 2003, 2005).

To model the theoretically established relationships from the hypotheses, we used four already validated constructs as mediators. For all four constructs, the respondents were confronted with statements to which they had to indicate their agreement on a 5-point Likert scale from "*Strongly disagree = 1*" to "*Strongly agree = 5*". They always had to assess the behavior of the company and its employees in the period since the beginning of the COVID-19 crisis. The first construct we used consists of ten questions to measure the OCB in a firm. An example statement for the construct would be: *In order to deal with the challenges since the beginning of the COVID-19 crisis, our employees have often taken time to counsel or mentor a work colleague* (S. Fox & Spector, 2011). Second, we used a construct consisting of nine questions regarding the solidarity of the firm, proposed by Pérez & Rodríguez del Bosque (2013). An example statement for this construct would be: *During the COVID-19 crisis, our company used parts of its budget for donations and social projects to improve the situation of the most disadvantaged groups in society*. Third, we used a five-question construct to measure the cooperation of the firm with externals, which was proposed by Belderbos et al. (2006). An example statement for the construct would be: *Since the beginning of the COVID-19 crisis, our company has intensified the cooperation with customers (e.g. increased contact, exchange of information, rebooking's, voucher solutions)*. Lastly, we used a construct of 13 questions to measure creative innovation in the firm proposed by Zhou & George (2001). An example statement for this construct would be: *To deal with the challenges of the COVID-19 crisis, our company has tried new ways to improve quality*.

5.5.3 Independent Variables

The central influence variable, OPC, is based on the Psychological Capital Questionnaire (PCQ) developed and validated by Luthans et al. (2007). In agreement with the copyright holder, we translated this into German and had it checked by bilingual native speakers. The PCQ contains six items for the four dimensions hope, resilience, optimism, and efficacy, and is the most

widely used self-report instrument to measure the individual PsyCap (Newman et al., 2014). Using referent-shift model (Chan, 1998), we lifted the PCQ-24 from the individual- to the company-level, which is common practice when measuring PsyCap on a collective level of analysis (Dawkins et al., 2018). This was also done in consent with the copyright holder. The items are measured on a 6-point Likert scale ranging from “*strongly disagree = 1*” to “*strongly agree = 6*”. Out of each 6 questions, we calculated mean scores for the four dimensions. Those were used as indicator variables for the construct of OPC. A sample statement for efficacy can be obtained as follows: *In our company we feel confident analyzing a long-term problem to find a solution.*¹⁰

5.5.4 Control Variables¹¹

To ensure that our analysis is not influenced by unobserved socio-demographic, company-related, or situational factors, we included several control variables in our analysis. First, we included company-related control variables such as the number of employees, as a measure of company size, and the age of the company in the analysis. Both company size and company age have already been shown to be related to performance (Karlsson, 2020; Smolka et al., 2016). Furthermore, industry sectors were included in the analysis, representing the three main economic sectors. For this purpose, we used the top-level economic classifications of the EU (European Commission, 2011) and aggregated them into three sector groups: manufacturing, service, and others. We also included the gender of the respondent (as a dummy variable called female) in the analysis, since the influence of gender on performance is still subject to debating (Kiefer et al., 2020). Finally, we included the extent to which the company is directly affected by the COVID-19 crisis in the analysis, as a strong negative correlation to performance was expectable. Table 9 provides an overview of all used variables and their descriptions. Table 10 shows the minimum, maximum, mean, and standard

¹⁰ Research Edition Translation of the Psychological Capital Questionnaire - Self Form performed by Ann-Christin Grözinger, Dr. Sven Wolff and Prof. Dr. Petra Moog. Translated into German, altered and reproduced by special permission of the publisher, Mind Garden, Inc., www.mindgarden.com, from the Psychological Capital Questionnaire - Self Form by Fred L. Luthans, Bruce J. Avolio and James B. Avey. Copyright © 2007 Psychological Capital (PsyCap) Questionnaire (PCQ) Fred L. Luthans, Bruce J. Avolio and James B. Avey. All rights reserved in all medium. Further reproduction is prohibited without the Publisher's written consent. Altered with permission of the publisher.

¹¹ For a full overview see Appendix 3: Controls SEM Model.

deviation values for all variables, along with a correlation matrix. The constructs are, therefore, calculated as mean indices.

5.5.5 Data Analysis

To analyze the formulated hypotheses, we use a structural equation model in this study. Since the constructs are latent and indirectly measured by indicator variables, by using this method we are able to integrate these variables into the calculation (Chin, 1998). We are particularly interested in the underlying structure and drivers behind the constructs, and therefore use partial least squares structural equation modelling (PLS-SEM) for our analysis, as it is the most appropriate method for this purpose (Hair et al., 2011). We used the *SmartPLS* software in version 3.3.2. According to the recommendations of Hair et al. (2016) we have chosen the settings for the calculation algorithm of *SmartPLS* as follows: path weighting scheme, a maximum of 300 iterations and the stop criterion at 10^{-7} . Bootstrapping with 5000 subsamples as full bias-corrected and accelerated-(BCa) bootstrapping with a two-sided significance test at the .05 significance level.

Table 9. Variable Description Table.

Variable	Description
1 OPC	Scale consisting of the four PsyCap dimensions according to Luthans, Avolio, Avey, & Norman (2007): Hope, Resilience, Optimism, and Efficacy measured on the company level. Each dimension measured with six questions on 6-point Likert scale ranging from "Strongly disagree = 1" to "Strongly agree = 6".
2 Org. Citizenship Behavior	Scale consisting of ten questions based on the proposed ones by S. Fox & Spector (2011). Rated on a 5-point Likert scale ("Strongly disagree = 1" to "Strongly agree = 5").
3 Cooperation	Scale consisting of five questions based on the proposed ones by Belderbos et al. (2006). Rated on a 5-point Likert scale ("Strongly disagree = 1" to "Strongly agree = 5").
4 Solidarity	Scale consisting of nine questions based on the proposed ones by Pérez & Rodríguez del Bosque (2013). Rated on a 5-point Likert scale ("Strongly disagree = 1" to "Strongly agree = 5").
5 Creative innovation	Scale consisting of 13 questions based on the proposed ones by Zhou & George (2001). Rated on a 5-point Likert scale ("Strongly disagree = 1" to "Strongly agree = 5").
6 Performance	Scale consisting of self-assessment relative to competitors since the beginning of the COVID-19 crisis (January 2020) in the following areas: (1) sales; (2) revenue; (3) number of employees; (4) net profit margin; (5) market shares; and (6) cash flow, on 5-point Likert scales ranging from "much worse = 1" to "much better = 5".
7 Employees	Number of employees.
8 Firm age	Actual age of the firm.
9 Industry – Manufacturing	Dummy equals 1 for the manufacturing industry.
10 Industry - Service	Dummy equals 1 for service industry.
11 Industry – Other	Dummy equals 1 for other industries than manufacturing or service.
12 Female	Dummy equals 1 for females.
13 Crisis-affected	Self-assessment whether the company was affected heavy by the COVID-19 crisis on a 5-point Likert scale ranging from "Strongly disagree = 1" to "Strongly agree = 5".

Source: Own representation.

Table 10. Descriptive Statistics and Correlation Matrix.

Variables	Min	Max	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1 OPC	2.92	6.00	4.89	0.61												
2 Org. Citizenship Behavior	1.00	5.00	2.84	0.97	.253**											
3 Cooperation	1.00	5.00	2.52	0.86	.121*	.489**										
4 Solidarity	1.00	5.00	2.88	0.87	.181**	.444**	.450**									
5 Creative innovation	1.00	5.00	3.58	0.91	.352**	.533**	.479**	.363**								
6 Performance	1.00	5.00	2.99	0.81	.301**	.182**	.064	.155**	.201**							
7 Employees	1.00	450.00	37.77	50.39	.002	.026	.061	.027	.013	.003						
8 Firm age	2.00	311.00	40.63	35.54	-.114*	-.195**	-.084	-.035	-.221**	-.073	.087					
9 Industry – Manufacturing	0.00	1.00	0.33	0.47	-.011	-.242**	-.155**	-.026	-.262**	.020	-.030	.325**				
10 Industry - Service	0.00	1.00	0.59	0.49	.014	.233**	.142**	.037	.231**	-.060	.056	-.223**	-.834**			
11 Industry – Other	0.00	1.00	0.08	0.28	-.006	-.004	.010	-.021	.034	.073	-.048	-.155**	-.213**	-.361**		
12 Female	0.00	1.00	0.17	0.38	.079	.082	.089	-.019	.115*	-.076	-.093	.018	-.036	.056	-.037	
13 Crisis-affected	1.00	5.00	2.59	1.41	-.207**	-.056	.116*	-.101*	.032	-.489**	.047	.012	-.140**	.191**	-.101*	.067

Significance levels: * p<.05, ** p<.01 (two-tailed); N=379

Source: Own calculation.

5.6 Results

To inspect the reflective latent constructs, the metrics recommended by Hair et al. (2019) were calculated and examined. Due to the indicator reliability test, one question had to be excluded from the solidarity scale as its loading was too low. Table 11 lists the composite reliability, Cronbach's alpha, and average variance extracted (AVE) for the constructs. The values are all within the recommended limits, except for the AVE of the latent variable cooperation. However, this appears not to be a problem, as both the composite reliability and Cronbach's alpha are well above the threshold values, and thus, the convergence validity of the cooperation factor is nevertheless given (Fornell & Larcker, 1981; Hair et al., 2016).

To test the discriminant validity of the constructs, we first checked whether the cross-loadings were lower than the indicator loadings, which was the case, thus proving the discriminant validity of the constructs (Chin, 1998). Second, we performed the Larcker test for discriminant validity, which is shown in Table 12. As the square roots of the AVEs are higher than the correlations of the constructs, it also confirms the discriminant validity (Fornell & Larcker, 1981).

Table 11. Cronbach's Alpha, Composite Reliability, Average Variances Extracted for Reflective Measurement Models.

Construct	Composite reliability	Cronbach's alpha	AVE	R ² (p-values)
OPC	.838	.747	.567	
Org. Citizenship Behavior	.931	.918	.576	0.152 (0.000)
Cooperation	.811	.716	.466	0.076 (0.003)
Solidarity	.890	.862	.505	0.045 (0.047)
Creative innovation	.957	.951	.636	0.451 (0.000)
Performance	.920	.894	.662	0.317 (0.000)

Source: Own calculation.

Table 12. Larcker Test for Discriminant Validity.

Construct	OPC	Org. Citizenship Behavior	Cooperation	Solidarity	Creative innovation	Performance
OPC	.753					
Org. Citizenship Behavior	.271	.759				
Cooperation	.156	.496	.683			
Solidarity	.193	.460	.453	.711		
Creative innovation	.358	.551	.497	.390	.798	
Performance	.325	.179	.078	.151	.204	.814

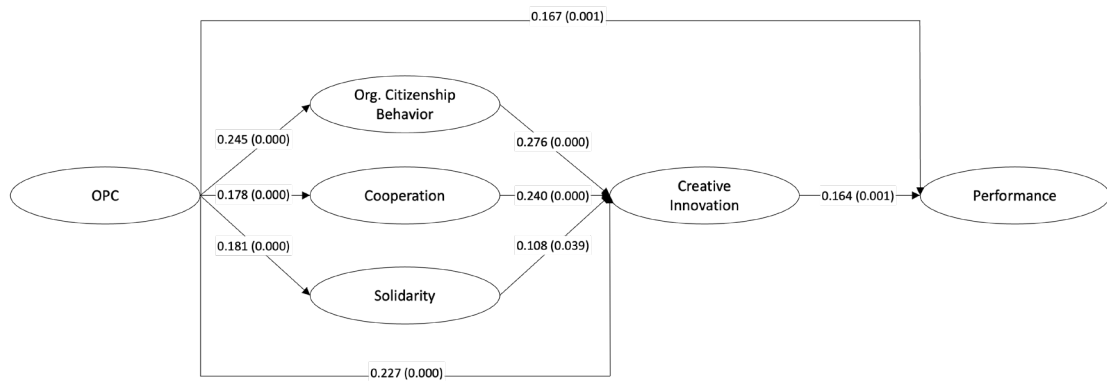
Diagonal values in bold are the square root of the AVEs, and off-diagonal values are the construct correlations.

Source: Own calculation.

5.6.1 Hypotheses testing

Figure 9 shows our PLS-SEM model, the results, path coefficients, and p-values. Table 13 gives a more in-depth overview, also displaying the t-values, f^2 , and q^2 effect size.

Figure 9. Partial Least Squares Structural Equation Model.



The control variables are not displayed to provide a better overview. For information on the control variables, see Appendix 3 in the appendix.

Source: Own illustration.

Table 13. Results of Hypotheses Tests.

Hypotheses paths	Hypotheses	Path coefficients	T-values (p-values)	f ²	q ² effect size	Effect significant
OPC → Org. Citizenship Behavior	H1	.245	5.028 (0.000)	.065	.033	Yes
OPC → Cooperation	H1	.178	3.537 (0.000)	.032	.012	Yes
OPC → Solidarity	H1	.181	3.651 (0.000)	.032	.014	Yes
OPC → Creative innovation	H2	.227	4.831 (0.000)	.081	.040	Yes
Org. Citizenship Behavior → Creative innovation	H3	.276	5.133 (0.000)	.085	.040	Yes
Cooperation → Creative innovation	H3	.240	4.741 (0.000)	.069	.033	Yes
Solidarity → Creative innovation	H3	.108	2.066 (0.039)	.015	.007	Yes
Creative innovation → Performance	H4	.164	3.337 (0.001)	.031	.015	Yes
OPC → Performance	H5	.167	3.253 (0.001)	.033	.018	Yes
OPC → Org. Citizenship Behavior → Creative innovation → Performance		.011	2.289 (0.022)			Yes
OPC → Cooperation → Creative innovation → Performance		.007	2.132 (0.033)			Yes
OPC → Solidarity → Creative innovation → Performance		.003	1.411 (0.158)			No

Source: Own calculation.

Referring to our hypotheses, we found a positive significant influence of OPC on OCB (.245, $p < .001$), OPC on cooperation (.178, $p < .001$), and OPC on solidarity (.181, $p < .001$), and thus confirm the first hypothesis. Likewise, a significant positive influence of OPC on creative innovation (.227, $p < .001$) is shown, which confirms the second hypothesis.

For the further connections of OCB on creative innovation (.276, $p < .001$), cooperation on creative innovation (.240, $p < .001$), and solidarity on creative innovation (.108, $p < .05$), significant positive influences were found, as hypothesized in the third hypothesis. Creative innovation itself also shows a positive impact on the company's performance (.164, $p < .01$) during the crisis, which supports hypothesis four. Ultimately, the direct significant effect of OPC on the firm's performance during crisis (.167, $p < .01$), parallel to indirect pathways via the mediators, confirms hypothesis five. For the whole mediation paths of OPC via OCB and via creative innovation on performance, we found a significant positive, complimentary mediation. Likewise, for the path of OPC via cooperation and via

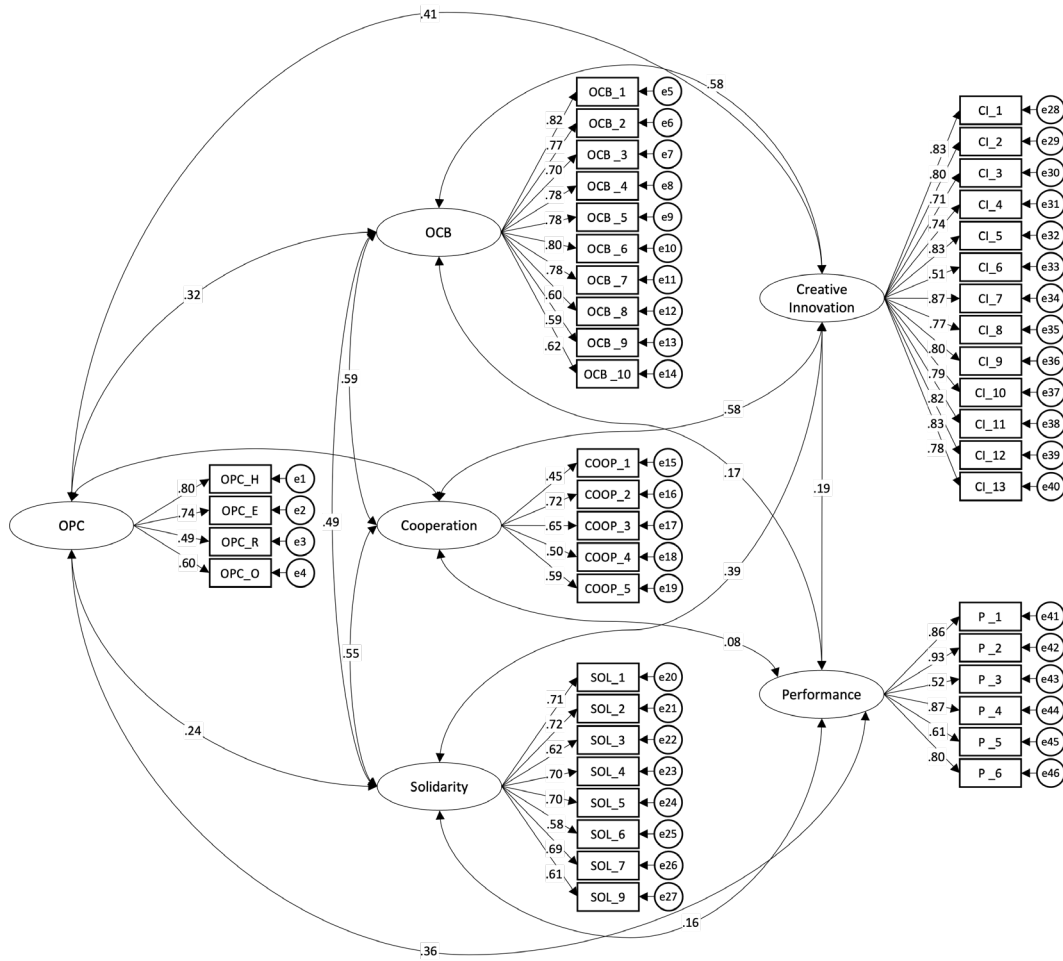
creative innovation on performance. The indirect path, which includes solidarity, turned out to be not significant.

5.6.2 Robustness tests

To validate our results and to prove the robustness of our findings, we conducted some tests with alternative methodological approaches. First, we performed a confirmatory factor analysis to show how the individual items load on the latent constructs and how the factors separate themselves from each other in our model. We performed this analysis using AMOS with the maximum likelihood discrepancy function. The results of this confirmatory factor analysis are shown in Figure 10. The confirmatory factor analysis proves that the individual items load well on the latent factors, and at the same time, the covariance between the constructs is not too high. The model fit indices are all well within the assigned ranges and thus indicate a good model fit (Hu & Bentler, 1999).

For these validated constructs, we further calculated the mean indices for the factors and used them in ordinary least squares regressions to validate our model from the PLS-SEM. The correlations in Table 10 indicate that, apart from the strong negative correlation between the industry dummies, there are no noteworthy correlations. The VIF values for the regression models vary between 3.392 and 3.592 for the industry variables and between 1.026 and 1.604 for all other variables. Thus, multicollinearity can be excluded for our model. The results of these regression analyses are shown in Table 14. Using 5 regression models, we reproduce the same relationships as in our structural equation modelling. We found comparable effect sizes and significances for the relationships, which demonstrates the robustness of our model and the effects.

Figure 10. Confirmatory Factor Analysis.



Standardized estimates are shown. N=379. Fit indices: Chi-square = 1912.715 (df=974 p<.000), CFI = .907, SRMR=.057, TLI=.901, RMSEA=.050, PCLOSE .399.
Source: Own illustration.

Table 14. OLS Regressions - Robustness Test.

Independent variables	Dependent variables				
	Org. Citizenship Behavior	Cooperation	Solidarity	Creative innovation	Performance
OPC	.222***	.134*	.165**	.263***	.152*
Org. Citizenship Behavior				.269***	
Cooperation				.241***	
Solidarity				.094*	
Creative innovation					.169***
Employees	.034	.062	.025	-.006	.017
Firm age	-.111*	-.038	-.010	-.080	-.012
Industry - Manufacturing	-.107	-.116	.024	-.128	-.027
Industry - Service	.121	.005	.068	-.011	-.036
Female	.063	.073	-.028	.048	-.074
Crisis-affected	-.053	.119*	-.076	.060	-.455***
Observations	379	379	379	379	379
R ²	.141	.062	.041	.432	.310
Adjusted R ²	.125	.045	.023	.416	.295
F	8.697***	3.521**	2.265*	27.950***	20.817***
Durbin-Watson	2.075	2.134	1.807	1.899	2.113

Significance levels: * p<.05, ** p<.01, *** p<.001.

Standardized estimation coefficients are reported.

Source: Own calculation.

5.7 Discussion

The recent COVID-19 pandemic, which hit the world in early 2020, poses huge challenges for companies around the globe (Bartik et al., 2020). In line with the RBV (Barney, 1991) and the concept of liability of smallness (Aldrich & Auster, 1986; Fackler et al., 2013), especially SMEs, due to their small size and the thus accounted resource constraints, were hugely affected by measures policymakers took to prevent the virus from spreading. Lockdowns of nonessential businesses (Bartik et al., 2020), working from home (George et al., 2020), and measures of social distancing (Glass et al., 2006) became the new normal, leaving many businesses with the challenge of not being able to maintain their performance. With our research, we contribute to the understanding of how SMEs can secure their performance during these difficult times, as research into this issue is scarce and fragmented (Cowling et al., 2018). In line with research, we stress that SMEs can perform better in crises by leveraging their unique competitive advantages (Sirmon & Hitt,

2003). By introducing a positive psychology perspective, and thus responding to several calls of POB advocates (Gable & Haidt, 2005; James et al., 2011; Pearson & Clair, 1998; T. A. Wright & Quick, 2009), we show that the positive psychological state of SMEs - their Organizational Psychological Capital (OPC) (McKenny et al., 2013) - offers a suitable lens in understanding how some SMEs can use creative innovations on a small scale, positively influencing their performance.

This can also be considered a main finding of our study. Even though SMEs may suffer from certain resource constraints and thus are often expected to underperform, especially in times of a resource scarcity, they do have resources which help to mitigate the effects of a crisis. Our results show that OPC is directly and positively related to creative innovation as well as performance. With these findings, we contribute to the ongoing discussion about the factors influencing performance in SMEs. We show that besides the potential importance of the SME leader's characteristics (Anderson & Reeb, 2003; B. Hansen & Hamilton, 2011; Smallbone et al., 1995; Wiklund & Shepherd, 2003), the shared level of OPC within the company - and thus the employees - exhibits great potential for performance in crises circumstances. We thus add that also psychological factors on a company level and not only on an individual level should be considered when trying to understand the various performance outcomes SMEs show during a crisis. We also enhance the results of McKenny et al. (2013). Based on a text-aided analysis, they found a positive relationship between OPC and a company's performance in shareholder letters. With our survey data, we confirm the robustness of their results, showing that the OPC of a company can be considered a competitive advantage. We reason that similar to the individual PsyCap, companies with a high level of OPC possess more resources that can be activated in order to effectively reach goals (Hobfoll, 2002), which increases the performance of the respective firm.

While previous research has broadly acknowledged that innovation (Rosenbusch et al., 2011) and creativity (Huang & Luthans, 2015; Rego et al., 2012; Sweetman et al., 2011) can enhance an SMEs performance during stable times, we expand this knowledge by proofing that this relationship also holds true for crises contexts such as the COVID-19 pandemic. In respect to the performance and creative innovation relationship in crises, we stress that due to an SMEs flexibility (Nooteboom, 1994; Vossen, 1998) they can quickly engage and implement small scale creative innovations, and thus adopt to the fast

changing circumstances arising from the COVID-19 pandemic (Kuckertz et al., 2020). This ability leads to a momentary monopolistic position (Schumpeter, 1934) that positively influences the performance of the SMEs. Our results show that SMEs higher in the shared psychological resources hope, resilience, optimism, and efficacy together forming the higher order construct of OPC, engage in more creative innovation and thus can increase their chances of entering the state in which they hold this monopolistic position. This confirms the assumptions made by Amabile & Pratt (2016) in their *dynamic componential model of creativity and innovation* that psychological resources support this process. Thus, our results expand the knowledge about psychosocial factors and their influence on creativity to a collective company level, and by that show that research in the area of positive psychology on different levels of analysis can provide crucial insight into how creativity can be fostered.

