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Empowering Autonomy? The Individual's Journey in Self-Managing Organizations

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Content

Extended Abstract

The novel organizational form of self-managing organization (SMO), which radically decentralizes decision authority throughout the organization, is frequently considered one approach to face the challenges in the knowledge-driven, volatile, uncertain, complex business environment of the 21st century. Besides increased business capabilities, the concept promises to benefit the employees and satisfy their needs for more purposeful work, thus being a more sustainable alternative to conventionally-managed, bureaucratic organizations. So far, the literature has considered SMOs only on a theoretical or case study level, focusing on organizational processes and outcomes. The individual stance has been neglected so far, which is problematic because the individual employees have a particularly relevant position for the functioning of self-managing systems, as the SMOs' core concept is distributing decision authority among all employees.

Therefore, this work investigated the resulting consequences and demands for employees in SMOs. This work analyzed the potential SMO-related change in the job characteristic autonomy, how it relates to the quality of work life, and which competencies employees need to thrive in SMOs. The current work included four studies: a systematic literature review, a qualitative interview study, and two quantitative cross-sectional survey studies. The literature review considered 84 studies of self-managing teams (SMTs). The qualitative study relied on critical incidents and concept mapping and considered a sample of SMO employees within the DACH region. The quantitative studies relied on data from employees who worked for an SMO and employees who worked for other organizations, which was analyzed using different types of regression analyses, path modeling, and group comparisons.

The results showed that individual autonomy, work engagement, and job satisfaction were higher in SMOs compared to other organizations. The identified competencies in SMOs showed similarities and differences with those of SMTs. The competencies for SMOs

revealed a stronger focus on self-leadership and entrepreneurial competencies. Additionally, person-environment fit (P-E fit) regarding autonomy was related to work engagement and emotional exhaustion in SMOs. Aspects of error orientation were higher in SMOs and partially moderated the relationship between autonomy and job crafting/work engagement.

Job crafting was higher in SMOs but not related to P-E fit. Only when strain from errors was low was high autonomy related to increasing social resources. Extraversion, openness, and low neuroticism were positively related to desired autonomy. Neuroticism and extraversion moderated the relationship between decision autonomy and work engagement.

Conclusively, job characteristics like job autonomy seem to be affected by the organizational changes in SMOs. The match with the ideal level of job autonomy is important beyond the absolute level. The results also showed that other competencies and behaviors, such as self-leadership or self-responsibility, were necessary for SMOs, even compared to SMTs. That supports the notion that SMOs differ in their requirements for employees compared to incremental approaches to decentralizing authority.

Consequently, as job characteristics change and different competencies are required, employees should be supported in transition phases or when joining an SMO. Therefore, hiring criteria, personnel and organizational development initiatives should consider the identified competencies and changed job characteristics. Strengthening error orientation in terms of developing a more constructive view of errors may also help improve when incremental approaches to hierarchy reduction are pursued. The findings can also inform practitioners in incremental approaches toward authority decentralization as corner cases help understand mechanisms that are not as salient in incremental approaches. Based on these findings, other job characteristics can be investigated in future research.

List of Scientific Publications of the Publication-based Dissertation

Manuscript 1

Doblinger, M. (2022). Individual competencies for self-managing team performance: a systematic literature review. *Small Group Research, 53*(1), 128–180. https://doi.org/10.1177/10464964211041114

Manuscript 2

Doblinger, M., & Class, J. (2023). Does it fit? The relationships between personality, decision autonomy fit, work engagement, and emotional exhaustion in self-managing organizations. *International Journal of Selection and Assessment*, 31, 420–442. https://doi.org/10.1111/ijsa.12440

Note. Doblinger, M. analyzed the data and wrote the manuscript. The data were part of Class, J.'s master's thesis, for which Doblinger, M. acted as sparring partner.

Manuscript 3

Doblinger, M. (2023). Autonomy and engagement in self-managing organizations: Exploring the relations with job crafting, error orientation and person-environment fit. *Frontiers in Psychology,* 14:1198196. https://doi.org/10.3389/fpsyg.2023.1198196

Further Relevant, Unpublished Manuscripts

Manuscript 4

Doblinger, M. (2023). Ready for self-management? Individual competencies in self-managing organizations.

Overview

This publication-based dissertation is structured into seven chapters.

Chapter 1 introduces the concept of organizations, particularly the novel form of self-managing organizations.

Chapter 2 provides an overview of how job characteristics affect employee outcomes, such as well-being.

Chapter 3 introduces the theory of person-environment fit and relevant prior research.

Chapter 4 introduces incremental approaches to authority decentralization, which can inform the research on SMOs.

Chapter 5 presents the research question of this dissertation based on the synopsis of the previous literature and thoughts.

Chapter 6 discusses the overall implications and limitations of this work.

Chapter 7 (appendix) contains the manuscripts.

Organizations and Self-managing Organizations

An organization is "a consciously coordinated social unit composed of two or more people that functions on a relatively continuous basis to achieve a common goal or set of goals" (Robbins & Judge, 2009, p. 6). This conscious coordination is usually ensured by structures, roles, and processes and occurs based on certain principles that distinguish different organizational forms. Although hierarchical structures already existed in archaic societies, organizations, as introduced above, only emerged in the 18th century (Kieser & Walgenbach, 2010). While membership in such organizations was voluntary, membership in the societal hierarchical system was inescapable, and thus, hierarchy in organizations needs separate consideration. Since then, organizations have developed, starting with a strong focus on Tayloristic principles and moving toward a focus on human relations. Overall, organizations based on managerial hierarchy stayed predominant.

Managerial Hierarchy and Its Limitations

Managerial hierarchy refers to an organizational design with multiple levels of authority, where each level controls the level below; thus, decision-making is centralized (Kieser & Walgenbach, 2010). Within this organizational design, different hierarchies are relevant. The hierarchy of authority allows managers to divide and allocate tasks, reward desired behaviors, and take measures to eliminate potential free riding of their hierarchically subordinate employees (Martela, 2019). The hierarchy of accountability, in turn, ensures that managers account for the work of their subordinated employees (Lee & Edmondson, 2017). Additionally, next to the formal hierarchy manifested by organizational charts (Diefenbach & Sillince, 2011), informal hierarchy, which is not claimed in any organizational chart but manifested in the behavior of organization members, among others by behaviors of dominance and deference or hierarchical speaking rules, has an impact in organizations (Diefenbach & Sillince, 2011; Oedzes et al., 2019).

Managerial hierarchies are supposed to increase efficiency and coordinate the organization's members toward the common goal. Therefore, only organization members in certain positions have the authority and accountability to make necessary, binding decisions for other organization members (Kieser & Walgenbach, 2010). Organization members must accept the rules within that hierarchy, limiting their possibilities to pursue their interests in exchange for their salary.

Previous literature pointed to the good performance of managerial hierarchy in stable environmental conditions but not in dynamic conditions (Burns & Stalker, 1994; Mintzberg, 1980). It was effective in ensuring the execution of known tasks but hindered solving non-routine, complex problems as it tended toward rigidity through its vertical top-down flow of directives (Adler, 2001; Adler & Borys, 1996; Burns & Stalker, 1961, 1994; Heckscher, 1994). Moreover, through the correlation of formal and informal hierarchy, managerial hierarchy comes with status differences resulting in behaviors of dominance and obedience that can hinder the employees' personal development, psychological safety, and creative thinking (Edmondson & Lei, 2014; Oedzes et al., 2019). Additionally, the need to include the managerial hierarchy slowed down decision-making processes, hindering organizational agility and responsiveness (Harraf et al., 2015).

These limitations became more critical, particularly in the last decades, as the market and business environment has increased in volatility, uncertainty, complexity, and ambiguity (VUCA), requiring complex problem-solving and novel solutions (Bennett & Lemoine, 2014; Mack et al., 2015; Starkey et al., 2000). Besides, with the increasing complexity, managers must rely on the competence of their expert team members, who could make more informed decisions. Moreover, these so-called "knowledge workers" also demanded more autonomy and responsibility (Langfred & Rockmann, 2016; Pérez-Zapata et al., 2016) and did not want to be patronized by a manager with less expertise in their specialist area. Additionally, the demand for a fulfilling job through more autonomy became more important among employees

of the younger generations (Hauw & Vos, 2010; Ng et al., 2010; Rawlins et al., 2008; Turco, 2016).

Decentralization of Authority in Organizations

Organizations have made different attempts to decentralize authority and reduce hierarchy in order to address the above-described shortcomings of managerial hierarchy in a dynamic, knowledge-driven environment. In their review, Lee and Edmondson (2017) distinguished between incremental and radical approaches toward less hierarchy. Incremental approaches reduce formal and informal hierarchy while maintaining the core principles of managerial hierarchy, whereas the radical ones fundamentally depart from it and abolish manager-subordinate relations. The radical approaches have raised scholars' and practitioners' attention just recently and contrast the taken-for-granted success principle of managerial hierarchy (Bernstein et al., 2016; Bernstein et al., 2014; Hamel, 2011; Laloux, 2014; Lee & Edmondson, 2017; Martela, 2019). This work focuses on the radical, novel approach of "self-managing organization" (SMO). Thus, the next section introduces SMOs and their potential implications.

Self-managing Organizations as a Novel Organizational Form

SMOs are characterized by the radical, organization-wide, and systematic decentralization of formal authority, which implies abolishing middle management and shifting substantially more power towards individual employees to empower teams and individuals (Lee & Edmondson, 2017). This decentralization occurs in a formalized way, making the authority distribution explicit, for instance, based on an employee handbook or a constitution, in which rules for decision-making, conflict resolutions, and others are specified (Lee & Edmondson, 2017). Furthermore, these rules for formalized decentralization must apply organization-wide, including every employee within the organization, regardless of the employee's function, seniority, or expertise (Lee & Edmondson, 2017).

According to Martela (2019), SMOs could be considered a novel organizational form because the main organizational challenges, the division of labor and the integration of effort (Puranam et al., 2014), were handled differently than in organizations based on managerial hierarchy. Manager-over-subordinate-power is almost nonexistent as middle management is abolished, and each employee holds specific rights (Martela, 2019). Employees and top management share the responsibility to create new tasks, and the employees allocate tasks, as they have sufficient authority to choose the roles and tasks for which they feel competent. The focus is on intrinsic motivating job conditions, and the employees themselves assume performance monitoring and accountability for each other (Martela, 2019). The employees are trained in explicit conflict resolution mechanisms to resolve conflicts and combat free riding. Furthermore, these organizations provide very high information transparency to enable every employee to make the best decisions in the interest of the whole organization (Martela, 2019). SMOs often rely on self-managing teams, which are teams responsible for specific issues, highly autonomous in their decisions, and highly self-managing (Cohen et al., 1996; Hackman, 1986). Organizations with managerial hierarchy (hereafter non-SMOs or conventional organizations) differ in those organizational core principles: For instance, task identification and distribution occur in top-down processes, supervisors allocate compensations and rewards, supervisors monitor and control work outputs, and broad information distribution is needless due to precise instructions and strict task boundaries (Martela, 2019).

Contrary to the frequent misconception, SMOs are usually not free from hierarchy, and the radical decentralization of authority must not be confounded with the absence of hierarchy. Specific roles could have more authority and accountabilities than others, but varying employees hold these roles and the corresponding authority temporarily (Lee & Edmondson, 2017). Additionally, some employees may gain more influence by their personal characteristics and interpersonal skills (Maier, 2013), and thus, natural, organic hierarchies are

built (Laloux, 2014). Nonetheless, in SMOs, "all employees hold well-defined decision rights that cannot be superseded by someone simply because s/he is the 'boss.' " (Lee & Edmondson, 2017, p. 40), which makes the distinctive difference compared to the managerial hierarchy.

SMOs and Their Alternative Approach to Management

SMOs reflect a new management paradigm that is based on different established theories. The business philosopher Laloux (2014) described in his seminal work the historical evolution of organizational forms, with every new form bringing new adaptive and disruptive principles. He introduced the concept of the "Teal Organization", an evolutionary organization characterized by self-management, wholeness, and evolutionary purpose. The principle of self-management equates to the radical authority decentralization in SMOs; wholeness refers to the invitation and possibility of employees to show their whole personality instead of merely the "professional mask"; and evolutionary purpose refers to the organization's purpose based on the assumption that the organization is a living entity (Laloux, 2014). Laloux (2014) argued that the development of Teal Organizations resulted from human evolution and that they could yield better organizational results and individual well-being through more sustainable, human, and purposeful work. Additionally, in contrast to voices that considered the applications of self-management restricted to areas with highly skilled employees (Reitzig, 2022), Laloux (2014) claimed that self-management can yield benefits in every field and irrespective of formal education or task area as the employees were also capable of assuming responsibility for decisions in their private lives. He further argued that as long as they have sufficient information on the organization and knowledge of the case, they can decide (with the support of peer consulting) on their own.

SMO Examples

Despite the precise definition of Lee and Edmondson (2017) and Martela's (2019) detailed description of SMOs, it is controversial which organizations can be considered "real" SMOs, and which are only incremental approaches towards authority decentralization. Martela (2019)

also confirmed in his analysis that just like "the bureaucracy", "the SMO" is an ideal form of organization that exists in its pure form only vary rarely, but more often in a variation. Still, using the ideal form of SMO to understand these variations provides more explanatory value than relying on other, more conventional organizational models (Martela, 2019).

For instance, it is controversial whether the popular framework of Holacracy could be considered an SMO. Holacracy is an organizational framework that removes the conventional person-oriented hierarchy and provides increased authority to each employee (Bernstein et al., 2016; Lee & Edmondson, 2017). The holacratic organization is organized into circles and corresponding roles, which are accountable for specific topics, and the constitution, a document where all rules and roles are described, steers it (B. J. Robertson, 2007). Within this framework, a hierarchy of roles related to work topics exists, which is repeatedly criticized as contradicting self-management principles (Campagne, 2014; Denning, 2014; Nixon, 2017). However, several scholars consider Holacracy as a form of SMO, as the hierarchy is not related to persons but roles that are fluent: One person can hold different roles, and roles are eliminated if no longer needed (Lee & Edmondson, 2017; Schell & Bischof, 2022). Thus, this hierarchy is not a manager-over-subordinate relationship with disciplinary power but a topic-related role hierarchy. Hence, in agreement with that argumentation, this work regards Holacracy as one form of SMO.

The following section describes three examples of SMOs to illustrate their prevalence and form of appearance. These exemplary organizations operate in different sectors, but all share the element of radical decentralization of decision authority.

The first example is the software company *Valve Corporation,* a successful, self-managed organization within the gaming industry that develops games, hardware, and a popular gaming platform. It was founded in 1996 and counted over 300 employees in 2022 (Valve Corporation, 2023). It has a flat structure, with the only formal disciplinary manager being the CEO (Puranam & Håkonsson, 2015). Decision authority is radically decentralized,

which means that the product portfolio, product staffing, and the work within the products are done bottom-up by the employees (Puranam & Håkonsson, 2015). There are managerial roles, such as project managers, but they are temporary, with varying individuals holding them, and thus, they are not a stable source of authority, which helps balance the informal hierarchy. Information is transparent in principle, but there are no formalized communication channels, and employees must seek the required information proactively (Foss & Dobrajska, 2015). Rewards are provided through a bonus system based on the peer performance assessment (Foss & Dobrajska, 2015; Puranam & Håkonsson, 2015).

The second example is *Arineo GmbH,* which accompanies medium-sized companies on the path to digitization. In 2022, Arineo GmbH counted 235 employees. Founded in 2018, the organization continuously worked on becoming an employee-owned company, which is planned to happen by 2024. The company developed its customized organizational model, the "kollegiale Organisation" (Arineo GmbH). Managerial tasks are distributed among all employees, and different employees assume certain leadership roles in line with their personal strengths and interests. Decisions should be made by the person most knowledgeable about the topic. Employees can decide on their own in consultation with their colleagues on which projects to work on and with whom to work. Developing and committing to rules and mutual feedback are important steering and control mechanisms. Earnings stay within the company, and the employees are free to decide on the use of the earnings (Arineo GmbH, 2023).

The third example is *Mobile Basel*, a successful social-psychiatric institution with 120 employees (Stamm & Kaegi, 2019). This organization was built in orientation toward Laloux's (2014) "Teal organization". The organization is structured in circles and provides its employees with radical transparency, including all business data and salaries (PromotionSanteCH, 2021). According to the managing directors, there is no hierarchy in the operating business, and relations on eye level are central. The employees are committed to jointly developing guiding principles and shared values. Explicit mechanisms enable effective

decision-making without hierarchy, for instance, consent or consultative individual decisions (PromotionSanteCH, 2021). The company experienced that their dynamic and flexible way of working enabled them to cope with the diminishing financial resources without affecting service quality (Stamm & Kaegi, 2019).

Implications and Challenges of Self-managing Organizations

SMOs are frequently considered an adaptive answer to the challenges of the increasingly VUCA environment of organizations in the 21st century as they allow employees to unfold their full potential and make the best decisions for the company (Laloux, 2014; Lee & Edmondson, 2017). Notably, the decentralization of authority has implications at different levels within the organization, and it promises several advantages from a societal, entrepreneurial, organizational, and individual perspective, including higher organizational innovation and sustainability or employee work engagement and job satisfaction (Carney & Getz, 2016; Laloux, 2014; Lee & Edmondson, 2017; Martela, 2019).

At the organizational level, Corbett-Etchevers et al. (2019) argued that innovation capability is increased in SMOs due to incentives for entrepreneurship, sharing of project management power, priority of skills and relational qualities, and the various interactions within and outside the organization. However, transforming an organization toward an SMO posed difficulties and challenges (Bernstein et al., 2016; Reitzig, 2022; Renkema et al., 2018; Schell & Bischof, 2022). Schell and Bischof's (2022) case study showed that while some employees happily accepted the self-managing structures, others tried to find or establish at least an informal person hierarchy. Supporting the employees to learn about the new system and adapt to the new structures, providing all relevant information in an easily accessible way, or delegating responsibility to the team was found critical in the organizational transformation towards SMOs (Renkema et al., 2018; Schell & Bischof, 2022). According to Lee and Edmondson (2017), formalizing the new rules of authority distribution was particularly important to avoid the fallback to the old structures of managerial hierarchy (Pfeffer, 2013).

Additionally, alternative career paths were required to motivate people to stay with the company as the typical horizontal pathway through management levels was not possible any longer (Corbett-Etchevers et al., 2019; Lyons et al., 2015; Schell & Bischof, 2022).

At the team level, principles of self-management may also lead to higher effectiveness and team performance, as known from the research on self-managing teams (Cohen & Ledford, 1994; Cohen et al., 1996). On the other hand, the transition towards self-managing teams also showed the criticality of adapting social processes within the team and supporting the teams in building the necessary self-management skills (Renkema et al., 2018). Employees often have different roles and work in different groups in parallel, which decreases stability and requires high coordination and self-leadership. Additionally, belonging to different work groups may have hampered building a group identity and required extra effort (Schell & Bischof, 2022). Although peer-based performance assessment may be more accurate than supervisory assessment because colleagues usually have more information about each other's performance, it also has some shortcomings. According to Foss and Dobrajska (2015), interpersonal skills become more critical for a positive assessment. Additionally, the performance of more extraverted peers may be overestimated, while the performance of more introverted peers may be underestimated due to less visibility. Thus, introverted employees may be disadvantaged and hindered from unfolding their full potential. Moreover, some former employees of Valve Corporation reported that the lack of a formal hierarchy might be filled by an informal hierarchy, which undermines the idea of authority decentralization (Foss & Dobrajska, 2015; Philippa Warr, 2013).

