

# Strategies to evoke entrepreneurial behavior in middle managers: involvement in strategy development and the creation of psychological ownership

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## Abstract

**Purpose** – While existing research has enhanced our understanding of job and work environment characteristics that promote middle managers' entrepreneurial behavior, recent studies have begun to explore the psychology behind the development of such behavior. This study enriches such research by examining whether middle managers' psychological ownership (PO) mediates the relationship between their involvement in strategy development and their entrepreneurial behavior.

**Design/methodology/approach** – The results are based on a survey of 176 middle managers in Germany. Data analysis rests on partial least squares structural equation modeling.

**Findings** – The findings reveal that PO only mediates the relationship between middle managers' content-related involvement in strategy development and their entrepreneurial behavior, while this does not hold for their process-related involvement.

**Originality/value** – This study contributes to prior literature by providing a more fine-grained understanding of the psychology underlying middle managers' entrepreneurial behavior. It is the first to highlight the role of strategy involvement and PO in this process.

**Keywords** Middle managers, Strategy development, Psychological ownership, Entrepreneurial behavior

**Paper type** Research paper

## Introduction

Globalization, increasing competition and rapid technological progress challenge companies and demand skills to master these and other priorities. To remain or become successful and to gain competitive advantage, companies need to engage in innovation, opportunity recognition and exploitation (Rigtering and Weitzel, 2013). However, the achievement of such goals is not just limited to top managers' behavior and choices, but, increasingly, middle managers' entrepreneurial

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behavior is seen as key driver for organizations' growth, profitability and success (de Jong *et al.*, 2015; Kellermanns *et al.*, 2008; Newman *et al.*, 2019).

Middle managers' entrepreneurial behavior has thus received increased research attention and generally refers to their idea generation, opportunity recognition, risk-taking and proactiveness (Clark *et al.*, 2024a, b; Covin *et al.*, 2020; Kuratko *et al.*, 2005a). Middle managers' entrepreneurial behavior is closely tied to their individual entrepreneurial orientation, which stems from their personal beliefs and actions (Clark *et al.*, 2024b). As such, entrepreneurial behavior can be understood as proactive, self-initiated actions that are undertaken at the discretion of middle managers (Clark *et al.*, 2024b; Covin *et al.*, 2020). Nonetheless, prior research has examined how middle managers can be encouraged to adopt entrepreneurial behaviors, for instance, through the examination of interim effects regarding middle managers' subordinates or their superior top managers (Heyden *et al.*, 2017; Gjerde and Alvesson, 2020). Additionally, the existence and perception of organizational factors that promote middle managers' entrepreneurial behavior – such as management support, work discretion/autonomy, time availability, reward systems and low organizational boundaries (Hornsby *et al.*, 2009; Kuratko *et al.*, 2005a, b), as well as the formal/informal work context and job-/role related factors (de Jong *et al.*, 2015; Mustafa *et al.*, 2018; Rigtering and Weitzel, 2013) – have been studied. Moreover, recent studies shed light on middle managers' active role in driving strategic change or innovation initiatives (Heyden *et al.*, 2017; Tarakci *et al.*, 2018). While such relationships have been uncovered, there have been voiced calls for a more in-depth examination of these dynamics, including calls for research on the underlying psychology that might link the aforementioned factors to middle managers' entrepreneurial behavior (Ates *et al.*, 2017; de Jong *et al.*, 2015; Mustafa *et al.*, 2016, 2018).

For example, Tarakci *et al.* (2023) criticize that prior research tended to unify middle managers in fulfilling their role in the middle and most often has treated them as a homogenous group that might respond to organizational factors in the same way. However, this might not be suitable for examining middle managers' (entrepreneurial) behavior as it might be strongly influenced by their identities, personalities and individual preferences (Soltanifar *et al.*, 2023). Thus, it is "high time to see middle managers as people" (Tarakci *et al.*, 2023, p. 1677) that are affected by their personalities and emotions (Ates *et al.*, 2017; Bardon *et al.*, 2017). In particular, recent studies indicate that individuals' psychological factors such as their organizational identification (Tarakci *et al.*, 2018), their identity (Gjerde and Alvesson, 2020; Madjdi and Zolfaghari, 2023) and emotions (Cardon *et al.*, 2009) play a pivotal role in explaining middle managers' entrepreneurial behavior.

This study builds on such research and investigates whether middle managers' psychological ownership (PO) mediates the relationship between their involvement in strategy development and their entrepreneurial behavior. Such research seems relevant and needed for various reasons.

First, middle managers' involvement in strategy development has not yet been studied as a potential antecedent for their entrepreneurial behavior. Strategy involvement is a factor fitting between a work/job-related and organizational context in the sense that there is variation between organizations in terms of how much they involve middle managers in strategy involvement (Floyd and Wooldridge, 1992; Splitter *et al.*, 2023). But also within individual organizations, some middle managers might be more involved in strategy development than others due to their work/job descriptions (Raman, 2009; Tarakci *et al.*, 2023; Van Rensburg *et al.*, 2014; Wooldridge and Floyd, 2017). Thereby, middle managers' involvement in strategy development can be viewed as a work-design element or a part of middle managers' job description, over which they have little control. From a theoretical perspective, strategic involvement is thus one, if not the most important, organizational factor impacting middle managers' roles, distinguishing between more or less influential middle managers within their employer organization (Wooldridge and Floyd, 2017). If middle managers are more involved in strategy development, it can be expected that due to such involvement, they experience more room for being entrepreneurial in terms of shaping the organization's course of action (see also

Mair, 2017). Strategy involvement could thus be an important, but so far unexamined, antecedent for middle managers' entrepreneurial behavior.