We also examine different intangible factors that could influence creative innovation in crises contexts, which have, to our knowledge, not been investigated so far. In global crises situations, besides the government and larger internationally operating corporations, entrepreneurs and their smaller companies also want to contribute to solving or mitigating the effects of the crisis. As OPC has the potential to increase problem-solving and motivation (Avey et al., 2011), we theorize that solidarity and OCB are fostered by a company's high level of psychological resources, as a need to promote the overall wellbeing increases (Hogan, 2020), which fosters such prosocial behaviors (Rodríguez et al., 2006). In fact, we find that higher levels of OPC increase the prosocial behaviors in SMEs during the COVID-19 pandemic, thus adding evidence that the positive psychological state of such companies increases desirable company actions in form of prosocial behaviors. We further argued that the investigated prosocial behaviors of SMEs enhance creative innovation of SMEs during the COVID-19 crisis and find proof for this assumption. OCB behaviors and solidarity actions show a positive impact on creative innovation, whereas the influence of OCB is stronger than the solidarity influence. Thus, we broaden the knowledge by showing, SMEs in crises should leverage on those behaviors to increase their chances of survival.

Furthermore, we show that cooperation with stakeholders also increase when the SMEs can leverage on a high level of OPC. In order to mitigate the effects of crises, SMEs are lacking resources (Bin & Edwards, 2009; Fackler et al., 2013; Ogawa & Tanaka, 2013) and

thus try to compensate for that by engaging in cooperation (Jones & Macpherson, 2006). To use their resources in an effective manner, research on this issues shows that for SMEs, that it is crucial to understand their relations with stakeholders so that their goal directed energy can be enhanced (Battisti & Deakins, 2017). Having a high OPC fosters the motivation to counteract the crisis, and in consequence, they leverage on different ways to overcome the situation and reach their goals (McKenny et al., 2013; Newman et al., 2014). As our results show, one of these ways is to engage in cooperation, as we find that creative innovation increases when SMEs engage in cooperation. Our findings contradicts the findings of Rosenbusch et al. (2011), which state that the yield of such cooperation has no effect on performance. They explain their findings in such a way that SMEs usually, due to their size, face a weaker negotiation power than their (bigger) cooperation partners and thus have to accept rather bad conditions. As the meta-analysis cannot account for the crisis context, we explain our findings in such a way that even though this is true in stable economic contexts, it differs in the COVID-19 pandemic, as the degree of novelty of those innovations is limited to the respective firm (Edison et al., 2013; Grimpe et al., 2017). We conclude that the positive effects of the cooperation, like information and knowledge gathering (Wall & Bellamy, 2019), mobilization of bricolage (Kuckertz et al., 2020), and joint efforts (Markman et al., 2019) weigh stronger.

In sum, we add insights to entrepreneurship literature on the so far rather overlooked importance of positive psychological factors during crises and, in our case, OPC on the performance of SMEs, showing potential for further research. While we also agree with previous research showing that the context in which SMEs are embedded has a major impact on performance (Rosenbusch et al., 2011), we believe that OPC and other psychological variables may play a cross-contextual role determining performance during crises as well as in stable times. Therefore, we believe that further research in this direction is needed to help SMEs understand the potential entailed in OPC as a competitive advantage and what they can do in order to improve their resilience for future crises.

5.8 Conclusion, Limitations, and Implications

The goal of our study was to investigate the factors that help SMEs to gain a better performance by leveraging on creative innovation during the COVID-19 pandemic. We

propose that a company's positive psychological state (OPC) plays a crucial role in this perspective, as it not only directly influences creative innovation and performance but also plays a decisive role in fostering prosocial behaviors (OCB and solidarity), as well as cooperation with stakeholders, which in turn influence small scale creative innovation during a crisis. By that, we follow the call of POB researchers to use a positive psychology perspective (James et al., 2011; Pearson & Clair, 1998) to enhance the understanding of SMEs performance in crises situations. We add to entrepreneurship literature by showing that OPC of SMEs positively impacts their performance during the COVID-19 pandemic and thus broadening the understanding of why some SMEs perform better during a crisis than others. Furthermore, we add to the crisis management literature by suggesting that positive psychological resources can be leveraged and thus should be considered to successfully navigate through crises. Last, as the COVID-19 crisis already endured over several months, we got the rare opportunity to conduct our study during a global crisis. Most research so far has been focused on either pre-crisis (preparation, causes) or post-crisis (aftermaths) situations (T. A. Williams et al., 2017).

Even though the recent COVID-19 pandemic offers great potential to study the behavior of companies in prolonged global crisis situations each crisis is different in its nature (James et al., 2011). In order to enhance and deepen our understanding of those different context, further research should validate our findings in different crises situations, as it is possible that in other crisis circumstances and different cultural backgrounds, prosocial behaviors as well as OPC operate in a different way, especially if the crisis is not classified as a grand challenge by the actors. Research in this direction could provide fruitful insights into the performance of SMEs during different crises and how those can prepare their organizations in advance by enhancing their OPC to better navigate through those times. Moreover, longitudinal research that can provide additional data from pre-crisis and post-crisis situation would enrich the discussion by shedding more light on the specific context in which each company is embedded. This would also allow for closer and multifaceted considerations into the nature of OPC, as it is assumed to change over time (Avey, Nimnicht, et al., 2010; Peterson et al., 2011) and possibly decreases during a prolonged period of a crisis. Future studies could also increase our understanding of OPC by measuring the construct within a multitude of members of the respective organizations, as we measured OPC through self-assessment of the SME's leaders.

Our study also offers several implications for research and practice. As OPC is considered a state like resource (Luthans, Avolio, et al., 2007) and thus has the potential to be enhanced by interventions (Dello Russo & Stoykova, 2015), our results indicate that such interventions during crises might be beneficial for the survival of the company. SMEs should place a higher focus on their psychological state, the positive attitude of their leaders and employees, their resilience and hope, efficacy, and optimism to better cope with the effects of a crisis. Consequences would be a stronger prosocial behavior, cooperation, and a higher solidarity, which in return strengthens the innovative creations ultimately driving the performance of SMEs in times of crises.

6 The Mittelstand Mindset: Unpacking the Intangible Core of Germany's Economic Backbone

Ann-Christin Grözinger, Felix Simon Rudolf Becker, Petra Moog, Donald F. Kuratko, and
David B. Audretsch

ABSTRACT

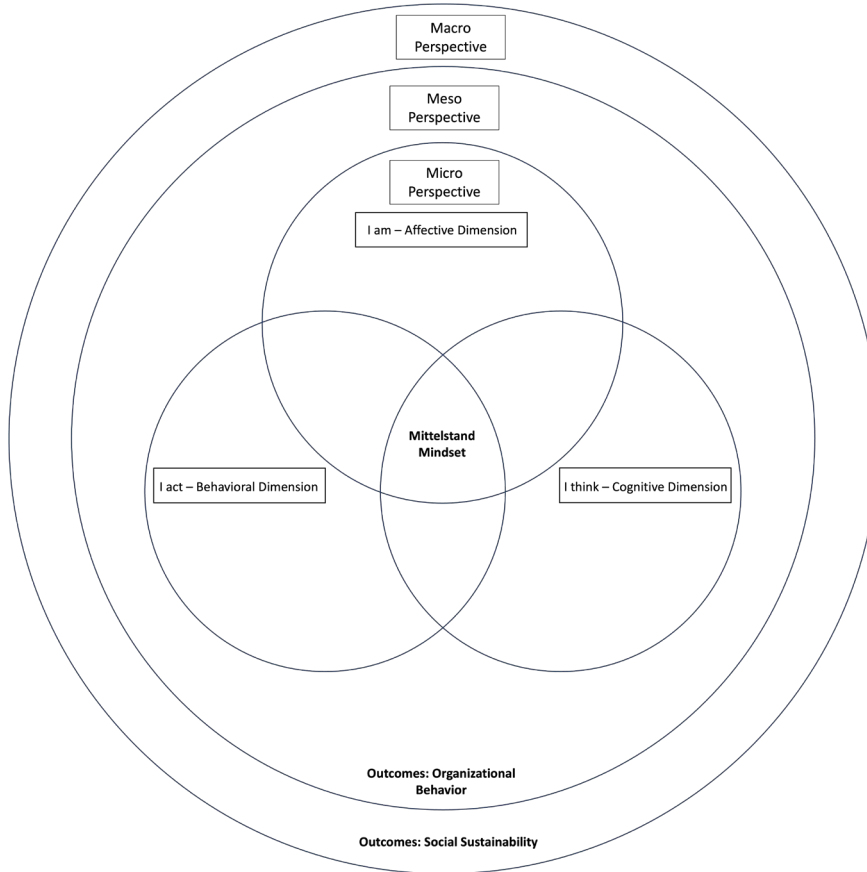
The German Mittelstand, globally acknowledged for its strength and prosperity, is often mystified because, regarding its potentially unique characteristics and mindset, there exist only vague ideas about what makes those companies different. While it is a key player in Germany's stable economy, defining the Mittelstand Mindset remains elusive. This paper unveils the Mittelstand Mindset for the first time, distinguishing it from the broader Entrepreneurial Mindset (EM). Through analyzing 17 research papers and 64 case studies, we identify this mindset, characterized by specific values, strong attachment, customer focus, long-term orientation, sustainability, regional embeddedness, and independence. Rather than mere company characteristics, this distinctive mindset sets the Mittelstand apart, offering new avenues for international research and policy discussions on various forms of entrepreneurship and Mittelstand in the international context.

Keywords: Mittelstand, Entrepreneurial Mindset, Varieties of Entrepreneurship, Qualitative

JEL Classifications: D91; L25; L26; M10

6.1 Integrating Study 3 within the Conceptual Model of the Dissertation

Figure 11. Conceptual Model of Study 3.



Source: Own illustration.

In study 3 (Chapter 6), titled "The Mittelstand Mindset: Unpacking the Intangible Core of Germany's Economic Backbone", the research investigates the unique psychological construct that characterizes the Mittelstand, a significant yet underexplored segment of international entrepreneurship. While traditional studies have emphasized tangible aspects such as ownership structures and market orientation (Bartz & Winkler, 2016; Berlemann et al., 2021; Pahnke et al., 2022), this study advances the discourse by proposing a conceptual model of the Mittelstand Mindset, which consists of three interconnected dimensions: feeling, thinking, and acting. These dimensions, derived from the theory of the EM (Kuratko et al., 2021), highlight the centrality of sustainability within the Mittelstand, as companies demonstrate a commitment not only to long-term strategic success but also to social sustainability. In this dissertation, the Mittelstand Mindset model fits within the conceptual framework by providing a concrete example of how psychological micro-foundations, specifically cognition, affect, and behavior, influence

entrepreneurial success (Figure 11). The Mittelstand model is an excellent example to highlight the importance of (diverse) EMs, rooted in cognitive, affective, and behavioral factors, in shaping entrepreneurial outcomes. This aligns with the dissertation's focus on how these psychological micro-foundations can enrich entrepreneurship research by offering more profound insights into the internal processes that drive entrepreneurial outcomes. The Mittelstand model, therefore, serves as an illustrative case for understanding the broader implications of a psychological lens in entrepreneurship studies, as it touches upon the Mittelstand Mindset's impact on the meso- (resulting entrepreneurial behavior of the companies) and macro-level (contribution to social sustainability in German society).

6.2 Introduction

The interest in the phenomenon of the Mittelstand is gaining momentum in the face of our increasingly volatile world, where prosperity and stability are constantly under threat (Logue et al., 2015; Pahnke & Welter, 2019; Thakur, 1999). A growing body of research suggests that the Mittelstand constitutes a different type of entrepreneurship (Audretsch et al., 2022; Berlemann et al., 2021; Pahnke et al., 2021), one which is largely overlooked in entrepreneurship research, featuring moderate growth and thus fostering and preserving societal stabilization and prosperity within the population (Welter et al., 2020). It also provides competitiveness and is often described as the backbone of the German economy (Audretsch & Lehmann, 2016; Berlemann et al., 2018; Thakur, 1999). There are several recent studies in the entrepreneurship literature highlighting a more nuanced understanding of different archetypes of entrepreneurship (Audretsch, 2021; Herrmann, 2019; Kuratko & Audretsch, 2022; Morris & Kuratko, 2020; Wolff et al., 2022) that go beyond the famous Silicon Valley entrepreneurship concept (Audretsch, 2021). While the concept of the Mittelstand may seem antiquated at first glance, a closer look reveals the entrepreneurial behavior of these companies that, shaped by a sense of responsibility toward society (De Groote et al., 2023; Welter, 2018), conceivably contributes to solving societal problems and inequalities. A transformation in the pursuit of economic, social, and ecological sustainability can solve the pressing problems of our time, such as climate change, inequalities, and poverty. In addition to ecological sustainability, there is consensus among global policy institutions, as summarized in the Sustainable Development Goals (SDGs), that sustainability goes beyond ecology and encompasses

work, well-being, fairness, and equality (OECD, 2021; United Nations, 2022). Thus, social sustainability regarding work situations and wealth distribution has emerged as a societal priority (Belz & Binder, 2017), as it could provide more justice on the local, national, and global levels and consequently ensure the requisite satisfaction and stability conducive to democratic systems (Davidson, 2009, 2019; Rogers et al., 2012; Wolff et al., 2022). Therefore, the Mittelstand offers a promising avenue to stability and sustainability.

However, the extant literature identifying what makes Mittelstand different from other manifestations of entrepreneurship has been primarily limited to focusing on company characteristics, such as firm size, age, ownership, and financial structures (Bartz & Winkler, 2016; Berlemann et al., 2021; Pahnke et al., 2022). While a recent strand of literature in entrepreneurship has pinpointed the crucial role played by the EM (Hattenberg et al., 2020; Kuratko et al., 2021; Shepherd et al., 2010), so far, it is not yet known whether the mindset of the Mittelstand is similar to that uncovered in the broader entrepreneurship literature or whether a distinct Mittelstand Mindset exists. The answer to this question is vital to those entrepreneurs, regions, and countries striving to identify their own Mittelstand. Identifying the Mittelstand Mindset holds significant insights for academia, practice, and especially policy. By conceptualizing the Mittelstand Mindset, we offer a broader perspective on entrepreneurship that includes stability, social responsibility, and regional embeddedness. This expanded view is crucial for understanding the diversity of entrepreneurial paths and outcomes beyond the prevalent focus on rapid scale and innovation (Audretsch, 2021; Herrmann, 2019; Kuratko & Audretsch, 2022). Thus, the Mittelstand Mindset informs policymakers and practitioners outside Germany about alternative models of entrepreneurship that prioritize long-term value creation over short-term gains. This directly impacts developing policies and practices that support sustainable development, social responsibility, and economic stability, aligning with global priorities such as the Sustainable Development Goals (SDGs). The research on EM further underscores its importance: On one hand, it is evident that EM serves as a competitive advantage because it enhances the ability of entrepreneurial ventures to cope with uncertainties stemming from the environment and thus is a pivotal element in understanding entrepreneurial behavior (Daspit et al., 2023; Noble, 2015; Shepherd et al., 2010; M. Wright et al., 2000). On the other hand, the potential for developing mindsets (Dweck, 2008, 2017; Mathisen & Arnulf, 2013) unveils an additional aspect, transforming diverse expressions of EMs into a potent tool. Thus, the question

that remains to be answered is whether Mittelstand is just about a distinct set of firm-specific characteristics or if there is a specific Mittelstand Mindset that makes the difference.

This paper aims to make sense of the numerous ways Mittelstand has been described in the literature by explicitly identifying and characterizing its unique mindset. We suggest that the Mittelstand Mindset is, in essence, the critical characteristic that sets these companies apart from others, offering our conceptualization as a means to elucidate this complex debate with greater clarity. Consequently, we pose the following research question: *“How can the Mittelstand Mindset be conceptualized?”*

No systematic dataset exists measuring the mindset of the Mittelstand. Thus, this paper engages in case data of 64 Mittelstand companies and an in-depth analysis of 17 scientific articles to gauge and characterize the Mittelstand Mindset. The results of our qualitative analysis enable a characterization of the Mittelstand Mindset. The paper makes two key contributions to the entrepreneurship literature. The first is to move beyond characterizing the Mittelstand in terms of firm-specific characteristics (Schenkenhofer, 2022) by instead focusing on the mindset as the key or at least one of the salient aspects, distinguishing the Mittelstand from other forms of companies, like startups, small and medium-sized companies or hidden champions. In particular, the paper develops a concept for the Mittelstand Mindset based on inductive category building. Rethinking what is actually distinctive about the Mittelstand should serve the policy and research communities striving to create a Mittelstand in their own national context or “finding” the existing Mittelstand that has not been recognized, appreciated, and/or supported.

The second major contribution is to inject a new organizational context, the Mittelstand, into the strand of research focusing on varieties of entrepreneurship in general and EM specifically (Kuratko et al., 2021; Shepherd et al., 2010). Just as the literature has concluded, mindset matters (Daspit et al., 2023; Dweck, 2017; Shepherd et al., 2010). However, this paper makes an important caveat – mindset may not be homogeneous across entrepreneurs and entrepreneurial firms but also nuanced and specific to the particular type of entrepreneurship, such as the Mittelstand. We, therefore, endorse the discussion of a too-narrow understanding of entrepreneurship (Audretsch et al., 2015; Herrmann, 2019) and the accompanying growing reflection of Silicon Valley

entrepreneurship in research (Kuratko & Audretsch, 2022; Pahnke & Welter, 2019). As Shane (2003, p. 3) explained, *“the phenomenon of entrepreneurship cannot be explained either by environmental forces or by individual factors in the absence of the other”*. In a similar vein, Bruyat & Julien (2001, p. 177) stated, *“To understand an entrepreneurial event, we must first understand the individual and the project, and then the links between them throughout the start-up, survival and/or development process, and finally the influence of the environment, and hence of other entrepreneurs and the various resources provided by the environment.”* Thus, we contribute to the literature by identifying a different and more heterogeneous kind of entrepreneurship (Bruyat & Julien, 2001; Galambos, 2021), broadening the spectrum and continuum of entrepreneurial activities (Wolff et al., 2022).

6.3 Theoretical Background

6.3.1 Conceptual Meaning and Impact of Mittelstand

The fundamental approach of Mittelstand companies may appear antiquated, yet its undeniable impact on the economic and societal development within the German context remains undisputed. However, there still exists an absence of a reliable and meaningful definition of Mittelstand (Pahnke et al., 2022). Beyond this, scholars agree that the German Mittelstand serves as an essential pillar of the domestic economy that historically contributed to the country’s stable economic and societal development (Audretsch & Elston, 1997; Berghoff, 2006; Berlemann et al., 2018, 2021; Welter et al., 2020). While the Mittelstand, deeply rooted within the German culture, is discussed in the media worldwide (Pahnke & Welter, 2019), international scholars have widely neglected to research the phenomenon internationally (Audretsch et al., 2022).

In a broad sense and under social and historical lenses, the term Mittelstand describes a social group formed of individuals that belong to the social class *“in the middle”*. Thus, this group was neither assigned to the social group of clergy nor nobility, but in-between, and has gained their wealth and societal position solely by their achievements (Hausch, 2004). Accordingly, the term expresses a solid and legitimately earned prosperity, which continues to be held in high esteem in German society up to this day. Specifically, the alternative meaning of the word refers to the economic Mittelstand and, therefore, denotes a particular group of companies in the German culture (Berghoff, 2006). For this

study, the term *Mittelstand* refers to the latter, i.e., the associated companies, and not to the social class of *Mittelstand*. *Mittelstand* entrepreneurs were generally perceived as a social group that did not seem to be driven by greed and was characterized in particular by economic and social self-discipline, striving for a secure standard of living and, thus, embodying stability (Blackbourn, 1977). Even today, the historical and sociological significance of the term is essential for the perception of the *Mittelstand* in German society (Hausch, 2004). They adhered to the honorable values of the “*Ehrbare Kaufmann*” (honorable merchant) (Berlemann et al., 2021; Jahn, 2018). Therefore, *Mittelstand* still carries a positive connotation in German society, which contributes to the sense of pride prevalent throughout Germany for the *Mittelstand*, inspiring entrepreneurs to adopt the idiosyncratic behavior of those companies to belong to the group. Despite the strong historical link to Germany, we argue that the above characteristic features attributed to the *Mittelstand* by German society are not purely German phenomena but can also be observed in other (national) contexts. Therefore, we suggest that if a *Mittelstand* Mindset could be identified, then it is certainly plausible that *Mittelstand*-like companies can also be identified in other countries.

6.3.2 What *Mittelstand* is and What it is Not

While there seems to be no consensus in the research community on what exactly constitutes the *Mittelstand*, leading scholars in the discussion agree that the phenomenon is indeed complex (Berlemann et al., 2021; De Massis et al., 2018; Heider et al., 2021). As mentioned, the absence of a shared understanding hinders research in the field of *Mittelstand* and subsequently makes it difficult to establish the phenomenon in the broader entrepreneurship literature. Nonetheless, researchers have addressed the definition and characteristics of *Mittelstand* (Berlemann et al., 2021; Pahnke et al., 2022). Examining the literature, four different approaches to the definition are observable:

First, *Mittelstand* companies are often, especially in media (De Massis et al., 2018), colloquially equated with small and medium-sized enterprises (SMEs), and this view has partly prevailed in research practice (Pahnke et al., 2021). Numerous empirical studies that solely examine German SMEs misapply the term *Mittelstand* (Berlemann et al., 2018; Logue et al., 2015; Pahnke et al., 2022) in the sense of medium-sized firms. However, it is arguably not only the colloquialism that is responsible for this misuse but also the fact

that operationalizing and measuring Mittelstand based on employee numbers and sales figures, as standard SME definitions suggest (European Commission, 2003), is much easier for researchers than operationalizing the fundamental disposition of Mittelstand companies, especially since there remains a lack of consensus among researchers as to what constitutes this disposition.

Second, the most widely recognized and most common definition of Mittelstand companies is provided by the Institute for Mittelstand Research (Institut für Mittelstandsforschung Bonn, IfM Bonn): *“Mittelstand enterprises are defined by the unity of ownership and management”* (IfM Bonn, 2021). The IfM Bonn further specifies the unity of ownership and management by stipulating that up to two natural persons or their family members hold at least 50% of the shares in the company and at the same time belong to the company's management (IfM Bonn, 2021). While this definition is comparatively easy to measure, it is problematic because it applies to all family businesses globally. While both types of companies share some characteristics and thus might overlap, equating the two terms would not do justice to either concept. In the family business literature, a scholarly discussion on defining family businesses is still ongoing (Ruf et al., 2020). The definition of the IfM Bonn does not reflect the complexity of family businesses, which is often described as an interplay of different family members and roles within the business (Shepherd & Haynie, 2009; Tagiuri & Davis, 1996), and a strong influence of family values on the behavior of the business (Roffia et al., 2021; Ruf et al., 2021). Nor does it for the Mittelstand. While we agree that ownership is most likely a central attribute for family businesses as well as the Mittelstand, the distinctive feature of neither is the unity of ownership and management. While a family business is defined as family-managed (ownership and management) with the willingness to pass the business on to the next generation (Chua et al., 1999; Wolff et al., 2022), Mittelstand companies can also be merely owner-managed, without family involvement (Welter et al., 2014). Therefore, we argue that companies that have undergone an external succession may also be classified as Mittelstand. However, in the sense of a narrow family business definition, they would subsequently lose the status of being a family business.

The third approach for defining Mittelstand companies combines the owner-management criteria and the SME definition (Berlemann et al., 2021; Jahn, 2018; Logue et al., 2015). Likewise, some authors arguably use a combination of SME and owner-managed

companies to define Mittelstand in their studies for ease of measurement. While certain studies within the German context suggest that this approach may partially capture the essence of Mittelstand firms (Welter et al., 2014, 2015), this approach is not entirely ambiguous. It is particularly problematic in the international context as not all owner-managed SMEs inherently have the idiosyncratic Mittelstand identity and thus lack a sense of belonging to the group of Mittelstand companies. Additionally, this amalgamated group constitutes a significant portion of the overall company population of about 99 percent of all companies in various nations (Savlovski & Robu, 2011; Schmiemann, 2008), making it seemingly unremarkable. The challenge is to discern the distinctive qualities of Mittelstand that render it unique —whether it be the idiosyncrasy, values, or a compelling sense of identity.