At the individual level, job characteristics that can function as resources or demands may be affected. According to prior theorizing about SMOs, employees are likely to experience a higher quality of work life, and employee performance may increase through higher sense-making of one's job, friendlier social ties, collective problem-solving, and higher control over one's workplace (Cohen et al., 1996; Corbett-Etchevers et al., 2019; Reitzig,

2022). For instance, higher job autonomy resulting from authority decentralization may satisfy the employees' need for autonomy and thus also increase the quality of work life (Deci & Ryan, 2008; Schaufeli & Taris, 2014).

On the other hand, abolishing the power-over relationship between supervisor and subordinate may reduce perceived social support. Reitzig (2022) argued that the decentralization of authority increased the workload for employees, as they did not only receive more autonomy but were also required to assume more responsibility. Accordingly, Dettmers and Bredehöft (2020) showed the increased need for designing one's job in case of high individual autonomy. SMOs demand that employees assume responsibility for their personal and professional learning and development and also define and develop their roles (Schell & Bischof, 2022). These processes may lead to conflicts, and employees must be able to resolve them as there are no managers to assume these tasks.

Additionally, Reitzig (2022) suggested that the individual personality may moderate the positive effect of job autonomy, as the preference for making decisions may vary as a function of certain personality traits. Moreover, he argued that individuals may also vary in their preference and cognitive ability for collective self-management. Consequently, Reitzig (2022) proposed selecting employees carefully as a critical success factor to avoid detrimental employee behavior, such as undermining teamwork.

Schell and Bischof (2022) observed that the role-based functioning of holacratic organizations disturbed the former employee identity as experienced in conventional organizations. The finite character of roles also required employees to adapt their way of working and open up to new roles, which could be challenging (Schell & Bischof, 2022). However, as roles became more dynamic, it became more feasible to find purposeful roles for oneself (Schell & Bischof, 2022). As the organizational structure was organic and dynamic, employees were required to continuously reflect on the purpose and identity of their circles and roles (Schell & Bischof, 2022).

Although many changes occur in SMOs, in this work, I will focus on the impact on the individual autonomy level, as it is a very prominent characteristic and has been found very powerful regarding employee well-being and job design in previous research. Importantly, employees may not automatically perceive higher autonomy despite decentralizing authority and formally increasing individual autonomy. Prior literature reported that although self-management may be encouraged in organizations, employees may still be under rigorous control and supervision and perceive little autonomy (Barker, 1993; Mills, 1983). For instance, normative systems, professional values, or organizational socialization processes can exert control over "self-managed" employees (Mills, 1983), or increased autonomy at the team level could decrease perceived autonomy at the individual level (Barker, 1993).

Conclusively, the findings about SMOs showed that the changes at the organization's level presumably also require and imply changes at the team and individual levels. So far, there has been only little research taking an individual stance. Therefore, this work focuses on resources and demands at the individual level. To this end, understanding the relationship between the job's characteristics and the individual's quality of work life is necessary. Thus, the following chapter will introduce relevant theories to understand the factors influencing the employees' quality of work life. These theories include the job characteristics and the job-demands resources model (Bakker & Demerouti, 2007; Hackman & Oldham, 1975), explaining how job characteristics relate to employee motivation, engagement, and health; the vitamin model (Peter Warr, 1990, 1994), explaining the effect of job characteristics on employee outcomes through their specific extents; and the person-environment fit theory, explaining the effect of job characteristics on employee outcomes through their fit with individual characteristics (Greguras & Diefendorff, 2009; Kristof-Brown et al., 2005).

Job Characteristics and Employee Outcomes

Several theories on work design, motivation, and health relate job characteristics to work engagement and burnout, for instance, the job characteristics model (Hackman & Oldham, 1975) and the job demands-resources model (Bakker & Demerouti, 2007).

Job Characteristics Model

The job characteristics model was a critical approach to explaining intrinsic motivation at work (Hackman & Oldham, 1975). The model proposed five core job characteristics that can evoke critical psychological states, eventually resulting in intrinsic motivation and high-quality performance. These core job characteristics include skill variety, task significance, task identity, autonomy, and feedback. According to the model, they foster the critical psychological states of meaningfulness, responsibility, and knowledge of results. A broad body of research confirmed the positive relationship between the core job characteristics and critical employee outcomes such as motivation and engagement (Fried & Ferris, 1987; Humphrey et al., 2007). While the model has proven its empirical validity regarding the relationship between job core characteristics and motivational outcomes, the role of the proposed psychological states was more controversial (Pierce et al., 2009; Renn & Vandenberg, 1995).

Job Demands-Resources Model

The well-established job demands-resources model (JD-R) describes the impact of job characteristics on employee well-being and includes motivational and health outcomes (Bakker & Demerouti, 2007; Demerouti et al., 2001). It distinguishes job characteristics in job resources and demands, which affect well-being differently. Job resources are those aspects that are either functional in achieving work goals, reducing the costs of job demands, or stimulating personal development. Therefore, they foster motivational processes, e.g., by enhancing engagement, and buffer the health-detrimental effect of job demands. In turn, job demands are the effort-requiring, cost-generating aspects of a job, and thus strain health and

energy due to effortful performance-protection strategies. The JD-R inspired many empirical studies and proved its validity in explaining the relationship between specific job characteristics and employee well-being (Crawford et al., 2010; Halbesleben, 2010; Nahrgang et al., 2011). Specific job characteristics can function as demand or resource depending on their utility or exigency in a particular context or combination with certain personal characteristics.

The model also includes personal resources to account for the interindividually different motivational and health outcomes despite encountering the same job conditions (Bakker & Demerouti, 2008). Personal resources refer to "the beliefs people hold regarding how much control they have over their environment." (Bakker & Demerouti, 2017, p. 275) and can affect motivation and health just like job resources. Additionally, personal and job resources can foster themselves reciprocally. Frequently considered personal resources were self-efficacy, optimism, or self-esteem (Bakker & Demerouti, 2008, 2017), but research also broadened the perspective and found evidence that other personal characteristics functioned as resources, such as career skills, emotional competence, mindfulness, and proactive coping (Akkermans et al., 2013; Buruck et al., 2016; Grover et al., 2017; Searle & Lee, 2015). Despite the good reputation of the theory, its high flexibility was criticized as it impeded exact predictions and testing of the theory (Bakker & Demerouti, 2017).

Vitamin Model

The Vitamin Model (Peter Warr, 1990, 1994) also relates job characteristics with employee outcomes. However, in contrast to the previous models, it assumes a nonlinear effect of typically positive job characteristics. More specifically, it suggests that their effect resembles the effect of vitamins: Job resources benefit well-being, though only up to a certain level. Beyond that level, every additional increment is irrelevant (CE vitamin) or even harmful (AD vitamin) to the outcome. Warr explained the effect with the conservation of resources theory (Hobfoll, 2011), assuming that a high resource level also needed a higher investment of other

resources to maintain the high level, and therefore, resources could also evoke demands as a consequence. Peter Warr (1994) suggested a list of AD and CE vitamins. AD vitamins included variety, opportunity for control, and skill use, while CE vitamins included physical security, opportunity for interpersonal contact, and a valued social position. Several studies found that a nonlinear relationship between job characteristics and outcomes matched the data better than a linear one (Jebb et al., 2018; Jonge & Schaufeli, 1998; Meyerding, 2015). Although the curvilinear relationship was not always identified as superior, Peter Warr (2019) argued that it was a logical process that, at some point, the positive effect of any job characteristic needed to reach at least saturation and that curvilinear effects might be masked by the restricted variance in the study samples.

Autonomy Paradox

Related to the findings of curvilinear effects of specific job characteristics, research also dealt with the curvilinearity of job autonomy. Autonomy at work was commonly considered a job resource related to better health and motivation (Schaufeli & Taris, 2014). Mazmanian et al. (2013) introduced the concept of the autonomy paradox related to using mobile devices at work. This phenomenon showed that employees with a substantial amount of job autonomy often restricted their personal autonomy at their cost, for instance, by working more hours and blurring the distinction between private and work time, which reduced control over their working hours and increased strain or work-family conflict. In line with that, several studies showed that formally higher individual autonomy could result in higher perceived pressure (Kunda, 2006; Perlow, 1998; M. Robertson et al., 2003). Mazmanian et al. (2013) considered the autonomy paradox a consequence of the employees' wish to be perceived as competent, performing professionals. Additionally, the authors observed that while some employees felt strain by being constantly accessible through their mobile devices, others considered it beneficial and their free choice. The autonomy paradox was reported for knowledge workers, who work in an increasingly self-managed and boundaryless environment, and thus, it could

diminish the positive effect of typically health-promoting job characteristics (Pérez-Zapata et al., 2016; Väänänen et al., 2020).

Interaction of Job and Employee Characteristics: Person-Environment Fit

Person-environment fit (P-E fit), the match between a person and their environment, has been a central topic in organizational research (Edwards, 1991; Greguras & Diefendorff, 2009; Kristof-Brown et al., 2005; Schneider, 1987) and offers an important extension to the above-introduced theories. P-E fit theory assumes that employee outcomes are better in the case of the compatibility between employees and their environment. The concept of P-E fit has been investigated related to various phenomena, including work adjustment (Dawis & Lofquist, 1984), health and stress (Edwards et al., 1998; Edwards & Cooper, 1990), organizational culture (Schneider, 1987) or vocational choice (Holland, 1997). Despite the different applications, according to van Vianen (2018), all fit theories make three important claims: (1) P-E fit can explain individual outcomes better than person-inherent or environmental attributes alone; (2) the best outcomes occur at the level of optimal P-E fit; (3) the increasing discrepancy between person and environment (= decreasing P-E fit) deteriorates outcomes, independently of the discrepancy's direction (surplus or shortage). P-E fit can occur either in a supplementary (person and environment are similar) or complementary (person and environment complement each other) manner (Kristof-Brown et al., 2005). In organizational research, P-E fit is often used as "the degree to which individual and organizational attributes are compatible" (van Vianen, 2018, p. 77).

P-E fit can be categorized regarding its subjects: In the past, scholars investigated person-group and person-supervisor fit as forms of supplementary fit, as well as person-job fit and person-vocation fit as complementary fits (Kristof-Brown et al., 2005). According to Kristof-Brown et al.'s (2005) meta-analysis, the different types of fit are distinguishable and contribute uniquely to employee outcomes. All domains of P-E fit were related to important outcomes, like higher job satisfaction and organizational commitment, and less emotional

exhaustion and intention to quit, although to a different degree (Andela & van der Doef, 2019; Kristof-Brown et al., 2005; Tong et al., 2015; van Vianen, 2018). Greguras and Diefendorff (2009) showed that the effect of P-E fit on organizational commitment and performance was mediated by the satisfaction of psychological needs like autonomy, relatedness, and competence. According to van Vianen's (2018) review of different streams within P-E fit research, P-E fit was associated with positive individual outcomes and was more strongly related to attitudinal outcomes, such as job satisfaction, than behavioral outcomes, such as performance.

For job satisfaction and organizational commitment, person-job fit was particularly important (Kristof-Brown et al., 2005). Person-job fit was conceptualized in two different ways (Edwards, 1991): On the one hand, the job can supply the resources the person requires to satisfy their needs (needs-supply fit) and, on the other hand, the person's knowledge, skills, and abilities match the requirements of the job (demands-abilities fit). Findings regarding the relative importance of P-E fit versus the absolute level of a job characteristic were mixed – some studies reported a significant increase in the line of fit, whereas other studies reported non-significance (Dörendahl et al., 2020; Stiglbauer & Kovacs, 2018; Yao & Ma, 2022). In turn, findings from Slocombe and Bluedorn's (1999) study pointed to an outcome-dependent effect of the line of congruence; for instance, the intention to stay was optimal at conditions of fit, irrespective of the absolute level of predictor variables, whereas the willingness to exert effort was highest for fit at high levels of the predictor variable. For the current work, the complementary fit of person-job fit and the supplementary fit of person-organization are particularly interesting as job characteristics and organizational characteristics are likely affected by the characteristics of an SMO.

Despite the P-E fit theory's broad application in organizational research, the operationalization of fit remains one major challenge (Edwards, 1995, 2001; Edwards et al., 2006). The measurement of fit can occur in a molecular (assessing perceived fit) or atomic

way (using difference scores of perceived and desired environment; Edwards, 2001). However, both approaches have difficulties, which are discussed in detail in Manuscript 2.

Incremental Approaches Toward Reducing Managerial Hierarchy

For the study of SMOs and their impact on employees, considering the previous literature that dealt with incremental decentralization of authority is also valuable. The incremental approaches were motivated by different drivers and considered through different perspectives. It includes research on post-bureaucratic organizations, organizational democracy, or humanistic management. The approaches of humanistic management have several commonalities with SMOs; therefore, I will focus on this stream of research in the following.

Humanistic Management

Humanistic management is people-oriented and emphasizes the importance of good interpersonal relationships to make work more engaging and motivating (Melé, 2016). It mainly aims to increase employee motivation, satisfaction, and team effectiveness (Lee & Edmondson, 2017; Melé, 2016). This movement has taken different approaches to decentralizing authority formally and informally, including participatory management, empowerment initiatives, and self-managing teams (Lee & Edmondson, 2017).

Participatory Management

Participatory management, "a system of management whereby nonmanagement employees significantly influence organizational decisions" (Collins, 1997, p. 490), flourished in the 1980s and was fostered by psychological studies showing that democratic structures and self-managed work increased employee productivity and satisfaction (Bainbridge, 1995; Cotton et al., 1988). Examples are implementing structures like committees to invite workers to participate in different decisions, primarily concerned with the work organization (what is done, who does what, et cetera; Collins, 1995; Cotton et al., 1988). Participatory management provides employees with channels to voice their opinions formally and, in some cases, even the authority to make decisions (Bainbridge, 1995; Cotton et al., 1988). In their literature

review, Cotton et al. (1988) distinguished (1) participation in decisions, where employees have a veto or can make the decisions autonomously, and (2) consultative participation, where the employees' opinion is considered but not binding. Additionally, employee ownership is a strong way of integrating employees: Employees elect the managers or participate in stakeholder meetings and, thus, can take direct influence (Cotton et al., 1988).

Empirical research found positive associations of those practices with employee satisfaction, productivity, and reduced turnover (Cotton et al., 1988). Nonetheless, these studies were controversial as methodological shortcomings, partly due to the inherent restrictions of the study subject, limited the validity and significance of the results (Bainbridge, 1995; Cotton et al., 1988). However, the results for long-term participation initiatives were more optimistic (Cotton et al., 1988), emphasizing the need for structurally implemented employee participation. SMOs include elements of participatory management but go beyond as the scope of participation is larger and more consistent (Martela, 2019).

Self-managing Teams

Another approach towards decentralized authority within the humanist management was delegating more authority to teams by implementing self-managing, self-designing, or self-governing teams. These self-managing teams[1] (SMTs) were responsible for executing their tasks and monitoring and managing their work processes (Barker, 1993; Hackman, 1986; Manz & Sims Jr., 1987). According to Cohen et al. (1996), SMTs were further characterized by (1) the team members' responsibility for a product or service and their interdependent tasks and (2) the team members' discretion over decisions regarding the operationalization of the tasks. The members of SMTs typically brought in different competencies, making them cross-functional and more autonomous (Cohen et al., 1996; Wall et al., 1986). For the detailed characteristics and differentiations between forms of SMTs, see Manuscript 1.

[1] Following Stewart et al. (2011), all teams that are at least in control of how they do their work are considered as self-managing teams in this work, including self-directed or self-led teams.

SMTs were associated with positive performance outcomes (Cohen & Ledford, 1994; Cohen et al., 1996) and good quality of work life for their members (Cordery et al., 1991). Cohen's model of SMT effectiveness proposed that group task design, encouraging supervisor behaviors (encouraging self-goal setting, self-observation, self-criticism, et cetera), group characteristics (group composition, group beliefs, and group processes), and employee involvement context (power, information, rewards, training, resources) were important factors for the SMT's effectiveness. The empirical evaluation of the model showed that the employee involvement context and the group characteristics were predictive of effectiveness indicators like team performance and absenteeism. Stevens and Campion (1994) identified specific team-level competencies necessary in SMTs, and many studies investigated behaviors and personality traits important for individual and team performance (Magpili & Pazos, 2018). However, so far, a comprehensive picture of the competencies needed in SMOs has not been available.

SMTs depict a context of incremental authority decentralization, as teams, but not necessarily individuals, receive more authority (Barker, 1993), and the supervisor-subordinate relationship still exists, although this relationship is less controlling. Although the knowledge from SMTs is not directly transferable to SMOs, it can inform research on SMOs. SMTs give insights into collective coordination, self-regulation, and goal attainment among groups of individuals, and SMTs frequently exist as smaller organizational units in SMOs. In turn, as the involvement context was identified as relevant for the effectiveness of SMTs (Cohen et al., 1996), they might be particularly successful in SMOs, benefiting from radical authority decentralization. In turn, as in SMOs, the scope of self-management goes beyond the team level, other requirements may arise, and success factors may differ. For instance, the SMT success factor of adequate supervisor behaviors (Cohen et al., 1996) must be reconsidered in SMOs, as the concept of supervisors no longer exists in its conventional form.

Employee Empowerment

Another approach towards decentralizing authority in organizations is employee empowerment initiatives, which refer to managerial actions to delegate and share decision authority with all employees to enable them to make decisions within their scope of expertise (Honold, 1997). These initiatives are intended to reduce informal hierarchy and change cultural norms (Conger & Kanungo, 1988). Socio-structural empowerment is based on the managers' voluntary sharing of their power to enable the employees' self-reliant decision-making while the formal managerial hierarchy continues (Honold, 1997; Kanter, 1981). Organizations providing high socio-structural empowerment are characterized by offering participative decision-making, skill-/knowledge-based payment, open flow of information (downwards and upwards), decentralized organizational structures, and focus on training and development (Spreitzer, 2008).

Research on employee empowerment showed that structurally empowering work conditions were associated with higher work-unit performance, organizational cost-effectiveness, and individual satisfaction (Cappelli & Neumark, 2001; Seibert et al., 2004; Spence Laschinger et al., 2001). Nonetheless, in this context, the psychological counterpart, psychological empowerment, is also significant (Spreitzer, 2008; Stewart et al., 2011). Psychological empowerment refers to a psychological state of experiencing job meaningfulness, self-determination, impact, and competence (Spreitzer, 2008) and mediated the positive effect of structural empowerment on employee outcomes (Monje Amor et al., 2021; Spence Laschinger et al., 2001). Psychological empowerment was associated with several positive outcomes (Khan et al., 2020; Seibert et al., 2011; Spreitzer, 2008). However, scholars also reported challenges regarding the implementation of empowerment initiatives, such as frustration caused by too many options to choose from due to the enhanced decision authority, dishonest intrateam communication, or problems in the collaboration at eye level in project teams through formal hierarchy differences (Nykodym et al., 1994).