Second, given the high relevance of psychology in shaping middle managers' entrepreneurial orientation (Ates *et al.*, 2017; Tarakci *et al.*, 2018, 2023), it can be assumed that the relationship between middle managers' strategy involvement and their entrepreneurial orientation is shaped by psychological factors. PO can be expected to be a particularly important factor here. That is, higher levels of middle managers' involvement in strategy development can be expected to create stronger feelings of being able to shape a firm's strategy and thus perceiving the firm as "their own." In turn, such PO may give middle managers the feeling that they can contribute to shaping the firm's course and thus act entrepreneurially. For instance, Gjerde and Alvesson (2020) and Bardon *et al.* (2017) demonstrate that middle managers' identity and their identification with the organization exert a significant influence on their behavior. Individuals' identity is also an underlying motive of PO (Pierce *et al.*, 2001, 2003). Thus, middle managers' PO can be expected to impact their entrepreneurial behavior, but has received little research attention thus far. It may thus not only be the *existence* and one's *perception* of organizational and job/work-related factors that allows for the development of middle managers' entrepreneurial behavior – as it is suggested by Hornsby *et al.* (2009) and Kuratko *et al.* (2005a, b). Rather, as middle managers' participation in organizational affairs could create powerful psychological situations, a psychological experience that is triggered by such factors might drive middle managers to behave entrepreneurially (cf. Kollmann *et al.*, 2020; Mustafa *et al.*, 2016, 2018). In particular, PO towards the company could be seen as such a psychological factor and key determinant for driving pro-organizational behaviors including entrepreneurial behavior (Sieger *et al.*, 2013; van Dyne and Pierce, 2004). Based on these arguments, this study addresses the following research question:

*RQ1.* Does psychological ownership mediate the relationship between middle managers involvement in strategy development and their entrepreneurial behavior?

By combining literature on strategy development, middle managers, entrepreneurial behavior and PO, this study provides a more fine-grained understanding of both the psychology underlying middle managers' entrepreneurial behavior as well as the psychological dimension of their involvement in strategy work, as called for by Mair (2017), Wang *et al.* (2022), and Wooldridge *et al.* (2008). Additionally, this study extends prior research on the antecedents of middle managers' entrepreneurial behavior by providing a thus far unexamined psychological link (i.e. PO) that allows organizational factors to translate into entrepreneurial behavior (Kuratko *et al.*, 2005a, b; Rigtering and Weitzel, 2013). The study thereby bridges the hitherto mostly disconnected literature on middle managers' strategy involvement (e.g. Wooldridge *et al.*, 2008) and their role in creating corporate entrepreneurship (e.g. Urbano *et al.*, 2022; Soltanifar *et al.*, 2023).

The following sections of this paper provide: first, an overview of related literature and the development of hypotheses; second, the methods used to test the hypotheses; and third, the results. The paper concludes with a discussion of the findings in terms of their theoretical and practical implications as well as the study's limitations and future research needs.

## Theoretical background and hypotheses

### *Psychological ownership*

PO is defined as the "state in which individuals feel as though the target of ownership or a piece of that target is 'theirs'" (Pierce *et al.*, 2003, p. 86). Thus, PO refers to feelings of ownership and a sense of possession (van Dyne and Pierce, 2004), in which the target of ownership is experienced to "have close connections with the [individual's] self" (Pierce *et al.*, 2003, p. 5). Accordingly, PO describes a psychological bond forged by an individual and the target of ownership, such as a middle manager and his/her employing organization

(Pierce *et al.*, 2004). If middle managers experience feelings of ownership, they feel as though the organization is “theirs” (Pierce *et al.*, 2001).

The prior literature has identified three “roots” of PO that explain why middle managers may develop feelings of PO (Pierce *et al.*, 2001, 2003). Specifically, these ownership feelings enable middle managers to fulfill their inherent needs for (1) being efficacious, (2) defining and expressing their self-identity, and (3) having a place to dwell (Pierce *et al.*, 2001, 2003). Moreover, Pierce *et al.* (2001, 2003) highlight three major routes through which individuals develop PO: controlling the ownership target, gaining intimate knowledge about the ownership target, and investing the self into the ownership target. First, control, a fundamental characteristic of ownership, is an individual’s perception that one could produce positive outcomes due to skills, abilities and knowledge (Liu *et al.*, 2012; Pierce *et al.*, 2001; Zhang *et al.*, 2021). If the amount of control an individual can exert over a target object is high, the individual will be more likely to experience PO (Pierce *et al.*, 2001, 2003; Zhang *et al.*, 2021). Second, intimate knowledge about the target of ownership could lead to feelings of ownership as more information can deepen the relationship between an individual’s self and the target object (Pierce *et al.*, 2001, 2003). Finally, investing the self into the target of ownership “allows an individual to see their reflection in the target and feel their own effort in its existence” (Pierce *et al.*, 2003, p. 17) and thus may lead to PO.

Prior research has examined several organizational factors resonating with the three mentioned routes above that allow for the development of PO. These factors include participation in decision-making, stock ownership or profit sharing (Henssen and Koiranen, 2021; Liu *et al.*, 2012). Moreover, there is empirical evidence for the positive effects of empowering, transactional, transformational and ethical leadership on PO (Bernhard and O’Driscoll, 2011; Kim and Beehr, 2017). Additionally, research has examined the consequences of PO, such as organizational commitment (Liu *et al.*, 2012), job satisfaction (Bernhard and O’Driscoll, 2011), or organization-based self-esteem (Liu *et al.*, 2012). Prior studies also identify stewardship, entrepreneurial, and knowledge-sharing behavior as well as increased creativity as outcomes of PO (Feldermann and Hiebl, 2022; Henssen and Koiranen, 2021; Sieger *et al.*, 2013; Zhang *et al.*, 2021). As a result, these outcomes make it desirable for firms to strive for employees to experience high degrees of PO (Pierce *et al.*, 2003). However, the degree of middle managers involvement in strategy development has not yet been investigated as a potential antecedent of PO.