The fourth approach to identifying Mittelstand companies is to focus on different characteristics discussed in the literature (Berlemann et al., 2018; De Massis et al., 2018; Schenkenhofer & Wilhelm, 2020). Some studies mention that Mittelstand companies are typically located in rural regions and small towns and have been found to enhance the prosperity of these regions (Audretsch & Lehmann, 2016; De Massis et al., 2018). Other research suggests that Mittelstand companies are particularly active in manufacturing and lead the world market as hidden champions for their product niche¹² (Audretsch et al., 2018; H. Simon, 2009). Another characteristic often attributed to Mittelstand is a robust commitment to vocational training, providing opportunities for workers without university education to access quality jobs with competitive wages (Jahn, 2018). Noteworthy in this characteristic-based definition approach is that after outlining a potential definition of Mittelstand, these studies often discuss additional characteristics of Mittelstand without including them in the initial definition (De Massis et al., 2018; Pahnke & Welter, 2019; Welter et al., 2014). These aspects, emerging from the Mittelstand Mindset and companies' self-perception, have been underexplored and lack theoretical integration. We contend that a systematic and structured analysis of these characteristics is crucial, as they are central to comprehensively understanding the Mittelstand beyond peripheral observations.

¹² The term hidden champion (H. Simon, 1996b, 1996a) is sometimes used as a synonym to Mittelstand companies, but, both are different concepts just like family businesses, that partially overlap (Schenkenhofer, 2022; H. Simon, 1996b, 1996a, 2022). For a detailed distinction between the two phenomena, see Schenkenhofer (2022)

This discussion also emphasizes the heterogeneity of Mittelstand companies, suggesting that they cannot be distinguished by characteristics such as belonging to a specific industry or size (De Massis et al., 2018; Schenkenhofer, 2022). Other researchers have referred to this as the *“Mittelstandsgefühl”*—the feeling of being part of the Mittelstand (Welter et al., 2015). Thus, this embraces the idea of belonging to the Mittelstand, recognizing it as crucial for a holistic and shared understanding. It introduces a three-dimensional approach: *“owner-management, firm size, and a sense of belonging to the Mittelstand”* (Pahnke et al., 2022, p. 12), interacting with each other to reflect the Mittelstand as such in its orientation and growth aspirations. In the international context, however, a sense of belonging to the Mittelstand is not likely to be present, in contrast to Germany, where the understanding of the Mittelstand is closely embedded in the German culture, history, and society (Berghoff, 2006; Hausch, 2004). However, initial studies provide indications that a Mittelstand may also exist in other countries (Audretsch et al., 2022). Additionally, scientifically measuring a sense of belonging presents a significant challenge in finding valid operationalizations and items.

6.3.3 Towards a Mittelstand Mindset

As mentioned earlier, differentiating Mittelstand from other companies reveals a complex phenomenon that goes beyond quantitative measurement criteria, such as ownership shares, sales figures, or the size of companies. Instead of being defined by its structure as previously discussed, the Mittelstand may be more accurately characterized and defined by the way in which these companies, their managers, and owners think and act on the market and in society. This aligns with an emerging research stream in entrepreneurship literature, where scholars call for *“varieties of entrepreneurship”* (Audretsch, 2021; Galambos, 2021; Herrmann, 2019; Kuratko & Audretsch, 2022). The main rationale for this stream of research is that entrepreneurship is influenced by the context in which it takes place but also actively shapes and molds this context (Dimov, 2007). Such a perspective allows entrepreneurship researchers to take a new angle to move *“a little bit away from the naive search for general laws of entrepreneurship”* (Baker & Welter, 2020, p. 10). Therefore, this line of research advocates for a broader perspective on entrepreneurship beyond just start-ups. It introduces a continuum of entrepreneurship (Wolff et al., 2022), highlighting that various types of companies are more conducive to entrepreneurship than what is often asserted in the mainstream entrepreneurship

discourse, which tends to be Silicon Valley, i.e., start-up-focused (Audretsch, 2021). In recent years, there has been an infatuation with high-growth ventures, especially prevalent in Silicon Valley. Concepts such as “*unicorn*” (venture with a value of \$1 billion), “*decacorn*” (venture with \$10 billion value), “*blitzscaling*” (funding a venture for extremely fast growth prioritizing speed over efficiency in an environment of uncertainty) (Kuratko et al., 2020), and “*fake it till you make it*” (deceptively claiming a new endeavor exhibits characteristics of successful entrepreneurial ventures to gain support from others) (Wood et al., 2022), have become the focus of not just many entrepreneurial ventures but much of the entrepreneurship literature. In addition to comprehensive media coverage, political discussions in the context of entrepreneurship have also been strongly influenced by how these fast-growing, highly innovative companies can be supported (Herrmann, 2019), contributing to a distorted picture of what entrepreneurship is. Building on this perspective, Morris & Kuratko (2020) argue that an entrepreneurial economy or society requires more than just one type of entrepreneurship. Inclusive entrepreneurship, encompassing all the diverse types with their various expressions, ultimately shapes an entrepreneurial economy (Welter et al., 2017). Morris et al. (2015) conclude that, given the diversity of social and individual goals and preferences, a portfolio incorporating all types of entrepreneurship may be the most effective way to serve society. Unlike traditional metrics that quantify business success through growth rates, revenue, or size, the Mittelstand's defining characteristics, considering the varieties of entrepreneurship approach (Herrmann, 2019), lies in its intangible ethos. This ethos encompasses how those companies perceive and conceptualize their role in the market and society, essentially cultivating a distinct mindset. Far from being limited to mere operational strategies or market positioning, this mindset embodies a comprehensive philosophy that integrates ethical responsibility, sustainability, and community orientation into the core of business operations (Logue et al., 2015). The literature uses different terms to describe those intangible aspects (see Table 15). While Berghoff (2006, p. 271) characterizes it as a “*corporate governance in a broad sense that encompasses both legal and sociocultural features*” as well as “*philosophy*” (Logue et al., 2015, p. 277), De Massis et al. (2018, p. 3), describe it as “*idiosyncratic resources*” or “*quality-oriented management spirit*” (p.3). Other authors simply call it “*mindset*” (Logue et al., 2015; Pahnke et al., 2022; Schenkenhofer, 2022). We stress that despite the utilization of varied terminologies by different scholars, there exists

a consensus regarding the essence of the matter: they refer to it in a way in which those companies fundamentally understand themselves, think, and act. Thus, we strongly empathize with the concept of the Mittelstand Mindset, as there is a research stream on the EM that closely ties the word to entrepreneurial opportunity recognition, creation, and innovation and aims to explain how entrepreneurs differ in their cognition, behavior, values, and emotions (Kuratko et al., 2021). This makes the concept of the Mittelstand Mindset comprehensive and does justice to the descriptions in Table 15. Research into the EM shows that individuals starting a business vary in how much they demonstrate an EM, affecting how their ventures emerge (Morris et al., 2012). Importantly, the mindset can be developed and nurtured (Kuratko et al., 2021).

Research dealing with the concept of mindsets is based on psychology and has been studied by various research streams (French II, 2016). The fragmentation of the research led to different interpretations and, therefore, a certain fuzziness in the conceptualizations and characterizations of the term mindset (Krohn et al., 2021). With its roots in the organizational leadership literature, the concept first sparked interest for entrepreneurship researchers about two decades ago (Krohn et al., 2021) and is now being studied by various scholars as the EM. The EM as an individual concept is defined *“as the ability and willingness of individuals to rapidly sense, act, and mobilize in response to a judgmental decision under uncertainty about a possible opportunity for gain”* (Shepherd et al., 2010, p. 62). In that sense mindsets assist humans in decision making and judging situations and can mitigate or reinforce decision errors (Krohn et al., 2021). While there is an amplitude of research investigating different aspects of the EM, Kuratko et al. (2021) integrate this research and depict what constitutes it. They show that the EM consists of three aspects: thinking (the cognitive aspect), feeling (the emotional aspect), and acting (the behavioral aspect). However, the three aspects cannot be considered separately; they interact and reinforce each other, giving rise to the EM. Moreover, Hattenberg et al. (2020) demonstrate that the EM of an individual entrepreneur not only influences certain aspects of the organization but is transferred to the members of the organization, thus creating a shared EM within the organization. This is particularly noteworthy, suggesting that entire organizations can entail a certain EM, meaning that they think, feel, and act in a particular way (Kuratko et al., 2021). The mindset of the German Mittelstand companies may help them understand the portfolio of what these

entrepreneurs create. The identity and measurement of the Mittelstand Mindset may very well be the key to finding such companies worldwide.

Table 15 gives an overview of how literature describes the intangible aspects that potentially form the Mittelstand Mindset. Instead, qualitative characteristics in the governance structures of Mittelstand companies are used, which turn into an idiosyncratic character for those companies to meet specific goals that are socially desirable. While the descriptions of those goals vary in the literature, they can be summarized as meta-economic objectives (Pahnke et al., 2019) or caring entrepreneurship (Welter et al., 2014). De Massis et al. (2018) highlight that the elements contributing to the Mittelstand Mindset are profoundly interconnected and influence one another. Consequently, the Mittelstand Mindset of the German Mittelstand arises from a complex interplay of various factors. On the one hand, the historical development of entrepreneurship in Germany plays a vital role in the associated perception of the honorable merchant, to whom the qualities of prudence, solidity, trust, and responsibility are attributed (Berghoff, 2006; Welter et al., 2014). This view still characterizes the Mittelstand today, which is also illustrated by the example of the Faber-Castell CEO (one of Germany's oldest premium pencil producers) in De Massis et al. (2018), who states that he wants to earn his money "*decently*", i.e., in a financially and ethically proper way.

On the other hand, the Mittelstand entrepreneur still enjoys a high reputation not only in German society but also internationally, which has a decisive influence on the mindset of Mittelstand entrepreneurs (Berlemann et al., 2021; Jahn, 2018). The political discourse in Germany has always emphasized a value-driven understanding of the Mittelstand and, thus, its contribution to society (Pahnke & Welter, 2019), assigning those companies a high relevance and value for the country. In sum, a Mittelstand Mindset emerges that pursues a hybrid corporate purpose, which, in addition to the economic contribution and is in line with the perception of society and politics, results in caring entrepreneurship of the Mittelstand companies. This is expressed in an orientation that does not focus (only) on profit maximization but also on sustainable corporate development (Welter et al., 2020).

Table 15. Intangible Aspects of Mittelstand in Literature.

Source	Quote
Berghoff (2006)	“The classic model was mainly characterized by the identity of ownership and management in small and medium-sized family businesses; a concentration on core competencies and specialized market segments; the strong emotional involvement of owners and their staffs; a focus on multigenerational continuity and long-term thinking; and a strong culture of cohesion and independence.” (p.295)
De Massis et al. (2018)	“This combination of ownership and control perpetuated across generations manifests in idiosyncratic resources, strategies, and structure.” (p. 3) “The long-term orientation comes with the opportunity and willingness to include ethical and sustainability goals. Von Faber-Castell shared in a personal communication with the authors that he believes “the money should be earned in a “decent” way (in German” anständig,” which has a double meaning: financially and ethically responsible or proper). Nothing is less socially compatible than having to shut down a plant—long-term profitability is key.” Faber-Castell's sustainable innovation projects are an excellent illustration of this commitment to a long-term vision that is ethically responsible.” (p.9)
Logue et al. (2015)	“[...], and describe the German organizational model of the Mittelstand, which has been seen as a key element of the Germany economy, ripe for emulation. We describe the historical development of the Mittelstand organization from its emergence and dominance in Bavaria and its structures, strategies and underlying management philosophies and values (as opposed to a generic label for all small and medium enterprises in Germany). Third, we present an empirical example of how this very German, embedded, values-based model is currently being theorized and translated as a solution in a very different part of the world – Australia.” (p.18)
Pahnke et al. (2019)	“Meta-economic objectives, such as independence, employee satisfaction or ecological goals, are valued more highly than those of non-medium-sized companies if the entrepreneurs feel they belong to the Mittelstand. Hence, the set of values that characterize entrepreneurs in the Mittelstand therefore also influence their corporate policy objectives.” (own translation; p. VI)
Pahnke & Welter (2019)	“Such an understanding of the Mittelstand (as a “mindset” of entrepreneurs) puts longevity and independence as well as values of mutuality and trust, passion, and a sense of belonging to the forefront, which evidently persist even if former Mittelstand ventures grow out the Mittelstand by definition. [...] Thus, the Mittelstand is an excellent example of everyday entrepreneurship, demonstrating how entrepreneurship that builds on a sense of responsibility and solidarity can shape an economy and society and contributes to its world standing.” (p. 355)
Pahnke et al. (2021)	“The important role of managing owners in the Mittelstand and their preferences and goals are also reflected in the sense of belonging or in a “mentality” peculiar to the Mittelstand. [...] This feeling of belonging to the Mittelstand - and thus also a certain commitment to corresponding social and entrepreneurial values - spreads or exists beyond the boundaries of the Mittelstand company.” (own translation; p.355)
Pahnke et al. (2022)	“Interestingly though, the unity of ownership and management prevailing in owner-managed companies is not only — as discussed in the paper — recognized as the most important criterion of Mittelstand companies but is also very likely related to their firm size and the sense of belonging to the Mittelstand. The unity of ownership and management “empowers” Mittelstand entrepreneurs to determine the growth of their company and to shape its corporate values.” (p.12)
Schenkenhofer (2022)	“What could have inspired the theory on such a specific mindset and its positive connotation? At best, a particular mindset of the Mittelstand that reflects in a particular meticulousness could be elaborated through a socio-historical analysis of the German society in the nineteenth century. There, the roots for the reputation of the Mittelstand may have been laid around a particular mindset, value foundation and work ethos.” (p.459)
Welter (2018)	“For them, Mittelstand is much more than visible in governance and ownership structures; it is a sense of belonging to a tradition which has shaped and is shaping the economy and society in Germany.” (p. 102)

Source: Own representation.

Table 15. Intangible Aspects of Mittelstand in Literature (continued).

Source	Quote
Welter et al. (2016)	“In this way, the Mittelstand performs a social function, in part unconsciously. [...]. Although it is not always clear that these values are lived more strongly in Mittelstand than in non-Mittelstand businesses, the Mittelstand is a reflection of desirable free-market behaviors.” (own translation; p. 5)
Welter et al. (2015)	“For all subgroups of the Mittelstand universe, the most important distinguishing features of the Mittelstand are rooted in the specific value attitude. Only companies outside the Mittelstand universe nuance the significance of this typical Mittelstand value system. External image and self-assessment thus strongly correlate (see Fig. 24). The high importance of values for characterizing the Mittelstand is also reflected in the personal objectives of the consistent Mittelstand (M1): Social responsibility (56%) and also social recognition (33%) have a high priority for their entrepreneurial activities.” (own translation; p. 51)
Welter et al. (2014)	“Social climbers from the crafts like August Borsig, entrepreneurs from long-established merchant families like Friedrich Harkort or the steel barons Krupp and Thyssen, the inventor Werner (von) Siemens: they all embodied rapid technical progress, innovations, and modernity. Moreover, at the same time, these entrepreneurs stood for tradition, namely a model of caring entrepreneurship.” (own translation; p.18)
Welter et al. (2020)	“We conceptually show that the Mittelstand might have a special role concerning socially desirable goals because of its specific governance structure, the concomitant influence of personal objectives on economic ones, its social and regional embeddedness, and by its behavior in times of crisis.” (own translation; p.23)

Source: Own representation.

6.4 Methodology

6.4.1 Research Design

From the earlier discussion, it is clear that Mittelstand companies embody a highly complex and diverse social phenomenon. Illustrating it in its entirety is challenging due to its apparent lack of clear boundaries. For this reason, our study follows a qualitative multiple case study approach, according to Yin (2014). Using multiple cases can enhance the accuracy and generalizability of the emerging theory (Eisenhardt & Graebner, 2007) and provide a testable theory (Garg & Eisenhardt, 2017). In addition, Gartner & Birley (2002) stress that using qualitative methods in entrepreneurship research provides an opportunity to understand how entrepreneurship occurs in various manifestations and contexts. Hence, our study seeks to capture a relatively realistic picture of the companies and dynamics, aiming at conceptualizing the Mittelstand Mindset based on characteristics, making it applicable to different cultural contexts.

6.4.2 Data Collection and Sample

We utilized two data sources: First, we used relevant research articles on the Mittelstand, and second, we used case data of German companies (interviews, archival data, and website texts). Utilizing those different data sources supports our efforts to get a deep understanding of the potential aspects of a Mittelstand Mindset. As in her recent article, Eisenhardt (2021) stresses the central importance of theoretical arguments and prior research for building theory from cases; we deliberately choose to conduct an in-depth analysis of the literature besides the interview data analysis, and in our case, to treat these articles like data, to enhance the constant comparison between theory and practice (Glaser & Strauss, 2010).

The 17 relevant research papers on Mittelstand companies (Table 16) were identified by comprehensive literature research and various consultations with leading Mittelstand researchers. In selecting the articles, we have also included German language articles from leading German research institutes due to the lack of rigorous research in the international context. In addition, care was taken in selecting articles to ensure that the respective article examines the Mittelstand phenomenon and not, as mentioned earlier, articles that merely examine SMEs and only use the term Mittelstand.

Table 16. Scientific Articles Analyzed.

No.	Article
1	Audretsch, D. B., & Elston, J. A. (1997). Financing the German „Mittelstand’. <i>Small Business Economics</i> , 9(2), 97–110.
2	Berghoff, H. (2006). The End of Family Business? The Mittelstand and German Capitalism in Transition, 1949-2000. <i>The Business History Review</i> , 80(2), 263–295.
3	Berlemann, M., Jahn, V., & Lehmann, R. (2018). Auswege aus dem Dilemma der empirischen Mittelstandsforschung. <i>ifo Schnelldienst</i> , 71(23), 22–28.
4	Berlemann, M., Jahn, V., & Lehmann, R. (2021). Is the German Mittelstand more resistant to crises?: Empirical evidence from the Great Recession. <i>Small Business Economics</i> .
5	De Massis, A., Audretsch, D., Uhlaner, L., & Kammerlander, N. (2018). Innovation with Limited Resources: Management Lessons from the German Mittelstand: Innovating With Limited Resources. <i>Journal of Product Innovation Management</i> , 35(1), 125–146.
6	Jahn, V. (2018). The importance of owner-managed SMEs and regional apprenticeship activity: Evidence from the German Mittelstand. <i>Empirical Research in Vocational Education and Training</i> , 10(1), 8.
7	Logue, D. M., Jarvis, W. P., Clegg, S., & Hermens, A. (2015). Translating models of organization: Can the Mittelstand move from Bavaria to Geelong? <i>Journal of Management & Organization</i> , 21(1), 17–36.
8	Pahnke, A., Holz, M., & Welter, F. (2019). Unternehmerische Zielsysteme: Unterscheiden sich mittelständische Unternehmen tatsächlich von anderen? Vol. IfM-Materialien No. 276. Institut für Mittelstandsforschung Bonn.
9	Pahnke, A., & Welter, F. (2019). The German Mittelstand: Antithesis to Silicon Valley entrepreneurship? <i>Small Business Economics</i> , 52(2), 345–358.
10	Pahnke, A., Welter, F., & Audretsch, D. B. (2021). Im Auge des Betrachters? Warum wir zwischen KMU und Mittelstand unterscheiden müssen: Vol. Working Paper 04/21. Institut für Mittelstandsforschung Bonn.
11	Pahnke, A., Welter, F., & Audretsch, D. B. (2022). In the eye of the beholder? Differentiating between SMEs and Mittelstand. <i>Small Business Economics</i> .
12	Schenkenhofer, J. (2022). Hidden champions: A review of the literature & future research avenues. <i>Management Review Quarterly</i> , 72(2), 417–482.
13	Welter, F. (2018). The Mittelstand: A Specific Entrepreneurial Profile of the Social Market Economy. <i>Journal for Markets and Ethics</i> , 6(1), 99–106.
14	Welter, F., Levering, B., & May-Strobl, E. (2016). Mittelstandspolitik im Wandel: Vol. IfM-Materialien No. 247. Institut für Mittelstandsforschung Bonn.
15	Welter, F., May-Strobl, E., Holz, M., Pahnke, A., Schlepphorst, S., Wolter, H.-J., & Kranzusch, P. (2015). Mittelstand zwischen Fakten und Gefühl: Vol. IfM-Materialien No. 234. Institut für Mittelstandsforschung Bonn.
16	Welter, F., May-Strobl, E., Wolter, H.-J., & Günterberg, B. (2014). Mittelstand im Wandel: Vol. IfM-Materialien No. 232. Institut für Mittelstandsforschung Bonn.
17	Welter, F., Schlepphorst, S., Schneck, S., & Holz, M. (2020). Der gesellschaftliche Beitrag des Mittelstands: Konzeptionelle Überlegungen: Vol. IfM-Materialien No. 283. Institut für Mittelstandsforschung Bonn.

Source: Own representation.

Independently from the literature analysis and by investigating the Mittelstand phenomenon in a real-world setting to ascertain the status quo, 64 potential Mittelstand companies were identified. The companies were selected from a more extensive database of interviews with German companies on various topics between 2008 and 2021, consisting of 374 individual companies (ranging from pure SMEs and startups to family businesses and hidden champions, over smaller and larger companies from different industries). The cases were selected based on the prevalent approach outlined by Pahnke et al. (2022), searching for companies being owner-managed or at least owner-controlled

and fit the SME definition of the European Commission (European Commission, 2017) or self-evaluate as a Mittelstand business (see Table 17). This process resulted in a total of 64 cases, for which, in each case, one to three interviews with members of the companies, as well as the text on the company's website, were analyzed, resulting in a total of 170 documents.

The interviews intentionally covered diverse topics (see Table 17) and different individuals within the companies. In most cases, we could rely on at least one interview with the entrepreneur (61); some cases also provided interviews with (potential) successors (33) and employees (9), averaging a total of 1,5 interviews per case. In addition, we researched the companies' websites and used the text information provided by the respective company under the "About Us" subpage of the website. We were able to find website information for all 64 cases. This comprehensive approach attempted to capture the Mittelstand company in its entirety, portraying an ideal-typical image of an entrepreneur and company linked to a high social standing. Awareness of the survey of attributes of the Mittelstand Mindset as the subject of the interview would have made it most likely that this would have distorted the answers through a social desirability bias. In addition, the database made it possible to include a wide range of different companies in the analysis. We also collected archival data on the companies, for which we used the Amadeus database (Bureau van Dijk, 2020), as well as the "Unternehmensregister" (Bundesanzeiger Verlag GmbH, 2022), an official directory maintained on behalf of the German government, which serves to publicize legally relevant company data, and the imprint on the company's websites. We collected data on the legal form, founding year, industry, size, balance sheet total, profits, number of managing directors, and location information. To classify the location into urban and non-urban, we also collected data on the number of inhabitants of the cities where the companies are located.

Table 17. Overview Cases Analyzed.

No.	Founding year	Industry	Focus Interview	Year of the interviews	Number of interviews	Website text	Owner-managed	Owner-controlled	SME according to EU*	Self-evaluation Mittelstand
1	1852	Manufacturing	Morals, ethics, values	2017	1	1	Yes	Yes	Yes	Yes
2	1878	Accommodation	Socioemotional wealth	2018	3	1	Yes	Yes	Yes	No
3	1997	Wholesale & retail trade	Socioemotional wealth	2018	2	1	Yes	Yes	Yes	Yes
4	1962	Professional, scientific & technical activities	Socioemotional wealth	2018	2	1	Yes	Yes	No	Yes
5	1977	Manufacturing	OPC**	2020	2	1	Yes	Yes	Yes	No
6	1988	Manufacturing	OPC**	2019	2	1	Yes	Yes	Yes	Yes
7	1850	Manufacturing	Morals, ethics, values	2017	1	1	Yes	Yes	Yes	No
8	1973	Manufacturing	Morals, ethics, values	2017	1	2	Yes	Yes	No	Yes
9	1987	Manufacturing	Morals, ethics, values	2017	1	1	Yes	Yes	Yes	No
10	1978	Manufacturing	Morals, ethics, values	2017	1	1	Yes	Yes	No	Yes
11	1979	Manufacturing	Morals, ethics, values	2017	1	1	Yes	Yes	Yes	No
12	1984	Manufacturing	Morals, ethics, values	2017	1	1	Yes	Yes	Yes	No
13	1930	Manufacturing	Diversity	2018	1	1	Yes	Yes	No	Yes
14	1897	Wholesale & retail trade	Innovation	2018	2	1	Yes	Yes	Yes	Yes
15	1973	Manufacturing	Innovation	2018	2	1	Yes	Yes	Yes	Yes
16	1935	Manufacturing	Innovation	2018	2	2	Yes	Yes	Yes	No
17	1912	Manufacturing	Innovation	2018	2	1	Yes	Yes	No	Yes
18	2008	Information & communication	Leadership	2018	1	1	Yes	Yes	Yes	Yes
19	1992	Information & communication	Leadership	2018	1	1	Yes	Yes	Yes	No
20	1986	Information & communication	Leadership	2018	2	1	No	Yes	Yes	Yes
21	1889	Manufacturing	Family Business	2019	1	2	Yes	Yes	No	Yes

N= 64.