Structural empowerment initiatives qualify as incremental approaches to authority decentralization because they address the informal hierarchy while the formal hierarchy remains largely unaffected (Honold, 1997; Lee & Edmondson, 2017). Nonetheless, SMOs, as a radical form of decentralizing authority, also provide elements of structural empowerment; thus, the literature on structural empowerment can inspire research on SMOs. In particular, it showed that an intrapersonal psychological state of empowerment mediated the positive effect of structural empowerment (Spreitzer, 2008), emphasizing the relevance of looking at the individual's perspective.

Agile Organizations, Agile Workforce, Agile Methods

The literature on agility also addresses the decentralization of authority, which must be considered in the current work, as both concepts are correlated in applied settings (Sherehiy et al., 2007). The broader concept of agility is very contemporary among practitioners and scholars and was mainly discussed in the light of organizational responsiveness, adaptability, speed, and innovativeness and thus competitiveness in a VUCA world (Petermann & Zacher, 2020; Sherehiy et al., 2007; Walter, 2021). Nonetheless, the research lacks a clear definition of the concept, which has been conceptualized in different domains and levels so far (Walter, 2021). Organizational agility refers to "a company's set of capabilities for thriving and prospering in an unpredictable and rapidly changing environment" (Vinodh et al., 2012, as cited in Walter, 2021, p. 344). Walter (2021) distinguished in her seminal review of organizational agility between drivers, enablers, capabilities, and dimensions of agility. Agility drivers are business-environmental factors demanding organizational agility, and agility capabilities are organizational attributes that allow organizations to respond to rapid changes (e.g., speed, responsiveness, competency, and flexibility; Walter, 2021). Agility enablers (e.g., methods, tools, and practices at different levels) are the vehicle for fostering agility capabilities, and agility dimensions refer to the operationalizations of agility within the organization (e.g., supply chain, workforce, business processes, strategy, information systems,

and facilities; Walter, 2021). In line with this model, several studies considered authority decentralization and the resulting self-management enablers of agility capabilities, such as responsiveness and speed (Petermann & Zacher, 2020).

Organizations with high organizational agility can be referred to as agile organizations, which are usually defined by four main characteristics (Petermann & Zacher, 2020): (1) Ability to respond to changes in business environments rapidly (Sherehiy & Karwowski, 2014; Winby & Worley, 2014; Zhang & Sharifi, 2000); (2) ability of proactive action and anticipation of change (Sherehiy & Karwowski, 2014; Zhang & Sharifi, 2000); (3) ability of learning and building new skills (Ragin-Skorecka, 2016; Weber & Tarba, 2014; Winby & Worley, 2014); (4) network structure, a people- and purpose-oriented culture, and iterative product-development (Aghina et al., 2017; Eilers et al., 2019). Practitioner literature has also often emphasized the need for self-managed teams in agile organizations (Petermann & Zacher, 2020).

Decentralized authority was also found relevant at the level of project management and methods (Conforto et al., 2014; Lappi et al., 2018; Petermann & Zacher, 2020). For example, in the prevalent agile project management framework Scrum, decision authority is distributed within the team (Schwaber & Sutherland, 2020). In contrast to conventional project management, the authority over the goals, tasks, and processes is distributed. While the product owner is responsible for finding the right goals and topics, the development team is responsible for finding the right solution and deriving the right tasks to reach the goal set by the product owner. Additionally, the extra role of the scrum master is responsible for establishing effective processes within the team so that goals can be reached.

Muduli (2017) described the relevance of having an agile workforce, which is a workforce that can respond to change appropriately and shows proactivity, adaptivity, and resilience. Petermann and Zacher (2021) identified the characteristic behaviors of an agile workforce, including accepting changes, making decisions, creating transparency,

collaboration, reflection, user-centricity, iteration, testing, self-organization, and learning. In line with previous research on agility enablers (Muduli, 2017; Sherehiy et al., 2007; Walter, 2021), I argue that at least the incremental decentralization of authority is necessary to enable the behaviors of decision-making and self-organization.

The agility literature includes mainly incremental but partly also radical approaches. For instance, the above-described Holacracy framework was established to foster organizational and workforce agility (Ackermann et al., 2021; B. J. Robertson, 2015) and is considered an SMO, whereas other agile frameworks like Scrum are based on SMTs and thus considered an incremental approach. Conclusively, agile organizations can be SMOs but are not equivalent as the modifications for increasing agility are made within the (although flattened) managerial hierarchy. Through their decentralized authority, SMOs can be seen as an enabling environment of organizational and workforce agility (Sherehiy et al., 2007; Walter, 2021). Consequently, the research on agility and SMOs can mutually benefit.

Synopsis and Research Questions

Based on the review of the abovementioned theory and literature, the following section will present this dissertation's argumentation and the research questions. This dissertation pursued the main questions of “How are individuals affected by SMOs?” and "Which individual characteristics can help to encounter the challenges within the novel SMOs?". In order to approach these questions, different subordinated research questions were investigated (their rationale is explained in the following sections):

- Is the level of individual job autonomy higher in SMOs than in non-SMOs? (Manuscripts 2 and 3)
- Is autonomy fit relevant to employee well-being in SMOs? (Manuscripts 2 and 3)
- Which knowledge, skills, abilities, and other characteristics (KSAOs) are relevant in SMTs? (Manuscripts 1)
- Which KSAOs are relevant in SMOs? (Manuscripts 4)

- How do job crafting and error orientation relate to autonomy fit and work engagement/satisfaction (in SMOs)? (Manuscripts 3)
- How do personality traits relate to autonomy fit and work engagement/emotional exhaustion (in SMOs)? (Manuscripts 2)

SMOs are considered to yield several advantages, such as increased performance and innovation at the organizational level or increased satisfaction, work engagement, and health at the individual level. Those advantages are supposed to result from the decentralized authority and from providing employees with high autonomy, enabling them to make decisions according to their best knowledge, pursue innovative ideas, and fully engage in their work. Although several other job characteristics are also affected by the SMO's organizational principles, this work focuses on the role of autonomy because I consider it central to the effectiveness of authority decentralization. Only when employees perceive more autonomy and use this autonomy to shape the organization can the decentralization of decision authority result in higher innovation, faster decisions, and more employee engagement. However, although the SMOs' organizational principles suggest higher individual autonomy, previous research showed that employees did not necessarily perceive higher autonomy (Barker, 1993; Mills, 1983). Consequently, to understand the functioning of SMOs, this work aimed to test whether the individual perceived job autonomy is higher in SMOs than in non-SMOs and, thus, can be a lever for better individual and organizational outcomes.

Additionally, although autonomy usually functions as a job resource leading to positive employee outcomes in conventional organizations, it is premature to expect a linear increase of this effect at very high levels of autonomy, such as expected in SMOs. Previous research showed that resourceful job characteristics could also be perceived as demands or raise additional demands (Dettmers & Bredehöft, 2020; Hobfoll, 2011; Kubicek et al., 2014). Initial observations from practice showed that employees varied in their reactions regarding the work conditions in SMOs (Lam, 2016; Reitzig, 2022; Schell & Bischof, 2022). Moreover,

based on the literature on person-environment fit, suggesting that the optimal outcome results from the match between the individual's and the environment's characteristics, I assume that individual characteristics and P-E fit are decisive for the interindividual differences in the reactions towards SMOs. These individual characteristics could be personal values, personality traits, and KSAOs. As SMOs differ significantly from conventional organizations in their organizational form, job conditions also differ, and employees probably need other characteristics than in non-SMOs to perceive person-environment fit and, thus, thrive in SMOs.

In this work, I focused on KSAOs and personality traits that could increase the fit with SMOs and help employees flourish in SMOs. KSAOs are trainable and support developing employees to get more engaged in SMOs. In turn, personality traits are only marginally modifiable but significant for many outcomes at work (Barrick, 2005), and thus helpful to consider in selection processes in order to find the right employees (Barrick & Parks-Leduc, 2019; Bipp, 2010; Ostroff & Zhan, 2012).

Therefore, to start with existing literature, the dissertation includes a review of KSAOs found relevant in SMTs (Manuscript 1), as SMTs have several commonalities with SMOs and thus can inform the research on SMOs. Nonetheless, SMOs presumably differ from SMTs, so this dissertation also includes a qualitative analysis of the KSAOs specific to SMOs (Manuscript 4). Based on these results, the associations of job crafting behavior, positive handling of errors, and certain personality traits with autonomy fit and well-being were tested quantitatively (Manuscript 3, Manuscript 2). Hence, this dissertation aimed to fill the gap regarding knowledge of the individual perspective in SMOs by testing known concepts in the context of SMOs, thus contributing to the theoretical knowledge about SMOs and providing valuable insights for practitioners.

Discussion

The purpose of the present work was to contribute to the individual perspective related to the novel organizational form SMO, understand better how employees are affected by the organizational changes, and identify which individual characteristics may be helpful in SMOs.

First, this work provided quantitative data (Manuscripts 2 and 3) to support the hypothesis that employees of SMOs perceived higher decision and method autonomy and that employees could feel more engaged and satisfied in SMOs (Lee & Edmondson, 2017).

The work showed that for the potentially positive effect of increased perceived autonomy, the individually desired autonomy was also crucial: Confirming and extending previous research (Ford, 2012; Stiglbauer & Kovacs, 2018), effects of decision and method autonomy (mis-)fit were found for work engagement, emotional exhaustion, and job satisfaction. This finding is particularly relevant in the context of SMOs where autonomy levels were significantly increased (Manuscripts 2 and 3). On the other hand, the shares of individual autonomy shortage and surplus were higher in non-SMOs than SMOs (Manuscript 3), which seems to result from selective attraction effects (Schneider et al., 1995), mitigating the difficulty of high autonomy levels. Nonetheless, SMOs are increasingly seen as universally applicable solutions for challenges in an employee-centric VUCA world (Laloux, 2014; Lee & Edmondson, 2017), and the transition toward an SMO becomes more attractive to companies. Thus, selective attraction may not continuously regulate the P-E fit regarding autonomy and other job characteristics in SMOs or instead would come with a high cost due to high employee turnover.

The work identified a series of important competencies and related behaviors for working in SMOs (Manuscript 4) and SMTs (Manuscript 1). The identified behaviors in SMOs showed considerable similarities to previously developed competency models but were more focused on self-management-related and self-leadership-related competencies. For

instance, comparing the SMO-relevant competencies with the SMT-relevant competencies shows that engaging in feedback and team reflection processes, self-leadership, self-responsibility, and acting as an organization's owner were also relevant competencies in SMOs. These competencies reflect the changes in the organizational principles in SMOs (Lee & Edmondson, 2017; Martela, 2019) and show that SMOs require specific competencies from their employees. Additionally, the different findings for SMOs and SMTs also support the notion that organizational self-management affects the employees beyond their local self-managed team context.

In addition to providing an overview of competencies relevant to employees in SMOs, this work also further investigated the impact of the competencies of learning from mistakes and leading myself, based on the existing concepts of error orientation and job crafting (Manuscript 3). The dimension of job crafting was more prevalent in SMOs than in non-SMOs, and crafting social resources was more strongly related to work engagement in SMOs, supporting the hypothesis that crafting social resources is more relevant for work engagement in SMOs than non-SMOs. However, the hypothesized mediation of job crafting behaviors on work engagement through a better fit could not be confirmed (for a detailed discussion, see Manuscript 3). Future research may test whether job crafting can increase autonomy fit in SMOs using longitudinal or experimental designs. Job crafting was investigated in this context as previous literature supported its relevance in high autonomy conditions (Dettmers & Bredehöft, 2020), and it reflects parts of self-leadership by proactively designing one's work environment. However, job crafting reflects only a part of self-leadership, and hence, investigating the relations with a comprehensive self-leadership construct is promising for future research.

The work also showed that error orientation was related to work engagement and job satisfaction, but the relations were more complex than assumed (Manuscript 3). However, learning from mistakes and risking errors were higher in SMOs, whereas strain from errors

was lower in SMOs, supporting the relevance of the competency of learning from mistakes. In line with that, risking errors was related to work engagement and job satisfaction only in SMOs, indicating a higher relevance of risking errors in SMOs than non-SMOs. Strain from errors showed a moderating effect on the decision autonomy – job crafting relationship: Only when strain from errors was low was decision autonomy associated with higher job crafting; otherwise, it was unrelated. This supports the notion that the perceived autonomy was only used to shape things when making errors was accepted and adds to prior findings on day-level autonomy and job crafting (Petrou et al., 2012). Conclusively, error orientation seems important in SMOs, and future research could investigate the mechanisms in more detail using experimental or longitudinal approaches.

In addition, this work looked at personality traits that may be relevant in SMOs as they may relate to a better P-E fit regarding autonomy and moderated the relation between autonomy and well-being (Manuscript 2). It showed that extraversion, openness to experience, and low neuroticism were associated with higher ideal decision autonomy, supporting the notion that personality is relevant to hiring decisions (Barrick, 2005; Barrick et al., 2013; Barrick & Parks-Leduc, 2019). Although this work could not show the direct association of personality traits with a better P-E fit, future research could investigate the relationship in a longitudinal study. However, this work also showed that extraversion and neuroticism influenced the resource character of job autonomy as they moderated its relation with work engagement. Consequently, personality traits may also function as personal resources (Bakker & Demerouti, 2017).

Limitations

Some methodological limitations must be considered when interpreting the results from the four manuscripts presented. All quantitative studies (Manuscripts 2 and 3) relied on cross-sectional data, which allowed only for correlational analyses and conclusions. This limits the results' significance and may have hidden cause-effect relations occurring over time. This

might have been a problem, particularly in analyzing the effect of job crafting on P-E fit and work engagement, as previous longitudinal studies successfully detected such an effect (Kooij et al., 2017; Tims et al., 2016). Nonetheless, the value of this work lies in providing first insights and starting points for more in-depth investigations based on longitudinal designs in the context of SMOs.

The measurement of autonomy with the previously developed scales raised some difficulties. The extraordinarily high autonomy in SMOs was not in the target range of the scale developed in non-SMOs, where the default level of autonomy was significantly lower. Hence, the scale was probably too insensitive for autonomy differences in SMOs, resulting in a left-skewed scale. The skewness was still within an acceptable range, and for the group comparison, it was not problematic. However, the resulting restricted variance presumably restricted the significance of the regression-analytic analyses (for detailed discussions, see Manuscripts 2 and 3). Additionally, the findings of common method bias and the problems with multicollinearity (Manuscript 3) could be fixed by a more nuanced autonomy scale that can also capture the variance at high autonomy levels.

Additionally, this work relied on a self-reported checklist to categorize a participant's organization as SMO. This method lacked a comprehensive validation, bearing the risk that non-SMOs could have been considered SMOs. However, in this case, additional pre-selections ensured that only real SMOs were recorded as SMOs, but future research on SMOs would benefit from a validated scale for SMOs.

A further limitation that affected all empirical studies in this work was the relatively small population and the related potential range restrictions. SMOs are still a novel, scarce organizational form, and generating broad and representative samples is challenging. Therefore, the samples in this work focused on certain business sectors, as it was impossible to reach employees of every sector. This bias was reduced by controlling for important employee and organizational characteristics and aiming for a comparable composition of the

SMO and non-SMO samples. However, future research should aim for a more representative sample regarding business sectors, which might be more feasible due to the increasing prevalence of SMOs.

Implications

This work contributes in several ways to previous theory and research on SMOs, job crafting, P-E fit, and error orientation. First, the findings advance the theory of SMOs (Lee & Edmondson, 2017; Martela, 2019; Reitzig, 2022) by showing that besides the changed organizational principles and processes, SMO employees indeed perceive more individual job autonomy than other employees. Additionally, by comparing indicators of employee well-being in SMOs and non-SMOs, the work provides data on the quality of work life for employees in SMOs, which so far was only been discussed on a theoretical level (Corbett-Etchevers et al., 2019; Laloux, 2014; Lee, 2019; Reitzig, 2022). Additionally, this work offers a competency framework advancing the theory about the functioning of SMOs from an individual-level perspective (Manuscript 4). Moreover, it advanced the theory of SMOs by showing that constructive error handling and job crafting were more prevalent and, thus, potentially more relevant in SMOs.

Second, the current work also contributes to the theory about SMTs by providing a comprehensive overview of the literature related to competencies in SMTs and deriving tangible competencies from these findings (Manuscript 1). Due to the commonalities between SMOs and SMTs, the overview of the SMT-relevant competencies can also inform the theory of SMOs. Additionally, the finding that less extraverted employees seem to benefit more from increased autonomy levels (Manuscript 4) also advances prior research on personality in SMTs (Thoms et al., 1996) by contradicting the idea that extraverted employees would fit better into self-managed contexts.

Third, the current work also contributes to the theory on P-E fit by adding further evidence that (mis-)fit is also related to motivational aspects, like work engagement, and not

only to health-related outcomes, like emotional exhaustion (Edwards et al., 1998; Manuscripts 2 and 3). Additionally, this work also adds to the debate about how to measure P-E fit. In this work, the fit was operationalized in an atomic way (Edwards, 1995; Edwards et al., 2006; Stiglbauer & Kovacs, 2018) to increase measurement precision. However, unlike the studies based on a molecular approach (Cable & DeRue, 2002; Chen et al., 2014; Kooij et al., 2017; Tims et al., 2016), this work did not find a relation between (mis-)fit and job crafting (Manuscript 3) which points to the differences between the atomic and molecular approach.

Fourth, this work also contributes to the job demands-resources model by identifying error orientation as a potential personal resource that can enhance the positive relationship between the resource job autonomy and the outcomes of engagement and satisfaction (Manuscript 3). Thus, it points out that error orientation is an important resource in contexts of increased levels of job autonomy in any organization. Additionally, by revealing the moderating effect of extraversion and neuroticism on the autonomy-work engagement relationship (Manuscript 2), this work shows that personality traits may also act as personal resources and influence the positive relation between job resources and motivational processes (Bakker & Demerouti, 2017).

Fifth, this work contributes to the theory of personality traits and work outcomes relevant to recruitment and selection processes (Barrick, 2005; Barrick et al., 2013; Barrick & Parks-Leduc, 2019). Showing how personality traits are related to desired job autonomy (Manuscript 2) adds empirical evidence to the previously proposed theory of purposeful work behavior (Barrick et al., 2013).

This work also brings several important implications for organizational practice in SMOs. First, the identified high level of autonomy and the effects of P-E fit emphasize the relevance of making individual autonomy the subject of discussion in hiring and personnel development activities in SMOs or transformation processes in SMOs. The developed competency model for SMOs (Manuscript 4) supports this discussion and offers concrete

suggestions for adapting the hiring and personnel development processes and criteria. This competency model also informs organizational development activities, as it describes the desirable behaviors organizational structures and processes should support and encourage. Nevertheless, the work does not only inform practitioners in SMOs but also those dealing with incremental approaches such as implementing SMTs (Manuscript 1).