#### *Involvement in strategy development and psychological ownership*

Strategy development can be defined as “a more or less formalized, periodic process that provides a structured approach to strategy formulation, implementation and control” (Wolf and Floyd, 2017, p. 1758). It aims to influence the strategic direction of an organization in general, as well as to coordinate and integrate deliberate and emerging decision-making regarding strategy (Wolf and Floyd, 2017). However, as argued by Wooldridge and Floyd (1990, p. 240), “who is involved [in strategy development] may be every bit as important as how they are involved”. While strategy development has traditionally been the domain of top management, there is a rising interest in middle managers’ and other organizational actors involvement in strategy development, which is mostly induced by the top (Floyd and Wooldridge, 1997; Hutz *et al.*, 2017; Splitter *et al.*, 2023; Stadler *et al.*, 2021; Van Rensburg *et al.*, 2014). That is, it is usually not the middle managers themselves who can decide on their strategy involvement, but middle managers’ involvement heavily depends on top managers and how far they let middle managers participate in strategy development (Van Rensburg *et al.*, 2014). As a result, substantial variance in terms of middle managers’ strategy involvement can be observed in practice (Floyd and Wooldridge, 1992; Raman, 2009; Van Rensburg *et al.*, 2014).

Regarding “how” middle managers could be involved in strategy development, prior research indicates that such involvement can be either more content- or process-related, or both (Ehrhart *et al.*, 2017; Floyd and Wooldridge, 1992). When middle managers take part in strategic

decisions or are influential with respect to strategic content, such involvement can be labeled content-related, whereas when they are involved in the provision of strategically relevant information or the preparation of schedules and strategy workshops, such involvement can be labeled more process-related (Ehrhart *et al.*, 2017; Floyd and Wooldridge, 1992).

Regardless of the specific mode, prior research on middle managers' involvement in strategy development provides evidence that it could affect firm-level outcomes such as organizational performance, efficiency, growth, quality, innovation and creativity positively (Heyden *et al.*, 2017; Wang *et al.*, 2022; Wooldridge and Floyd, 1990). However, firm-level outcomes of managerial involvement in strategy development could hardly be achieved without effects on the individual middle-manager level first (Ates *et al.*, 2017). That is, as it has been argued that middle managers' participation in strategy making may change their psychology, attitudes, and behaviors (Ates *et al.*, 2017), it seems likely that their feelings of PO will be affected as well.

However, little is known about the psychological factors associated with middle managers' involvement in strategy development. Correspondingly, Wang *et al.* (2022) call for research to explore the psychological dimensions of middle managers' involvement in strategic affairs in more depth. Indeed, middle managers' involvement in strategy development could cause them to experience PO for the following reasons. First, having control over organizational affairs is seen as an inevitable route for middle managers to develop feelings of ownership (Liu *et al.*, 2012; Pierce *et al.*, 2001; Zhang *et al.*, 2021). A way to control organizational affairs and thus to develop feelings of ownership is to involve middle managers in strategy development, as it allows them to coordinate different organizational functions and to take part in strategic decision-making (Ehrhart *et al.*, 2017; Liu *et al.*, 2012). Second, investing one's self in terms of time, energy, and other personal resources into the strategic affairs of the ownership target can enhance the development of PO (Pierce *et al.*, 2001; Zhang *et al.*, 2021). Participation in strategy development requires middle managers' investment of time, skills and knowledge necessary for such strategy work and thus might increase feelings of ownership. Third, involvement in strategy development might allow middle managers to perceive that they successfully take part in strategically relevant actions and to master strategic tasks, which in turn might lead to experienced self-efficacy, and could enhance the development of PO (Fay and Frese, 2001; Pierce *et al.*, 2001; Wang *et al.*, 2022). The described mechanisms can be expected to hold for both content- and process-related involvement because, in both modes, middle managers invest "themselves" in strategically relevant matters, get a closer understanding of their organizational leaders' actions and may experience increased control over their employer organization's strategy. Thus:

- H1. Content-related involvement of middle managers in strategy development is positively related to their psychological ownership.
- H2. Process-related involvement of middle managers in strategy development is positively related to their psychological ownership.

#### *Involvement in strategy development, psychological ownership and entrepreneurial behavior*

Based on previous research, Kuratko *et al.* (2005a, b) and Rigtering and Weitzel (2013) identify three core characteristics of middle managers' entrepreneurial behavior in existing organizations. First, idea generation, opportunity recognition and idea implementation refer to the discovery and exploitation of entrepreneurial and profitable opportunities and ideas (Kuratko *et al.*, 2005a; Sieger *et al.*, 2013). Second, proactiveness refers to doing "what it necessary to bring pursuit of an entrepreneurial opportunity to competition" (Kuratko *et al.*, 2005b, p. 277). Third, risk-taking refers to employees who challenge the status quo rather than passively adapt to it, and who might act even without permission of their superiors or sell controversial issues (Fay and Frese, 2001; Rigtering and Weitzel, 2013). While these three

components of entrepreneurial behavior were suggested several years ago, more recent definitional work still sees them as core components of such behavior (e.g. [Covin et al., 2020](#); [Clark et al., 2024a, b](#); [Pidduck et al., 2023](#)).

At the same time, this view of entrepreneurial behavior covers the core of being entrepreneurial, namely innovation, and allows for different degrees of entrepreneurial behavior ([Clark et al., 2024a](#)). This is important for this study since actors such as middle managers may be restricted in their entrepreneurial behavior due to a lack of resources or a lack of granted agency ([Clark et al., 2024b](#)). Indeed, as indicated above, such a lack of agency may apply particularly in situations where top managers do not allow middle managers to participate in strategy development. In such situations, middle managers might not be able to materially alter the course of their organization and thus act entrepreneurially. However, if they are granted involvement, a positive effect on middle managers' entrepreneurial behavior can be expected for the following two reasons.