* Not coded in text, but determined by archival analysis, based on the EU Definition of SMEs, which states that the company should not have more than 250 employees and an annual turnover of less than 50 M. € or a balance sheet sum of less than 43 m € to be considered an SME (European Commission, 2017).

** Organizational Psychological Capital

Source: Own representation.

Table 17. Overview Cases Analyzed (continued, 2/4).

No.	Founding year	Industry	Focus Interview	Year of the interviews	Number of interviews	Website text	Owner-managed	Owner-controlled	SME according to EU*	Self-evaluation Mittelstand
22	1864	Manufacturing	Family Business	2019	1	2	No	Yes	No	Yes
23	1960	Construction	Leadership / Culture	2018	1	2	No	Yes	Yes	Yes
24	1990	Manufacturing	Leadership / Culture	2018	1	1	Yes	Yes	Yes	Yes
25	1999	Other services activities	Socioemotional wealth	2018	1	1	Yes	Yes	Yes	No
26	1957	Manufacturing	Socioemotional wealth	2018	1	1	Yes	Yes	No	Yes
27	1827	Manufacturing	Socioemotional wealth	2018	1	1	Yes	Yes	No	Yes
28	1974	Information & communication	Socioemotional wealth	2018	1	1	Yes	Yes	Yes	Yes
29	1939	Manufacturing	Business Succession	2019	1	1	Yes	Yes	No	Yes
30	1995	Administrative & support service activities	Business Succession	2019	1	1	Yes	Yes	Yes	Yes
31	2000	Manufacturing	Values & Innovation	2019	2	1	Yes	Yes	Yes	No
32	1806	Manufacturing	Socioemotional wealth	2019	1	1	Yes	Yes	Yes	Yes
33	1863	Manufacturing	Socioemotional wealth	2018	1	1	Yes	Yes	Yes	No
34	1982	Transporting & storage	Business Succession	2018	2	1	Yes	Yes	Yes	No
35	1980	Manufacturing	Business Succession	2018	2	1	Yes	Yes	Yes	No
36	1946	Manufacturing	Socioemotional wealth	2018	1	1	Yes	Yes	No	Yes
37	2003	Wholesale & retail trade	Socioemotional wealth	2018	1	0	Yes	Yes	Yes	No
38	1988	Manufacturing	Business Succession	2017	2	1	Yes	Yes	Yes	No

N= 64.

* Not coded in text, but determined by archival analysis, based on the EU Definition of SMEs, which states that the company should not have more than 250 employees and an annual turnover of less than 50 M. € or a balance sheet sum of less than 43 m € to be considered an SME (European Commission, 2017).

** Organizational Psychological Capital

Source: Own representation.

Table 17. Overview Cases Analyzed (continued, 3/4).

No.	Founding year	Industry	Focus Interview	Year of the interviews	Number of interviews	Website text	Owner-managed	Owner-controlled	SME according to EU*	Self-evaluation Mittelstand
39	1955	Construction	Business Succession	2018	2	1	Yes	Yes	Yes	No
40	1963	Agriculture, forestry, & fishing	Socioemotional wealth	2017	2	2	Yes	Yes	Yes	No
41	2008	Professional, scientific & technical activities	Socioemotional wealth	2017	2	1	Yes	Yes	Yes	Yes
42	1904	Wholesale & retail trade	Socioemotional wealth	2017	3	1	Yes	Yes	Yes	Yes
43	1952	Wholesale & retail trade	Business Succession	2018	3	1	No	Yes	Yes	No
44	1925	Manufacturing	Socioemotional wealth	2017	2	1	Yes	Yes	Yes	No
45	1950	Manufacturing	Business Succession	2018	2	1	Yes	Yes	Yes	Yes
46	1988	Wholesale & retail trade	Business Succession	2018	2	1	Yes	Yes	Yes	No
47	1987	Human health & social work activities	Business Succession	2017	2	1	Yes	Yes	Yes	No
48	1964	Manufacturing	Business Succession	2017	2	1	No	Yes	Yes	No
49	1971	Manufacturing	Socioemotional wealth	2017	2	1	Yes	Yes	Yes	Yes
50	1993	Manufacturing	Well-being	2017	2	1	Yes	Yes	Yes	No
51	1950	Transporting & storage	Values	2016	2	1	Yes	Yes	Yes	No
52	1967	Manufacturing	Business Succession	2015	2	1	Yes	Yes	Yes	No
53	1961	Construction	Business Succession	2014	2	1	Yes	Yes	Yes	Yes
54	1970	Manufacturing	Social Capital	2014	2	1	Yes	Yes	Yes	Yes
55	1913	Manufacturing	Business Succession	2014	1	1	Yes	Yes	Yes	Yes
56	1994	Administrative & support service activities	Business Succession	2014	2	1	Yes	Yes	Yes	Yes

N=64.

* Not coded in text, but determined by archival analysis, based on the EU Definition of SMEs, which states that the company should not have more than 250 employees and an annual turnover of less than 50 M. € or a balance sheet sum of less than 43 m € to be considered an SME (European Commission, 2017).

** Organizational Psychological Capital

Source: Own representation.

Table 17. Overview Cases Analyzed (continued, 4/4).

No.	Founding year	Industry	Focus Interview	Year of the interviews	Number of interviews	Website text	Owner-managed	Owner-controlled	SME according to EU*	Self-evaluation Mittelstand
57	1994	Wholesale & retail trade	Business Succession	2014	2	1	Yes	Yes	Yes	Yes
58	1822	Wholesale & retail trade	Business Succession	2014	1	1	Yes	Yes	No	Yes
59	1994	Other services activities	Business Succession	2014	2	1	Yes	Yes	Yes	Yes
60	1959	Construction	Business Succession	2013	2	1	Yes	Yes	Yes	No
61	1939	Manufacturing	Business Succession	2011	1	1	Yes	Yes	Yes	Yes
62	1994	Manufacturing	Business Succession	2013	1	1	Yes	Yes	Yes	Yes
63	1850	Manufacturing	Family Business & Culture	2008	1	1	Yes	Yes	Yes	No
64	1946	Manufacturing	Family Business & Culture	2008	1	1	Yes	Yes	No	Yes
SUM				-	101	69	59	64	51	37
AVG				2017	1.58	1.08				
Min.	1806			2008	1	1				
Max.	2008			2020	3	2				

N=64.

* Not coded in text, but determined by archival analysis, based on the EU Definition of SMEs, which states that the company should not have more than 250 employees and an annual turnover of less than 50 M. € or a balance sheet sum of less than 43 m € to be considered an SME (European Commission, 2017).

** Organizational Psychological Capital

Source: Own representation.

6.4.3 Data analysis

To analyze the material (both cases and literature), we started with within-case analysis and thus examined every case and scientific article as a standalone observation (Eisenhardt, 1989, 2021). Due to the vagueness of the discussion concerning the Mittelstand and to ensure a rigorous scientific approach, the identified 17 relevant articles and the documents for the 64 cases (170 documents) were analyzed utilizing an initial qualitative inductive coding process, followed by deductive coding of the emerged code system with several iterations. During this process, we constantly moved between the literature and the cases to get a better fit (Eisenhardt, 2021). Two researchers coded independently, and the code systems were merged and discussed using the data and text analysis software MAXQDA. Based on the coding process and the archival data, we then started with a cross-case analysis (Eisenhardt, 1989) of the literature and the cases separately to better understand the relationships between our codes. We used tables, graphical tools, the code system, and the respective coded segments. We determined a hierarchical code system by grouping codes into higher-order codes (Gioia et al., 2012). The resulting code systems for the literature and the cases were then compared and merged to create a fit and find differences between the cases and the literature (Eisenhardt, 2021). It should also be noted that the research team comprised individuals from different international backgrounds. This multinational collaboration fostered a comprehensive and inclusive perspective on the data, thereby transcending the boundaries of German Mittelstand companies.

The following section presents quotes from our data material to illustrate our findings. The citations are labeled with the case number in our dataset; in addition, the citations contain information on the text source of the respective case. For example, the description "*Website Case 9*" shows a quote from case 9 that originates from the company website; similarly, the description "*Successor Case 4*" shows a quote that originates from the interview with the successor in case 4.

Table 18. Code Structure for Cases and Literature.

1 st Order Codes	2 nd Order Codes	3 rd Order Codes	
Ownership	Owner-managed		
	Owner-controlled		
Values	Empathies on value orientation	Competence	
		Ambition	
	Self-direction	Authenticity	
		Openness	
		Autonomy	
	Universalism	Mutual Respect	Harmonious
			Humane
			Fairness
			Ethical
			Appreciation
		Benevolence	Trust
			Personal
			Loyalty
			Honesty
			Helping
Tradition	Compassion		
	Traditional		
	Humble		
Conformity	Cohesion		
	Reliability		
Security	Stability		
	Success & private wealth		
Attachment & Identification	Personal attachment of leader		
	Identification employees	Participation Loyal workforce	
Customer-Oriented	Flexibility (business-related)	Commitment towards customer	
	Service-orientation		
Product-Oriented	Product Portfolio	Low level of diversification	
		Complex product	
	Niche market	Market leader	
		Hidden champions	
	Innovation	Incremental improvement	
	Quality	Certification	
Sustainability	Long-term orientation	Employee relations	
		Stakeholder relations	
		Economic Sustainability	
	Social Sustainability	Responsibility towards employees	
		Societal responsibility	
Regional Embeddedness	Regional Embeddedness		
Independence	Self-financing		
	Local bank		
	Risk consciousness		

Source: Own representation.

6.5 Findings

Existing literature has offered some indications as to which factors and dimensions are relevant and provide compelling criteria for Mittelstand companies or the mindset. For instance, prevailing literature concurs that ownership constitutes a crucial (formal) criterion (De Massis et al., 2018; Welter, 2018). Other studies delve deeper, finding, for example, that the sense of belonging or feeling of belonging to the group of Mittelstand companies is another determinant that is pivotal in this context (Pahnke et al., 2022). Regarding additional criteria, the current literature exhibits discrepancies, but further elements emerge, such as a focus on values (Berghoff, 2006), specific orientations (Audretsch & Elston, 1997; Jahn, 2018), and responsibility for the region (Pahnke & Welter, 2019), giving first ideas on characteristics and aspects for building a Mittelstand Mindset.

Table 18 presents the hierarchical code system derived from the interplay between the literature review and case analysis. In the following, we delve into the individual dimensions and subdimensions, substantiating the findings with pertinent quotations extracted from the literature analysis and the 64 cases.

6.5.1 Owner-Management

Initially adopting an inductive approach, we aimed to explore whether, based on both the literature and the interview data, ownership emerges as a crucial factor in defining or characterizing Mittelstand companies. The literature analysis reveals that all 17 articles examined discuss ownership as a defining characteristic (Table 19). Welter et al. (2015) introduce what they term the Mittelstand-universe to the ownership and Mittelstand discourse. They acknowledge that as companies age, the distinction between ownership and management blurs in some cases. In such instances, companies are solely controlled by the former owner-manager or their family. Recognizing that Mittelstand is characterized by a specific culture intricately tied to the ownership dimension, a shift in management does not necessarily entail a complete loss of the Mittelstand culture (Pahnke & Welter, 2019). Hence, the Mittelstand Mindset could endure, categorizing owner-managed companies as a core Mittelstand due to the unity of ownership and management. Meanwhile, those where ownership and management have diverged are termed extended Mittelstand. This distinction is intriguing for our analysis, as the latter

group still identifies as Mittelstand (Welter et al., 2015) despite a rather strict definition of owner-management that might not classify them as such. Our findings reflect this as we distinguish the first-dimension code ownership in owner-management and owner-controlled. While, as mentioned, all of the articles discuss the condition of owner-management, 5 articles mention the condition of Mittelstand companies being owner-controlled (De Massis et al., 2018; Logue et al., 2015; Pahnke et al., 2019; Welter et al., 2014, 2015). This significance is also reflected in our case analysis. For example, Website Case 9 expresses pride and emphasizes the following:

Website Case 9: "Owner-managed and independent"

The fact that the company is owner-managed leads to a certain form of independence, directly influencing entrepreneurial decision-making. This aforementioned independence can affect various entrepreneurial levels, such as goal setting and long-term orientation, capital acquisition, organizational structures, and cooperation with other companies. Website Case 10 builds upon this point, further emphasizing the importance of these aspects:

Website Case 10: "As an owner-managed business with deep ties to the region and its people, we attach great importance to the harmony of responsibility and progress. Stability and continuous development have been the pillars of our long-term success since 1978."

This quote highlights how aspects like regional embeddedness, sustainability, a drive for stability, and a long-term orientation interlink with the ownership dimension, introducing further intriguing elements that may define the mindset, as will be discussed in the following.

6.5.2 Values

Another idiosyncratic characteristic of the Mittelstand frequently mentioned in the literature (12 papers in the literature analysis; Table 19) is value orientation. Surprisingly, value orientation is frequently discussed in the literature analysis, but the particular values that prevail in Mittelstand companies have not yet been examined in detail. An exception is the paper by Welter et al. (2015), which directly sought the opinions of Mittelstand entrepreneurs on the importance of four value categories (special

responsibility towards employees and market partners, commitment to the region, long-term orientation, and high level of trust in reliability and expertise). While it provided an initial glimpse into the significance of values, the preselection might limit the depth of insight into the Mittelstand value universe. However, the study demonstrates that entrepreneurs attribute a higher relevance to these value categories than to the characteristic of owner-management. This underscores the importance of value-orientation and highlights the necessity for not only a deductive but also an inductive analysis of Mittelstand values. Addressing this need, we meticulously coded 1182 segments across all 64 cases. The results of our case analysis not only validate the importance of values in Mittelstand but also emphasize that values can be discerned in 62 out of the total 64 cases. The value systems established by Mittelstand constitute an integral part of the company and are perceived as the foundation of it. We will deliver some insightful citations from our interviews to underline the importance of values in Mittelstand companies.

Successor Case 4: "We will continue to refine our strategy and align it with the future, but as I said, I view the values like a foundation on which a house is built. You never change the foundation, but you can design and change the house in different ways, change the colors, but the foundation has to remain solid, otherwise the entire framework of a company will start to shake."

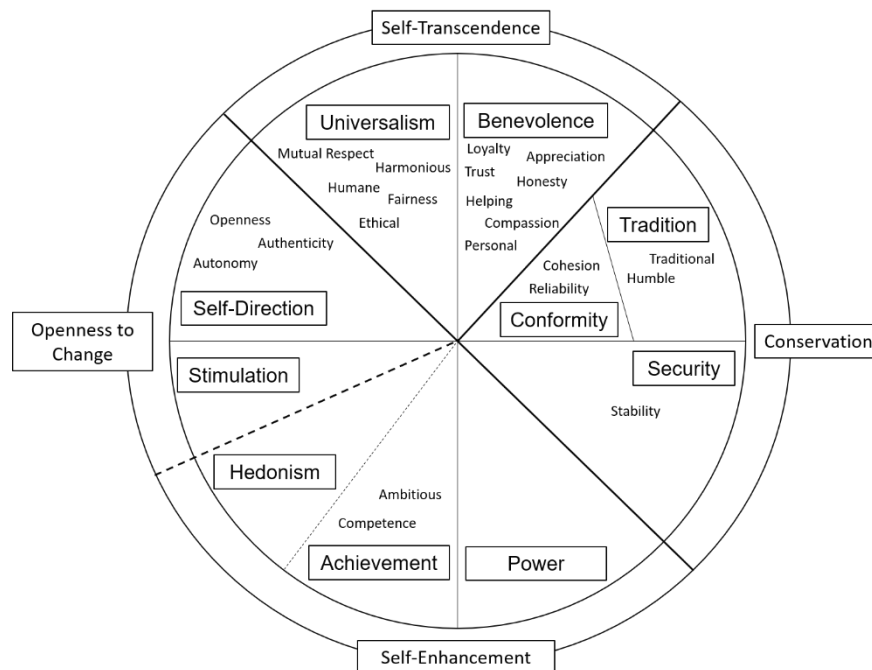
This underlines that the strategies and behavior of the Mittelstand companies are aligned with the company's defined value system to achieve a long-term congruence of the values with conduct. In the same interview, the interviewee refers to the company's values again and shows that preserving the values and, thus, the company's authenticity (being honest) over time is an essential goal for him. He continues:

Successor Case 4: "And if I have other values, I may be able to achieve some goals more quickly, but perhaps not as long-term as if I approach them honestly. In this respect, there is a correlation between our values and our goals."

Building on these more general value statements, we now dive deeper into the subject and elaborate further on more specific values from the Mittelstand company's data on which they base their decision-making and strategies. Our in-depth analysis and coding reveal a spectrum of values significant to Mittelstand companies. Building on the theory

of basic human values (Schwartz, 1992, 1994), we assigned the inductively coded values to the 10 superordinate values (Universalism, Benevolence, Tradition, Conformity, Security, Power, Achievement, Hedonism, Stimulation, and Self-Direction) according to the theory (see Figure 12). It is particularly evident that the coded values in the Mittelstand are increasingly assigned to the Schwartz value categories of Self-Transcendence and, therefore, to the values of Universalism and Benevolence. In the Conservation value category, and thus the Conformity, Tradition, and Security values, some Mittelstand values were also assigned. In addition, we coded four Mittelstand values related to Self-Direction in the Openness to change value category and two related to Achievement in the Self-Enhancement value category. However, Figure 12 clearly shows the tendency for Mittelstand to represent values with a social focus (and therefore the value categories Self-Transcendence and Conservation). Values with a personal focus (and therefore the value categories Openness to Change and Self-Enhancement) tend to be underrepresented in these companies. Table 20 shows sample statements for the values in Mittelstand companies.

Figure 12. Mittelstand Values.



Source: Own illustration according to Schwartz (1992).

Table 19. Topics Addressed in Literature Analysis.

Authors	Owner-ship	Value-orientation	Attach-ment of leaders	Customer-orientation	Flexibility	Focus on core Business	Quality	Long-term orientation	Social Sustain-ability	Regional embed-dedness	Independ-ent
Audretsch & Elston (1997)	Yes	-	-	-	-	-	-	-	-	-	Yes
Berghoff (2006)	Yes	Yes	Yes	-	Yes	Yes	-	Yes	Yes	Yes	Yes
Berlemann et al. (2018)	Yes	-	Yes	-	Yes	-	-	Yes	-	-	Yes
Berlemann et al. (2021)	Yes	-	-	-	Yes	-	-	Yes	Yes	-	-
De Massis et al. (2018)	Yes	Yes	Yes	-	-	Yes	Yes	Yes	Yes	Yes	Yes
Jahn (2018)	Yes	-	-	Yes	-	-	-	Yes	Yes	Yes	-
Logue et al. (2015)	Yes	Yes	-	Yes	-	Yes	-	Yes	Yes	Yes	Yes
Pahnke et al. (2019)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
Pahnke & Welter (2019)	Yes	Yes	Yes	-	-	-	-	Yes	Yes	Yes	Yes
Pahnke et al. (2021)	Yes	Yes	Yes	-	-	-	-	Yes	-	-	Yes
Pahnke et al. (2022)	Yes	Yes	Yes	-	-	-	-	Yes	-	Yes	Yes
Schenkenhofer (2022)	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes
Welter (2018)	Yes	Yes	Yes	-	-	-	-	Yes	Yes	Yes	Yes
Welter et al. (2016)	Yes	Yes	Yes	-	-	Yes	-	Yes	Yes	-	Yes
Welter et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Welter et al. (2014)	Yes	Yes	-	-	Yes	-	-	Yes	Yes	Yes	Yes
Welter et al. (2020)	Yes	-	-	-	Yes	-	-	Yes	Yes	Yes	Yes
Sum	17	12	11	5	8	6	4	16	13	11	14

N = 17.

Source: Own representation.

Table 20. Example Quotes for Values.

Value Category	Superordinate Values	Quote
Self-Transcendence	Universalism	Entrepreneur Case 7: "And we would like to convey to society that we have fair prices, fair for us, our employees, as well as for the customer. We don't want someone; we don't want to rip someone off." (Fairness) Entrepreneur Case 49: "Well, I had another talk with our works council today, and I made it clear once again that I think it's very important for us to work well and friendly together, to see things in a cooperative way, and also to treat our employees in a way that's appropriate from a purely human perspective." (Humane)
	Benevolence	Predecessor Case 54: "[...] that I don't tell them [the employees] anything and they also understood that we don't screw them over, but that we want to develop something together and that's simply the way it is when you give people trust, when you offer people benefits. You get it back." (Trust) Entrepreneur Case 4: "The first is honesty. That is, we want to be honest with each other, give each other honest feedback, speak our minds honestly, but also be honest with customers and suppliers and not have to lie in our professional lives, in our business lives..." (Honesty)
Conservation	Tradition	Entrepreneur Case 30: "My ambition, and I have often explained this to people: no matter who wants to start their own business, remember: unlimited responsibility. Not only for you and your family, but also for all the families and people you hire. You must never forget - this is also what I explained to you - you really have to approach this with respect and humility, not superficial. And not the biggest car, the biggest salary, and not doing anything. You just can't. You just have to be willing to do more. You get something back for your commitment. And I don't mean the big car." (Humble) Entrepreneur Case 54: "And, yes, I would like to say that this history of the honorable businessman is something that has been somewhat forgotten, but which, for our company and for me personally, for the company management is of crucial importance." (Tradition)
	Conformity	Entrepreneur Case 22: "We said friends, in thick and thin, you stand with us, we stand with you, don't worry, we'll get through this. We set ourselves up for bad times in good times and we do a little short-time work." (Cohesion) Entrepreneur Case 46: "If I say I'll come to you tomorrow morning nine o'clock and, and do something, then I'll be there at two minutes before nine." (Reliability)
	Security	Entrepreneur Case 27: "To offer employees a solid perspective. So, I think that's very different to corporations, where you have a new managing director every two years, [...] everyone wants to give the company their own personal face. So, I think we stand for much more continuity." (Stability) Entrepreneur Case 51: "Yes, well, as I've already hinted at a bit, it's really a very long-term continuity, it's been a steady but I'll say cautious growth based on our roots." (Stability)
Self-Enhancement	Achievement	Entrepreneur Case 9: "Because if we want something, anything, then we don't worry about this or that hurdle, we just do it, that's it." (Ambitious) Entrepreneur Case 53: "The expectations should actually be such that the company philosophy that I inherited from my predecessor, the company founder, is maintained. That is: we don't necessarily want to get bigger, but we want to get better." (Competence)
Openness to Change	Self-Direction	Entrepreneur Case 25: "What helps us is our openness to innovation and learning new things." (Openness) Entrepreneur Case 2: "I give them [referring to the employees] a lot of freedom, I think that's a very important aspect." (Autonomy)

Source: Own representation, according to Schwartz (1994).

6.5.3 Attachment and Identification

While exploring the literature, we identified another crucial aspect in describing the Mittelstand— the relationship and commitment of company leaders (see Table 19, with 11 articles discussing this issue). Two specific points are highlighted, one being the emotional attachment of entrepreneurs to the company (Berghoff, 2006; Pahnke et al., 2021, 2022; Pahnke & Welter, 2019; Schenkenhofer, 2022; Welter, 2018; Welter et al., 2015) and secondly that this attachment seems to be related to the values adopted by the entrepreneurs and their companies (De Massis et al., 2018; Pahnke et al., 2022; Schenkenhofer, 2022). Berghoff (2006) describes a solid emotional attachment of Mittelstand entrepreneurs to their companies, reflecting a strong identification. According to him, Mittelstand entrepreneurs look beyond seeing their companies as financial investments but rather as an integral part of their lives, offering “personal self-fulfillment, part of the homage and duty they owe to the family heritage” (p.273). On the one hand, this shows how important the well-being of the entire company is to the Mittelstand entrepreneurs, indicating that for the entrepreneurs, the dedication goes far beyond the intention to make a profit and becomes a life's work.

On the other hand, the narrative suggests that Mittelstand entrepreneurs feel a high level of responsibility and accountability for the company. The narratives from our case data are consistent with these findings, with entrepreneurs expressing a deep sense of responsibility and accountability for their companies. For example, Entrepreneur Case 1 sees himself as a figurehead on the front lines, signaling his strong connection and responsibility to the company. At the same time, Successor Case 60 describes the company as his purpose in life.

Successor Case 60: *“This is my purpose in life, and this will always be my life.”*

However, the emotional depth of this connection is not always easy for entrepreneurs to articulate, as expressed by Owner Case 20.