Second, the findings regarding error orientation (Manuscript 3) and its relations with job crafting, work engagement, and job satisfaction point out that investing in a positive error culture may improve individual quality of work life and foster employee proactivity. That is particularly important in SMOs as, through the decentralization of authority, they strongly rely on proactive, engaged employees.

Third, although this work can not explain the exact mechanism of the job crafting's impact, it identified elevated levels of job crafting in SMOs, and thus, it may be beneficial to support job crafting in transitions from non-SMOs to SMOs. Additionally, individual error orientation and the personality traits predictive of higher desired autonomy (Manuscript 2) can inform the selection process in SMOs.

Fourth, although the results show that employees with low neuroticism seem to prefer higher autonomy and may get more motivated by decision autonomy, organizations should also invest in work climates where employees can feel engaged with their work, independently of their neuroticism levels, for instance, by increasing psychological safety (Edmondson & Lei, 2014).

Conclusion

In conclusion, this work showed that the organizational changes in SMOs are associated with the employees' perception of higher decision and method autonomy, the feeling of more engagement, satisfaction, and less emotional exhaustion compared to non-SMO employees. The results also showed that it is essential that employees also wish for this amount of autonomy. Therefore, how to support employees in handling a high level of autonomy must

be discussed in SMOs, and the presented competency model can support personnel development and hiring processes. Based on the current work's findings, the support of learning from errors, self-leadership, self-reflection, and proactive behaviors are recommendable for SMOs. Moreover, besides the contributions to the theory of SMOs, SMTs, P-E fit, JD-R model, and job crafting, the current work provides valuable insights for future research, which should focus on longitudinal and experimental designs to increase the understanding of the effect mechanisms.

References

Ackermann, M., Schell, S., & Kopp, S. (2021). How Mercedes-Benz addresses digital transformation using Holacracy. *Journal of Organizational Change Management*, *34*(7), 1285–1299. https://doi.org/10.1108/JOCM-12-2020-0395

Adler, P. S. (2001). Market, hierarchy, and trust: The knowledge economy and the future of capitalism. *Organization Science*, *12*(2), 215–234. https://doi.org/10.1287/orsc.12.2.215.10117

Adler, P. S., & Borys, B. (1996). Two types of bureaucracy: Enabling and coercive. *Administrative Science Quarterly*, *41*(1), 61. https://doi.org/10.2307/2393986

Aghina, W., Ahlbäck, K., Smet, A. de, Fahrbach, C., Handscomb, C., Lackey, G., Lurie, M., Murarka, M., Salo, O., & Seem, E. (2017). The 5 trademarks of agile organizations. *McKinsey & Company,(December)*, 1–22.

Akkermans, J., Schaufeli, W. B., Brenninkmeijer, V., & Blonk, R. W. (2013). The role of career competencies in the Job Demands—Resources model. *Journal of Vocational Behavior*, *83*(3), 356–366. https://doi.org/10.1016/j.jvb.2013.06.011

Andela, M., & van der Doef, M. (2019). A comprehensive assessment of the person–environment fit dimensions and their relationships with work-related outcomes. *Journal of Career Development*, *46*(5), 567–582. https://doi.org/10.1177/0894845318789512

Arineo GmbH. (2023). *Kollegiale Organisation*. https://arineo.com/de/arineo-ueber-uns/#employee-owned-company

Bainbridge, S. M. (1995). Participatory management within a theory of the firm. *The Journal of Corporation Law*, *21*, 657. https://doi.org/10.2139/ssrn.10023

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International.* Advance online publication. https://doi.org/10.1108/13620430810870476

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273–285. https://doi.org/10.1037/ocp0000056

Barker, J. R. (1993). Tightening the iron cage: Concertive control in self-managing teams. *Administrative Science Quarterly*, *38*(3), 408–437. https://doi.org/10.2307/2393374

Barrick, M. R. (2005). Yes, personality matters: Moving on to more important matters. *Human Performance*, *18*(4), 359–372. https://doi.org/10.1207/s15327043hup1804_3

Barrick, M. R., Mount, M., & Li, N. (2013). The theory of purposeful work behavior: The role of personality, higher-order goals, and job characteristics. *Academy of Management Review.* Advance online publication. https://doi.org/10.5465/amr.10.0479

Barrick, M. R., & Parks-Leduc, L. (2019). Selection for fit. *Annual Review of Organizational Psychology and Organizational Behavior*, *6*(1), 171–193. https://doi.org/10.1146/annurev-orgpsych-012218-015028

Bennett, N., & Lemoine, G. J. (2014). What a difference a word makes: Understanding threats to performance in a VUCA world. *Business Horizons*, *57*(3), 311–317. https://doi.org/10.1016/j.bushor.2014.01.001

Bernstein, E., Bunch, J., Canner, N., & Lee, M. (2016). Beyond the holacracy hype. *Harvard Business Review*, *94*(7), 8. https://hbr.org/2016/07/beyond-the-holacracy-hype

Bernstein, E., Gino, F., & Staats, B. (2014). Opening the valve: From software to hardware (A). *Harvard Business School Publishing Case*, 9–415.

Bipp, T. (2010). What do people want from their jobs? The Big Five, core self-evaluations and work motivation. *International Journal of Selection and Assessment*, *18*(1), 28–39. https://doi.org/10.1111/j.1468-2389.2010.00486.x

Burns, T., & Stalker, G. M. (1961). Mechanistic and organic systems. *Classics of Organizational Theory*, 209–214.

Burns, T., & Stalker, G. M. (1994). The management of innovation.

Buruck, G., Dörfel, D., Kugler, J., & Brom, S. S. (2016). Enhancing well-being at work: The role of emotion regulation skills as personal resources. *Journal of Occupational Health Psychology*, *21*(4), 480–493. https://doi.org/10.1037/ocp0000023

Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*, *87*(5), 875. https://doi.org/10.1037/0021-9010.87.5.875

Campagne, O. (2014). *Holacracy vs. hierarchy vs. flat orgs: Actually, Holacracy is highly structured*. https://blog.holacracy.org/holacracy-vs-hierarchy-vs-flat-orgs-d1545d5dffa7

Cappelli, P., & Neumark, D. (2001). Do "high-performance" work practices improve establishment-level outcomes? *ILR Review*, *54*(4), 737. https://doi.org/10.2307/2696111

Carney, B., & Getz, I. (2016). *Freedom Inc.: Free your employees and let them lead your business to higher productivity*. Profits and Growth, ArgoNavis US.

Chen, C.-Y., Yen, C.-H., & Tsai, F. C. (2014). Job crafting and job engagement: The mediating role of person-job fit. *International Journal of Hospitality Management*, *37*, 21–28. https://doi.org/10.1016/j.ijhm.2013.10.006

Cohen, S. G., & Ledford, G. E. (1994). The effectiveness of self-managing teams: A quasi-experiment. *Human Relations*, *47*(1), 13–43. https://doi.org/10.1177/001872679404700102

Cohen, S. G., Ledford Jr, G. E., & Spreitzer, G. M. (1996). A predictive model of self-managing work team effectiveness. *Human Relations*, *49*(5), 643–676. https://doi.org/10.1177/001872679604900506

Collins, D. (1995). A socio-political theory of workplace democracy: Class conflict, constituent reactions and organizational outcomes at a gainsharing facility. *Organization Science*, *6*(6), 628–644.

Collins, D. (1997). The ethical superiority and inevitability of participatory management as an organizational system. *Organization Science*, *8*(5), 489–507. https://doi.org/10.1287/orsc.8.5.489

Conforto, E. C., Salum, F., Amaral, D. C., da Silva, S. L., & Almeida, L. F. M. de (2014). Can agile project management be adopted by industries other than software development? *Project Management Journal*, *45*(3), 21–34. https://doi.org/10.1002/pmj.21410

Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review*, *13*(3), 471–482. https://doi.org/10.5465/amr.1988.4306983

Corbett-Etchevers, I., Perea, C., Richard, D., Colle, R., & Defélix, C. (2019). Freedom-form organisations, innovation and quality of work life: Towards a new model of interaction. *International Journal of Technology Management*, *79*(3/4), Article 99609, 345–365. https://doi.org/10.1504/IJTM.2019.099609

Cordery, J. L., Mueller, W. S., & Smith, L. M. (1991). Attitudinal and behavioral effects of autonomous group working: A longitudinal field study. *Academy of Management Journal*, *34*(2), 464–476. https://doi.org/10.5465/256452

Cotton, J. L., Vollrath, D. A., Froggatt, K. L., Lengnick-Hall, M. L., & Jennings, K. R. (1988). Employee participation: Diverse forms and different outcomes. *Academy of Management Review*, *13*(1), 8–22. https://doi.org/10.5465/amr.1988.4306768

Crawford, E. R., Lepine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*(5), 834–848. https://doi.org/10.1037/a0019364

Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment: An individual-differences model and its applications*. University of Minnesota press.

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, *49*(3), 182. https://doi.org/10.1037/a0012801

Denning, S. (2014). Making sense of Zappos and Holacracy. *Forbes*. https://www.forbes.com/sites/stevedenning/2014/01/15/making-sense-of-zappos-and-holacracy/?sh=45f48b2d3207

Dettmers, J., & Bredehöft, F. (2020). The ambivalence of job autonomy and the role of job design demands. *Scandinavian Journal of Work and Organizational Psychology*, *5*(1), Article 8, 1–13. https://doi.org/10.16993/sjwop.81

Diefenbach, T., & Sillince, J. A. A. (2011). Formal and informal hierarchy in different types of organization. *Organization Studies*, *32*(11), 1515–1537. https://doi.org/10.1177/017084061142125

Dörendahl, J., Niepel, C., & Greiff, S. (2020). Actually getting some satisfaction on the job: Need-supply fit of fundamental motives at work. *Frontiers in Psychology*, *11*, 1740. https://doi.org/10.3389/fpsyg.2020.01740

Edmondson, A. C., & Lei, Z. (2014). Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annual Review of Organizational Psychology and Organizational Behavior*, *1*(1), 23–43. https://doi.org/10.1146/annurev-orgpsych-031413-091305

Edwards, J. R. (1991). *Person-job fit: A conceptual integration, literature review, and methodological critique*. John Wiley & Sons.

Edwards, J. R. (1995). Alternatives to difference scores as dependent variables in the study of congruence in organizational research. *Organizational Behavior and Human Decision Processes*, *64*(3), 307–324. https://doi.org/10.1006/obhd.1995.1108

Edwards, J. R. (2001). Ten difference score myths. *Organizational Research Methods*, *4*(3), 265–287. https://doi.org/10.1177/109442810143005

Edwards, J. R., Cable, D. M., Williamson, I. O., Lambert, L. S., & Shipp, A. J. (2006). The phenomenology of fit: Linking the person and environment to the subjective experience of person-environment fit. *The Journal of Applied Psychology*, *91*(4), 802–827. https://doi.org/10.1037/0021-9010.91.4.802

Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of Organizational Stress* (pp. 28–67). OUP Oxford.

Edwards, J. R., & Cooper, C. L. (1990). The person-environment fit approach to stress: Recurring problems and some suggested solutions. *Journal of Organizational Behavior*, *11*, 293–307. https://doi.org/10.1002/job.4030110405

Eilers, S., Möckel, K., Rump, J., & Schabel, F. (2019). *Hays HR-Report 2018. Schwerpunkt agile Organisation auf dem Prüfstand*.

Ford, M. T. (2012). Job-occupation misfit as an occupational stressor. *Journal of Vocational Behavior*, *80*(2), 412–421. https://doi.org/10.1016/j.jvb.2011.10.004

Foss, N. J., & Dobrajska, M. (2015). Valve's way: Vayward, visionary, or voguish? *Journal of Organization Design*, *4*(2), 12–15. https://doi.org/10.7146/jod.20162

Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, *40*(2), 287–322. https://doi.org/10.1111/j.1744-6570.1987.tb00605.x

Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using self-

determination theory. *Journal of Applied Psychology*, *94*(2), 465. https://doi.org/10.1037/a0014068

Grover, S. L., Teo, S. T. T., Pick, D., & Roche, M. (2017). Mindfulness as a personal resource to reduce work stress in the job demands-resources model. *Stress and Health : Journal of the International Society for the Investigation of Stress*, *33*(4), 426–436. https://doi.org/10.1002/smi.2726

Hackman, J. R. (1986). The psychology of self-management in organizations. In Pallak, M. S., Perloff, R. O. (Ed.), *The Master lectures, Vol. 5. Psychology and work: Productivity, change, and employment* (pp. 89–136). American Psychological Association. https://doi.org/10.1037/10055-003

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, *60*(2), 159. https://doi.org/10.1037/h0076546

Halbesleben, J. R. B. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences. *Work Engagement: A Handbook of Essential Theory and Research*, *8*(1), 102–117.

Hamel, G. (2011). The world‟ s most creatively managed company. *Harvard Business Review, South Asia*. https://www.personalstrengths.ro/docs/2016/Harvard-Article.pdf

Harraf, A., Wanasika, I., Tate, K., & Talbott, K. (2015). Organizational agility. *Journal of Applied Business Research*, *31*(2), 675. https://doi.org/10.19030/jabr.v31i2.9160

Hauw, S. de, & Vos, A. de (2010). Millennials' career perspective and psychological contract expectations: Does the recession lead to lowered expectations? *Journal of Business and Psychology*, *25*(2), 293–302. https://doi.org/10.1007/s10869-010-9162-9

Heckscher, C. C. (Ed.). (1994). *The post-bureaucratic organization: New perspectives on organizational change*. Sage Publ.

Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology*, *84*(1), 116–122. https://doi.org/10.1111/j.2044-8325.2010.02016.x

Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments*. Psychological Assessment Resources.

Honold, L. (1997). A review of the literature on employee empowerment. *Empowerment in Organizations*, *5*(4), 202–212. https://doi.org/10.1108/14634449710195471

Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *The Journal of Applied Psychology*, *92*(5), 1332–1356. https://doi.org/10.1037/0021-9010.92.5.1332

Jebb, A. T., Tay, L., Diener, E., & Oishi, S. (2018). Happiness, income satiation and turning points around the world. *Nature Human Behaviour*, *2*(1), 33–38. https://doi.org/10.1038/s41562-017-0277-0

Jonge, J. de, & Schaufeli, W. B. (1998). Job characteristics and employee well-being: A test of Warr's Vitamin Model in health care workers using structural equation modelling. *Journal of Organizational Behavior*, *19*(4), 387–407. https://doi.org/10.1002/(SICI)1099-1379(199807)19:4<387::AID-JOB851>3.0.CO;2-9

Kanter, R. M. (1981). Power, leadership, and participatory management. *Theory into Practice*, *20*(4), 219–224.

Khan, J., Malik, M., & Saleem, S. (2020). The impact of psychological empowerment of project-oriented employees on project success: a moderated mediation model. *Economic Research-Ekonomska Istraživanja*, *33*(1), 1311–1329. https://doi.org/10.1080/1331677X.2020.1756374

Kieser, A., & Walgenbach, P. (2010). *Organisation* (6., überarbeitete Auflage). Schäffer-Poeschel Verlag.

Kooij, D. T. A. M., van Woerkom, M., Wilkenloh, J., Dorenbosch, L., & Denissen, J. J. A. (2017). Job crafting towards strengths and interests: The effects of a job crafting intervention on person-job fit and the role of age. *Journal of Applied Psychology*, *102*(6), 971–981. https://doi.org/10.1037/apl0000194

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*(2), 281–342. https://doi.org/10.1111/j.1744-6570.2005.00672.x

Kubicek, B., Korunka, C., & Tement, S. (2014). Too much job control? Two studies on curvilinear relations between job control and eldercare workers' well-being. *International Journal of Nursing Studies*, *51*(12), 1644–1653. https://doi.org/10.1016/j.ijnurstu.2014.05.005

Kunda, G. (2006). *Engineering culture: Control and commitment in a high-tech corporation*. Temple University Press.

Laloux, F. (2014). *Reinventing organizations: A guide to creating organizations inspired by the next stage in human consciousness*. Nelson Parker.

Lam, B. (2016). Why are so many Zappos employees leaving? *The Atlantic*. https://www.theatlantic.com/business/archive/2016/01/zappos-holacracy-hierarchy/424173/

Langfred, C. W., & Rockmann, K. W. (2016). The push and pull of autonomy. *Group & Organization Management*, *41*(5), 629–657. https://doi.org/10.1177/1059601116668971

Lappi, T., Karvonen, T., Lwakatare, L. E., Aaltonen, K., & Kuvaja, P. (2018). Toward an improved understanding of agile project governance. *Project Management Journal*, *49*(6), 39–63. https://doi.org/10.1177/8756972818803482

Lee, M. Y. (2019). *Self-Managing organizations: Exploring the dynamics and consequences of radically decentralizing authority* [Doctoral dissertation]. Harvard Business School.

Lee, M. Y., & Edmondson, A. C. (2017). Self-managing organizations: Exploring the limits of less-hierarchical organizing. *Research in Organizational Behavior*, *37*, 35–58. https://doi.org/10.1016/j.riob.2017.10.002

Lyons, S. T., Schweitzer, L., & Ng, E. S. W. (2015). How have careers changed? An investigation of changing career patterns across four generations. *Journal of Managerial Psychology.* Advance online publication. https://doi.org/10.1108/JMP-07-2014-0210

Mack, O., Khare, A., Krämer, A., & Burgartz, T. (2015). *Managing in a VUCA World*. Springer.