First, middle managers' involvement in strategy development could be seen as form of management support that might function as signal that the organization's top managers are confident about their middle managers' abilities to master strategic tasks ([Van Rensburg et al., 2014](#)). This in turn could cause feelings of empowerment and self-efficacy, which might strengthen middle managers' trust in their organizational leaders ([Lee et al., 2017](#); [Mustafa et al., 2018](#)). Indeed, previous studies have shown that middle managers' empowerment and trust in top managers are important factors for promoting creativity and entrepreneurship ([Lee et al., 2017](#); [Rigtering and Weitzel, 2013](#)). Second, to pursue entrepreneurial opportunities and encourage entrepreneurial behavior, resource availability and allocation through a formalization of systems and processes are vital ([Mustafa et al., 2018](#); [Williams et al., 2021](#)). By processing information, coordination and planning as well as by shaping these processes (process-related involvement in strategy development), middle managers could be impactful in the deployment of resources ([Erhart et al., 2017](#)). Thus, process-related involvement in strategy development might enable middle managers to carve out resources for themselves, which they can then use entrepreneurially, as well as to create an entrepreneur-friendly work environment for employees, which allows others to engage in entrepreneurial behavior. Indeed, helping others to engage in entrepreneurial behavior is a characteristic of entrepreneurial behavior itself ([Mustafa et al., 2018](#); [Sieger et al., 2013](#); [Wang et al., 2022](#)). Accordingly, process-related involvement in strategy development might contribute to an entrepreneur-friendly work environment, which allows middle managers and other employees to engage in entrepreneurial behavior. Thus:

*H3. Process-related involvement of middle managers in strategy development is positively related to their entrepreneurial behavior.*

According to [Rigtering and Weitzel \(2013, p. 341\)](#), the formal work context of middle managers is characterized by "task specialization [that] can be divided into horizontal participation, the extent to which work activities are highly specialized, and vertical participation, the extent to which responsibilities are marked out". Involvement in strategy development could be seen as both vertical and horizontal participation, as it includes some responsibility about decision-making (vertical participation) as well as requires special knowledge and skills to perform strategy-related work (horizontal participation). Existing research has shown that vertical interventions in one's job design more favorably cause entrepreneurial behavior compared to horizontal interventions ([de Jong et al., 2015](#)). That is, the provision of freedom and power to act could be seen as stimulus for entrepreneurial behavior, as it encourages recognition and exploitation of opportunities ([Mustafa et al., 2018](#)). Thus, through involvement in strategy development, middle managers are in a position that allows for the embracement of novel and unique ideas and thus their engagement in entrepreneurial behavior ([Lee et al., 2017](#)). Such decision-making latitude regarding strategy development (i.e. content-related involvement) is particularly important for employees in managerial positions, such as middle managers, as it encourages the proactivity and risk-

taking that is essential for opportunity recognition and, thus, entrepreneurial behavior (Mustafa *et al.*, 2018). Ultimately, middle managers' content-related involvement in strategy development might result in their more pronounced entrepreneurial behavior. Thus:

H4. Content-related involvement of middle managers in strategy development is positively related to their entrepreneurial behavior.

However, scholars claim that behavioral alterations first require corresponding feelings related to this behavior (Sieger *et al.*, 2013). Indeed, feelings of ownership towards the company are a key determinant for developing entrepreneurial behavior for the following reasons. First, a motive for experiencing PO is an individual's inherent need for efficacy (Pierce *et al.*, 2001). Self-efficacy refers to middle managers who are confident that they can successfully take actions and master specific tasks (Fay and Frese, 2001; Newman *et al.*, 2019), which might lead them to explore and alter their organizational environment (Pierce *et al.*, 2001). One way to shape the organization's environment is to perform entrepreneurial tasks and engage in activities such as "generating new ideas, identifying and exploiting entrepreneurial opportunities" (Sieger *et al.*, 2013, p. 369). Therefore, self-efficacy and having control as underlying mechanisms that enhance PO may also be related to entrepreneurial behavior (Chouchane *et al.*, 2023; Sieger *et al.*, 2013). Second, feelings of ownership could induce middle managers to feel a deep responsibility for their organization, to invest their time and energy and to take risks in order to benefit and advance the cause of the organization (Pierce *et al.*, 2001; van Dyne and Pierce, 2004). Feeling responsible could also promote middle managers to reinforce organizational change, to generate ideas and exploit them (Pierce *et al.*, 2001; Sieger *et al.*, 2013). Thus, a sense of responsibility and investment of middle managers' resources should cause them to experience PO and, as a result, exhibit entrepreneurial behavior (Mustafa *et al.*, 2016). Third, PO might be associated with feelings of empowerment (Kim and Beehr, 2017; van Dyne and Pierce, 2004). Empowered middle managers believe that they have an impact and can act in a self-determined manner, increasing the likelihood that they will be innovative and creative (Sieger *et al.*, 2013), two important aspects of entrepreneurial behavior (Kuratko *et al.*, 2005b). Thus:

H5. Middle managers' psychological ownership towards their company is positively related to their entrepreneurial behavior.

#### *The mediating role of psychological ownership*

Prior research indicates that, to the extent organizational-level antecedents exist and are perceived, middle managers might be stimulated to engage in entrepreneurial behavior (Kuratko *et al.*, 2005a). However, a model based solely on the existence and perceptions of organizational antecedents for translating into entrepreneurial behavior is likely to be underspecified. The existence and perception of organizational antecedents that are supposed to enhance middle managers' entrepreneurial behaviors might not necessarily require them to feel and act like entrepreneurs. For example, Kollmann *et al.* (2020) argue that, on a team level, interaction patterns (such as participative decision-making) require psychological processes (such as identification) for a translation into outcomes (such as entrepreneurial orientation). This might also hold for an individual level, at which interaction patterns (such as involvement in strategy development) require a psychological experience (such as PO) to translate into outcomes (such as entrepreneurial behavior). However, the decisive factor might be a psychological experience – such as self-efficacy, identification or PO – that is triggered by and thus links organizational-level factors to individual-level behaviors (Mustafa *et al.*, 2018; Pittino *et al.*, 2018). There is initial evidence that psychological factors at the individual level play a significant role in the translation of organizational-level factors into entrepreneurial behavior (Kollmann *et al.*, 2020; Mustafa *et al.*, 2018). Although there is a rising interest in examining the relevance of self-efficacy and middle managers' identity in an entrepreneurial context (e.g. Bardon *et al.*, 2017; Gjerde and Alvesson, 2020), so far little is known about the