Owner Case 20: *“As I said, a high degree of empathy. That's what I also mean by gut feeling and it's quite funny, I'm sitting here, and I can definitely tell you if the employee over there has a problem. I can't describe that to you, but I know that. I*

just have to go through the house and then I have vibrations or something, I can't describe it, I know immediately what's going on."

The quote also points to a complex interplay between Mittelstand entrepreneurs' values and attachment to the company. The value categories Benevolence and Universalism seem to impact the entrepreneur's connection to the company, employees, and the outside world. The emotional connection has profound implications for their personal well-being and makes decisions such as layoffs during economic downturns emotionally challenging for the entrepreneurs themselves. Successor Case 6 illustrates the personal toll that such situations can take on entrepreneurs, with layoffs deeply affecting his father and influencing the overall atmosphere in the company.

Successor Case 6: "Then again last year or the year before, these layoffs. I think that also affected my father very, very personally. It was also a crisis that had a bit of an impact on the company, because the mood was not quite as good."

However, as shown below, our case data reveals another perspective that has not yet been discussed in the literature: attachment and identification to the company can also be found in the employees. Beyond the attachment and identification that the Mittelstand entrepreneurs show, we find strong evidence in our data that the employees of the companies also show a high attachment and identification to the Mittelstand companies. This goes beyond the literature on Mittelstand, as shown in the following quotes:

Entrepreneur Case 5: "As I said, the employees are ambitious and live for the product and for the company and also identify with the company."

Employee Case 17: "... because in the end I can identify very well with these values and I always say that an owner managed, Mittelstand company like this also suits me personally very well."

Entrepreneur Case 57: "The woman responsible for the non-alcoholic area is a nutritionist, which of course goes perfectly with the vinegars and oils, the healthy salads and so on. She also simply lives it."

Therefore, we observe a strong attachment and involvement, not only among entrepreneurs owning and running Mittelstand companies but also among the employees, leading to the development of a distinctive Mittelstand company culture.

6.5.4 Customer-Orientation

Regarding the dimension of customer-orientation, we find two aspects related to the topic in our analysis, and we categorize those into the dimensions of flexibility and service-orientation. The literature analysis highlights this in only five articles (Table 19), which does not reflect the intensity of the mentions in our case analysis. Regarding the content that is mentioned in the literature analysis regarding service-orientation, it is evident that a focus on excellent and long-lasting customer relations (Jahn, 2018; Schenkenhofer, 2022) and customer satisfaction (Logue et al., 2015; Pahnke et al., 2019; Welter et al., 2015) are discussed. However, neither point has been thoroughly explored in the literature. Flexibility emerged as an essential topic in our study, reflecting the ability of Mittelstand companies to adapt quickly to changing circumstances and take advantage of business opportunities. In the literature analysis, we find that 8 of the 17 articles discuss the issue of Mittelstand being flexible and adaptive to environmental changes, which leads to an enhanced resilience of those companies (see Table 19). Pahnke et al. (2019) report that Mittelstand companies can react rapidly due to their flexibility and the associated speed of decision-making, contributing to increased market share and positive company growth. In this context, other articles also address the fact that flexibility allows companies to respond very precisely to the needs of individual customers (Schenkenhofer, 2022; Welter et al., 2014). In contrast to the findings from the literature that discuss flexibility in relation to markets in general, our case analysis shows that the flexibility of the companies in our sample is especially stressed in relation to customers. We found 39 companies (76 coded segments) reporting on flexibility towards customers. Several key quotes from the interviews and company websites illustrate the importance of flexibility in the Mittelstand. Both quotes were mentioned in relation to special requests from customers.

Entrepreneur Case 8: *“The decision-making paths are short. So, within two or three minutes, we usually gather and can make decisions very quickly if we want to. We are also very decisive, actually.”*

Entrepreneur Case 9: *“We can decide things from one day to the next, that's how we do it. Yes. And we also have a certain freedom in our processes.”*

The preceding quotes demonstrate the flexibility that characterizes the Mittelstand concerning decision-making within their companies. It becomes evident that responding to changing conditions is relatively swift and not hindered by bureaucratic obstacles. The short communication channels within the companies facilitate rapid coordination, enabling Mittelstand companies to react quickly and agilely to opportunities. The collaborative nature of relationships within the companies further supports their ability to respond swiftly. The workforce collaborates with entrepreneurs to promptly introduce process improvements, enhancing overall flexibility.

Employee Case 14: *“And everyone is allowed and encouraged to contribute their ideas wherever they see potential for improvement, be it in occupational safety, work processes, product quality, or even adjusting the intervals for breaks, and so on. These are all aspects where we involve all employees; here, we can discuss openly and intensively, even with short hierarchies.”*

Related to the customer-orientation of Mittelstand companies, the topic of service-orientation stands out in our empirical analysis. Thus, being service-oriented seems to be a big issue for Mittelstand companies, and this has not been discussed in detail in the literature. In the case analysis, 61 companies attach particular importance to this topic, with a total of 229 coded segments. We find that the Mittelstand companies put considerable emphasis on a strong service-orientation, underlining the importance of relationships with customers for the long-term success of the companies.

Successor Case 10: *“I would say that our greatest strength today is our proximity to the customer and also that we see ourselves as a customer solver, i.e., practically solving the customer's problem.”*

This quote suggests that a key focus is on understanding and meeting customer needs, which positions the company as a trusted partner in solving customer problems. Additionally, Successor Case 38 highlights the importance of reliability for existing customers:

Successor Case 38: *“Reliability! Is a big catchword for us. Our customer knows that he can rely on us. We don't make empty promises, we don't accept every order, uh, come hell or high water, but we discuss it with the customer and, uh, attach importance to the fact that it is always a cooperative partnership.”*

The quote underlines that Mittelstand companies sometimes sacrifice financial gains in order to be able to serve every customer to their full satisfaction and thus not jeopardize the relationship with them. Customer orders are prioritized, and some inquiries are rejected. The goal is establishing and maintaining collaborative partnership relationships that benefit both sides.

Owner Case 20: *“We have 16,000 customers in Germany and yet the customers all have the feeling that they are individually supported. It goes so far that someone calls and says, “Hey, here's Anton,” because you saw him once at the trade show, and then there were three hotline calls. They have no idea at all; they think we might have 100 customers or something, but I don't know. He thinks I should know who that is, of course I can see it in my CRM, because the phone number shows the address, but that's funny sometimes. But we have 16,000 customers (...) and yet we still manage this personal contact [...]”*

The preceding quote illustrates the company's commitment to personalized customer care, although it already has a substantial customer base. The company ensures that each customer feels individually cared for. This approach not only fosters a strong sense of customer loyalty but also demonstrates the company's commitment to maintaining personal contact with its customers.

6.5.5 Product-Orientation

Analyzing the literature, we discovered an initial indication of another interesting aspect: product orientation's significance for the Mittelstand. Following our process, we delved into the qualitative data to deductively garner some support for this dimension. Our qualitative data reveals that companies particularly emphasize their product orientation, with a particular emphasis on the quality of products and the composition of the product portfolio. Interestingly, 61 out of 64 companies in our sample report product orientation, quality, or portfolio as an essential factor. A noticeable feature of the literature analysis

is that the articles which discuss the quality of products in relation to Mittelstand companies only mention this as one factor and do not discuss the topic in any greater depth. Besides, we find that 6 of the analyzed 17 articles state that Mittelstand companies usually focus on their core business (Table 19) and thus have a relatively slim product portfolio, resulting in a product orientation that can be described as a low level of diversification. Besides that, the literature discusses the Mittelstand often being active in smaller niche markets (De Massis et al., 2018; Logue et al., 2015; Welter et al., 2015). This aligns with the fact that the companies usually have a narrow product orientation. Our case analysis reveals that, in total, 55 companies follow a relatively narrow product orientation, with 11 companies only offering one core product and 44 showing a low diversification. For example, Successor Case 64 often deals with such a specialized and complex product that it does not make sense to present his goods in brochures:

Successor Case 64: "That was just so, as I said, it was, I think, lack of time and also there it has, so we had until recently no company brochures, because the customers, we have a product anyway, which is extremely in need of explanation, i.e., we do not sell a roller only from the catalog, but you have to, it is consultation-intensive, i.e., there was anyway someone of us there, and you have not really needed somehow something written, but then you have done that in conversation."

The aforementioned product complexity is subsequently also reflected in the choice of sales markets. Entrepreneur Case 11 describes that the complex product also results in the company operating in a niche market:

Entrepreneur Case 11: "That is actually relatively fixed, we are an absolute niche provider, and the niche is relatively small, so things usually result from the requirements that we get from the market."

At this point, the case analysis results align with the literature to some degree. Focusing on specialized products enables some companies in our sample to count among the leading providers in certain areas. This focus also makes Mittelstand confident with its core competencies, as the lean product portfolio enables it to enhance its expertise and provide premium quality products.

However, our findings in the case analysis show that product quality is a frequent topic, and we coded in 63 of the 64 cases with a total of 304 segments. Thus, the relevance of this topic in the Mittelstand is considerably higher than assumed in the literature, as only 4 articles (Table 19) mention quality. The product orientation of Mittelstand companies, therefore, goes far beyond the portfolio they offer and is primarily ensured by the quality of the products. In the following, we display quotes from our case analysis that underline this issue:

Website Case 4: *“The highest quality of our products is the basis of our successful business activities. [...] For us, quality means not only fully meeting our customers’ requirements but exceeding them.”*

Entrepreneur Case 6: *“Yes, maintaining the quality level is very important, even if the order pressure does increase a somewhat. That we then maintain the quality.”*

Entrepreneur Case 9: *“In other words, all the components that we install, everything that we produce, everything that leaves our premises must be of optimum quality.”*

Entrepreneur Case 35: *“Quality is already a huge issue for us.”*

During one interview with Entrepreneur Case 18, it was explicitly stated that quality leadership is one of the company's goals and that due to the excellent quality of the products, the price is rather secondary for the customers. This finding underlines the central importance of quality for the success of Mittelstand companies, for which the reputation they have earned through outstanding product quality plays a decisive role in their success in the global market. In the context of quality, it is striking that the commitment to quality is frequently mentioned. One of the Mittelstand entrepreneurs reports that his company's good international reputation has been built by excellent product quality. Thus, he considers quality at the core of his business, leading to international success.

Entrepreneur Case 2: *“You have to be good enough, then the competition is always in your favor.”*

Entrepreneur Case 8: *“The global reputation is certainly important, but it has been primarily shaped in recent years and decades by the high quality we stand for.”*

Entrepreneur Case 45: *“In the entire industry, [brand name] are absolutely number one in terms of quality and technical quality, but they are also known as the most expensive designs.”*

The three examples show how much the quality promise of German Mittelstand companies is linked to their global reputation and how relevant this dimension is for these types of companies. It is therefore not surprising that Entrepreneur Case 7 explicitly states that quality improvement has clear priority over the financial growth of the company:

Entrepreneur Case 7: *“So it's not just about maximizing profits, it's really also about the quality of the products, that you stand behind what you sell, that you don't just look at every penny [...]”*

6.5.6 Sustainability

We find that a sustainable orientation in the Mittelstand is a central topic, expressed in the Mittelstand's behavior that ensures that the companies can continue to function over the years. This central orientation has so far only been considered sparsely in the literature. However, the focus on sustainable behavior and action is evident in our empirical cases. We find it to be of importance in at least some aspects in all 64 cases, with a total number of 755 coded segments. Our empirical analysis shows that the sustainable orientation of Mittelstand can be divided into the following areas: Long-term orientation (including employee relations, stakeholder relations, and economic sustainability) and social sustainability (including sustainability for the employees but also a broad focus on society at large).

Our literature analysis found strong evidence that long-term orientation is a major issue for those companies, as 16 of the 17 articles discuss this issue (see Table 19). This category gains even more importance when including our case data, where the topic is mentioned by 57 of the 64 companies with 316 coded segments. According to the literature, long-term orientation stems from various factors, including owner-management. In these companies, the owner-managers are often committed to a long-term increase in the company's value (Berghoff, 2006), in contrast to manager-managed companies, which often pursue shorter-term optimization strategies (Berlemann et al., 2021). Besides, the literature emphasizes that the long-term orientation is strongly intervened with the

values of those companies (Berghoff, 2006; Logue et al., 2015; Pahnke & Welter, 2019; Welter, 2018).

In the case analysis, it becomes clear that the long-term orientation of the Mittelstand extends across various aspects of the company, namely their values, growth orientation, personnel investments, financial investments, and relationships with stakeholders. Similar to what the literature suggests, values, in particular, seem to be a guarantee for the long-term success of Mittelstand companies, as Entrepreneur Case 4 emphasizes:

Entrepreneur Case 4: "Because we simply believe that long-term success is when I really stand by my values and live the values in such a way that employees enjoy working here and that customers ultimately also build trust in us."

In relation to long-term orientation, the case analysis shows that short-term achievement of goals is not relevant at all, as Mittelstand companies are willing to accept no growth in the short-term in order to obtain long-term growth, as described by Entrepreneur Case 27:

Entrepreneur Case 27: "We think about which decision has the most meaningful influence, and then we are willing to accept a few years of less growth, less results, or even a decline if this puts the company on a good foundation in the long term, I would say."

This orientation extends across multiple areas within the company, but particularly over personnel and financial investments, as explained by Entrepreneur Case 12:

Entrepreneur Case 12: "So in principle it's already both things, but if you want to have a weighting, then it's the low risk, the most solid self-financing possible and longevity. I don't want [...] short-term things don't attract me at all. I'm interested in medium or rather long-term things. That also applies to personnel decisions, that applies to investments and that also applies to profit development, yes, profit [...] nothing works without profits, I'm happy when things are running and the business is thriving."

Besides the long-term orientation regarding employees, we find that Mittelstand companies strive for good and long-term oriented stakeholder relationships, including

suppliers, customers, banks, and local politics. The case analysis indicates that the relationship with business partners and customers is particularly noteworthy. Mittelstand companies place particular emphasis on the theme of longevity, even when planning with business partners, as described by Entrepreneur Case 26:

Entrepreneur Case 26: "Um, we have the same relationships with our external suppliers and partners and our customers, too, of course, right? But also, service providers, very long-lasting relationships, are uh very conservative, we have great pain of separation, if we have any change processes."

Besides the long-term orientation, we find a strong focus of the Mittelstand towards social sustainability. The literature analysis shows that 13 articles address this topic (see Table 19). Social sustainability promotes Mittelstand companies to operate sustainably in conjunction with long-term orientation (Pahnke & Welter, 2019). The literature indicates that Mittelstand companies show their social sustainability (Logue et al., 2015; Schenkenhofer, 2022), on the one hand by a responsible and appreciative attitude toward employees (Berghoff, 2006; De Massis et al., 2018; Jahn, 2018; Logue et al., 2015; Pahnke & Welter, 2019; Welter et al., 2016), and on the other hand, by a sense of responsibility towards society, which is reflected in the high investment of vocational training of young people (Berlemann et al., 2021; Welter, 2018; Welter et al., 2014), as well as an ethical behavior towards society as a whole (De Massis et al., 2018; Welter, 2018; Welter et al., 2014, 2020).

Again, our case analysis shows an even higher relevance to social sustainability than the literature suggests, as we coded 319 segments in 62 cases. Overall, the companies in the sample show social sustainability, consisting of responsibility towards society (55 cases with 157 coded segments) and responsibility towards employees (53 companies with 162 coded segments). The focus on employees is frequently addressed, and it appears that responsibility towards employees results in good relations with the workforce and leads to employees being very loyal to the company. This relates to the attachment and identification category we introduced earlier. This is reflected in various quotes in the interviews, in which the interviewees report that some employees have been working for the company for decades. For Mittelstand companies, employees have an immensely high value, as illustrated by the following two quotes:

Entrepreneur Case 17: *"... and before someone is fired, you should think about it, is that the case? And just clear statements for an entrepreneur with social sustainability and social sense of responsibility ... behind each person, there is a destiny. Either is a family behind it with elderly, with younger people the future."*

Entrepreneur Case 60: *"And I am also not only an entrepreneur for myself, but also for my employees."*

Entrepreneurs feel obligated towards their employees and thus carefully consider whether or not an employee should be dismissed. Apart from responsibility towards employees, responsibility towards society is also a crucial driver for Mittelstand companies. Entrepreneurs from the Mittelstand emphasize how essential business ethics are and that they also have a particular responsibility towards society. Entrepreneur Case 4 elaborates on this:

Entrepreneur Case 4: *"Yes, I think the most important distinguishing feature is that we have established a very clear company ethic and also try to live it."*

Entrepreneur Case 8 goes a step further by saying that he considers himself and the company as something that others can look up to:

Entrepreneur Case 8: *"And I also believe that you then have an increased responsibility for society. Firstly, that you behave in a certain way, and in a positive way, so that it is beneficial and perhaps also in a way that it also serves as a role model, because others are guided by it and because you are sometimes more in the spotlight."*

Mittelstand companies also emphasize that it is not the externally perceived reputation that drives them, but rather the creation of jobs and thereby building something sustainable, as Entrepreneur Case 12 states:

Entrepreneur Case 12: *"No, I don't do that to look great. I'm not even really interested in reputation. What the others are saying only marginally matters to me. But I myself am convinced that it is good to create jobs and then I also work according to this belief."*

The last two quotes demonstrate again the extent to which social sustainability is linked to the values of companies. It should be noted that the aspects of sustainable behavior often overlap with the companies' strategic orientation and values.

6.5.7 Regional Embeddedness

In the prevailing literature, the condition of regional embeddedness of the Mittelstand companies is considered in 11 articles (Table 19). The regional embeddedness stems from different factors that are discussed: While Pahnke & Welter (2019) highlight that the companies feel a strong regional responsibility, De Massis et al. (2018) argue that the regional embeddedness fosters strong ties to the community, helping to overcome resource constraints, as the embeddedness creates reciprocal relationships between the region and the companies. Besides that, Logue et al. (2015) discuss the relevance of local embeddedness in the form of ties to local universities for R&D. In our case analysis, where we coded 109 segments in 46 cases, we find that especially strong regional embeddedness is discussed. Interviewees refer to their roots within the region they operate (e.g., company 9, 10, 32) as well as the German word "*Heimat*" (e.g., Company 1, 5, 44). In German, "*Heimat*" is an emotional expression of a strong attachment to a specific region. This sentiment is vividly portrayed in a quote from Entrepreneur Case 1:

Entrepreneur Case 1: *"Yes, because it is simply the case that the Heimat also represents a culture. [...] And now we are committed to [location of company] as a location because we feel connected to the German virtues and the Heimat as values."*

This deep emotional regional rootedness translates into the Mittelstand financially supporting local associations, institutions, and clubs, as outlined by Successor Case 10:

Successor Case 10: *"There are various club sponsorships; it starts with the soccer jersey, continues with a kindergarten donation, and so on. We do an art exhibition once a year, a vernissage here in the house, that has been going on for 15 years now, so we also offer a forum, on the evening itself now only for invited guests but then always during business hours, the, the people from the area can come."*

Besides that, regional embeddedness helps companies recruit employees, thereby creating the reciprocal relationships the literature implies:

Entrepreneurs Case 43: *“Well, okay, employees, I try to get here from the surrounding area because they themselves, you know them to some extent, and you can perhaps better integrate them in the company.”*

In addition, we find in the case analysis that 47 companies are located in areas with less than 100.000 inhabitants, which reflects more rural areas, according to Sørensen (2012). While only four of the scientific articles discuss the condition of Mittelstand being located in rural areas, based on the deductive analysis of the cases, we argue that a location in a non-metropolitan area seems to foster the regional embeddedness, as the sense of *“Heimat”* and connectedness to the region and the local community seems to be stronger as illustrated in the following:

Entrepreneurs Case 55: *“Maybe that's also a little bit due to the fact that we're also in rural areas here and people are just a little bit more down-to-earth and also, let's say, are willing to give up the last euro per hour in a boom phase because they say, I have a company there, even if things go badly, they don't directly kick out all the people.”*

Consequently, we view regional embeddedness as an integral component of the potential Mittelstand Mindset, particularly prevalent in rural areas as opposed to metropolitan regions.

6.5.8 Independence

A further aspect we found is the independence the companies seek to achieve (14 of the 17 articles (see Table 19), which seems to be a central topic related to the ownership dimension of the Mittelstand. This independence extends in particular to the financial aspects of the business and is reflected in the fact that the companies try to finance themselves from their own financial resources (Logue et al., 2015; Pahnke & Welter, 2019) and pursue a rather conservative reinvestment strategy (Berghoff, 2006; De Massis et al., 2018; Logue et al., 2015). In cases where the Mittelstand companies rely on external financial resources, these are usually provided through loans in cooperation with local banks, with which the companies often have a good and long-standing relationship, i.e., so-called house banks (Audretsch & Elston, 1997; Berghoff, 2006; De Massis et al., 2018). Attracting investors to the company or using other sources of external financing is

generally not an option for Mittelstand companies (Audretsch & Elston, 1997; De Massis et al., 2018; Logue et al., 2015). Therefore, the financial independence of Mittelstand companies also ensures independence in corporate decision-making, enabling the company to act without the influence of external shareholders. This does not mean that there is no relationship, but that entrepreneurs probably consider such information very sensitive and are reluctant to discuss this topic in empirical investigations. However, although this can be classified as a sensitive topic, general financial independence seems crucial to Mittelstand companies as 39 cases discuss it (with a total of 135 coded segments). The independence of Mittelstand companies is omnipresent, so for instance, Entrepreneur Case 5 refers to a complete company history in which the Mittelstand company has never been dependent on external money/banks:

Entrepreneur Case 5: "So apart from what I have just mentioned, I would mention one more factor. That we were independent of banks throughout the entire period. In other words, everything was done with our own equity and liquidity. There is no one there to push you, there is no one who says I want to have the balance sheet on January 10, and if the money is not there by next week, then we will block the credit line or whatever. That is, of course, also a huge advantage!"

This independence is shared by many Mittelstand companies and is considered extremely important for the entrepreneurs under investigation. The relevance of this issue becomes even more evident, as the Mittelstand companies would be more likely to forego growth if it meant they could preserve their independence, as illustrated by Entrepreneur Case 62:

Entrepreneur Case 62: "I finance everything by myself if possible, and I will not do more than I am able to do. I'd rather grow slowly."

Other Mittelstand companies take pride in being independent of external capital, as evidenced by the statements of Entrepreneur Case 8 and Entrepreneur Case 17:

Entrepreneur Case 8: "Let's put it this way: This is the lifeline of the company, and we invest very strongly, very strongly equity-heavy, so we also have to generate earnings that precisely maintain this momentum."

Entrepreneur Case 17: *“We are independent of banks; it can be said also quite openly and honestly...”*

Nonetheless, when short-term investments are necessary, some Mittelstand companies turn to their banks. However, they prefer contact with their local bank, as confirmed by Successor Case 2 and Entrepreneur Case 64:

Successor Case 2: *“Right now, a major investment is pending for the coming year. First and foremost, we talk to our tax advisor, then to co-financing banks, because unfortunately, we can't do it without fresh money, and we are dependent on the support of our house bank.”*

Entrepreneur Case 64: *“Yes, well, we are a bit, let's say, more conservative than others from that point of view. In addition, debt capital, we have a very very high cash flow, and we actually finance ourselves until, so if we don't make any big leaps, we actually finance what we need in the foreseeable future in the short term with the house bank, quite traditionally.”*

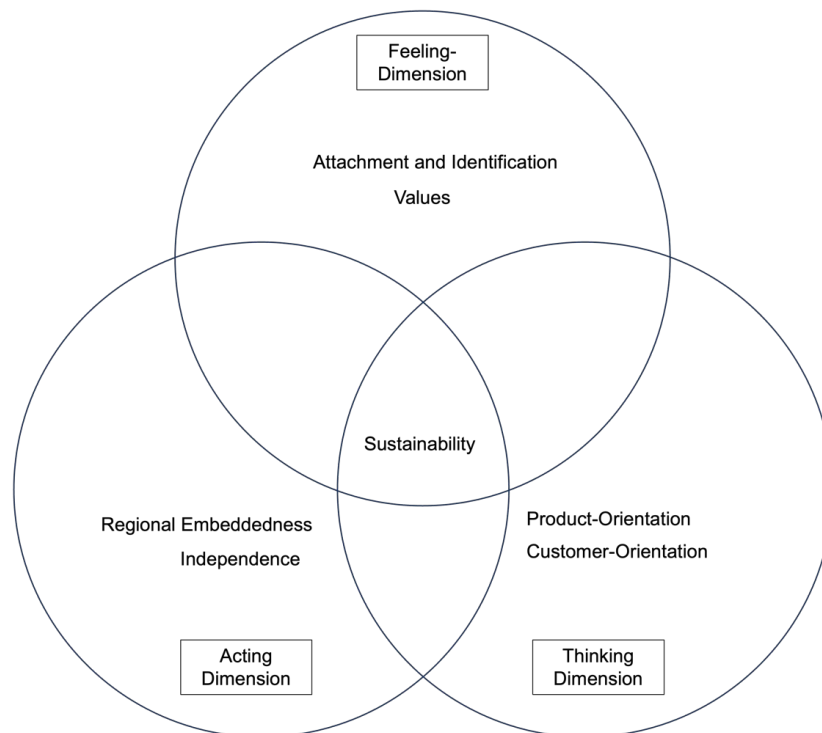
6.6 Discussion

In international entrepreneurship research, the Mittelstand is still an under-researched phenomenon (Berlemann et al., 2021). Against the background of numerous crises society is experiencing in our modern and dynamic world, this is surprising, as the Mittelstand is considered a stabilizer of the German economy and significantly impacts society (Welter et al., 2020). We contend that recognizing the Mittelstand entrepreneurial model as emblematic of robust stability in international research could be beneficial. It is plausible to suggest that other nations host companies akin to the Mittelstand, collectively capable of bolstering the economy, society, and, by extension, democratic systems globally. (Audretsch & Moog, 2022). As of now, the extant literature on Mittelstand and what it constitutes mainly focuses on tangible aspects of Mittelstand companies, like ownership structures, size, and market orientation, but does not agree on precisely what makes Mittelstand so different. While there is some consensus that Mittelstand is characterized by intangible aspects, which, as we argue, can be summarized as the Mittelstand Mindset, research has not yet systematically described this.