Magpili, N. C., & Pazos, P. (2018). Self-managing team performance: A systematic review of multilevel input factors. *Small Group Research*, *49*(1), 3–33. https://doi.org/10.1177/1046496417710500

Maier, E. (2013). Case Study: Valve's flat hierarchy isn't for everyone. *Inc.* https://www.inc.com/em-maier/i-drank-the-kool-aid-valve-flat-management.html

Manz, C. C., & Sims Jr., H. P. (1987). Leading workers to lead themselves: The external leadership of self-managing work teams. *Administrative Science Quarterly*, *32*(1), 106–129. https://doi.org/10.2307/2392745

Martela, F. (2019). What makes self-managing organizations novel? Comparing how Weberian bureaucracy, Mintzberg's adhocracy, and self-organizing solve six fundamental problems of organizing. *Journal of Organization Design*, *8*(1), 215–238. https://doi.org/10.1186/s41469-019-0062-9

Mazmanian, M., Orlikowski, W. J., & Yates, J. (2013). The Autonomy Paradox: The implications of mobile email devices for knowledge professionals. *Organization Science*, *24*(5), 1337–1357. https://doi.org/10.1287/orsc.1120.0806

Melé, D. (2016). Understanding humanistic management. *Humanistic Management Journal*, *1*(1), 33–55. https://doi.org/10.1007/s41463-016-0011-5

Meyerding, S. G. H. (2015). Job characteristics and job satisfaction: A test of Warr's vitamin model in German horticulture. *The Psychologist-Manager Journal*, *18*(2), 86–107. https://doi.org/10.1037/mgr0000029

Mills, P. K. (1983). Self-management: Its control and relationship to other organizational properties. *Academy of Management Review*, *8*(3), 445–453. https://doi.org/10.5465/amr.1983.4284594

Mintzberg, H. (1980). Structure in 5's: A Synthesis of the research on organization design. *Management Science*, *26*(3), 322–341. http://www.jstor.org/stable/2630506

Monje Amor, A., Xanthopoulou, D., Calvo, N., & Abeal Vázquez, J. P. (2021). Structural empowerment, psychological empowerment, and work engagement: A cross-country study. *European Management Journal*, *39*(6), 779–789. https://doi.org/10.1016/j.emj.2021.01.005

Muduli, A. (2017). Workforce agility: Examining the role of organizational practices and psychological empowerment. *Global Business & Organizational Excellence*, *36*(5), 46–56. https://doi.org/10.1002/joe.21800

Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology*, *96*(1), 71. https://doi.org/10.1037/a0021484

Ng, E. S. W., Schweitzer, L., & Lyons, S. T. (2010). New generation, great expectations: a field study of the millennial generation. *Journal of Business and Psychology*, *25*(2), 281–292. https://doi.org/10.1007/s10869-010-9159-4

Nixon, T. (2017). *Good Holacracy, bad Holacracy*. https://blog.maptio.com/good-holacracy-bad-holacracy-678a0001fffb

Nykodym, N., Simonetti, J. L., Nielsen, W. R., & Welling, B. (1994). Employee empowerment. *Empowerment in Organizations*, *2*(3), 45–55. https://doi.org/10.1108/09684899410071699

Oedzes, J. J., Rink, F. A., Walter, F., & van der Vegt, G. S. (2019). Informal hierarchy and team creativity: The moderating role of empowering leadership. *Applied Psychology: An International Review*, *68*(1), 3–25. https://doi.org/10.1111/apps.12155

Ostroff, C., & Zhan, Y. (2012). Person–environment fit in the selection process. In N. Schmitt (Ed.), *Oxford library of psychology. The Oxford handbook of personnel assessment and selection* (pp. 252–273). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199732579.013.0012

Pérez-Zapata, O., Pascual, A. S., Álvarez-Hernández, G., & Collado, C. C. (2016). Knowledge work intensification and self-management: The Autonomy Paradox. *Work Organisation, Labour and Globalisation*, *10*(2), 27–49. https://doi.org/10.13169/workorgalaboglob.10.2.0027

Perlow, L. A. (1998). Boundary control: The social ordering of work and family time in a high-tech corporation. *Administrative Science Quarterly*, 328–357. https://doi.org/10.2307/2393855

Petermann, M. K. H., & Zacher, H. (2020). Agility in the workplace: Conceptual analysis, contributing factors, and practical examples. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, *13*(4), 599–609. https://doi.org/10.1017/iop.2020.106

Petermann, M. K. H., & Zacher, H. (2021). Development of a behavioral taxonomy of agility in the workplace. *International Journal of Managing Projects in Business*, *14*(6), 1383–1405. https://doi.org/10.1108/IJMPB-02-2021-0051

Petrou, P., Demerouti, E., Peeters, M. C. W., Schaufeli, W. B., & Hetland, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior*, *33*(8), 1120–1141. https://doi.org/10.1002/job.1783

Pfeffer, J. (2013). You're still the same: Why theories of power hold over time and across contexts. *Academy of Management Perspectives*, *27*(4), 269–280. https://doi.org/10.5465/amp.2013.0040

Pierce, J. L., Jussila, I., & Cummings, A. (2009). Psychological ownership within the job design context: Revision of the job characteristics model. *Journal of Organizational Behavior*, *30*(4), 477–496. http://www.jstor.org/stable/41683846

PromotionSanteCH. (2021). *Mobile Basel: Radikale Transparenz, Gleichstellung und ehrliche Kommunikation*. https://www.youtube.com/watch?v=QQ_sQ1fUCRc

Puranam, P., Alexy, O., & Reitzig, M. (2014). What's "new" about new forms of organizing? *Academy of Management Review*, *39*(2), 162–180. https://doi.org/10.5465/amr.2011.0436

Puranam, P., & Håkonsson, D. D. (2015). Valve's way. *Journal of Organization Design*, *4*(2), 2–4. https://doi.org/10.7146/jod.20152

Ragin-Skorecka, K. (2016). Agile enterprise: A human factors perspective. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *26*(1), 5–15. https://doi.org/10.1002/hfm.20610

Rawlins, C., Indvik, J., & Johnson, P. R. (2008). Understanding the new generation: What the Millennial cohort absolutely, positively must have at work. *Journal of Organizational Culture, Communications and Conflict*, *12*(2), 1.

Reitzig, M. (2022). How to get better at flatter designs: considerations for shaping and leading organizations with less hierarchy. *Journal of Organization Design*, *11*(1), 5–10. https://doi.org/10.1007/s41469-022-00109-7

Renkema, M., Bondarouk, T., & Bos-Nehles, A. (2018). Transformation to self-managing teams: lessons learned: A look at current trends and data. *Strategic HR Review*, *17*(2), 81–84. https://doi.org/10.1108/SHR-10-2017-0072

Renn, R. W., & Vandenberg, R. J. (1995). The critical psychological states: An underrepresented component in job characteristics model research. *Journal of Management*, *21*(2), 279–303. https://doi.org/10.1016/0149-2063(95)90059-4

Robbins, S. P., & Judge, T. (2009). *Organizational behavior*. Pearson South Africa.

Robertson, B. J. (2007). *Organization at the Leading Edge: Introducing Holacracy™*.

Robertson, B. J. (2015). *Holacracy: The revolutionary management system that abolishes hierarchy*. Penguin UK.

Robertson, M., Scarbrough, H., & Swan, J. (2003). Knowledge creation in professional service firms: Institutional effects. *Organization Studies*, *24*(6), 831–857. https://doi.org/10.1177/0170840603024006002

Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands-resources model: Implications for improving work and health. In Georg F. Bauer & Oliver Hämmig (Eds.), *Bridging occupational, organizational and public health* (pp. 43–68). Springer.

Schell, S., & Bischof, N. (2022). Change the way of working. Ways into self-organization with the use of Holacracy: An empirical investigation. *European Management Review*, *19*(1), 123–137. https://doi.org/10.1111/emre.12457

Schneider, B. (1987). E = f(P,B): The road to a radical approach to person-environment fit. *Journal of Vocational Behavior*, *31*(3), 353–361. https://doi.org/10.1016/0001-8791(87)90051-0

Schneider, B., Goldstiein, H. W., & Smith, D. B. (1995). The ASA framework: an update. *Personnel Psychology*, *48*(4), 747–773.

Schwaber, K., & Sutherland, J. (2020). *The scrum guide*. https://scrumguides.org/docs/scrumguide/v2020/2020-Scrum-Guide-US.pdf#zoom=100

Searle, B. J., & Lee, L. (2015). Proactive coping as a personal resource in the expanded job demands–resources model. *International Journal of Stress Management*, *22*(1), 46. https://doi.org/10.1037/a0038439

Seibert, S. E., Silver, S. R., & Randolph, W. A. (2004). Taking empowerment to the next level: A multi-level model of empowerment, performance, and satisfaction. *Academy of Management Journal*, *47*(3), 332–349. https://doi.org/10.2307/20159585

Seibert, S. E., Wang, G., & Courtright, S. H. (2011). Antecedents and consequences of psychological and team empowerment in organizations: A meta-analytic review. *Journal of Applied Psychology*, *96*(5), 981–1003. https://doi.org/10.1037/a0022676

Sherehiy, B., & Karwowski, W. (2014). The relationship between work organization and workforce agility in small manufacturing enterprises. *International Journal of Industrial Ergonomics*, *44*(3), 466–473. https://doi.org/10.1016/j.ergon.2014.01.002

Sherehiy, B., Karwowski, W., & Layer, J. K. (2007). A review of enterprise agility: Concepts, frameworks, and attributes. *International Journal of Industrial Ergonomics*, *37*(5), 445–460. https://doi.org/10.1016/j.ergon.2007.01.007

Slocombe, T. E., & Bluedorn, A. C. (1999). Organizational behavior implications of the congruence between preferred polychronicity and experienced work-unit polychronicity. *Journal of Organizational Behavior*, *20*(1), 75–99. https://doi.org/10.1002/(SICI)1099-1379(199901)20:1%3C75::AID-JOB872%3E3.0.CO;2-F

Spence Laschinger, H. K., Finegan, J., Shamian, J., & Wilk, P. (2001). Impact of structural and psychological empowerment on job strain in nursing work settings: Expanding Kanter's model. *JONA: The Journal of Nursing Administration*, *31*(5), 260–272. https://doi.org/10.1097/00005110-200105000-00006

Spreitzer, G. M. (2008). Taking stock: A review of more than twenty years of research on empowerment at work. In Barling, J., Cooper, C. L. (Ed.), *The SAGE Handbook of Organizational Behavior: Volume I - Micro Approaches* (Vol. 1, pp. 54–72). SAGE Publications Ltd. https://doi.org/10.4135/9781849200448.n4

Stamm, S. E., & Kaegi, U. (2019). Von Orange zu Türkis: Herausforderungen für die Führung beim organisationalen Wandel zu einer integral-evolutionären Organisation. In M. W. Fröse, B. Naake, & M. Arnold (Eds.), *Perspektiven Sozialwirtschaft und Sozialmanagement. Führung und Organisation: Neue Entwicklungen im Management der Sozial- und Gesundheitswirtschaft* (pp. 249–266). Springer VS. https://doi.org/10.1007/978-3-658-24193-3_13

Starkey, K., Barnatt, C., & Tempest, S. (2000). Beyond networks and hierarchies: Latent organizations in the UK television industry. *Organization Science*, *11*(3), 299–305. https://doi.org/10.1287/orsc.11.3.299.12500

Stevens, M. J., & Campion, M. A. (1994). The knowledge, skill, and ability requirements for teamwork: Implications for human resource management. *Journal of Management*, *20*(2), 503–530. https://doi.org/10.1177/014920639402000210

Stewart, G. L., Courtright, S. H., & Manz, C. C. (2011). Self-leadership: A multilevel review. *Journal of Management*, *37*(1), 185–222. https://doi.org/10.1177/0149206310383911

Stiglbauer, B., & Kovacs, C. (2018). The more, the better? Curvilinear effects of job autonomy on well-being from vitamin model and PE-fit theory perspectives. *Journal of Occupational Health Psychology*, *23*(4), 520–536. https://doi.org/10.1037/ocp0000107

Thoms, P., Moore, K. S., & Scott, K. S. (1996). The relationship between self-efficacy for participating in self-managed work groups and the Big Five personality dimensions. *Journal of Organizational Behavior*, *17*(4), 349–362. https://doi.org/10.1002/(SICI)1099-1379(199607)17:4<349::AID-JOB756>3.0.CO;2-3

Tims, M., Derks, D., & Bakker, A. B. (2016). Job crafting and its relationships with person–job fit and meaningfulness: A three-wave study. *Journal of Vocational Behavior*, *92*(1), 44–53. https://doi.org/10.1016/j.jvb.2015.11.007

Tong, J., Wang, L., & Peng, K. (2015). From person-environment misfit to job burnout: Theoretical extensions. *Journal of Managerial Psychology.* Advance online publication. https://doi.org/10.1108/JMP-12-2012-0404

Turco, C. J. (2016). *The conversational firm: Rethinking bureaucracy in the age social media*. Columbia University Press. http://gbv.eblib.com/patron/FullRecord.aspx?p=4561854

Väänänen, A., Toivanen, M., & Lallukka, T. (2020). Lost in autonomy – temporal structures and their implications for employees' autonomy and well-being among knowledge workers. *Occupational Health Science*, *4*(1-2), 83–101. https://doi.org/10.1007/s41542-020-00058-1

Valve Corporation (Ed.). (2023). *Press Inquiries*. https://www.valvesoftware.com/en/press/inquiries

van Vianen, A. E. M. (2018). Person–environment fit: A review of its basic tenets. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 75–101. https://doi.org/10.1146/annurev-orgpsych-032117-104702

Vinodh, S., Aravindraj, S., Pushkar, B., & Kishore, S. (2012). Estimation of reliability and validity of agility constructs using structural equation modelling. *International Journal of Production Research*, *50*(23), 6737–6745.

Wall, T. D., Kemp, N. J., Jackson, P. R., & Clegg, C. W. (1986). Outcomes of autonomous workgroups: A long-term field experiment. *Academy of Management Journal*, *29*(2), 280–304. https://doi.org/10.5465/256189

Walter, A.-T. (2021). Organizational agility: Ill-defined and somewhat confusing? A systematic literature review and conceptualization. *Management Review Quarterly*, *71*(2), 343–391. https://doi.org/10.1007/s11301-020-00186-6

Warr, P [Peter] (1990). The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology*, *63*(3), 193–210. https://doi.org/10.1111/j.2044-8325.1990.tb00521.x

Warr, P [Peter] (1994). A conceptual framework for the study of work and mental health. *Work & Stress*, *8*(2), 84–97. https://doi.org/10.1080/02678379408259982

Warr, P [Peter]. (2019). Jobs, people, and well-being: The vitamin model. In T. Taris, M. Peeters, H. de Witte, & M. Hovden (Eds.), *The fun and frustration of modern working life: Contributions from an occupational health psychology perspective: Festschrift for prof. dr. Wilmar Schaufeli* (pp. 70–79). Pelckmans Pro.

Warr, P [Philippa] (2013). Former Valve employee: “It felt a lot like high school.”. *Wired*. https://www.wired.com/2013/07/wireduk-valve-jeri-ellsworth/

Weber, Y., & Tarba, S. Y. (2014). Strategic agility: A state of the art introduction to the special section on strategic agility. *California Management Review*, *56*(3), 5–12. https://doi.org/10.1525/cmr.2014.56.3.5

Winby, S., & Worley, C. G. (2014). Management processes for agility, speed, and innovation. *Organizational Dynamics*, *43.* https://doi.org/10.1016/j.orgdyn.2014.08.009

Yao, Y., & Ma, Z. (2022). Toward a holistic perspective of congruence research with the polynomial regression model. *Journal of Applied Psychology.* Advance online publication. https://doi.org/10.1037/apl0001028

Zhang, Z., & Sharifi, H. (2000). A methodology for achieving agility in manufacturing organisations. *International Journal of Operations & Production Management*, *20*(4), 496–513. https://doi.org/10.1108/01443570010314818

Appendix

Manuscript 1

Doblinger, M. (2022). Individual competencies for self-managing team performance: A systematic literature review. *Small Group Research, 53*(1), 128–180. https://doi.org/10.1177/10464964211041114

Article

Individual Competencies for Self-Managing Team Performance: A Systematic Literature Review

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Abstract

Self-managing teams are popular but they can only benefit team performance if their members are competent to navigate within self-managing systems. Based on a systematic literature search on self-managing, self-directing, and self-leading teams, we reviewed 84 studies related to KSAOs and traits in self-managing teams. Grounded on existing models of team effectiveness and individual KSAOs, we integrated all findings into one KSAO model and showed the relations of single KSAOs with team performance. The results resembled other KSAO frameworks but were more comprehensive and provided practical application and future research guidance, for example, studying team compositions of individual KSAOs.

Keywords

competencies, KSAOs, self-managing teams, self-organization, self-leading teams

Increasingly volatile, complex markets, employees' changing requirements, and the growth of knowledge-based work have fostered interest in less hierarchical organizational structures (Bernstein et al., 2016; Lee & Edmondson,

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2017). Reducing hierarchy implies transferring decision-making authority from upper toward lower organizational levels and thus decentralizing decision authority. Although most organizations develop their customized model of flat hierarchies, one common essential element among them is teams with responsibility for specific issues, high autonomy in their decisions, and high self-management. Previous research has referred to such teams as, among other things, self-managing, self-directing, self-leading, self-designing, or self-governing teams (Hackman, 1986; Stewart et al., 2011). We subsume all such labels under *self-managing teams* (SMTs) in the remainder of this paper.

SMT setups have been proven to benefit team performance, for example, productivity improvement or cost savings, and higher employee satisfaction (Cohen & Ledford, 1994; Cohen et al., 1996). Already in 1996, 17% of nonmanagerial employees worked, according to the American National Employer Survey, in teams that decided by themselves how to complete their tasks (Cappelli & Neumark, 2001). Recently, organizational culture trends such as agility, New Work, and empowerment have pushed SMTs by increasing the number of SMTs and the extent of self-management within teams (Petermann & Zacher, 2020). Consequently, practitioners ask more and more often what working in SMTs requires of their members and what individual characteristics are relevant to high SMT performance (Breidenbach & Rollow, 2020; Gloger & Rösner, 2014). Accordingly, previous research on team effectiveness or person–environment fit has proved the relevance of the individual characteristics for the success of the entire team and the surrounding system (Boyatzis, 1982; Kristof-Brown et al., 2005; Mathieu et al., 2008, 2014). SMTs have been the subject of scientific study over the last four decades (Hackman, 1986; Stewart et al., 2011), but until now there has been no comprehensive, sufficiently detailed picture of the individual knowledge, skills, abilities, and other characteristics (KSAOs) required for SMTs to function successfully or even how these factors are related. Indeed, Magpili and Pazos's (2018) seminal review provides a good overview of the multilevel factors that influence the performance of SMTs. However, due to its limited scope, the review provided only a rough overview of six factors and three types of relevant individual skills for SMT performance. This approach is too vague for application to training or selection of team members (Krumm et al., 2012). To understand SMT success better, it is therefore necessary to focus on the individual factors and comprehend not only the relations between individual KSAOs and SMT performance outcomes but, because of their mutual interdependence, also the relationship between KSAOs with performance behaviors and team members' affect and viability (Mathieu et al., 2008). Performance behaviors lead to goal achievement (e.g., leadership, team

learning), whereas performance outcomes (e.g., objective KPIs of the team's work) are the result of performance behaviors. Furthermore, the interactions of the team members' KSAOs are also relevant for team composition. Besides, as the influence of KSAOs varies over time (Mathieu et al., 2014), a separate focus on the initial phase of SMTs is important to understand successful SMT introduction and initiation. Consequently, a more detailed approach is necessary to further promote SMTs and their success by selecting and supporting team members adequately. Furthermore, several general competency models have been developed, for example, Bartram (2005). However, besides not being developed for self-managing teams, these models relate their competencies only to individual outcome performance and do not include other relevant variables for team performance, for instance, performance behavior or affective and health outcomes (Mathieu et al., 2008). Hence, the current paper also aims to expand the relevant theory and advance existing models by considering a broader perspective and including further relevant outcome variables. Additionally, this paper adds competencies that are specific for SMTs to the existing theory. Accordingly, after introducing relevant theoretical concepts, this paper constructs a comprehensive picture of the relations of individual KSAOs not only with respect to performance outcomes but also performance behaviors, team member's affective and health outcomes, and successful SMT initiation.