role of PO in the entrepreneurial process in existing organizations. This is somewhat surprising, as prior research indicates that emotions might play a decisive role in predicting entrepreneurial behavior (Cardon *et al.*, 2009; Hsu, 2013). For example, Hsu (2013) found that PO of entrepreneurs is positively linked to their intention to reenter a new business after a prior business exit. In a similar vein, a study by Zhu *et al.* (2017) shows that entrepreneurs experiencing high levels of PO show high levels of persistence with their venture despite setbacks. These exemplary studies focus on “entrepreneurs” in early stages of the entrepreneurial process. Regarding entrepreneurial behavior in existing organizations, Mustafa *et al.* (2016), Pittino *et al.* (2018), and Sieger *et al.* (2013) show that PO is associated with employee proactiveness and innovativeness and thus their entrepreneurial behavior. However, none of these studies places PO into a larger context of organizational factors that could enhance middle managers’ entrepreneurial behavior. In line with the above-developed direct-effect hypotheses, this study addresses this gap in literature by examining the role of PO as mediator between middle managers’ involvement in strategy development and their entrepreneurial behavior. Thus:

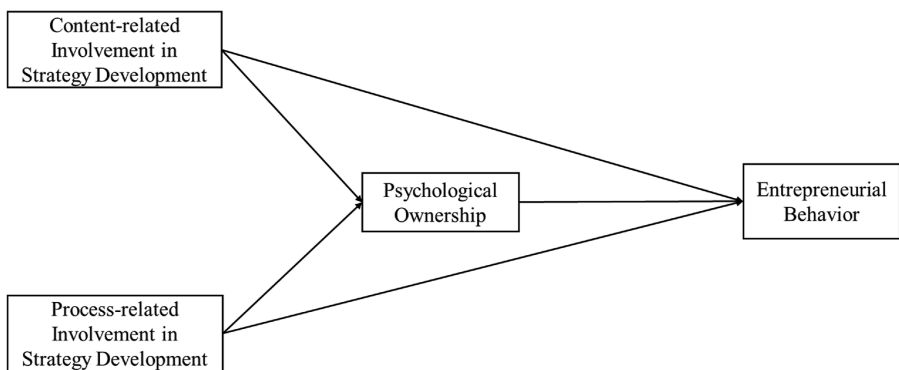
- H6. Middle managers’ psychological ownership mediates the relationship between their content-related involvement in strategy development and their entrepreneurial behavior.
- H7. Middle managers psychological ownership mediates the relationship between their process-related involvement in strategy development and their entrepreneurial behavior.

A summary of all hypotheses can be found in [Figure 1](#).

**Methods**

*Sample and data collection*

To test these hypotheses, this study draws on the survey responses of 176 financial managers of non-listed German companies with a minimum of 10 employees. The study focuses on one type of middle managers (i.e. financial managers) to keep the group of respondents as homogeneous as possible in terms of their usual corporate duties and not let the findings be disturbed by the surveyed middle managers’ varying corporate roles. Financial managers also represent a clearly identifiable group of middle managers that is known to feature varying degrees of involvement in strategy development (e.g. Erhart *et al.*, 2017; Weigel *et al.*, 2023), which is important for the analysis of the effects of such involvement. Smaller firms were



**Figure 1.** Theoretical model. Source: Authors’ own creation

excluded as they usually do not have clear financial manager positions (Erhart *et al.*, 2017). In addition, firms from the financial services industry were excluded due to their idiosyncratic organizational structures, strategy development and management control processes (Mair, 2017). The survey addressed the highest-ranked financial manager, which, depending on firm size or legal form, was the financial manager, head of accounting or the controller. All these positions usually can be classified as middle managers (Van Doorn *et al.*, 2023), and are more likely to be involved in strategy development than employees at lower hierarchical levels. Additionally, prior research indicates that employees at the managerial level are more likely seen to exhibit PO than employees at the operational level (cf. van Dyne and Pierce, 2004). Furthermore, entrepreneurial behavior is a key characteristic of organizational decision-makers, which holds for employees at the managerial level (cf. Kellermanns *et al.*, 2008).

To identify companies meeting the above criteria, archival data (e.g. company name and industry affiliation) was acquired from a leading German credit agency. The general email addresses of these firms (in the type of “office@firm.com”) were then identified, and email invitations with the request to forward the invitation to the firm’s highest-ranked financial manager were sent out. The data were collected in two rounds between March 2018 and July 2019. Two rounds were conducted to gain a higher number of cases for the empirical analyses. In both rounds, different respondents were approached, but the same questionnaire was used. Across both rounds, 10,550 invitations were sent out and 233 responses were received [1]. Due to missing data, 176 questionnaires were useable for the analyses below. Further information regarding the data collection process can be found in the [Online Supplementary Material](#).

### Measures

The questionnaire was developed based on previously tested and validated English-language measurement scales (see [Table A2](#) in the [online supplementary material](#) for all items).

*Entrepreneurial behavior.* For measuring entrepreneurial behavior (ENTR), a 7-point Likert scale created and validated by Sieger *et al.* (2013) was used.

*Involvement in strategy development.* For measuring middle managers’ involvement in strategy development, a multi-item construct by Erhart *et al.* (2017) was used. The scale consists of 7 items asking the respondents to indicate the extent to which the statements apply to them and their organization. While Erhart *et al.* (2017) ended up with a one-factor solution for such involvement, performing a principal component analysis has resulted in a two-factor solution referring to the two dimensions of middle managers’ involvement in strategy development: content-related involvement (INVOLV\_C), and process-related involvement (INVOLV\_P).

*PO.* PO was measured using a 7-point Likert scale originally developed by Pierce *et al.* (2004).