Therefore, based on a qualitative analysis of 17 scientific articles and 64 cases of companies, we develop a first conceptualization of the Mittelstand Mindset through the theoretical lens of the EM. Research in this context shows that the EM can be developed and nourished (Kuratko et al. 2021; Shepherd et al. 2010) and transferred to the entire organization (Hattenberg et al., 2020). We argue that this concept can be very well translated to the Mittelstand and conceptually follow the suggestions of Kuratko et al. (2021), defining the EM based on the dimensions of feeling, thinking, and acting.

While aligning with researchers in the ongoing debate on what constitutes Mittelstand, we acknowledge that the ownership dimension, irrespective of management involvement, is pivotal for Mittelstand. Building on this, we propose that a mindset indeed plays a crucial role, aligning with the observation by Logue et al. (2015) that Mittelstand comprises not only tangible but also intangible aspects. This includes a sense of belonging to the Mittelstand group and feeling as an integral part of it (Welter et al., 2014, 2015).

Figure 13. The Mittelstand Mindset.



Source: Own illustration.

We not only extend this argumentation but sharpen the view and insight into the core of Mittelstand companies with our results in the following way: Our analysis reveals that Mittelstand companies have a particular mindset consisting of the dimensions of feeling

(values and attachment and identification), thinking (product-orientation and service-orientation), and acting (regional embeddedness, and independence) and sustainability at the center. Our data indicates that the three dimensions of the Mittelstand Mindset are interconnected and thus influence one another. Thus, we display it as a three-circle model in Figure 13.

Sustainability appears to be at the center of the Mittelstand Mindset model, as we find aspirations towards sustainably protecting the company and its members long-term are reflected in each of the three dimensions. Therefore, in contrast to existing research that frequently highlights the long-term strategic orientation of Mittelstand companies (Berghoff, 2006; Berlemann et al., 2021; De Massis et al., 2018), we show that these aspirations go far beyond protecting the long-term strategic success of the companies, demonstrating a sustainable orientation of the companies on an overall level. This includes a social consciousness that considers both the employees within these companies and their external collaborators, alongside endeavors to foster a more sustainable society through business operations. This support is not only for the region where a Mittelstand company is situated but also extends to all regions and countries involved in international value chains.

With this finding, we refine the EM model by Kuratko et al. (2021) by showing that the three dimensions of the Mittelstand Mindset are not only interconnected, as the authors suggest but that there are aspects to the model that are central and thus integral parts that influence each of the three dimensions. Thus, we suggest that the Mittelstand Mindset is graphically better reflected by a three-circle diagram than, as Kuratko et al. (2021) suggest, by a triangular shape.

For sustainability at the core of our Mittelstand Mindset model, we find that aspirations towards long-term orientation and social sustainability are central elements. We also find that long-term orientation is frequently mentioned in our case data and is reflected in various parts of the Mittelstand companies: their values, growth orientation, personnel investments, product development, financial investments, and their relationships with external stakeholders. This finding goes in line with the existing literature on Mittelstand, whereas the long term-orientation of those companies is often mentioned and is associated with ownership (Berghoff, 2006; Berlemann et al., 2021; De Massis et al., 2018;

Logue et al., 2015; Welter et al., 2014). In contrast, at least for the companies in our cases, this seems not to be why long-term orientation is pursued, as the two topics are not linked. However, the companies connect the long-term orientation with the values (feeling dimension). This connection has been vaguely recognized by literature in some instances (Berghoff, 2006; Logue et al., 2015; Pahnke & Welter, 2019; Welter, 2018).

Our empirical investigation further shows that social sustainability reflects a crucial factor at the core of the Mittelstand Mindset. The companies we surveyed show a high degree of responsibility towards employees and society as a whole. Thus, the Mittelstand companies show a strong sense of social sustainability. Thus, it is surprising that the radiance and impact of the Mittelstand regarding social sustainability has received little attention in research to date (Pahnke et al., 2022). While the literature indeed mentions the responsibility the Mittelstand shows towards employees and society (Pahnke & Welter, 2019; Welter et al., 2020), there is still no deep discussion of the relevance and influence of this social consciousness. This is surprising, given that social consciousness is increasingly discussed in depth in the entrepreneurship literature, also in the form of the relatively new phenomenon of social entrepreneurship (Bacq & Aguilera, 2022; Kuratko et al., 2017). For Mittelstand companies, this social responsibility is and has been an integral part of their mindset for decades. Literature emphasizes the responsible and valuing attitude towards employees (Berghoff, 2006; De Massis et al., 2018; Jahn, 2018), as well as the societal responsibility by ethically behaving and a high investment in vocational training (Welter, 2018; Welter et al., 2014). We find a strong connection between the sustainability aspirations and the acting and thinking dimension of the Mittelstand Mindset, as the company's growth orientation, financial investments, personnel investments, customer-relations, and product development are connected to their long-term orientation. We, therefore, argue in the following that the understanding of the Mittelstand is characterized by the Mittelstand Mindset and the interactions between all three dimensions of this mindset, and thus, that Mittelstand is more than a feeling, as suggested by extant research.

For the feeling dimension of the Mittelstand Mindset, we find that especially values but also the leader attachment are of utmost importance. Our data shows a particular set of values that the Mittelstand upholds, which are seen as an integral part or even the company's foundation. This finding is especially interesting in light of the background of

the study by Welter et al. (2015). The authors show that Mittelstand entrepreneurs when asked what, in their opinion, constitutes Mittelstand, place higher relevance on values than on the dimension of owner-management. This underlines our finding that even though ownership is essential, other intangible aspects, and in this case, the values of the Mittelstand Mindset, are of great relevance. Our sample also shows that the values (feeling dimension) directly influence the sustainability aspirations at the center of the Mittelstand Mindset. In this context, it has to be mentioned that even though values are frequently discussed in literature (Berghoff, 2006; De Massis et al., 2018; Logue et al., 2015; Pahnke et al., 2019, 2022; Pahnke & Welter, 2019; Welter et al., 2020), the specific values characteristic of the Mittelstand has, except for the mentioned study of Welter et al. (2015), not been researched in great detail yet. Our study is the first to categorize the values of Mittelstand companies by using the theory of basic human values by Schwartz (1992, 1994). We find that values that are predominant in the Mittelstand can be assigned in particular to the categories of self-transcendence (universalism and benevolence) and conservation (conformity, tradition, and security) according to the theory (see Figure 12). This is particularly interesting as, according to Schwartz (2006), values in the self-transcendence and conservation area tend to have a social focus as opposed to those in the openness to change and self-enhancement category, which show a personal focus. In those two value categories, we find some values for self-direction (openness to change value category) and achievement (self-enhancement value category). The values of Mittelstand companies, therefore, highlight a social focus that goes beyond the well-being of direct stakeholders and the region (as surveyed by Welter et al. (2015)). Our research indicates that a pronounced social conscience (Kuratko et al., 2017; Vedula et al., 2022) is one of the most defining elements of the Mittelstand Mindset in Mittelstand companies.

Besides the relevance of values in the feeling dimension, we find that the Mittelstand Mindset also consists of a strong emotional attachment and identification of the members of the companies. Whereas the literature on Mittelstand, in line with our findings, has so far recognized the attachment and identification of the company's leaders as crucial, we further find that the employees of Mittelstand companies also show a high level of attachment and identification. The identification of the employees in our sample spans from an identification with the values and the product to combining personal interests with their jobs, resulting in long-term employment in the companies. While the literature has recognized the attachment of the Mittelstand leader to their company and its positive

contributions to their responsibility (Berghoff, 2006; Pahnke et al., 2021, 2022; Schenkenhofer, 2022; Welter, 2018), we observe that this attachment can also have adverse effects on the well-being of the entrepreneurs. Especially during a crisis, when layoffs become inevitable, this might also lead to emotionally challenging times for the entrepreneurs, as often reflected in our empirical cases.

For the thinking dimension of the Mittelstand Mindset, our data reveals a strategic orientation characterized by a strong emphasis on customer- and product-orientation. Contrary to existing literature, which has yet to extensively explore these strategic dimensions when elaborating on the Mittelstand Mindset (see Table 15), our findings underscore the pivotal role they play within the construct.

In our analysis, we observed a notable focus on customer-orientation among Mittelstand companies, encompassing aspects of flexibility and service-orientation. The agility these companies display in swiftly adapting to customer needs reflects their commitment to fostering enduring customer relationships. Where our sample focuses on flexibility, particularly in customer relationships, the literature mainly refers to overall economic adaptability that responds to changing market conditions (Schenkenhofer, 2022; Welter et al., 2015, 2020). Consequently, our study provides the flexibility of Mittelstand with a further perspective, namely that of building a trusting and long-term customer relationship by being flexible to customer wishes. Overall, our study shows that these types of customer relationships are very important for Mittelstand companies and that service orientation towards customers is a key success factor for these companies, ensuring their stability and sustainable growth. This finding aligns with the literature when elaborating on customer relationships (Jahn, 2018; Logue et al., 2015; Schenkenhofer, 2022). However, the high relevance of customer-orientation, a central aspect of the Mittelstand Mindset, at least in our empirical investigation, has yet to be discussed in depth.

Furthermore, our findings in the thinking dimension of the Mittelstand Mindset shed light on the paramount importance of product-orientation within the Mittelstand context, a dimension that has received limited attention in existing literature. In our sample, Mittelstand companies exhibit a keen focus on product quality and portfolio composition, often opting for a narrower product range to maintain a high level of specialization and

quality assurance. The literature so far has discussed Mittelstand's focus on its core business (Berghoff, 2006; De Massis et al., 2018; Logue et al., 2015; Pahnke et al., 2019; Welter et al., 2015) as well as them being active in niche markets (De Massis et al., 2018; Logue et al., 2015; Welter et al., 2015). Thus, they indirectly discussed the narrow product portfolio that the Mittelstand companies produce. Moreover, our findings go beyond the literature regarding the importance the Mittelstand places on the high quality of their products. The quality of their products is seen as a central element for the long-term success and reputation of the Mittelstand companies, as improving the product quality is often prioritized over short-term financial success. This emphasis on quality improvement over growth reflects a nuanced understanding of competitiveness, wherein Mittelstand entrepreneurs prioritize sustainable value creation and reputation enhancement, thus reflecting sustainability at the center of our Mittelstand Mindset concept. In conclusion, our findings challenge existing perceptions of the Mittelstand by elucidating the centrality of customer- and product-oriented strategies in the thinking dimension. By recognizing the significance of these dimensions and their interplay in driving Mittelstand's success, our study contributes to a more comprehensive understanding of the strategic mindset underpinning Mittelstand's entrepreneurship.

According to our data, the Mittelstand Mindset dimension of acting is reflected in Mittelstand actively shaping their regional embeddedness as well as their independence. The findings from our analysis shed light on the significant role of regional embeddedness within the Mittelstand Mindset, particularly in fostering a strong sense of connection to the local community and geographic region. Contrary to the limited exploration of this dimension in existing literature, our study reveals that regional embeddedness is a prevalent and deeply ingrained aspect of Mittelstand's identity. Our analysis indicates that Mittelstand companies exhibit a profound attachment to their regional roots, often described in emotional terms such as the German concept of *"Heimat"* (strong attachment to a specific region). This sentiment underscores the cultural and value-based connection between Mittelstand companies and their geographic locations, reflecting a commitment to preserving and contributing to the local community. While Pahnke & Welter (2019) explain the regional embeddedness of Mittelstand with a feeling of responsibility towards their geographical context, we extend this view by showing that it is more than this, as we find a strong emotional sentiment within this context. This sentiment translates into the financial support Mittelstand companies provide to local

associations, institutions, and clubs, exemplifying their active engagement in nurturing and sustaining the social fabric of their regions. This involvement not only strengthens ties with the local community but also reinforces the reciprocal relationship between Mittelstand firms and their surroundings, as outlined by De Massis et al. (2018). Moreover, our empirical data shows regional embeddedness plays a crucial role in talent acquisition for Mittelstand companies, as proximity to the local area facilitates the recruitment of employees who share a similar cultural background and values, fostering cohesiveness and stability. Thus, regional embeddedness emerges as a cornerstone of the Mittelstand Mindset, embodying sustainability principles by nurturing strong ties to the local community and fostering a culture of reciprocity and support. Also, independence is essential for the acting dimension, as Mittelstand companies pursue a strong desire to act based on their own ideas autonomously. This finding thus highlights a particular approach to financial independence and decision-making in the companies. We find that companies are prepared to make financial sacrifices to ensure independence. The results of the case analysis are consistent with the literature, which often emphasizes the financial independence of the Mittelstand (Logue et al., 2015; Pahnke & Welter, 2019) and, in this context, generally describes rather conservative reinvestment strategies of the Mittelstand (De Massis et al., 2018). The literature likewise suggests that when it comes to investments, Mittelstand businesses forego investors and, if at all, only consider loans from local banks, the so-called house banks (Audretsch & Elston, 1997; Berghoff, 2006). We also observe this in our study. However, where the literature so far describes this behavior as consisting of the desire to continue into further generations, we find evidence that the willingness to act in accordance with the values and responsibilities that belong to the self-image of the Mittelstand is equally a driver for independence in the present. The desire for independence, therefore, goes beyond the desire for financial independence and the preservation of generations and is, thus, an integral part of the Mittelstand Mindset.

Moreover, the purpose of the discussion on Mittelstand companies is, in our opinion, not necessarily about an attempt to transfer those company structures to other (national) contexts in order to achieve a similar economic landscape and thereby apply the same structures. Research has shown that entrepreneurship depends heavily on context (Baker & Welter, 2020). There is no *“one size fits all”* solution to what constitutes the *“right”* approach to entrepreneurship. Instead, the key issues in this debate are recognizing the

diversity of manifestations in entrepreneurship and the essential functions that each variety of entrepreneurship contributes to a particular context (Gartner & Birley, 2002; Herrmann, 2019; Wolff et al., 2022). The Mittelstand consists of tangible and intangible aspects (Logue et al., 2015), which have contributed positively to the stabilization of prosperity in the German economy over the years (Berghoff, 2006). In the context of the varieties of entrepreneurship approach (Herrmann, 2019), it is evident that the tangible aspects cannot simply be transferred to another country. Instead, emphasis should be placed on the intangible elements of the Mittelstand, i.e., the Mittelstand Mindset, and thus companies that, as our results show, feel, think, and act in a particular way. We empathize that the (societal) contribution (Welter et al., 2020) these companies are making should be acknowledged, as it is beyond a solely economic contribution. Our data proves this line of thinking throughout. On this foundation, companies in other countries that also demonstrate aspects of the Mittelstand Mindset can be recognized and strengthened using political and social interventions. This aligns with the entrepreneurship literature, which addresses different types of entrepreneurship (Morris & Kuratko, 2020), all of which we believe should be embraced. Each of them has its *raison d'être* in different countries and are essential to guarantee the progress of both the national as well as international society.

6.7 Conclusion

What sets the Mittelstand apart from other forms of entrepreneurial endeavors? The extant literature has responded to this question by focusing almost exclusively on firm-specific characteristics, such as size, age, ownership, management, governance, and finance (Bartz & Winkler, 2016; Berlemann et al., 2018; De Massis et al., 2018; Jahn, 2018). The literature on the Mittelstand has no doubt left readers bewildered because, based on firm-specific characteristics, the Mittelstand does not seem to be all that different. Every city, region, province, and country has small companies, established companies, and family businesses, along with relational-based finance and inclusive HR policies. So, what precisely distinguishes the Mittelstand or makes it unique?

This paper draws on the important recent literature suggesting that mindset matters (Kuratko et al., 2021; Shepherd et al., 2010). It matters for entrepreneurs, and in this paper, we have found that it also makes the Mittelstand unique. Thus, the key distinction

to the Mittelstand may be less about the characteristics of the companies and more about their mindset. In a contemporary society burdened by increasing turbulence and disruption, we argue that entrepreneurship has a stabilizing effect. However, the extant research in entrepreneurship has mainly focused on high-growth ventures, such as Silicon Valley entrepreneurship. Still, a new focus has emerged on varieties of entrepreneurship. We suggest in this paper that a crucial but overlooked aspect of entrepreneurship is the Mittelstand — companies regarded not only as the backbone of the German economy but also acknowledged in other countries, such as the Brittelstand in England. The Mittelstand reflects a fundamental manifestation and blueprint of stable and long-term entrepreneurship. In this study, we apply the behavioral and mindset approach to the Mittelstand Mindset for the first time, based on a mixed approach by analyzing recent literature in this field and diving deep into extensive interview data. We show that those companies have, indeed, a particular mindset that distinguishes them from company structures that are typically seen interchangeably with Mittelstand, such as family businesses, hidden champions, and SMEs.

In conclusion, we show that what is essential when considering Mittelstand companies as a manifestation of entrepreneurship is not the measurable, tangible aspects of the companies, as has been widely discussed in the literature, but that it is instead the Mittelstand Mindset that makes the difference. This paper goes beyond the first assumptions of Pahnke et al. (2022) by showing that the Mittelstand is more than a feeling of belonging to a specific group. We build on this concept and demonstrate that there is a Mittelstand Mindset shaping how to act and behave in society. Thus, we open a dialog and a first approach about the existence of Mittelstand companies beyond the borders of Germany. We believe that besides the importance of other types of entrepreneurship, Mittelstand entrepreneurship, due to its mindset with a focus on sustainable stability and contribution to society, depicts a manifestation of entrepreneurship that is of high societal value and political relevance.

Like all research, ours is subject to certain limitations. First, the number of studies examining the Mittelstand is relatively small, and these studies are also strongly related. This can lead to a bias in the literature, which we try to compensate for by additionally analyzing the 64 cases. Second, it should be noted that the assignment of the quotes to one of the observed characteristics is not always mutually exclusive as it is based on

complex interrelationships. For example, owner-management characteristics, as described above, strongly influence long-term orientation. Future studies could make an essential contribution by analyzing the individual characteristics and their interrelationships to gain a more finely-grained picture of the mechanisms that shape the Mittelstand Mindset. Second, a subsequent quantitative study could use a broader sample. Third, although other contextual factors such as industries or geographic location outside Germany would be of interest, this initial study specifically sought to cover as broad a sample of potential German Mittelstand companies as possible. The heterogeneity of the sample in terms of industries and the companies' status is intended to provide a holistic view of the Mittelstand Mindset phenomenon. Regarding the geographical location, the study specifically focused on Germany, which is the origin and home of the Mittelstand. We invite future studies to address this point and to investigate whether a Mittelstand Mindset can also be observed in other countries, which currently tend to focus on family businesses (Audretsch et al., 2022). In this sense, it is questionable whether the dimensions derived here should similarly be adopted and examined in the same way or whether it is sufficient to transform them and examine certain dimensions in an international context. Fifth, this paper does not create a final definition of Mittelstand but rather tries to unravel the mindset that characterizes this unique type of company. Future studies can build on these insights and thus try to shed further light on the topic to find suitable measures to support these companies on a political level. Most importantly, these companies operate contrary to the Silicon Valley entrepreneurship concept as they stand for more long-term orientations and stable growth, thus offering an attractive alternative for both policy and business.

7 Summary of the Findings of this Dissertation and Concluding Remarks

This dissertation investigates how a psychological micro-foundations lens that addresses the relationships between affective, cognitive, and behavioral elements can be integrated into entrepreneurship research. It does so by examining the research question from multiple perspectives and across various levels of analysis, highlighting the potential that psychological micro-foundations hold. As shown throughout the dissertation, the study extends the theoretical concept of psychological micro-foundations, originally grounded in strategic management, by further developing it using psychological literature, with a focus on cognitive, affective, and behavioral dimensions. By applying this refined framework to entrepreneurship research, the dissertation has explored its relevance and impact across the micro-, meso-, and macro-levels of analysis, offering new insights into how these psychological foundations shape entrepreneurial outcomes at both individual and organizational levels.

Previous research has long addressed the question of the nature of an entrepreneur and whether there are fixed traits within individuals that determine whether or not the person embarks on the entrepreneurship journey (Gartner, 1988). Due to extensive research into this question, we now know that this is probably not the case (Audretsch, 2023; Moog, 2004). However, there is an ongoing debate in the literature about what makes entrepreneurs and their businesses successful (Dasmit et al., 2023) because, at its core, entrepreneurship research has always been a human-centered activity (Rauch & Frese, 2007; Shane & Venkataraman, 2000). In this context, this dissertation takes the view that psychological micro-foundations (Ployhart & Hale, 2014) can provide an explanatory approach. So far, little research has been conducted on psychological micro-foundations in entrepreneurship (Molina-Azorín, 2014; Ployhart, 2012; Ployhart & Hale, 2014). A structured consideration of the frequently used triad of affective, cognitive, and behavioral dimensions in psychological research (Andersen & Chen, 2002; Dweck & Leggett, 1988; Fishbein, 1966) has not yet been undertaken (Phan & Wright, 2018). Therefore, this dissertation examines the value of such a consideration of psychological micro-foundations in entrepreneurship research, considering the three dimensions mentioned above. In three studies, this objective was investigated as part of this dissertation. In the following, the three studies will be discussed in light of the overarching

research question, and the results will be synthesized to show the potential for research into psychological micro-foundations in entrepreneurship.

The main objective of the first paper of this dissertation was to investigate whether the PsyCap of SME leaders influences the direction of strategic responses taken during a crisis and if this influences the company's performance. In doing so, we are responding to a research gap in the literature, as the relevance of the PsyCap for entrepreneurs has been scarcely researched to date, particularly in a crisis context. The focus of prior research has predominantly centered on exploring which measures are sensible in crisis contexts and the utilization of physical resources (Ghemawat, 1986; Lopez-Cabrales & Denisi, 2021). The potential for psychological micro-foundations, in this case, the PsyCap of SME leaders, to exert a significant influence has previously received little consideration (Felin & Foss, 2005; Molina-Azorín, 2014; T. C. Powell et al., 2011). The study utilizes structural equation modeling on a dataset of 372 SME leaders.

In the context of the dissertation's main research question on the value of psychological micro-foundations in entrepreneurship research, this paper aimed to investigate the individual level of the entrepreneur. Specifically, it examined the extent of their Psychological Capital (PsyCap) as a micro-foundation and its effects on strategic behavior and company performance during a crisis. As already described in the introductory part of the dissertation, the PsyCap contains both affective and cognitive elements of the human psyche and is the result of a complex interplay between the two (Arora et al., 2013; Averill et al., 1990; Bandura, 1986; Bruininks & Malle, 2005; Carver & Scheier, 2001; Mesurado et al., 2018; Schwager & Rothermund, 2013; Snyder et al., 1991). It, therefore, reflects the positive psychological state of an individual (Luthans, Avolio, et al., 2007). In the study, we showed that the PsyCap of SME leaders influences the behavioral dimension, i.e., the direction of the strategic measures chosen to deal with the crisis. Thus, while SME leaders resort to both cost-cutting measures and investment measures during the crisis, our study delivers innovative results in that the higher the PsyCap, the more investment measures are favored. In contrast, SME leaders with a low PsyCap tend to favor cost-cutting measures. This confirms the triad of the conceptual model of the dissertation consisting of the affective, cognitive, and behavioral dimensions (Dweck & Leggett, 1988; Fishbein, 1966).