Individual KSAOs and Performance of SMTs

Implications of Empowered Teams and Self-Management at Team Level for the Individual

Structural empowerment, implying that teams hold extensive decision-making authority, requires self-leadership at the team level. According to Stewart et al. (2011), this is understood best as a continuum, and different degrees of self-leadership translate into different decisions to be made at the team level. While externally managed teams do not influence the *what*, *how*, and *why* of work, self-managing teams decide on the *how* aspect and self-leading teams decide on all the aspects. For instance, self-leading teams are responsible for budget, personnel decisions, and product quality. To reduce complexity, we use the SMT concept for all teams that at least control the *how* of work (as suggested by Stewart et al., 2011).

Structural empowerment predicts work-unit performance and organizational cost-effectiveness as well as individual performance and satisfaction (Cappelli & Neumark, 2001; Seibert et al., 2004; Spence Laschinger et al., 2001). In contrast, Stewart et al. (2011) reported mixed impacts of structural

team-level empowerment on important outcomes, such as team productivity, satisfaction, organizational commitment, or absenteeism. Negative relations were probably caused due to a lack of psychological empowerment; it is a compound of perceived job meaningfulness, self-determination, impact, and competence, and was found to be the mediator of the positive effects of structural empowerment in other studies (Seibert et al., 2004, 2011; Spence Laschinger et al., 2001; Spreitzer, 1995). We focus here on the aspect of competence, as for experiencing competence adequate KSAOs are necessary and SMTs demand different KSAOs from their members compared to other settings (Hackman, 1986, 2002). As the efficacy of KSAOs is always context dependent (Kristof-Brown et al., 2005), a specific exploration of KSAOs with respect to SMTs is necessary.

The Role of Individual Competencies and Characteristics in SMTs' Success

According to classic input-process-output models and more complex input-mediator-output-input models, individual-level factors are also significant for team processes and team performance (Ilgen et al., 2005; Mathieu et al., 2008; McGrath et al., 2000). Individual-level factors include individual characteristics such as KSAOs but also performance, motivation, or commitment, which in turn are outcomes related to adequate KSAOs (Kristof-Brown et al., 2005; Mathieu et al., 2014). Traditional personnel-position fit models focused especially on position- or task-specific KSAOs (Mathieu et al., 2014). However, as SMTs require different KSAOs from their members, we are interested in a personnel model with a team and, specifically, SMT focus (as suggested by Mathieu et al., 2014). Previous research has already developed specific competency models for teamwork in general but not for SMTs (Cannon-Bowers et al., 1995; Salas et al., 2005; Stevens & Campion, 1994). As SMTs additionally assume managerial tasks, the members need broader competencies. Therefore, we have developed a competency model based on past SMT research, which is specific to members of SMTs.

KSAOs or *competency* can be used interchangeably (Krumm et al., 2012) and were conceptualized in various ways, taking either a characteristic-based or a behavior-based approach. Characteristic-based approaches define competencies as the personal characteristics or disposition necessary for good performance in the relevant context (e.g., Campion et al., 2011; Spencer et al., 1994), whereas behaviorally oriented approaches focus on the necessary types of behaviors (e.g., Bartram, 2005). To build a competency model for SMTs, we rely on Bartram's (2005) competency model for general job performance, which is the intersection of various existing standalone models.

Table 1. Competency Model for General Job Performance (Bartram, 2005).

Competency cluster	Competency
1 Leading and deciding	1.1 Deciding and initiating action
	1.2 Leading and supervising
2 Supporting and cooperating	2.1 Working with people
	2.2 Adhering to principles and values
3 Interacting and presenting	3.1 Relating and networking
	3.2 Persuading and influencing
	3.3 Presenting and communicating information
4 Analyzing and interpreting	4.1 Writing and reporting
	4.2 Applying expertise and technology
	4.3 Analyzing
5 Creating and conceptualizing	5.1 Learning and researching
	5.2 Creating and innovating
	5.3 Formulating strategies and concepts
6 Organizing and executing	6.1 Planning and organizing
	6.2 Delivering results and meeting customer expectations
	6.3 Following instructions and procedures
7 Adapting and coping	7.1 Adapting and responding to change
	7.2 Coping with pressure and setbacks
8 Enterprising and performing	8.1 Achieving personal work goals and objectives
	8.2 Entrepreneurial and commercial thinking

Note. For the additional 120 subcompetencies, see Bartram (2005).

The model consists of 20 specific behavioral competencies and 120 subcompetencies categorized into eight clusters (see Table 1). Bartram suggested that although single (sub-)competencies must be modified, every competency model for any specific job could be categorized into the model's eight clusters. The model's empirical base, universality, and behavior-oriented character make it especially useful for scientific and applied purposes (Krumm et al., 2012) and thus also an adequate framework for our work.

An Individual Competency Model for SMT Performance

To build our model, we relied on findings regarding individual KSAOs and their relations to the team and individual-level outcomes, as empirical research and theory have shown the influence of individual outcomes on team outcomes. Besides, the aforementioned input-process-output models, which include individual satisfaction, motivation, and performance, were

taken as additional input for team processes (Ilgen et al., 2005; Mathieu et al., 2008; McGrath et al., 2000), as empirical study has shown the positive effects of, for example, individual satisfaction or engagement on the team and organizational performance (Glew, 2009; Koys, 2001; Taris & Schreurs, 2009; Uddin et al., 2019). We are aware that a personnel model with team focus cannot account for the complex team interactions that a team model focused on relative contributions could account for. However, findings from previous research were not sufficient to fully adopt such a perspective. Therefore, this paper focuses on the relationship between individual KSAOs and team outcomes and considers the effect of team age. Furthermore, it discusses the findings on relative contributions and interactions after the sections on individual KSAOs.

Previous SMT research has dealt with work and student teams. Although our research question is especially relevant for work teams, findings on student teams are also valuable, as student teams also possess relevant SMT characteristics. Student teams are non-hierarchical, they lead themselves as a group, they work toward a common goal, and decide at least on the *how* of their work. Indeed, work teams on average exist longer than student teams, which often exist only for 4 to 6 months. However, short- or fixed-term teams devoted to specific projects are also relevant in business contexts, and therefore they could also learn from short-term student teams. Accordingly, the literature review includes employee and student teams.

The increasingly demanding work in SMTs requires other KSAOs of employees compared with traditionally managed teams (Bernstein et al., 2016; Hackman, 1986; Petermann & Zacher, 2020). Moreover, besides establishing empowering structures, adequate KSAOs at the employee level are decisive in ensuring that empowerment benefits team performance in the short and long terms. Previous research on SMTs has provided insights into the associations of different individual KSAOs or behaviors with outcomes such as performance or satisfaction. However, the findings are essentially scattered, and an integrated, detailed view is still missing. Therefore, we build a comprehensive picture of these requirements in the present work to provide a base for further research and practical applications. Using the approach of a systematic literature review, the framework of input-process-output models (Mathieu et al., 2008), and the existing model for general job performance (Bartram, 2005), we develop a competency model for individual and team performance behavior, performance outcomes, and affective and health outcomes, as well as SMT initiation, as detailed in the following paragraphs.

Method. First, we identified relevant keywords for our systematic literature search (see Table 2). Our multiple database search in November 2019 yielded

Table 2. Search Terms Used for Database Search.

First search term	Second search term
Self-managing/self-managed + team	Competency
Self-directed/self-directing + team	Ability
Autonomous + team	Skills
Self-leading + team	Factors
Self-organizing/self-organized + team	Factors + individual
Self-governing + team	Skill
Self-managing/self-managed + group	Individuals
Self-directed/self-directing + group	Individual factors
Autonomous + group	Individual influence
Self-leading + group	Knowledge, skills, and abilities
Self-organizing/self-organized + group	KSA/KSAO

Note. Every term on the left side was combined with every term on the right side. Terms with slashes were entered separately but are grouped in this table for more clarity.

329 empirical, peer-reviewed study papers. The comprehensive search included the following databases: Web of Science, Emerald, Science Direct, EconLit, APA PsycArticles, APA PsycInfo, SocINDEX, and PSYNDEX. The findings were published between 1971 and 2020. The articles originated from a broad range of disciplines, including industrial and organizational psychology, management, engineering, software development, and nursing and health care research. We screened the studies' abstracts with respect to the following inclusion criteria: (a) English as the publication language; (b) original research paper published in a peer-reviewed journal; (c) research on SMTs; (d) research on individual, internally determined factors—such as behaviors, attitudes, or personality traits—measured on the individual as well as team levels; (e) empirical approach using a qualitative, quantitative, or mixed methods approach. We included teams that at least controlled the *how* of their work. The second step, abstract screening, yielded 76 potentially relevant studies. In the third step, the detailed analysis of the content, we excluded another 19 studies because they did not fulfill every inclusion criterion; this resulted in 57 relevant studies. In the final step, we screened the references of the review papers resulting from the initial search, and later in the writing process, we additionally searched for studies on SMT composition to make the review more comprehensive. We extracted 27 additional articles, resulting in a final list of 84 studies as reported in the following section (for details, see Table 3).

A comprehensive picture of individual KSAOs for SMT performance. In the following sections, we develop an individual competency model for SMT

Table 3. Studies and Descriptive Characteristics.

Authors	Focus	Outcome category	Research design	Sample	Sample size	n° SMTs	Size SMT[c]	Context
Ainsworth (2016)	Individual co- and self-regulatory strategies	PO	Case study	Students	31	8	3–4	Academic education
Alper et al. (1998)	Decision-making	PO	Cross-sectional	Employees	540	60	unk	Manufacturing
Andrés et al. (2015)	High performance practices	PB	Case study	Employees	unk.	unk.	5–20	Manufacturing
Armstrong and Priola (2001)	Cognitive style	PB	Cross-sectional	Students	100	11	4–12	Business game
Attaran and Nguyen (1999)	Success factors and barriers	SI	Case study	Employees	80	11	unk.	Energy corporation
Banai et al. (2000)	Procedures	PB	Case study	Employees	unk.	unk.	9–11	Agriculture, orchestra
Barry and Stewart (1997)	Personality traits	PO	Cross-sectional[a]	Students	289	61	4–5	Academic education
Boone et al. (2005)	Locus of control	PB, PO	Cross-sectional	Employees	193	44	2–7	Simulation game
Bransford (2006)	Dynamic authorization of individuals	PB	Ethnographic study	Employees	unk.	1	unk.	Health care
Caplan and Wong (2016)	Success factors	SI	Ethnographic study	Employees	unk.	1	unk.	Library
Carson et al. (2007)	Shared leadership	PO	Cross-sectional	Students	348	59	4–7	Consulting
Carte et al. (2006)	(Shared) leadership behaviors	PO	Longitudinal	Students	unk.	22	unk.	Academic education
Cheng et al. (2012)	Uncertainty avoidance	PO	Longitudinal	Students	375	67	5–6	Academic education
Coetzer and Trimble (2009)	Adult attention deficit	PO	Cross-sectional[a]	Students	304	76	4–5	Academic education
Cohen et al. (1997)	Self-management behaviors	AH, PO	Quasi-experimental	Employees	896	163	*Md* = 10	Telecommunications
Cohen et al. (1996)	Group characteristics	AH, PO	Quasi-experiment	Employees	unk.	122	unk.	Telecommunications

(continued)

Table 3. (continued)

Authors	Focus	Outcome category	Research design	Sample	Sample size	n° SMTs	Size SMT[c]	Context
DeRue et al. (2015)	Interpersonal perceptions	PB	Longitudinal	Students	1,351	255	*M* = 5.3	Consulting
Doorewaard et al. (2002)	Responsibility distribution	PO	Case study	Employees	unk.	36	unk.	HR Management
Druskat and Kayes (2000)	Relationship and task-oriented behaviors	PO	Cross-sectional	Students	138	26	5–8	Academic education
Duimering and Robinson (2007)	Behavioral norms	PO	Case Study	Employees	10	1	10	Production, final assembly
Eby and Dobbins (1997)	Individual collectivistic orientation	PO	Cross-sectional[a]	Students	148	33	3–6	Business game
Elloy et al. (2001)	Burnout factors	AH	Cross-sectional	Employees	320	31	5–28	Heavy industry
Eseryel and Eseryel (2013)	Transformational leadership	PB	Grounded theory	Volunteers	25	unk.	unk.	Software development
Fausing et al. (2013)	Shared leadership	PO	Cross-sectional	Employees	552	81	3–24	Manufacturing company
Fontana et al. (2014)	Agile development maturity	PB	Cross-sectional	Employees	51	unk.	unk.	Software development
Frye et al. (2006)	Emotional intelligence	PO	Cross-sectional	Employees	130	33	2–13	Retail
Gill et al. (2020)	Personality traits and team interactions	PO	Cross-sectional[a]	Students	415	70	4–7	Academic education
Gray (2012)	Emotional intelligence and team resilience	PO	Longitudinal	Students	150	42	unk.	Business simulation game
Guchait et al. (2014)	Personality traits	PO	Longitudinal	Students	178	27	4–9	Academic education
Gupta et al. (2011)	Social capital and collective leadership	PO	Cross-sectional	Students	146	36	3–5	Business simulation game
Den Hartog et al. (2020)	Personality traits	PB	Longitudinal	Students	243	32	5–9	Academic education

(continued)

Table 3. (continued)

Authors	Focus	Outcome category	Research design	Sample	Sample size	n° SMTs	Size SMT[c]	Context
Hawkins (2013)	Team member interactions	PO	Ethnographic study	Employees	unk.	2	unk.	Consulting
Hirschfeld et al. (2006)	Teamwork knowledge	PO	Cross-sectional	Employees	1,158	92	11–13	Military
Hoda and Murugesan (2016)	Project management challenges	PO, PB	Grounded theory	Employees	21	21	5–15	Software development
Hoda et al. (2012)	Practices in agile teams	PB	Grounded theory	Employees	40	16	2–20	Software development
Hu et al. (2019)	Personality traits and prosocial motivation	PB	Cross-sectional[a]	Students/ Employees	223/337	69/79	3–4	Academic education, retail
Humphrey et al. (2011)	Personality variance	PO	Experimental	Students	288	77	4–5	Academic education
de Jong et al. (2004)	Flexible role orientation and interpersonal support	PO	Longitudinal	Employees	730	61	unk.	Finance
de Jong and de Ruyter (2004)	Proactive and adaptive recovery behavior	PO	Cross-sectional	Employees	809	61	unk.	Finance
de Jong et al. (2001)	Perceived uncertainty	AH	Longitudinal	Employees	140	27	unk.	Office equipment
Kiffin-Petersen and Cordery (2003)	Trust and individualism	PO	Cross-sectional	Employees	218	40	unk.	Water utility
Lambe et al. (2009)	Team self-management behaviors	PO	Cross-sectional	Employees	124	10	unk.	Pharmaceutical company
Lanaj and Hollenbeck (2015)	Behaviors and gender	PB, PO	Cross-sectional[b]	Students	181	36	5	Academic education
Langfred (2004)	Intrateam trust	PO	Cross-sectional	Students	248	71	4	Academic education
Lee and Paunova (2017)	Motivation to learn	PB	Cross-sectional[a]	Students	287	36	7–9	Academic education

(continued)

Table 3. (continued)

Authors	Focus	Outcome category	Research design	Sample	Sample size	n° SMTs	Size SMT[c]	Context
Liu et al. (2012)	Power distance and psych. ownership	PO	Cross-sectional[a]	Employees	284	105	unk.	Telecommunications
Markova and Perry (2014)	Team cohesion	AH	Cross-sectional	Students	236	54	4–5	Academic education
Millikin et al. (2010)	Individual self-management	PO	Cross-sectional	Employees	716	97	*M* = 8.04	Semiconductor production
Mitchell and Bommer (2018)	Prosocial/impression management motives	PB	Cross-sectional[a]	Students	208	49	3–5	Academic education
Moe et al. (2009)	Barriers	SI	Case study	Employees	34	5	6–8	Agile software development, Manufacturing
Moe et al. (2010)	Barriers	PO	Case study	Employees	8	1	8	Software development
Murnighan and Conlon (1991)	Success factors	PO	Phenomenological study	Employees	80	20	4	Musicians
Nederveen Pieterse et al. (2019)	Goal orientation diversity	PO, PB	Experimental	Students	285	57	5	Academic education
Neubert and Taggar (2004)	Personality traits and gender	PB	Cross-sectional	Employees	237	18	1–25 (*M* = 12)	Small appliance manufacturing
Nicholls et al. (1999)	Success factors	SI	Qualitative survey	Managers	243	—	—	Management training
Oliver and Roos (2003)	Behaviors in case of critical incidents	PO	Case study	Employees	15	1	15	Development of toys
Ostermeier et al. (2020)	Conscientiousness	PB	Cross-sectional[a]	Students	410	62	5–8	Academic education
Paik et al. (2019)	Emotional intelligence	PO, PB	Cross-sectional[a]	Employees	599	102	4–7	Academic education
Parker (2007)	Flexible role orientation	PO	Longitudinal	Employees	58/153	unk.	unk.	Agile manufacturing

(continued)

Table 3. (continued)

Authors	Focus	Outcome category	Research design	Sample	Sample size	n° SMTs	Size SMT[c]	Context
Paunova (2017)	Core self-evaluations	PB	Cross-sectional[a]	Students	230	36	7–8	Academic education
Pearsall and Ellis (2006)	Critical team member assertiveness	PO, AH	Experimental	Students	268	67	4	Simulation game
Politis (2003)	Trust and knowledge management	PO	Cross-sectional	Employees	228	49	9	Aerospace manufacturing
Powell and Pazos (2017)	Personality traits and constellation	PO	Case study	Employees	22	3	3–9	High-value products
Quinteiro et al. (2016)	Thought self-leadership	PO	Cross-sectional[a]	Employees and students	453	103	3–5	Business game
Resick et al. (2014)	Collective leadership	PO	Experimental	Students	272	68	4	Simulation game
Rozell and Scroggins (2010)	Emotional intelligence	AH	Cross-sectional	Students	74	unk.	4–6	Academic education
Sarker et al. (2011)	Individual knowledge centrality	PO, PB	Cross-sectional	Students	91	16	3–5	Academic education
Seers et al. (1995)	Comparison of traditional and SMTs	AH	Quasi-experimental	Employees	103	unk.	unk.	Manufacturing
Sorrentino and Field (1986)	Motives	PB	Quasi-experimental	Students	48	12	4	Laboratory setting
Stephens and Lyddy (2016)	Heedful interrelating	AH, PO	Experiment, but cross-sectional analysis	Students	204	80	3	Laboratory setting
Taggar et al. (1999)	Personality traits	PO, PB	Cross-sectional[a]	Students	480	96	5	Academic education
Tasa et al. (2007)	Collective efficacy	PO	Longitudinal	Students	191	51	3–4	Academic education

(continued)

Table 3. (continued)

Authors	Focus	Outcome category	Research design	Sample	Sample size	n° SMTs	Size SMT[c]	Context
Thoms et al. (1996)	Personality traits	AH	Cross-sectional	Employees	126	unk.	unk.	Manufacturing
Wageman (1997)	Success factors	PO	Case study	Employees	unk.	43	unk.	Business services
Weerheim et al. (2019)	Initiation of SMTs	PO	Case study	Employees	18	2	unk.	Health care
Williams et al. (2010)	Proactive behavior	SI	Cross-sectional	Employees	289	43	*M* = 7.16	Petro-chemical production
Wolff et al. (2002)	Emotional and cognitive skills	PB	Cross-sectional[a]	Students	382	48	7–10	Academic education
Wood et al. (2013)	Teamwork	PO	Cross-sectional	Students	141	40	*MD* = 4	Business project
Yang and Guy (2004)	Success factors	SI	Qualitative survey	Managers	204	—	—	City management
Yazid et al. (2018)	Conflict management strategies	PB	Case study	Employees	unk.	4	unk.	IT, herbal products
Yeatts et al. (2001)	Team member behaviors and characteristics	PO	Cross-sectional	Employees	396	40	unk.	Aerospace, telecommunications
Yoo and Alavi (2004)	Communication	PB	Cross-sectional	Employees	63	7	8–10	Virtual training
Zafft et al. (2009)	Behavioral complexity leadership behaviors	PO	Cross-sectional	Students	81	17	5–7	Academic education
Zhou et al. (2020)	Emotional intelligence, decision making	PB	Cross-sectional	Students	241	54	3–7	Academic education

Note. unk. = unknown as not being mentioned in the study description; PO = performance outcome; PB = performance behavior; AH = Affective or health outcome; I = successful initiation.