Besides these core variables of interest, several control variables were included in the below analyses. Among these, respondents’ age, gender and tenure were included (Chouchane *et al.*, 2023; de Jong *et al.*, 2015; Kellermanns *et al.*, 2008) as well as firms’ industry affiliation, size and age (Mustafa *et al.*, 2018). Moreover, to rule out the possibility that the two rounds of

**Table 1.** Effect sizes of the hypothesized relationships

	Effect size ( $f^2$ )	Effect
INVOLV_C → ENTR	0.003	No effect
INVOLV_C → PO	0.046	Small effect
INVOLV_P → ENTR	0.062	Small effect
INVOLV_P → PO	0.018	No effect
PO → ENTR	0.118	Medium effect

**Source(s):** Authors’ own creation

data collection (DataColl) might have affected the regression analysis results, a dummy variable coded 1 for the second wave of data collection and 0 for the first wave of data collection was created.

#### *Data analysis and tests for potential biases*

The results rely on structural equation modeling using Smart PLS, as it is particularly suitable for testing the hypothesized relationships (Hair *et al.*, 2010). As the survey is based on a single-respondent approach, common method bias might influence findings (Podsakoff *et al.*, 2003). To mitigate this bias *ex ante*, the measurements of the dependent and independent variables were separated in the questionnaire, respondents were secured complete anonymity, and extensive pre-tests of the questionnaire were conducted (Podsakoff *et al.*, 2003). *Ex post*, statistical controls such as Harman's single-factor test and the marker variable technique, were used (see the [online supplementary material](#) for further details). Based on the results of these tests, no indications of common method bias could be identified.

In addition, the potential issue of non-response bias was analyzed. In line with prior research, the firm size and industry affiliation of responding organizations were compared with those of non-responding organizations. A Mann–Whitney *U* test was performed for firm size and a chi-square test for industry affiliation. The results of these analyses (not tabulated) indicate that there were no significant differences between responding and non-responding organizations in terms of average size and industry affiliation, delivering no indications that the results would be affected by a non-response bias. Furthermore, to check for a potential bias due to multicollinearity concerns, variance inflation factors were calculated. The variance inflation factors range from 1.042 to 1.793 and thus are all well below the generally accepted threshold of 10 (Hair *et al.*, 2010). Finally, since the data was collected in two waves, it was checked if the data gathered from these groups are significantly different from each other. To rule out this possibility, a Mann–Whitney *U* Test for the main variables of interest was run. The asymptotic significance for all variables is  $> 0.05$  (untabulated). Since there is no significant difference between the means of the variables in the two rounds of data collection, no effect of the round of data collection could be identified.

## **Results**

The average company in the sample employed 291 employees and is 43.75 years old. 24% of the included companies belonged to the manufacturing sector, and the remaining 76% belong to the non-manufacturing sector, such as retail or other services. 73% of the participating middle managers were male and, on average, the respondents were 47.59 years old and have worked for their employer organization for 12.89 years. The correlations between all variables are presented in the [online supplementary material](#) (see [Table A1](#)).

#### *Measurement model*

To assess the constructs' reliability, Cronbach's alpha and composite reliability were used. To assess convergent validity, factor loadings and the average variance extracted was analyzed. To assess discriminant validity, the heterotrait-monotrait ratios (HTMT) were used (see [Tables A2 and A3](#) in the [online supplementary material](#)). The HTMT ratios are all below the generally accepted threshold of 0.9 and the results for the evaluation of the measurement model indicate that all criteria are above the generally accepted thresholds. Furthermore, the cross loadings and the Fornell-Larcker criterion were checked (see [Table A1](#) in the [online supplementary material](#)), both of which also indicate good discriminant validity.

#### *Structural model*

[Figure 2](#) provides an overview of the results of the hypothesized structural model. These results lend strong support to content-related involvement in strategy development serving as

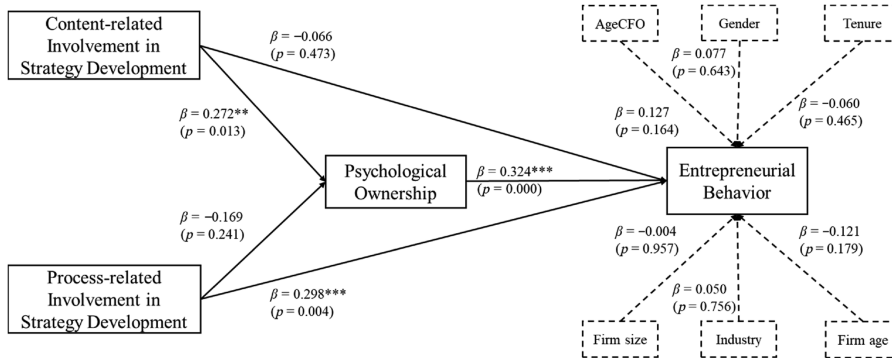


Figure 2. Results of structural model. Source: Authors' own creation

an antecedent of PO at a level of  $p = 0.013$ , which itself is an antecedent of entrepreneurial behavior at  $p = 0.000$  (see Figure 2). These findings support hypotheses H1 and H5. Contrary to the hypothesized assumptions, a significant relationship between middle managers' content-related involvement in strategy development and entrepreneurial behavior could not be found and H4 could not be confirmed. Additionally, a significant relationship between process-related involvement in strategy development and PO could not be found ( $p = 0.241$ ), and thus, hypothesis H2 needs to be rejected. By contrast, the findings confirm hypothesis H3 that suggested a significant effect ( $p = 0.004$ ) of middle managers' process-related involvement in strategy development on entrepreneurial behavior. The effect sizes of the hypothesized effects are shown in Table 1. The adjusted  $R^2$  for the structural model is  $0.154^{***}$  ( $p = 0.008$ ) and the  $R^2$  is  $0.198^{***}$  ( $p = 0.000$ ).

The results for the proposed fully mediated hypothesized model, as suggested in hypothesis H6 and hypothesis H7, are displayed in Table 2.