Furthermore, the study found a positive direct influence of PsyCap on the performance of the companies and an influence mediated by the strategic decisions. This relationship between psychological states and entrepreneurial action echoes the call by Phan & Wright (2018) for a more integrated approach to understanding entrepreneurship through the lens of the brain-mind connection. In the context of the dissertation's research question, the results of the study show that a high PsyCap of entrepreneurs can have a positive influence on the strategic level as well as on the company level with regard to performance, especially in crises. As the study delivers evidence that PsyCap partly predicts which strategic measures are chosen, it goes beyond the findings of Miocevic (2021), showing that positive and negative emotions (i.e., solely affective elements) influence the strategic decision-making behavior of entrepreneurs and underlines the importance of such research. In contrast to the mentioned study, which focuses on emotions, that can be considered to change very quickly, given that they fluctuate several times within people during the course of a day (Luthans, Avolio, et al., 2007; Luthans & Youssef-Morgan, 2017), with the PsyCap we deliver insights that significantly more stable and developable (Luthans & Youssef, 2007) psychological micro-foundations also influence strategic decision-making behavior. PsyCap research highlights that individuals can develop PsyCap through learning, workshops, and training, thereby building it (Dello Russo & Stoykova, 2015; Salanova & Ortega-Maldonado, 2019) and later reaping positive outcomes (Luthans, Avolio, et al., 2007). This knowledge is valuable for entrepreneurs, enabling them to gain a competitive advantage. Furthermore, these insights can enrich entrepreneurship education, such as at universities (Kuratko, 2005), introducing PsyCap development as a new skill. Finally, understanding the importance of PsyCap and psychological factors can help entrepreneurs establish a healthy work-life balance, as research shows that an unhealthy context often leads to problems and failure (Shepherd & Patzelt, 2015; U. Stephan, 2018).

At an individual level, PsyCap has already been studied extensively in the context of companies' employees (Luthans & Youssef-Morgan, 2017; Newman et al., 2014). For example, an influence on personal performance and desirable workplace behaviors has been demonstrated (Avey et al., 2011). In addition, study one shows that the PsyCap of the individual entrepreneur influences entrepreneurial endeavors and environmental changes. Within previous research on PsyCap, there is a growing body of evidence that the PsyCap as such also exists on a collective level and exerts influence in the form of

groups or at an organizational level (Broad & Luthans, 2017; Clapp-Smith et al., 2009; Dawkins et al., 2015, 2018; Luthans et al., 2015; Memili et al., 2013, 2014). Therefore, the main objective of the second study of this dissertation was to investigate whether the OPC of SMEs in the COVID-19 crisis impacts the companies' performance. A structural equation model with a sample size of 379 companies was used to answer this question.

As mentioned, reducing entrepreneurs' goals simply to companies' economic performance is a flawed perspective, not recognizing the variety in goals (Welter et al., 2017). Entrepreneurship worldwide has other essential purposes within the respective society besides economic performance (Audretsch & Moog, 2022; Baker & Welter, 2017). Thus, along with economic performance and creative innovation, the study also examined how the OPC influences social value-creating elements (organizational citizenship behavior, cooperation, and solidarity). Concerning the dissertation's main research question, in this study, the OPC functions as the investigated psychological micro-foundation, but a collective level of psychological resources was investigated. Consequently, the OPC also covers the affective and cognitive part of the conceptual dissertation model (Arora et al., 2013; Averill et al., 1990; Bandura, 1986; Bruininks & Malle, 2005; Mesurado et al., 2018; Scheier et al., 2001; Schwager & Rothermund, 2013; Snyder et al., 1991). The constructs of organizational citizenship behavior, cooperation, and solidarity were surveyed as specific behaviors representing the conceptual model's behavioral dimension. The results show significant positive effects between the OPC and the three constructs. In addition, a positive effect on creative innovation and the performance (outcome level of the model) among SMEs was demonstrated. Moreover, the examination of OPC in the dissertation extends the model's utility beyond the individual, showcasing its relevance at the collective level of entrepreneurship. These findings not only provide theoretical implications, laying the groundwork for future research in this field, but also offer practical insights for entrepreneurs and SME managers. Investing in employees' psychological capital can foster a healthy and positive work environment, which in turn may lead to greater innovation, creativity, and performance, as well as a more resilient workforce during times of crisis.

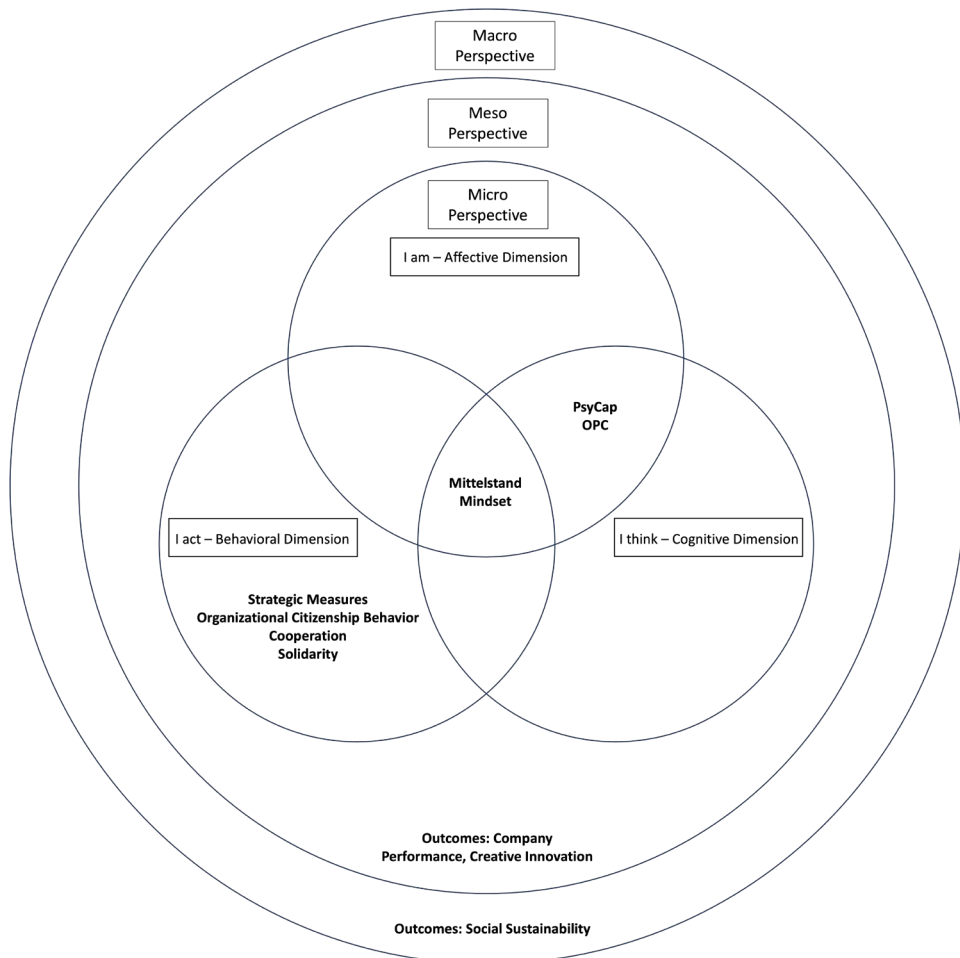
The third paper deals with the question of how the Mittelstand Mindset can be conceptualized, reflecting the goal of identifying and characterizing the distinctive psychological orientation that defines the Mittelstand. This aligns with the psychological

micro-foundations approach and adds a crucial dimension to the overall framework within this context. The study was motivated by several aspects: the Mittelstand, which is known for its moderate growth, its long-term social stabilization (Welter et al., 2020), and its essential role as the backbone of the German economy (Audretsch & Lehmann, 2016), embodies an entrepreneurial behavior that is deeply rooted in German society (Berghoff, 2006) but has received little attention in an international context. The entrepreneurial behavior of the Mittelstand stands in stark contrast to the widely celebrated Silicon Valley entrepreneurship model, which is characterized by rapid growth and scalability (Audretsch, 2021; Kuratko & Audretsch, 2022; Pahnke & Welter, 2019). The latter form of entrepreneurship has received great emphasis in research in recent decades, although it rather reflects the “*outliers*” of entrepreneurship (Welter et al., 2017). Therefore, this paper's primary focus is to conceptualize the Mittelstand Mindset, a task motivated by the observation that the existing literature has largely neglected the intrinsic, mindset-related components that distinguish the Mittelstand from other forms of entrepreneurship. Using a qualitative analysis of case data from 64 SMEs and 17 academic articles, this study aims to fill a significant gap in the literature on the nature and characteristics of the Mittelstand Mindset.

This endeavor goes beyond the traditional focus on firm-specific characteristics. It suggests that the unique contribution of the Mittelstand to entrepreneurship, regional stability, and sustainability may lie in its collective mindset, the so-called Mittelstand Mindset. Using the model of the EM (Kuratko et al., 2021), we conceptualize the Mittelstand Mindset on the affective, cognitive, and behavioral levels (Shaver 2024) and thus underline the dissertation's general conceptual model. Besides, exploring the Mittelstand Mindset broadens the applicability of the dissertations model beyond individual and collective company-related considerations, highlighting its significance across broader collective (regional embeddedness) and cultural dimensions within entrepreneurship. This aligns with and expands upon the discussions within the literature regarding the impact of psychological constructs on entrepreneurial outcomes (Miocevic, 2021), advocating for a broader consideration of how these micro-foundations manifest across different layers of entrepreneurial ecosystems. In line with the main research question of the dissertation on the value of psychological micro-foundations in entrepreneurship research, this paper contributes by emphasizing the importance of mindset as a key psychological micro-foundation in the heterogeneous field of

entrepreneurial activities. It is proposed that the Mittelstand Mindset can serve as an example of how cognitive, affective, and behavioral elements contribute to a particular form of entrepreneurship focused on societal benefit and social sustainability. By examining this specific entrepreneurial context, the paper enriches the broader discourse on psychological micro-foundations in entrepreneurship and argues for a more nuanced and contextualized understanding of the EM. With the study, this dissertation positions the Mittelstand as a critical but under-researched element in the landscape of entrepreneurship research and the continuum of entrepreneurial activity (Wolff et al., 2022). The important insight is that this specific kind of entrepreneurship is mainly shaped by the Mittelstand Mindset, suggesting that a different manifestation of the EM might shape other kinds of entrepreneurship. However, this remains to be thoroughly researched and analyzed in future research efforts.

Figure 14. Findings of the Dissertation.



Source: Own illustration.

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In the following, the findings of the three individual papers are integrated into the dissertation's conceptual model and reflected within this context. The overarching conclusions of the dissertation are shown in Figure 14 and are summarized and discussed below.

Within this dissertation, the analysis shows that psychological micro-foundations exert a recognizable influence, not only on an individual but also on a collective level, in the entrepreneurial context. A nuanced analysis complements and extends the existing literature by showing how these psychological micro-foundations act as essential navigational tools for entrepreneurs. Extant research has predominantly focused on the individual in entrepreneurship (Rauch & Frese, 2007; Shane & Venkataraman, 2000). For a long time, this stream of research was heavily based on a trait perspective and, thus, the belief that entrepreneurs are born and not made (Audretsch, 2023; Gartner, 1988). This perspective has evolved significantly over time, influenced by educational approaches and the growing recognition that entrepreneurship can be taught and should be offered as a viable occupational choice (Katz, 2003; Kuratko, 2005; Solomon & Fernald, 1991). This dissertation shows that a new focus on the individual, not in terms of being born as an entrepreneur but rather in terms of psychological micro-foundations, offers a fruitful perspective in understanding entrepreneurial behavior and economic as well as social outcomes. This aligns with the current and latest research insights (Lux et al., 2020; Phan & Wright, 2018; Rauch & Frese, 2007; Roundy & Lyons, 2022; Shaver, 2024). In particular, positive economic outcomes such as improved business performance, implementation of strategic measures, and creative innovation at the organizational level were observed. For the social effects, the studies show an increase in socially desirable behaviors (organizational citizenship behavior, cooperation, and solidarity) and outcomes (social responsibility, including stability and job security). These outcomes are assumed to positively contribute to the macroeconomic landscape, even though they were not directly investigated. Thus, the dissertation contributes to the field by emphasizing the economic and social impact of psychological micro-foundations (Barney & Felin, 2013; Felin & Foss, 2019) in entrepreneurship and shows that the explored psychological micro-foundations serve as instrumental tools, empowering entrepreneurs and their ventures to navigate and orient in a complex environment.

The conceptual model underlying this dissertation, which emphasizes the intricate interplay between affective, cognitive, and behavioral dimensions of psychological micro-foundations, provides a profound lens to examine entrepreneurial outcomes. This model, guided by seminal work in psychology (Andersen & Chen, 2002; Dweck & Leggett, 1988; Fishbein, 1966), not only captures the essence of the psychological complexity of entrepreneurship (Gartner, 1990) but also serves as a bridge connecting individual states to entrepreneurial actions. The dissertation concludes that psychological micro-foundations (Barney & Felin, 2013; Felin & Foss, 2005; Molina-Azorín, 2014) play a central role in entrepreneurial settings and can serve as a versatile toolkit that informs and influences organizational decisions, dynamics, and other internal processes. The empirical research conducted as part of this thesis demonstrates a complex and nuanced synergy between affective, cognitive, and behavioral components. The findings are coherent with the broader psychological research paradigm that sees this complex synergy (Andersen & Chen, 2002; Dweck & Leggett, 1988; Fishbein, 1966) as a prerequisite in developing therapeutic methods (Allen & Woolfolk, 2006). In this sense, the dissertation addresses and extends the need for research on the mind-brain nexus in entrepreneurship, as articulated by Phan & Wright (2018), and adds the crucial dimension of behavior. As a result, it suggests that the robust integration of the brain-mind-behavior connection in entrepreneurs could be leveraged as a strategic advantage of firms, initiating a nuanced discourse on the role of psychological micro-foundations in entrepreneurship (Ployhart, 2012; Ployhart & Hale, 2014).

Extant research has considered these dimensions separately, often neglecting their synergistic effects on entrepreneurial behavior and success. For example, Gartner (1988) questioned the prevailing view at the time that the nature of an entrepreneur consists of certain traits. More recent discussions (Audretsch, 2023; Daspit et al., 2023) have shifted to understanding the broader determinants of entrepreneurial success without fully integrating the psychological underpinnings that drive this success. In contrast, this dissertation's model reconceptualizes these discussions by demonstrating how the affective, cognitive, and behavioral components - when considered a cohesive whole - can significantly influence the trajectory of entrepreneurial ventures.

7.1 Theoretical Implications

This dissertation contributes to the expansion of entrepreneurship theory by incorporating the concept of psychological micro-foundations. On the one hand, the dissertation suggests that a psychological micro-foundations lens, which considers the individual's affective, cognitive, and behavioral dimensions, can help to understand entrepreneurship and its inherent mechanisms at a deeper level. On the other hand, it highlights the importance of individual and collective psychological micro-foundations - such as PsyCap, OPC, and the Mittelstand Mindset - in influencing entrepreneurial outcomes. This suggests that theories of entrepreneurship need to consider the psychological factors of entrepreneurs and their teams. Besides desirable economic outcomes, the dissertation also sheds light on psychological micro-foundations influencing social outcomes.

By considering the psychological nuances of entrepreneurs, this thesis emphasizes the malleability and developmental potential of psychological micro-foundations (Dweck, 2008, 2017; Luthans, Avolio, et al., 2007; Luthans & Youssef, 2007), a topic less explored in current entrepreneurship literature. Understanding the inner nature of entrepreneurs and the tools available to them provides essential insights into entrepreneurship. This is not least because targeted interventions can change and strengthen many psychological factors (Dweck, 2008, 2017; Luthans, Avolio, et al., 2007). Thus, understanding the intricate psychology of entrepreneurs and their ventures offers critical insights into entrepreneurship research, whereas this dissertation considers psychological micro-foundations not just as static features but as dynamic constructs that can evolve. The global success of psychotherapists in aiding clients to resolve and integrate psychological challenges stands as a testament to this potential. Hence, fostering these psychological micro-foundations could serve as a strategic advantage for entrepreneurial businesses, given their adaptability and developmental potential, as evidenced by the neuroscience surrounding the neuroplasticity of the brain (Voss et al., 2017).

Focusing on psychological micro-foundations as a complex interplay of the brain-mind-behavior connection of entrepreneurs and their ventures, the dissertation adds to the discussion in broad entrepreneurship literature, proposing psychological micro-foundations as potential competitive advantages. Following the extension of RBV (Barney,

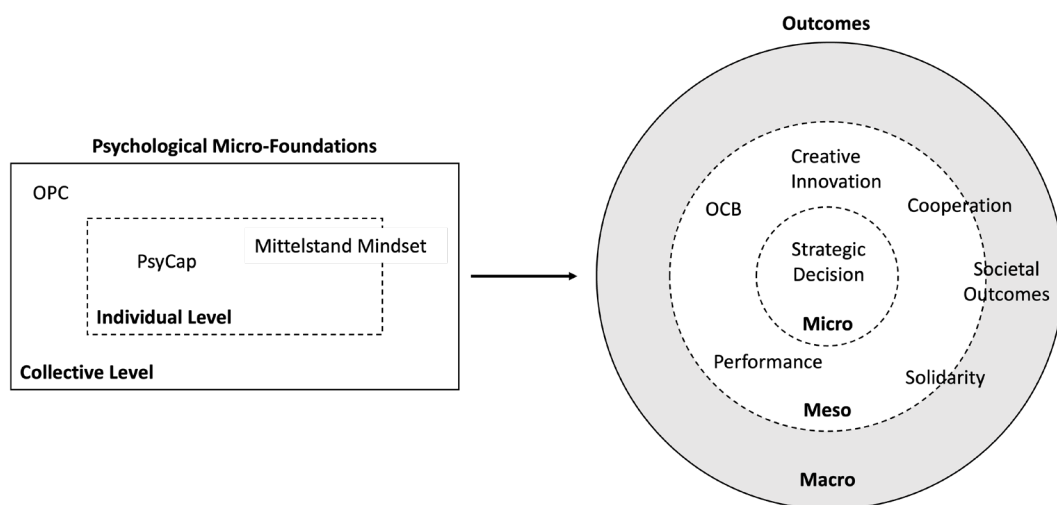
1991) through a lens that considers the individual entrepreneur (Alvarez & Busenitz, 2001), the dissertation shows that psychological micro-foundations are an influential resource for entrepreneurs and consequently also for their companies (Ployhart, 2012; Schneider et al., 2012; Wiklund & Shepherd, 2003). Research has long overlooked the individual-level factors of people interacting in entrepreneurial businesses as a possible source of competitive advantage for companies (Ployhart & Hale, 2014). As shown in the first two studies of this dissertation, the PsyCap (and, respectively, the OPC) can function as a strategic advantage and be acquired by companies, as it fulfills the criteria (valuable, imperfectly imitable, rare, and non-substitutional) for competitive advantage according to Barney (1991). The same logic as described in study one can also be applied to the third paper considering the Mittelstand Mindset:

The Mittelstand Mindset emphasizes long-term stability, resilience, and a commitment to social and economic responsibility, significantly contributing to a company's success. This mindset fosters a culture of initiative, employee and customer loyalty, and a strong focus on quality and customer service. These aspects are valuable as they strengthen a company's reputation, operational efficiency, and market position. As the Mittelstand Mindset is deeply rooted in the history, culture, and values of companies and their owner-managers and thus is the result of unique historical, cultural, and familial influences (Berghoff 2006), it is difficult for other companies to imitate. This uniqueness makes the Mittelstand Mindset a competitive advantage that competitors cannot easily imitate, especially those not embedded in the specific cultural context or corporate identity of the Mittelstand (Logue et al., 2015). The holistic integration of social sustainability, resilience, and engagement into corporate culture, as expressed in the Mittelstand Mindset, is rare. This mindset is not just a set of practices (Dweck, 2008, 2017; Shaver, 2024) but a deeply ingrained ethos that influences every aspect of the organization, from decision-making and leadership to employee engagement and customer relations (Kuratko et al., 2021). Thus, it is characterized by a unique blend of operational, strategic, and cultural practices (Schenkenhofer, 2022). While many companies aspire to these qualities (Pahnke & Welter, 2019), the depth and authenticity embedded in Mittelstand companies are unusual and make them a distinctive feature that sets them apart. Finally, the benefits of the Mittelstand Mindset, such as close relationships with employees, strong ties to local communities, and a focus on sustainable growth, cannot simply be substituted. Alternative strategies may deliver short-term gains or mimic aspects of the Mittelstand

approach. However, they cannot fully reflect the holistic and integrated nature of the mindset that contributes to these businesses' long-term success and resilience.

Moreover, the dissertation illustrates how psychological micro-foundations interact at the individual level (e.g., PsyCap of SME leaders) and at the collective level (e.g., OPC, Mittelstand Mindset) to influence strategic behavior and organizational outcomes. This supports the development of multi-level theories (Hitt et al., 2007) in entrepreneurship research that consider both individual and organizational dynamics, promoting cross-level insights. The dissertation provides insights that span across these layers by investigating psychological micro-foundations at both individual and collective levels and examining the outcomes at various levels (particularly micro- and meso-, but indirectly also the macro-level). As already hinted at in the reflection of the individual studies in the previous chapter, the dissertation examines various levels, further highlighting the relevance and added value of psychological micro-foundations research in entrepreneurship.

Figure 15. Cross-Level Insights.



Source: Own illustration.

Figure 15 illustrates this for the individual studies. Firstly, psychological micro-foundations were investigated at different levels: the PsyCap, at the individual level of the entrepreneurs themselves, and the OPC, representing the collective positive resources of entrepreneurial businesses. Lastly, the Mittelstand Mindset was examined, which is found within Mittelstand entrepreneurs but, as our study indicates, also transitions to the organization, appearing to exist at a collective level. Our investigation does not explicitly

examine the relationship, yet we uncover indications suggesting the Mittelstand Mindset permeates the organization as a whole. This observation hints at broader impacts, exemplified by findings that challenge previous literature by revealing high attachment and identification not only within Mittelstand entrepreneurs (Berghoff, 2006; Pahnke et al., 2021, 2022; Pahnke & Welter, 2019; Schenkenhofer, 2022; Welter, 2018; Welter et al., 2015) but also among their employees. Thus, it suggests that psychological micro-foundations extend their influence beyond the internal dynamics of individuals, potentially contributing to the well-being and economic stability of the entire organization (Hitt et al., 2007). This highlights that psychological micro-foundations can be utilized to strengthen individuals and entire organizations (Ployhart & Hale, 2014).

The outcomes of the psychological micro-foundations explored in our three studies can affect different levels, extending from individual strategic behaviors to broader organizational and societal implications (Hitt et al., 2007). The first study highlights how these psychological micro-foundations influence the strategic decision-making of individuals, offering a micro-level view. Then, across all three studies, we see that these psychological factors positively impact the company level, touching on the meso-level of influence. Specifically, the first and second studies point out improvements in company performance linked to psychological micro-foundations. Moreover, the second study expands our understanding by showing their role in boosting creative innovation and cultivating socially desirable organizational behaviors like organizational citizenship behavior (Organ, 2018) within companies. Moreover, this investigation accentuates the role of psychological micro-foundations in fostering an environment conducive to cooperation and solidarity, laying the groundwork for potential macro-level societal benefits.

These constructs—cooperation, and solidarity—transcend the boundaries between meso- and macro-perspectives, contingent upon the analytical lens applied. In the context of this dissertation, these dimensions are analyzed from the company's perspective through self-assessments that evaluate the manifestation of social solidarity and the intensity of engagement with various stakeholders, including customers, competitors, and local communities. This indicates a positive effect reaching beyond the company itself, suggesting a broader impact, though this influence needs deeper investigation in future studies. The same holds true for examining the Mittelstand Mindset; we find that at the

core of this mindset is an orientation towards social sustainability, which likely has significant impacts on the economy and society, and thus the macro-level. There are already scholarly articles on the societal impacts of the Mittelstand (Berghoff, 2006; Welter et al., 2020), and the fact that the Mittelstand shapes German society and constitutes the economic backbone of the country is no longer disputed in research (Audretsch et al., 2022; De Massis et al., 2018). However, the specific effects of the Mittelstand Mindset, which is conceptualized for the first time in this dissertation, have yet to be illuminated.