[a]Time-delayed measurement of outcomes.

[b]Untraceably reported as longitudinal by the authors.

[c]Number of participants.

performance based on the empirical findings for SMTs and the theoretical framework of Bartram (2005). We integrate the findings with individual-level and team-level outcomes, as both contribute to team performance (as discussed previously). To provide a comprehensive overview of the findings, we also graphically report the relations of the KSAOs to the different outcomes: performance outcome (Figure 1), performance behaviors (Figure 2), affective and health outcomes (Figure 3), and SMT initiation success (Figure 4). Additionally, we have developed some propositions regarding the benefit of each KSAO cluster for SMT performance (see Table 4).

Individual Competencies for SMT Performance

The reviewed studies indicate the relevance of all eight competency clusters (see Figures 1–4). For further structuring, we oriented toward the specific competencies and subcompetencies of Bartram's framework (see Table 1). In the following paragraphs, we show the findings for each competency cluster and their relationship to the team- and individual-level outcomes. We start with a summary and then go into the details for each cluster, including team and individual level findings.

Leading and Deciding

The literature review revealed that within the cluster of leading and deciding, *leading and supervising* and *deciding and initiating action* were relevant. Particularly, the reviewed literature provided evidence for the subcompetencies *taking responsibility*, *acting on own initiative*, *making decisions, showing a broad range of leadership* behaviors, and *living shared leadership principles*.

Deciding and initiating action

Taking responsibility. This subcompetency includes two aspects: taking responsibility for a specific task as well as for oneself. It refers to being the director and taking accountability for a task or for one's own behavior. Quantitative studies have shown that members of high-performing teams more often took responsibility for team tasks and also encouraged others to do so (Carte et al., 2006; Zafft et al., 2009). Similarly, high-performing SMT members stood out by proactively taking responsibility for additional tasks and leadership roles (Ainsworth, 2016). Case studies have also shown that taking responsibility and initiative were essential to counterbalance the high degree of freedom in SMTs and were a major requirement of any role within

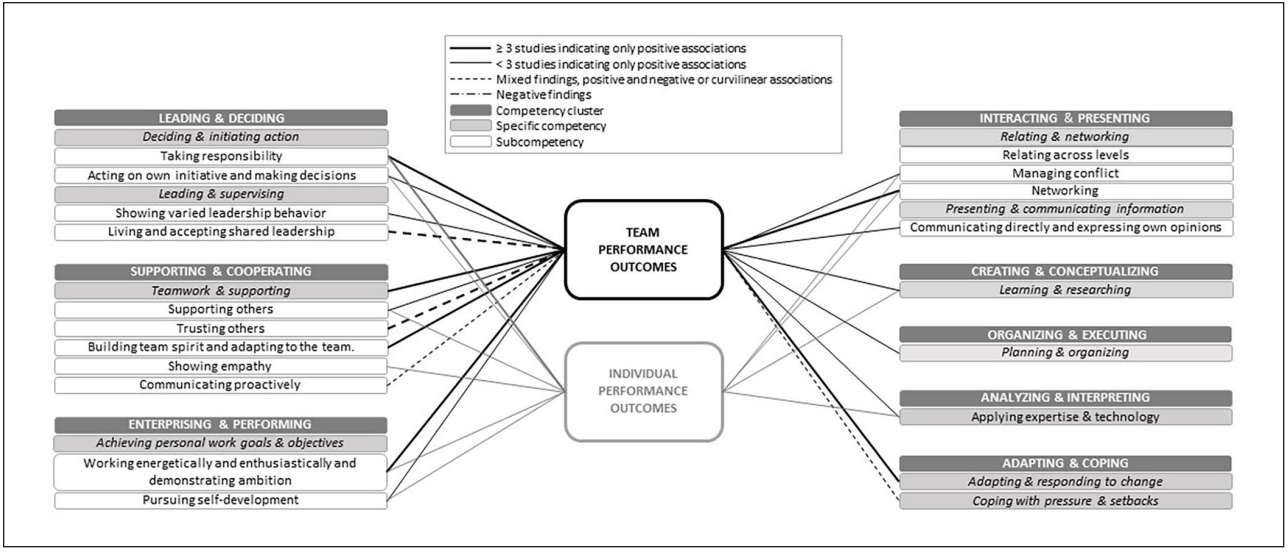

Figure 1. The relations of individual competencies to individual and team performance outcomes.
Note. Links are drawn between performance outcomes and subcompetencies, but when a further distinction was not possible, links are shown between performance outcomes and the corresponding competencies or competency clusters.

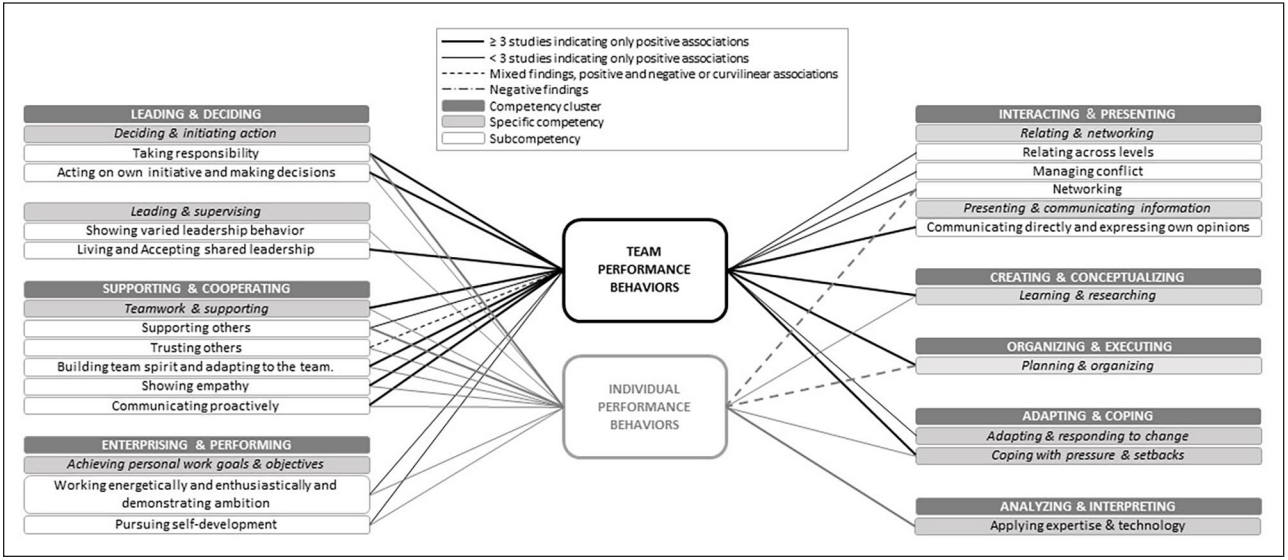

Figure 2. The relations of individual competencies to individual and team performance behaviors.
Note. Links are drawn between performance behaviors and subcompetencies, but when a further distinction was not possible, links are shown between performance behaviors and the corresponding competencies or competency clusters.

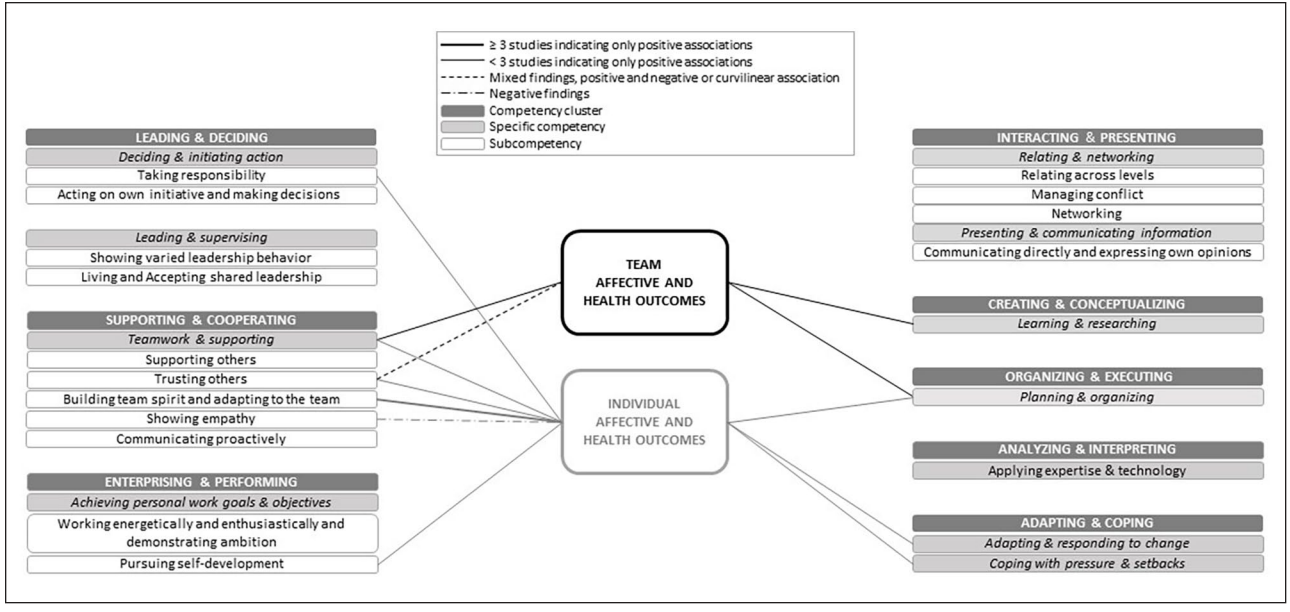

Figure 3. The relations of individual competencies to individual and team affective and health outcomes.
Note. Links are drawn between affective and health outcomes and subcompetencies, but when a further distinction was not possible, links are shown between affective and health outcomes and the corresponding competencies or competency clusters.

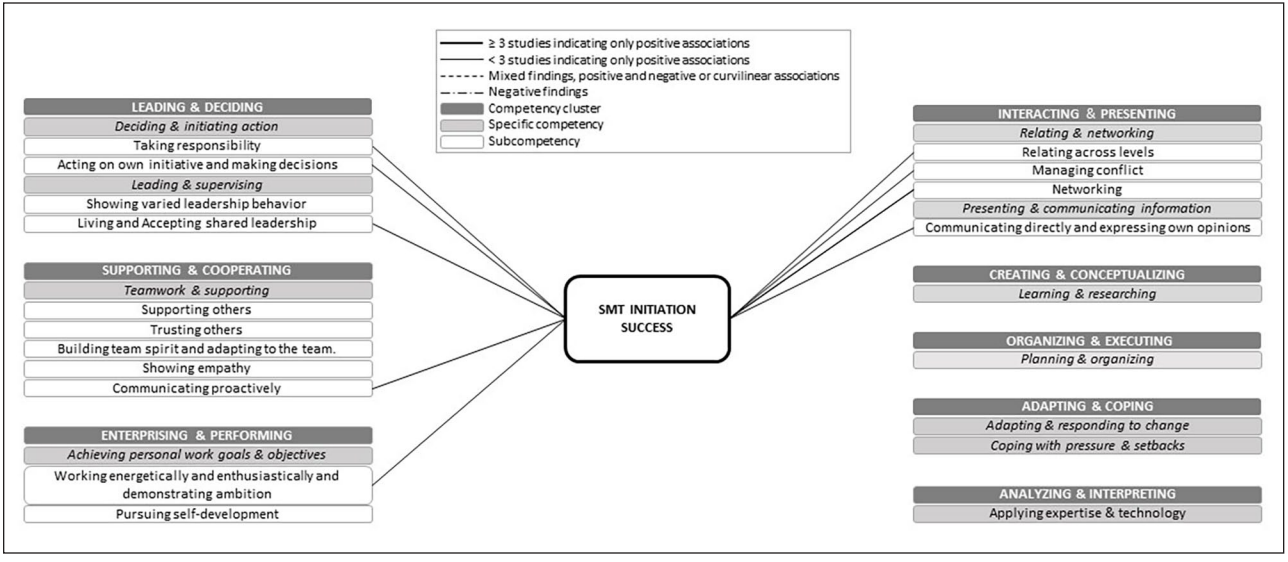

Figure 4. The relations of individual competencies to SMT initiation.

Table 4. Propositions Regarding Performance in SMTs.

Propositions
1 The competency of deciding and initiating action is beneficial for SMT performance.
1.1 Taking responsibility is especially beneficial for performance behaviors and outcomes.
1.2 Acting on one's own initiative and making decisions is especially beneficial for performance behaviors.
2 The competency of leading and supervising is beneficial for SMT performance.
2.1 Living and accepting shared leadership principles in knowledge-working contexts is beneficial to performance behaviors and outcomes.
2.2 Showing various leadership styles and behaviors is beneficial for performance behaviors and outcomes.
3 The individual competency of teamwork and supporting is especially beneficial for performance behaviors and outcomes in SMTs.
3.1 Building team spirit and adapting to the team is beneficial for performance behaviors and outcomes, as well as affective and health outcomes.
3.2 Supporting others is particularly beneficial for performance behaviors and outcomes.
3.3 Showing empathy is particularly beneficial for performance behaviors.
3.4 Trusting in the good intentions of the others is particularly beneficial for performance outcomes.
3.5 Proactively communicating is particularly beneficial for performance behaviors but not for affective outcomes.
4 The competency of relating and networking is beneficial for SMT performance.
4.1 Managing conflict is especially beneficial for performance outcomes.
4.2 Networking is especially beneficial for performance outcomes.
4.3 Relating across levels is beneficial for SMT initiation and performance behavior.
5 The competency of presenting and communicating information, especially communicating directly and expressing one's own opinion, is particularly beneficial for performance behaviors in SMTs.
6 The competency of applying expertise and technology in terms of applying and building technical expertise is beneficial for performance behaviors in SMTs.
7 The competency of learning and researching, especially in terms of encouraging and supporting organizational learning, is particularly beneficial for performance behavior in SMTs.
8 The competency of planning and organizing is especially beneficial for performance behaviors in SMTs.
9 The competency of adapting and responding to change, especially by adapting and accepting new ideas and dealing with ambiguity, is particularly beneficial for performance behaviors and outcomes in SMTs.
10 The competency of coping with pressure and setbacks is especially beneficial for performance behaviors in SMTs.
10.1 Working energetically and demonstrating ambition is especially beneficial for performance outcomes in SMTs.
10.2 Pursuing self-development is beneficial for performance behaviors and outcomes as well as for affective and health outcomes in SMTs

self-managing organizations (Andrés et al., 2015; Banai et al., 2000; Duimering & Robinson, 2007; Hoda & Murugesan, 2016; Hoda et al., 2012). In contrast, blaming individual team members who made decisions with the intent of solving a conflict, instead of taking responsibility as a team, impeded constructive conflict management (Yazid et al., 2018). In turn, according to a detailed multiple case study, responsibility sharing within the team was positively associated with team performance and personal development (Doorewaard et al., 2002). Additionally, training in the area of participation, responsibility, empowerment, and involvement facilitated successful initiation of SMTs (Attaran & Nguyen, 1999).

Concerning the facilitators for taking responsibility, some research has focused on flexible role orientation, which implies a rather broad definition of one's work role and enables individuals to take responsibility for goals, proactively define their roles, and perceive the responsibility to anticipate and prevent problems (Parker, 2007). In her seminal, longitudinal study with high external validity through two separate samples, Parker (2007) found that flexible role orientation predicted moderately higher performance. It even had an incremental value in addition to other important factors such as job satisfaction or self-efficacy. Specifically, showing collaborative, team-oriented behaviors in addition to those required by one's actual role was related to team and individual performance and leadership emergence[1] (de Jong et al., 2004; Lee & Paunova, 2017).

Acting on own initiative and making decisions. This subcompetency refers to taking action in anticipation of challenges and opportunities without others' stimulation. It also includes making decisions instead of waiting for more information or delegating the task to others and thus probably accepting calculated risks. Previous research has identified that being proactive and proactively engaging in problem-solving activities are relevant for team strategic thinking, learning, and performance (Ainsworth, 2016; Druskat & Kayes, 2000; Wageman, 1997). Furthermore, a proactive personality was found significant for successful SMT initiation and proactive team behavior (Williams et al., 2010). Besides, a simulation study with students found individual decision quality to be predictive of team decision performance (Zhou et al., 2020). Intuitiveness, which refers to a cognitive style characterized by a preference for a broad perspective and non-conformist and open-ended approaches to problem-solving and decision-making (Armstrong & Priola, 2001), has been found to facilitate proactivity. Based on interaction analyses over 5 months, Armstrong and Priola (2001) found that individuals with an intuitive action style initiated moderately more socio-emotional and slightly more task-oriented behaviors than analytic individuals. Furthermore,

formal leaders showed an intuitive style significantly more often than other team members, which is meaningful, as the team members had elected their leaders. Besides, moderate levels of assertiveness, referring to dominant and decisive behaviors focusing on getting along, predicted higher levels of advice-seeking by one's peers (Hu et al., 2019).

Leading and supervising

Living and accepting the principles of shared leadership. Shared leadership refers to all team members being "involved in the process of leading one another toward productive ends" (Pearce et al., 2014, p. 277). This consequently requires the ability to lead and follow the leader (DeRue & Ashford, 2010). Banai et al. (2000) identified the ability to lead and follow the leader as a success factor for self-managing organizations. In turn, a major, manager-reported challenge for the initiation of SMTs was establishing leadership among team members (Nicholls et al., 1999). Carte et al. (2006) verified the relevance of leadership behavior longitudinally: better performing teams showed more shared and concentrated leadership behaviors than worse performing teams. Especially in the early stages of team formation, shared monitoring leadership behaviors were relevant, and collective leadership (Hiller et al., 2006) was a positive predictor for team information elaboration and performance (Resick et al., 2014).