The results support hypothesis H6, which suggested that PO mediates the relationship between content-related involvement in strategy development and entrepreneurial behavior. In this case, the indirect effect is significant at  $0.088$  ( $p = 0.042$ ) and is statistically different from zero, as revealed by a 95% bootstrap confidence interval that is entirely above zero ( $0.014-0.182$ ), indicating that mediation occurs. Regarding the mediating effect of PO on the relationship between process-related involvement in strategy development and entrepreneurial behavior, as proposed in hypothesis H7, a significant mediation effect could not be found. Hypothesis H7 needs to be rejected for the following reasons: (1) No significant relationship between process-related involvement in strategy development and entrepreneurial behavior mediated by PO could be identified (indirect effect at  $\beta = -0.055$ ;  $p = 0.297$ ; see Table 2); and (2) a 95% bootstrap confidence interval ( $-0.175$  to  $0.032$ ) reveals that this indirect effect is not statistically different from zero.

Table 2. Indirect effects of the mediated hypothesized model

	Indirect effect	t-value	p-value	95% confidence interval	Significant?
INVOLV_C → ENTR	0.088	2.038	0.042	[0.014–0.182]	**
INVOLV_P → ENTR	-0.055	1.004	0.297	[-0.175–0.032]	

Source(s): Authors' own creation

## Discussion

This study investigated whether middle managers' involvement in strategy development is related to their entrepreneurial behavior and whether this relationship is mediated by their PO. Applying a mediation model to a sample of 176 financial managers in Germany, the findings reveal that only middle managers' process-related involvement in strategy development directly enhances their entrepreneurial behavior. In addition, the results indicate that PO only affects middle managers' entrepreneurial behavior in cases where their involvement is content-related, rather than process-related. Thus, PO was only found to mediate the relationship between middle managers' content-related strategy involvement and their entrepreneurial behavior, but not the relationship between process-related involvement and entrepreneurial behavior.

Combining literature on strategy development with insights from the theory of PO provides a more fine-grained picture on the psychology underlying managerial involvement in strategy development and how it translates into behavioral consequences. Such involvement in strategy development can give middle managers partial control over strategic organizational affairs, and as indicated by prior research, such control serves as an important route to develop feelings of ownership (Liu *et al.*, 2012; Pierce *et al.*, 2001, 2003). According to the present results, it seems that this mechanism only works when middle managers are highly involved in the contents of strategy development, and not when involved only in the strategy development process. Thus, it seems that *how* middle managers are involved in strategy development is at least as important as the question of *whether* they are involved. It could be that the empirical results are due to the idea that middle managers can develop the feeling that they are involved in shaping the corporate strategy through primarily content-related involvement, which they then accept as "their" strategy, leading to a psychological responsibility for the entire company. In contrast, such feelings do not appear to arise in the case of purely process-related involvement in strategy development, as middle managers may not have the feeling that they are influencing the content-related direction of their company. Thus, the present findings contribute to the growing literature on inclusive strategy processes, such as open strategy approaches, which emphasize greater involvement of organizational actors at all hierarchical levels in strategy development (e.g. Hautz *et al.*, 2017; Stadler *et al.*, 2021). Recent research on strategy development has identified several factors that enable the success of such inclusive processes, including the cultivation of employees' discursive competence (Splitter *et al.*, 2024). However, with the increased general involvement of employees in these processes, middle managers may face challenges in maintaining their role as key intermediaries in strategy development. This could lead to a weaker sense of attachment to their employer organization (Splitter *et al.*, 2023). This study's findings suggest that content-related involvement may hold greater significance for middle managers than mere process-related involvement in strategy development. This is particularly relevant when considering the creation of PO, which can be viewed as a key objective of contemporary inclusive strategy processes (Stadler *et al.*, 2021).

At the same time, the results suggest that, in the absence of PO, only process-related involvement in strategy development can lead middle managers to behave entrepreneurially. According to Williams *et al.* (2021, p. 4), "identifying novel and creative ways to bring, assemble, and transform resources to launch, grow, and sustain ventures" might help to "encourage and guide entrepreneurial behavior". One way to identify novel and creative ways to bring, assemble and transform resources may be middle managers' process-related involvement in strategy development, as it allows for processing information and resources, and coordinating planning and different organizational functions through allocation of information and other resources (cf. Erhart *et al.*, 2017). Surprisingly, it was found that, for middle managers not experiencing PO, their content-related involvement in strategy development is not related to their entrepreneurial behavior. This could be because middle managers who are involved in strategy development in terms of content, no longer try to get into this position and thus may lower or stop their entrepreneurial behavior altogether. Thus,

the present results could not confirm prior research, which suggests that decision-making latitude regarding a firm's strategy (i.e. content-related involvement) could encourage middle managers' opportunity recognition, proactivity and risk-taking as central elements of entrepreneurial behavior (Mustafa *et al.*, 2018).

These somewhat surprising results might also be due to the empirical focus on middle managers in financial positions. Such financial managers are nowadays responsible for organizing strategic planning processes in many firms (Erhart *et al.*, 2017; Weigel *et al.*, 2023), and in that case might enjoy process-related involvement in strategy development anyway. This may explain why their process involvement in strategy development does not lead to feelings of ownership. Only if they are involved in the content creation of strategy, this may change and indeed create PO due to their gained influence in shaping corporate strategies and thus accepting them as "their own". In turn, when rather being much involved in organizing the strategy development process, financial managers might realize the richness of opportunities they can have in proactively and creatively shaping corporate processes, which may involve more pronounced risk-taking, while not necessarily being able to influence the firm's overall strategy content-wise, which would only be accessible through strong content-related involvement. Nevertheless, these potential dynamics might explain the findings on the direct relationship between process-related involvement and financial middle managers' entrepreneurial behavior.