Furthermore, entrepreneurship is at the core of economic activity and is influenced by several factors, like the institutional setting (Urbano et al., 2019) and the ecosystem surrounding it (Cantner et al., 2021; Stam & Van De Ven, 2021). In other words, entrepreneurship is influenced by the context in which it is embedded (Baker & Welter, 2020; Shepherd et al., 2019). Places and especially informal institutions influence entrepreneurs, but entrepreneurs also shape them (Zahra, 2007). The results of the dissertation thus contribute to the discussion on entrepreneurial ecosystems, particularly responding to a call for research from Roundy & Lyons (2022), who call for a micro-perspective within the entrepreneurial ecosystems literature. The authors critique the current state of entrepreneurial ecosystem theory for its emphasis on system-level dynamics while neglecting the role of entrepreneurs and their specific connections within these ecosystems. This approach has led to entrepreneurial ecosystem research being criticized as “*under-theorized*” and lacking consensus on causal relationships within the ecosystem (Cantner et al., 2021). Roundy & Lyons (2022) argue for a micro-foundational approach that incorporates a strategic organizational perspective to close these gaps. By integrating macro-dynamics and micro-foundations, entrepreneurial ecosystem theory can more comprehensively explain the activities, organization, and causal mechanisms that link entrepreneurs to their ecosystems. As the dissertation shows that psychological micro-foundations play a major role in the behavior of entrepreneurs and their ventures, influencing the outcomes on a meso-level, it is likely that the micro-foundations also affect the macro-level, and notably vice versa (Daspit et al., 2023; Hitt et al., 2007; Noble, 2015). This may occur not only during times of crisis but also under normal conditions.

The dissertation advocates for a multilevel framework (Hitt et al., 2007) in entrepreneurship research that systematically incorporates psychological micro-

foundations (micro-level) across different levels of analysis. By examining PsyCap at the individual level and OPC and the Mittelstand Mindset at collective levels (meso-level), the dissertation illustrates the interdependent nature of psychological factors and their ripple effects on organizational and potentially even societal outcomes. This suggests that entrepreneurial success and resilience are not solely the result of individual traits or behaviors but are deeply influenced by individual, collective psychological micro-foundations and cultural contexts. Tracing the effects of psychological micro-foundations from individual (micro-level) to company (meso-level) and societal level (macro-level) not only underscores their importance in broad entrepreneurship but also suggests they could be strategic assets for businesses aiming for innovation and a positive social footprint. However, the full scope of their impact, especially on larger societal scales, remains an open question for further research.

The exploration of psychological micro-foundations in crisis management, as outlined in this dissertation through two key studies, considerably advances the understanding of crisis management in entrepreneurship. In an era characterized by unprecedented volatility, where crises emerge as widespread and diverse challenges, adapting quickly and being resilient is essential for a business sustainability environment (Beliaeva et al., 2020; Colpan, 2008; van der Vegt et al., 2015). Specifically, this research describes how psychological micro-foundations, in particular PsyCap and OPC, equip firms with the necessary resources to not only survive but also thrive in the midst of adversity. By exploring the symbiotic relationship between positive (PsyCap, OPC) and negative experiences (crisis context), the dissertation contributes a nuanced perspective to the crisis management discourse in entrepreneurship (Beliaeva et al., 2020; Collett et al., 2014; Kottika et al., 2020; Latham, 2009; Smallbone et al., 2012) by highlighting the transformative potential of crises in fostering resilience and positive organizational change (Miocevic, 2021; E. E. Powell & Baker, 2014; Simsek et al., 2010). This contrasts with the traditional emphasis on the negative (Helton & Head, 2012) and argues for a more balanced view that recognizes the integral role of adversity as a catalyst for growth and innovation. Consequently, the findings emphasize the strategic value of psychological micro-foundations in navigating the complex terrain of modern business crises and provide a refined lens through which business resilience and adaptability can be assessed and improved. In this way, the dissertation emphasizes the need to incorporate psychological micro-foundations into the structure of crisis management strategies and

to initiate a paradigm shift towards a more holistic and psychologically based approach to crisis management in the entrepreneurial sphere (Miocevic, 2021; E. E. Powell & Baker, 2014; Simsek et al., 2010). Besides, the findings contribute to POB by demonstrating how positive psychological states can lead to superior performance, innovation, and social value creation, reinforcing the need for positive constructs in organizational theories.

The dissertation questions and reconceptualizes the traditional understanding of the EM as a single expression (Audretsch, 2021; Hattenberg et al., 2020; Kuratko et al., 2021; Kuratko & Audretsch, 2022; Morris & Kuratko, 2020; Shepherd et al., 2010; Wolff et al., 2022). By examining the Mittelstand Mindset, a broader view is introduced that encompasses economic, social, and sustainability goals. This implies that theories of the EM should encompass a broader range of motivations and orientations that reflect a balance between profit, social stability, and environmental sustainability (Daspit et al., 2023; Pahnke & Welter, 2019; Schenkenhofer, 2022). The emphasis on moderation, long-term social stabilization, and sustainability also offers valuable implications for theories of social entrepreneurship and sustainability (Bacq et al., 2020; Binder & Belz, 2015). It suggests that entrepreneurial success and contribution to society can be achieved not only through rapid scaling but also through moderate growth and a deep-rooted commitment to social well-being and environmental sustainability, as the Mittelstand in Germany has been doing for decades.

Finally, and to sum up, the dissertation builds a bridge between entrepreneurship research, strategic management research, and psychological research by applying psychological theories (e.g., cognitive, affective, and behavioral theories) to entrepreneurial phenomena. Utilizing psychological micro-foundations adds significant value to entrepreneurship research. Specifically, it emphasizes the potential of psychological micro-foundations to serve as foundational tools for entrepreneurs and their ventures, facilitating adaptation and strategic alignment in a rapidly changing environment while balancing economic efficiency and societal contribution. This interdisciplinary approach promotes a more nuanced and holistic understanding of entrepreneurship and advocates theories that consider the psychological complexity of entrepreneurial actors.

7.2 Managerial Implications

Although this dissertation focused on the development of theoretical perspectives, it also has practical implications. On the one hand, the results clearly show that psychological micro-foundations influence entrepreneurial companies in different ways. On an individual level, a high PsyCap of the entrepreneur can contribute to stabilizing companies in times of crisis and influence strategic decision-making behavior. On the other hand, at a collective level, it can be seen that the OPC of SMEs in times of crisis not only influences the financial situation of companies but also promotes positively associated social behaviors. A similar phenomenon is also evident in the Mittelstand Mindset, which seeks social sustainability at its core. The fact that psychological aspects within people can be changed and developed (Dweck, 2008, 2017; Luthans, Avolio, et al., 2007; Luthans & Youssef, 2007) gives the results a practically relevant dimension: Given the fact that crisis will occur in every business at some point, entrepreneurs should regard the development of their own PsyCap, as well as the development of OPC within their workforce, prior to crisis, as an investment to enhance coping with such events when they occur.

Given the increasing number of crises (Markman et al., 2019), it is reasonable to assume that future entrepreneurs and their businesses will frequently have to react rapidly (Colpan, 2008; van der Vegt et al., 2015). The dissertation shows that psychological micro-foundations contribute to better mastering these challenges. Entrepreneurial businesses that actively work to strengthen their psychological micro-foundations are likely to be better equipped to respond to unexpected challenges. This proactive approach can serve as a competitive advantage, enabling organizations to adapt faster and remain resilient in the face of adversity (Ployhart & Hale, 2014). Entrepreneurs and practitioners can use this knowledge in two ways: On the one hand, the positive effects of high PsyCap found at the individual level emphasize the importance of developing personal psychological resources to improve resilience and strategic decision-making. This suggests that, in general, education and training programs for entrepreneurs should include modules that focus on building PsyCap. On the other hand, the findings on OPC highlight the role of collective psychological resources not only in safeguarding the financial health of companies in difficult times but also in promoting positive social behaviors within organizations. As a result, entrepreneurs must cultivate a corporate culture that values and strengthens psychological resources across the workforce. Initiatives could include leadership

development programs, team-building exercises, and organizational practices that promote a favorable psychological climate.

In addition, knowledge about the existence of a specific Mittelstand Mindset in the company can inform decisions and be deliberately used to accelerate decision-making. This provides individuals in companies with agency and consciousness, which helps to purposefully access and process information, with the goal of acting accordingly (Bandura, 2008). Moreover, the finding that the Mittelstand Mindset is inherently oriented toward social sustainability can provide a compelling model for other companies seeking to balance economic success with societal contributions. This suggests that adopting similar values and principles can be a strategic advantage for companies, not only in the German context but globally. In future research, it would also be valuable to explore whether higher OPC or PsyCap of the owner-manager are more prevalent in Mittelstand companies compared to other organizations, thereby investigating how specific EMs may align or diverge from PsyCap and OPC.

As shown, psychological micro-foundations can influence social behavior, particularly in times of crisis, and can help stabilize regions or even countries. Thus, recognizing the importance of psychological micro-foundations for entrepreneurship has significant policy implications. Policymakers could develop support structures and programs to improve the psychological well-being of entrepreneurs and their employees. This could mean providing access to mental health resources, offering training to develop psychological resources, and creating a supportive ecosystem that recognizes the challenges entrepreneurs face. Policies could also encourage adopting business practices that contribute to social stability and sustainability, along the lines of the Mittelstand model.

7.3 Limitations and Future Research

Like any scientific investigation in the social sciences, this dissertation is subject to various limitations. The explanation of social science phenomena is often affected by a multitude of influencing factors, making a holistic view impossible. Due to the complexity of our modern world and the complex processes within human beings, many phenomena cannot easily be viewed in isolation. The limitations of the individual studies in this dissertation have already been discussed and highlighted in the corresponding chapters. In the

following section, the overall limitations of the dissertation are pointed out, and, in the course of this, impulses for future research will be provided.

While this dissertation focuses on the micro- and meso-levels, these initial insights invite speculation on how psychological micro-foundations might facilitate organizational behaviors and practices that, in aggregate, contribute to macro-level outcomes. Future research could explicitly explore this dimension, investigating how the collective embodiment of constructs such as the Mittelstand Mindset within organizations could influence broader economic and social indicators. This would not only respond to but also expand upon the call for research by Phan & Wright (2018), integrating a holistic perspective that encompasses the individual, organizational, and societal implications of psychological micro-foundations in entrepreneurship (Hitt et al., 2007).

As the dissertation focuses exclusively on two types of entrepreneurship (SME and Mittelstand), both of which are representative of everyday entrepreneurship (Welter et al., 2017), it is unclear whether the findings can be applied to all types of entrepreneurship (Herrmann, 2019). It may be assumed that all entrepreneurs show similar patterns in their psychological micro-foundations. However, this must be investigated in further studies. Specifically, in the study examining the individual PsyCap of SME leaders, it is likely that the same mechanisms also apply to high-tech entrepreneurs, for example. Nevertheless, it will be interesting to determine this in future studies to investigate whether different forms of entrepreneurship may also result in varying levels of PsyCap.

The generalizability of the findings on collective OPC in SMEs with regard to entrepreneurial ventures that are larger than the companies studied (up to 250 employees) remains open to question. Indeed, existing theories about OPC assume that the manifestation of OPC is higher in SMEs and family-run companies and that the mechanisms of impact are more pronounced (Memili et al., 2013, 2014). However, this assumption remains uninvestigated. Consequently, a comparative study that examines different size categories and potentially also different types of entrepreneurs with the respective OPC would add value to the field.

Additionally, in discussions about the Mittelstand Mindset, it is essential to acknowledge that although many scholars believe similar phenomena exist outside of Germany (Audretsch, 2021; Audretsch et al., 2022; Logue et al., 2015), this premise introduces a

relevant inquiry for subsequent research efforts. This raises the critical question of whether the *Mittelstand* is a specifically German, context-dependent form of entrepreneurship or whether its characteristics universally apply across different international landscapes. By conceptualizing the idea of the *Mittelstand Mindset*, this dissertation intends to provide an empirical foundation for the global research community that facilitates the identification and comparative analysis of *Mittelstand*-like enterprises in different geopolitical regions. Such an exploratory initiative warrants a methodological approach that spans a cross-national spectrum and incorporates the potential cultural nuances of each location. Given the qualitative nature of the presented study, which aims to provide a testable theoretical framework, it is incumbent upon future research to develop a robust measurement tool that operationalizes the *Mittelstand Mindset* in a quantifiable manner, thereby enabling the application of statistical analysis techniques.

Another limitation of this dissertation relates to the underlying methodological frameworks used in the studies. Since each study relies on cross-sectional data, the results are restricted snapshots in time (Montanari & Adelman, 1987). To enhance the understanding of longitudinal dynamics and causal relationships underlying the psychological micro-foundations of entrepreneurship, longitudinal studies offer a crucial methodological approach, offering better insights into temporal patterns and causality.

A notable limitation, previously alluded to, is the geographical and cultural focus of the studies on the German context. The existing literature emphasizes the different social valuations of certain psychological constructs in different contexts, like individualistic and collectivistic cultural paradigms (Hofstede, 1980, 2011). This dichotomy is particularly emphasized in the analysis conducted as part of the *Mittelstand Mindset* study. The social ethos inherent in the *Mittelstand* (Berghoff, 2006) differs markedly from the growth-centered Silicon Valley model of entrepreneurship (Audretsch, 2021) propagated primarily through media narrative (Pahnke & Welter, 2019). Although both German and American cultures fall within the individualistic spectrum, there are significant discrepancies within the cultural dimensions described by Hofstede (1980, 2011) (Abdou & Kliche, 2004), which may impact how entrepreneurship models are manifested. Extrapolating the *Mittelstand Mindset* to collectivist cultures, such as those prevalent in Japan (Heine & Markus, 1999), gives rise to further research. Future scholarly endeavors could benefit from a comparative study of entrepreneurship models and their

psychological micro-foundations, especially considering the influence of institutional and cultural determinants (Daspit et al., 2023).

Given the overarching framework of the dissertation's conceptual model, it is essential to outline three further limitations: First, the dissertation examines the affective, cognitive, and behavioral dimensions of psychological micro-foundations and their effects on entrepreneurial outcomes. The endeavor to divide the examined micro-foundations into their respective affective, cognitive, and behavioral dimensions and to assign them to their respective domains poses a complex challenge (Felin & Foss, 2019; Lench et al., 2013). This is due to the inherent complexity of psychological research to disentangle and independently assess these dimensions - an almost insurmountable task given their interconnectedness. Research that allows for clearer isolation of these aspects in relation to entrepreneurial outcomes promises to provide more nuanced theoretical insights into the importance of micro-foundations within the entrepreneurship discourse.

Furthermore, the studies in this dissertation, and therefore the conceptual model, primarily examine positive effects. A recognizable bias toward studying positive phenomena in the psychological research literature (Fineman, 2006; Held, 2002) may unintentionally distort the resulting findings. Notwithstanding the prevailing focus on salutary effects, recent research on the “*shadow*” aspects of PsyCap recognizes that its outcomes are not universally positive (B. Stephan et al., 2023; Zhu & Geng, 2023). The same potentially holds true for the Mittelstand Mindset, as research regarding EM already shows some negative effects (Daspit et al., 2023; McMullen & Kier, 2016). With regard to the Mittelstand Mindset outlined above, future research needs to consider the potential for negative effects in particular contexts. For instance, social sustainability could, in particular, impede the mental health of Mittelstand entrepreneurs to some extent, as demonstrated in paper three. However, the findings on this matter do not go deeply into the subject and require further research. Such endeavors demand a rigorous and critical examination of the topic to ensure a comprehensive understanding that includes both the beneficial and potentially detrimental facets of psychological micro-foundations in entrepreneurship.

Ultimately, the dissertation also does not investigate various possible mechanisms of interaction between the psychological micro-foundations examined. This aspect is

another interesting area for future research. For example, it has already been shown that people with high self-efficacy (one of the resources of the PsyCap) are also more likely to possess an EM (Daspit et al. 2023). Whether such relationships exist for the Mittelstand Mindset and what other possible antecedents might facilitate possession of an EM remains to be clarified in future research.

7.4 Conclusion

The dissertation intended to set the stage for a comprehensive exploration of how psychological micro-foundations can contribute to entrepreneurship research. It highlights the shift from seeking a prototypical entrepreneur to understanding the complex interplay of internal and external factors that influence entrepreneurial behavior (Phan & Wright, 2018). This nuanced perspective is crucial for advancing the field and aligns with the broader academic endeavor to incorporate psychological insights into entrepreneurship studies (Gorgievski & Stephan, 2016). The dissertation focuses on cognition, affect, and behavior as core components of psychological micro-foundations and thus offers a promising avenue for future research, given their potential impact on entrepreneurial outcomes and their malleability over time (Dweck, 2008, 2017; Luthans, Avolio, et al., 2007).

The dissertation establishes the theoretical roots of psychological micro-foundations (Barney & Felin, 2013) within the context of entrepreneurship. It seeks to create an understanding of how intrinsic psychological factors of entrepreneurs - not just their observable behaviors or demographic characteristics - play a crucial role in shaping entrepreneurial activities and outcomes. It emphasizes the importance of focusing on individual psychological processes and their impact on entrepreneurial success in three studies.

Study one highlights the central role of PsyCap at the individual level, especially in crises. Demonstrating that SME leaders with high PsyCap are more likely to adopt investment rather than cost-cutting strategies underlines the affective and cognitive underpinnings that influence strategic decision-making and, ultimately, business performance. This study not only confirms the triadic relationship between cognitive, affective, and behavioral elements but also demonstrates the direct and mediated effects of psychological micro-foundations on entrepreneurial outcomes.

Transitioning from the individual to the collective level, study two examines OPC and its impact on SME performance during the COVID-19 crisis. By highlighting the significant positive effects of OPC on economic performance, creative innovation, and social value-creating behavior, the study extends the application of the dissertation conceptual model to a collective context. It illustrates how collective psychological resources can influence organizational behavior and outcomes, consistent with the dissertation's focus on psychological micro-foundations as tools for navigating and orienting in a volatile world.

Finally, study three delves into the specific entrepreneurial context of the Mittelstand and contributes to a nuanced understanding of the mindset that underpins this unique form of entrepreneurship. By conceptualizing the Mittelstand Mindset, the study broadens the spectrum of EMs examined in research and challenges the dominance of the Silicon Valley model. This attempt to characterize the cognitive, affective, and behavioral elements of the Mittelstand Mindset enriches the discourse on EM by adding the perspective of psychological micro-foundations in entrepreneurship.

By opening a new approach for future research, the dissertation addresses a gap in the literature by providing a structured investigation of the interplay between affective, cognitive, and behavioral dimensions that constitute psychological micro-foundations in entrepreneurship. It shows that psychological micro-foundations, whether at the individual or collective level, significantly influence strategic decisions, behaviors, and performance outcomes in entrepreneurial contexts. By including the Mittelstand in the discussion, the dissertation calls for a broader appreciation of the different forms of entrepreneurship and the psychological micro-foundations that contribute to societal stability and sustainability. Therefore, not only is the Mittelstand Mindset analyzed in this dissertation of research interest, but also the potential different manifestations of EM that might reflect the continuum of entrepreneurship. This study lays the foundation by developing a conceptual framework for approaching a measure. In sum, the dissertation emphasizes the importance of psychological micro-foundations in understanding entrepreneurial success, positioning them as essential components for future entrepreneurship research and practice across various levels - micro, meso, and macro -, for different types of entrepreneurial activities, and at various stages of development.

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Appendix

Appendix 1. Questions on investment and cost-cutting measures.

Variable	Questions
Investment Measures	To deal with the challenges of the COVID-19 pandemic, our company... ... developed an aggressive sales strategy to increase revenue. ... increased investments in more efficient equipment and processes to reduce costs. ... expanded research and development activities to secure our market position. ... increased its use of information-gathering measures. ... introduced a management concept with target agreements and profit incentives. ... implemented major organizational changes.
Cost-Cutting Measures	To deal with the challenges of the COVID-19 pandemic, our company... ... cut the operating budgets of all divisions. ... enforced across-the-board cuts in the budgets of all departments or divisions. ... reduced the number of employees. ... eliminated products that were only marginally profitable to reduce costs. ... cut expenses on office materials, entertainment allowances, and travel. ... reduced the decision-making powers of department and field managers. ... fired managers from departments with weak results.

Source: Smart & Vertinsky (1984)

Appendix 2. Controls.

Control path	Path coefficients	T-values (p-values)	Effect significant
Employees → Performance	-.033	.718 (.473)	No
Employees → Cost-Cutting Measures	.032	.758 (.448)	No
Employees → Investment Measures	.062	.994 (.320)	No
Firm age → Performance	.004	.079 (.937)	No
Firm age → Cost-Cutting Measures	-.021	.433 (.665)	No
Firm age → Investment Measures	-.146	2.506 (.012)	Yes
Industry - Manufacturing → Performance	-.021	.273 (.785)	No
Industry - Manufacturing → Cost-Cutting Measures	-.016	.208 (.853)	No
Industry - Manufacturing → Investment Measures	-.135	1.158 (.247)	No
Industry - Service → Performance	.035	.468 (.640)	No
Industry - Service → Cost-Cutting Measures	.092	1.194 (.233)	No
Industry - Service → Investment Measures	-.057	.501 (.616)	No
Age → Performance	-.016	.376 (.707)	No
Age → Cost-Cutting Measures	-.020	.388 (.698)	No
Age → Investment Measures	-.097	1.550 (.121)	No
Female → Performance	-.053	1.202 (.229)	No
Female → Cost-Cutting Measures	.015	.316 (.752)	No
Female → Investment Measures	-.024	.353 (.724)	No
Crisis-affected → Performance	-.366	7.172 (.000)	Yes
Crisis-affected → Cost-Cutting Measures	.452	10.227 (.000)	Yes
Crisis-affected → Investment Measures	.151	2.514 (.012)	Yes

Source: Own calculation.

Appendix 3. Controls SEM Model.

Control Path	Path coefficients	T-values (p-values)	Effect significant
Employees → Org. Citizenship Behavior	.031	.636 (.525)	No
Employees → Cooperation	.069	1.622 (.105)	No
Employees → Solidarity	.036	1.010 (.313)	No
Employees → Creative innovation	-.011	.342 (.732)	No
Employees → Performance	.015	.313 (.754)	No
Firm Age → Org. Citizenship Behavior	-.112	2.226 (.026)	Yes
Firm Age → Cooperation	-.034	.652 (.515)	No
Firm Age → Solidarity	-.011	.218 (.827)	No
Firm Age → Creative innovation	-.077	1.958 (.050)	Yes
Firm Age → Performance	-.011	.201 (.841)	No
Industry - Manufacturing → Org. Citizenship Behavior	-.125	1.503 (.133)	No
Industry - Manufacturing → Cooperation	-.126	1.450 (.147)	No
Industry - Manufacturing → Solidarity	.018	.185 (.853)	No
Industry - Manufacturing → Creative innovation	-.126	1.954 (.051)	No
Industry - Manufacturing → Performance	-.028	.370 (.712)	No
Industry - Service → Org. Citizenship Behavior	.101	1.248 (.212)	No
Industry - Service → Cooperation	-.002	.026 (.979)	No
Industry - Service → Solidarity	.079	.823 (.410)	No
Industry - Service → Creative innovation	-.007	.114 (.909)	No
Industry - Service → Performance	-.034	.461 (.645)	No
Female → Org. Citizenship Behavior	.073	1.564 (.118)	No
Female → Cooperation	.067	1.256 (.209)	No
Female → Solidarity	-.020	.383 (.701)	No
Female → Creative innovation	.047	1.228 (.219)	No
Female → Performance	-.078	1.841 (.066)	No
Crisis-affected → Org. Citizenship Behavior	-.042	.792 (.429)	No
Crisis-affected → Cooperation	.132	2.418 (.016)	Yes
Crisis-affected → Solidarity	-.056	.987 (.324)	No
Crisis-affected → Creative innovation	.061	1.406 (.160)	No
Crisis-affected → Performance	-.450	10.549 (.000)	Yes

Source: Own calculation.

Eidesstattliche Erklärung

Hiermit versichere ich, dass ich die vorliegende Arbeit selbstständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt habe, insbesondere keine anderen als die angegebenen Informationen aus dem Internet.

Diejenigen Paragraphen der für mich gültigen Promotionsordnung, welche etwaige Betrugsversuche betreffen, habe ich zur Kenntnis genommen.

Der Speicherung meiner Arbeit zum Zwecke der Plagiatsprüfung stimme ich zu. Ich versichere, dass die elektronische Version mit der gedruckten Version inhaltlich übereinstimmt.

Ann-Christin Grözinger

Siegen, 10. Oktober 2024