## Conclusions

### *Theoretical implications*

First, this study contributes to the literature on middle managers and strategy development. It addresses calls by Mair (2017), Wang *et al.* (2022), and Wooldridge *et al.* (2008) to deepen our understanding of the psychological dimensions of both middle managers' involvement in strategy work and of their behavior. While the relevance of middle managers for corporate entrepreneurship has long been acknowledged, empirical evidence on what enables middle managers to contribute to corporate entrepreneurship is still scarce (Mair, 2017; Mustafa *et al.*, 2016; Soltanifar *et al.*, 2023; Wooldridge *et al.*, 2008; Urbano *et al.*, 2022). Based on theoretical arguments and empirical evidence, this study shows that involving middle managers in strategy development can foster their entrepreneurial behavior. In the case of content-related involvement, this mechanism works through the creation of middle managers' PO. To the literature on middle managers' strategy involvement (e.g. Wooldridge *et al.*, 2008), this study thus adds a so-far unexamined effect of such involvement, namely the creation of middle managers' PO. In addition, this study contributes novel antecedents to middle managers' entrepreneurial behavior (cf. Mair, 2017; Mustafa *et al.*, 2016; Wooldridge *et al.*, 2008), and more generally implies that in order to foster such behavior, organizations may need to create the organizational prerequisites – in this case: integrating middle managers in strategy development – to get middle managers' psychological processes going (cf. Ates *et al.*, 2017) – in this case: the development of PO – to arrive at the often desired entrepreneurial behavior of middle managers. By doing so, the present study bridges the thus far mostly disconnected literature on middle managers in strategy development and the literature on corporate entrepreneurship (cf. Mair, 2017; Urbano *et al.*, 2022).

Second, this study contributes to the limited literature on the antecedents of entrepreneurial behavior of employees in existing organizations, especially psychological antecedents (e.g. Mustafa *et al.*, 2016, 2018). So far, prior research often refers to the *existence* and employees' *perception* of organizational and job- and work-related factors that could promote entrepreneurial behavior, but mostly neglects the psychology behind the development of such behavior (e.g. Hornsby *et al.*, 2002, 2009; Kuratko *et al.*, 2005a, 2005b; Rigtering and Weitzel, 2013). The present results provide empirical support for some scholars who suggested that psychological factors, such as PO, might play a decisive role for the translation of

*Practical implications*

While some businesses see corporate entrepreneurship and growth more as a risk than an opportunity (e.g. Falkner and Hiebl, 2015), many organizations seek ways to foster corporate entrepreneurship and corporate growth. For those businesses that want corporate entrepreneurship to flourish at the firm level, entrepreneurship needs to occur at the individual level first, which makes individual actors' entrepreneurial behavior so important (Hornsby *et al.*, 2002; Kuratko *et al.*, 2005). The present paper's results indicate that one way to foster middle managers' entrepreneurial behavior is to more closely involve them in strategy development processes. Should this not be restricted to only the strategy development process, but also entail content-related involvement, such involvement comes with the benefit that middle managers might develop strong feelings of PO.

While middle managers' PO and entrepreneurial behavior might hold many benefits (see above), firms should not forget that there are downsides as well. For instance, middle managers' entrepreneurial behavior can lead to resource misallocation and conflicts with strategic goals, potentially undermining organizational coherence and efficiency (Kuratko *et al.*, 2005). Additionally, it may result in increased risk-taking and short-term focus, which can detract from long-term stability and performance (Hornsby *et al.*, 2002). Thus, care should be taken when involving middle managers in strategy development. When they are involved in strategy content, the development of PO may inhibit such potentially negative outcomes of entrepreneurial behavior, but when only involved process-wise, middle managers' resulting entrepreneurial behavior should be monitored to avoid the mentioned downsides.

*Limitations and future research*

This study is subject to some limitations. First, although previous work on the antecedents of entrepreneurial behavior and effects of employee's involvement in strategy development supports the causal relationship argued for in this study, due to the cross-sectional design, causality between the variables of interest could not be proven. Future research that addresses a potential bidirectional or reversed effect between involvement in strategy development and entrepreneurial behavior (cf. Bernhard and O'Driscoll, 2011; Erhart *et al.*, 2017) and that may be based on longitudinal, time-lagged, or experimental data is needed. Second, data collection took place in Germany, which makes the generalizability of the results somewhat uncertain. Further studies are necessary to infer whether the presented findings might hold in other cultural settings, as there is some evidence that managers from different cultural backgrounds respond differently to factors that promote entrepreneurial behaviors (de Jong *et al.*, 2015). As the hierarchical level of responding managers might influence pro-organizational behaviors, such as entrepreneurial behavior, other scholars are encouraged to test the suggested relationships at different managerial levels (Hornsby *et al.*, 2009; Soltanifar *et al.*, 2023). Finally, the omission of variables could also pose a threat to the results. In this study, the focus was on the entrepreneurial behavior of middle managers because of their involvement in strategy development and feelings of ownership. However, middle managers' entrepreneurial behavior could also be affected by other independent or moderating variables that have not been considered. This study has focused on organization-based PO. This opens the opportunity for further research examining the effect of job-based PO on middle managers' entrepreneurial behavior. Furthermore, PO can be experienced as an individual or collective phenomenon (Henssen and Koironen, 2021). This study examined it on the individual level, but it could be worthwhile to examine if the identified effects on entrepreneurial behavior also unfold for collective PO. Such an approach would require an extension of the research focus away from a single manager involved in strategy development to the top management team, their members' roles and dynamics. Finally,

addressing multiple respondents through a dyadic or even triadic survey, especially with regard to the collaboration between top and middle managers as suggested by Heyden *et al.* (2017), could provide an even deeper understanding of the development of PO and entrepreneurial behavior of middle managers. Likewise, the underlying drivers of middle managers' involvement in strategy development cannot be assessed in this study. Such drivers might also affect middle managers' PO and their entrepreneurial behavior, but due to length restrictions in the underlying questionnaire, they could not be analyzed.

## Notes

1. As invitations were sent out to general corporate email addresses and not the personal email addresses of the financial managers, it is not possible to assess how many invitations actually reached the targeted financial managers. Hence, a response rate cannot be properly calculated in this study (cf. Hiebl and Richter, 2018).

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### Supplementary material

The supplementary material for this article can be found online.

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