However, considering an SMT's type of work, Fausing et al. (2013) found through regression analysis that shared leadership predicted higher team performance only for knowledge workers, though not for manufacturing teams, for whom it predicted even poorer performance. Besides, Markova and Perry (2014) found that intragroup disagreement regarding leadership roles was negatively associated with group cohesion. Unfortunately, the study did not consider the alternative of shared leadership, which limits its informative value as shown by Taggar et al. (1999). Based on a large sample, they showed that besides central leadership, the leadership behaviors of all team members were decisive for team performance; even to the extent that when these were weak, the central leadership's effect disappeared. DeRue et al. (2015) demonstrated that team members' agreement with shared leadership predicted higher leadership density and lower leadership centrality at the team level.

Showing various leadership styles and behaviors. Leadership can have different styles and corresponding roles, for example, directive leadership including coordinating roles or participative leadership including mentoring behaviors (Carte et al., 2006; Quinn, 1984). One individual can perform various leadership roles, which is called behavioral complexity, and this for instance was related to the managers' effectiveness in traditional teams (Denison et al.,

1995). Considering leadership roles in SMTs, Zafft et al. (2009) found that here, too, behavioral complexity was clearly associated with higher team performance. Studies analyzing the leadership type found positive associations of behaviors focused on producing results, managing processes, and leading change with team performance (Carte et al., 2006). Besides, action-embedded transformational leadership behaviors were relevant for individual leadership emergence (Eseryel & Eseryel, 2013).

Supporting and Cooperating

Regarding the cluster *supporting and cooperating*, *teamwork and supporting* were especially relevant. Specifically, we found evidence for several sub-competencies, for example, *supporting others*, *trusting others*, and *building team spirit*.

Teamworking and supporting. Teamwork refers to a "set of interrelated thoughts, actions, and feelings of each team member that are needed to function as a team and that combine to facilitate coordinated, adaptive performance and task objectives resulting in value-added outcomes" (Salas et al., 2005, p. 562). Based on a literature review of research on all types of groups, Stevens and Campion (1994) identified conflict resolution, collaborative problem-solving, communication, goal setting, and performance management, as well as planning and task coordination behaviors as essential for teamwork. Several studies on SMTs have investigated the broad concepts of teamwork or collaboration. Tasa et al.'s (2007) comprehensive longitudinal study revealed that the teamwork behaviors identified by Stevens and Campion (1994) predicted higher team performance through increased collective efficacy within newly established teams. Furthermore, based on an SEM, Hirschfeld et al. (2006) found that the mere knowledge of these teamwork behaviors predicted moderately higher performance and teamwork effectiveness. Additionally, perceived team cooperation predicted moderately higher team performance, motivation, and openness to change (Eby & Dobbins, 1997; Yeatts et al., 2001).

Besides, qualitative research found cooperation essential for team performance and effectiveness in agile software development, and traced problems regarding task coordination, shared decision-making, and mutual support back to a lack of teamwork competence (Fontana et al., 2014; Moe et al., 2010; Wood et al., 2013). Ethnographic research on shared leadership in SMTs identified collaboration as a prerequisite for the team members' mutual understanding of the current and changing authority distributions (Bransford, 2006). Furthermore, agreeableness, characterized by

cooperativeness, courteousness, soft-heartedness, trustfulness, tolerance, and flexibility (Barrick & Mount, 1991; Sheese & Graziano, 2004) positively correlated with teamwork behaviors as well as self-efficacy for participating in SMTs (Powell & Pazos, 2017; Thoms et al., 1996). Powell and Pazos's (2017) case study showed that agreeable team members cooperated more, for example, by exchanging task-related information with other members, giving and accepting feedback, providing backup behaviors, and engaging in problem-solving. Additionally, teams' average agreeableness predicted moderately stronger team cognition over time (Guchait et al., 2014). Besides the research on the broad construct of teamwork, several studies have also investigated individual facets of teamwork, which allows us to further distinguish subcompetencies in the following paragraphs.

Supporting others. Supporting others refers to providing material and intangible resources to help another person reach a specific goal or a desired mental state. Based on an SEM, Wolff et al. (2002) found that behaviors to support and develop others predicted higher team task coordination, which in turn predicted individual leadership emergence. Accordingly, two robust studies showed that team colleagues perceived as supporting and advising were attributed informal leadership roles (especially male colleagues) and performed substantially better (Gill et al., 2020; Neubert & Taggar, 2004). Furthermore, intrateam and interteam support predicted higher team performance, and proactive and adaptive behavior (de Jong & de Ruyter, 2004; de Jong et al., 2004). Additionally, Hu et al. (2019) identified the moderating effect of prosocial motivation, which refers to being motivated by helping and benefiting others. In principle, moderate degrees of assertiveness or warmth predicted the highest levels of popularity and advising role, but high prosocial motivation increased the levels of warmth and assertiveness that were still beneficial. Hence, prosocial motivation seems to make warmth and assertiveness more accepted, probably because it increases authenticity. Additionally, using multilevel modeling, Mitchell and Bommer (2018) found that prosocial motivation predicted slightly higher leadership emergence.

Trusting others. Trusting others in terms of believing in the trustworthiness and honesty of others but also believing in the capabilities of others is an aspect investigated in various studies on SMTs. Kiffin-Petersen and Cordery (2003) showed a positive association between dispositional trust (the general propensity to trust others) and situational forms, such as trust in coworkers or management, with a preference for teamwork. Moreover, individual trusting relationships predicted knowledge transfer (Sarker et al., 2011). However, trust in SMTs was not exclusively positive; managers' perceptions

of intrateam trust predicted only the perception that these SMTs achieved a lower cost reduction but not quality improvement or employee satisfaction (Yang & Guy, 2004). Furthermore, based on an SEM, Politis (2003) found a non-significant effect of interpersonal trust on performance and differential effects on knowledge acquisition, predicting a moderate to high increase in some dimensions but a decrease in others. Interestingly, the dimensions of interpersonal trust also varied in their effects; while trust in the capabilities of others was positively related to communication and problem solving, it was negatively related to preparing and presenting ideas to others, leading and managing projects, and possessing good domain knowledge.

Conversely, faith in the trustworthiness of others was positively related to presenting ideas to others, leading and managing projects, as well as communication and problem-solving. However, although the fit indices of the model were good, these findings must be interpreted with care as the sample size was marginal ($N = 49$ teams) and too small for the applied method of parameter estimation.[2] Gupta et al. (2011) found a non-significant correlation between trust in terms of the other's trustworthiness and team performance, but the small sample ($N = 36$ teams) probably impeded statistical significance in this case as well. Langfred (2004) investigated trust at the team level, individual autonomy, and team performance in student SMTs. He found a negative nonlinear relationship between intrateam trust and monitoring, such that with increasing trust, intrateam monitoring decreased. Teams with high individual autonomy performed worse in the case of high intrateam trust and low intrateam monitoring, while teams with low individual autonomy performed better in the case of high trust. However, although Langfred's (2004) findings resulted from sound statistical analyses, they seem to be of limited generalizability, as the sample comprised temporarily existing student teams in which trust was at least at a moderate level. As the effect proved to be nonlinear, it probably differs for lower levels of trust.

To conclude, while trust in the good intentions of others seemed to foster knowledge acquisition and collaboration processes, probably by providing a safe environment, specific facets of interpersonal trust, such as trust in the capabilities of others, appeared to have adverse effects on performance. These adverse effects might stem from other background processes such as social loafing (Latané et al., 1979) or interactions with potentially confounding variables, for example, conscientiousness or power distance (for details, see the sections on *interacting and presenting* and *organizing and executing*).

Building team spirit and adapting to the team. This subcompetency refers to behaviors that strengthen team cohesion and team identity and contribute

to the success as one team (Silva et al., 2014). It also includes behaviors for adapting to the team (e.g., deprioritizing one's own needs or goals in favor of team goals and cohesion). The perception of goals as collaborative instead of competitive correlated with engaging in constructive controversy (Alper et al., 1998). Based on an SEM, de Jong et al. (2001) found that perceived team commitment to the common goal predicted distinctly higher job satisfaction, slightly lower intention to leave, and a reduced negative effect of uncertainties within the team's context. Qualitative findings showed similar patterns: Prioritizing team goals and individual commitment were relevant for successful team self-management (Moe et al., 2009, 2010; Murnighan & Conlon, 1991; Oliver & Roos, 2003). Additionally, in quantitative studies, individualism in terms of the cultural dimension of collectivism–individualism[3] (Hofstede, 1980) was negatively related to teamwork preference and trust in the coworkers (Kiffin-Petersen & Cordery, 2003). Besides, qualitative research showed that individualism impeded transparency and knowledge transfer (Moe et al., 2010). In turn, a higher proportion of collectivist-oriented team members predicted moderately higher perceived team cooperation (Eby & Dobbins, 1997). Besides, relationship orientation (femininity in terms of Hofstede, 1980) was important for team performance at later stages of student teams (Cheng et al., 2012), probably to ensure long-term team stability. Murnighan and Conlon (1991) and Oliver and Roos (2003) identified the integration and appreciation of all team members' skills and diverse contributions as benefiting SMT performance. Interpersonal emotional intelligence, including demonstrating oneself as a cooperative group member and establishing mutual interpersonal relationships (Bar-On et al., 2000), predicted higher focus on team tasks and intrateam cooperation (Frye et al., 2006). However, these results may be biased by gender, as the same was not balanced in the sample or statistically controlled.

Teamwork efficacy, the perceived capability to successfully perform specific tasks as a team, was positively related to individual teamwork behavior and team cohesion (Markova & Perry, 2014; Tasa et al., 2007). Specifically, based on a robust SEM, Tasa et al. (2007) found that teamwork efficacy predicted considerably higher team performance and slightly higher individual teamwork behavior. Similarly, confidence in effective intrateam interactions correlated positively with self- and supervisor-rated performance (Alper et al., 1998). Moreover, high group cohesion, comprising perceived friendliness, trust, and loyalty among coworkers, was decisive for the positive effect of high individual self-management with respect to team performance (Millikin et al., 2010). Furthermore, group cohesiveness and identity correlated positively with individual well-being and satisfaction (Markova &

Perry, 2014; Seers et al., 1995), thereby demonstrating the significant role of team spirit.

Showing empathy. Showing empathy refers to behaviors enabling experiencing, understanding, and sharing another person's emotions while still recognizing that these emotions are not one's own (Cuff et al., 2016). Wolff et al.'s (2002) quantitative study of student SMTs based on behavior measurement by critical incidents identified showing empathy as a predictor of slightly higher information synthesis, pattern identification within loose information, and perspective-taking. Both predicted slightly more supporting and developing of others and indirectly higher group task coordination and leadership emergence. Additionally, empathy was associated with more constructive conflict management, task orientation, and intrateam cooperation (Frye et al., 2006; Murnighan & Conlon, 1991).

Emotional intelligence, closely related to empathy, and which includes perceiving emotions, facilitating thought, understanding, and managing emotions (Mayer & Salovey, 1997), was also investigated in the context of SMTs. Zhou et al. (2020) found that individual and team-level emotional intelligence predicted psychological safety and team decision performance. Based on hierarchical linear modeling, Paik et al. (2019) found in their detailed investigation that the skills to perceive and understand certain emotions predicted higher individual performance, while the skills to use and manage emotions were irrelevant. This highlights the relevance of the empathy-related aspects of emotional intelligence. Generally, high emotional intelligence predicted slightly higher individual performance in the aspects of leadership and teamwork. The effect was stronger in bigger and in more diverse teams (diverse regarding age, ethnicity, and Big Five personality traits). However, the effect disappeared in the case of high team average emotional intelligence. Applying the same questionnaire as Paik et al. (2019), Rozell and Scroggins (2010) found that the understanding of emotions was related to negative feelings regarding group member relationships and group cohesion, both being dimensions of group satisfaction. The authors explained this phenomenon stating that this is because a better understanding of the team colleagues' emotions allows the perception of tensions that other colleagues could not even sense. Hence, the evaluation of group cohesion may be worse. On the other hand, the operationalization of SMTs in Rozell and Scroggins's study was critical; members of the participating teams had to apply for the team leadership, were selected by the researchers, and then the leader held a task-assignment power. Such a procedure is uncommon for student teams and may have caused irritation and limited generalizability. However, satisfaction with the group differs from job satisfaction and could

also function as an incentive to improve conditions, thereby increasing performance and leadership. This aligns with the previously mentioned findings of Paik et al. (2019).

Communicating proactively. Communicating proactively refers to expressing own needs, wishes, and possible disagreements regarding cooperation toward one's colleagues at an early stage. The inability to address critical issues in the relationship with others was an impeding factor for team learning and self-management (Moe et al., 2009). Earlier, Druskat and Kayes (2000) had shown that confronting members who break the norms strongly correlated with higher team learning. Besides, while the correlation with team performance was null, the authors found a negative effect through regression analysis. However, the inferential statistics' reliability is questionable, being based on a minimal sample size ($N=26$). Additionally, clarifying each member's necessary work contribution was related to SMT strategic thinking and performance (Wageman, 1997). Furthermore, research on SMTs also investigated impression management, the motivation to control the outside perception of oneself and intentionally construct a desirable image (Leary & Kowalski, 1990), which counteracts the proactive communication of one's needs or the perceived tensions. Using the painstaking approach of multilevel linear modeling, Mitchell and Bommer (2018) found that in temporary teams a member's impression management motive predicted lower leadership emergence when the team colleagues perceived them as showing few task coordination behaviors. However, in the case of perceived high task coordination, impression management motives did not affect leadership emergence. Similarly, case studies of permanent SMTs identified impression management as hindering the initiation of self-management (Moe et al., 2009, 2010).

Interacting and Presenting

Within the cluster *interacting and presenting*, the reviewed literature showed the relevance of *relating and networking*, as well as *presenting and communicating information*. Particularly, we found evidence for the subcompetencies *relating across levels, managing conflict*, *networking, communicating directly*, and *expressing own opinions*.

Relating and networking

Relating across levels. Relating across levels refers to building good relationships with persons of different hierarchy levels and different subject areas. Managers who experimented with SMTs reported in a qualitative survey that culture-contingent high power distance, which refers to the

individual acceptance of unequal power distribution in organizations (Hofstede, 1980), impeded the initiation of SMTs (Nicholls et al., 1999). According to the managers, high power distance employees struggled to assume leadership roles and be led by peers. More precisely, Liu et al.'s (2012) sound study identified power distance as a prerequisite for the effectiveness of empowering work conditions. Only in the case of low individual power distance did participative decision-making and SMT climate result in higher organization-based self-esteem, which was mediated by higher psychological ownership concerning the organization. Analogously, only with low individual power distance did participative decision-making and SMT climate predict higher affective commitment and organizational citizenship behavior. Additionally, direct communication to the customer was relevant for agile team maturity (Fontana et al., 2014). The communication between customers and developers includes bringing together different subject areas and hierarchy levels, which shows the importance of building relationships across levels.

Managing conflict. Managing conflict refers to actively handling and resolving conflict among team members in a constructive, solution-oriented way. Constructive controversy, including seeking a mutually beneficial solution, taking each other's perspective, discussing opposing views directly and openly, and integrating them for the best solution predicted moderately to strongly higher confidence in the team and its effectiveness (Alper et al., 1998). Similarly, qualitative research reported mediating behaviors and democratic conflict-resolution strategies as standout attributes of successful SMTs or team members (Ainsworth, 2016; Murnighan & Conlon, 1991). Furthermore, the training in conflict resolution skills eased the initiation of SMTs, with compromise and reconciliation being especially important in the initial phases (Attaran & Nguyen, 1999). In contrast, conflict avoidance strategies let teams become dependent on external leadership (Yazid et al., 2018). Although the qualitative evidence is unequivocal, seminal quantitative evidence for the competency of managing conflict is still lacking.

Networking. Networking refers to building and actively maintaining relationships with others and thereby gaining relevant information and support for one's goals (Gibson et al., 2014). Gill et al.'s (2020) exhaustive study based on network analysis and multilevel modeling showed that individual popularity among the teammates (expressive tie centrality) predicted moderately higher performance. Interestingly, in gender homogenous teams, one's expressive tie centrality could even mitigate the negative effect of one's low instrumental contributions on leadership emergence. The authors hypothesize expressive tie centrality as being a compensator for the lack of instrumental

contribution. It enhances emotional resources, such as psychological safety and team openness, which is especially effective in gender homogenous teams due to the similarity-attraction paradigm (Byrne, 1961). Additionally, Hu et al. (2019) found in their detailed study that moderate levels of warmth, as reflected in being affectionate and friendly in social interactions, predicted higher levels of advice seeking and peer liking. In turn, advice seeking and peer liking were positively related to leadership emergence (Hu et al., 2019). These findings seem to have good external validity, considering they were from two independent samples, one including temporary student teams and the other permanent teams of professionals. DeRue et al. (2015), on the other hand, relied on a large sample and found that the perceived warmth of an individual was negatively related to leadership behavior and leadership emergence. However, they did not check for nonlinear relations, as seen in Hu et al. (2019), which could have provided another insight. Nonetheless, one's perception of the team's warmth predicted one's leadership behavior mediated by identification with the group (DeRue et al., 2015).

Moreover, Sorrentino and Field's (1986) quasi-experimental study showed that affiliation motivation, which is the motivation to perform for social rewards, such as establishing good relations or gaining approval, was associated with socio-emotional and task leadership emergence, higher perceived contribution, competence, confidence, and more task-relevant interactions. Unfortunately, the authors did not report effect sizes or standard deviations, which inhibited conclusions regarding practical significance. Generally, good relationships were found relevant for SMT success (Sarker et al., 2011; Weerheim et al., 2019). One quasi-experimental study showed 3 months after an intervention to reinstall SMTs higher quality of team member exchange and cohesiveness in the SMTs than in the traditional teams (Seers et al., 1995). Team member exchange in turn correlated with increased team efficiency, although these results must be interpreted carefully as the sample size at the team level was only $N = 5$. Furthermore, building relationships with other teams and interpersonal understanding were moderately to strongly associated with higher team learning (Druskat & Kayes, 2000). In women, boundary-spanning behavior, the coordination with people outside the team to acquire resources, was linked to increased leadership emergence but not effectiveness, whereas it was linked to slightly decreased leadership emergence and effectiveness for men (Lanaj & Hollenbeck, 2015).

Presenting and communicating information

Communicating directly and expressing own opinions. This subcompetency includes sharing information in a direct way and expressing one's own opinions while fitting them well into the context. Generally, good team communi-

cation was found relevant for agile team maturity (Fontana et al., 2014). Case studies reported direct communication as essential for handling critical incidents, the enhancement of communication skills as facilitating the initiation of SMTs, and lack of communication as the root cause of problems in newly formed SMTs (Attaran & Nguyen, 1999; Moe et al., 2010; Oliver & Roos, 2003). Furthermore, case studies of self-managing organizations reported as essential the free flow of intrateam communication and expressing own opinions effectively and honestly, specifically toward the management (Andrés et al., 2015; Banai et al., 2000). Yang and Guy (2004) substantiated the role of communication quantitatively by showing the positive relationship between managers' perceptions of intrateam communication and product quality. However, we found no quantitative research that studied the role of communication from a self-reported team member's perspective. Using interaction analysis, Stephens and Lyddy (2016) investigated the mechanisms of communicative contributions in SMTs and, in particular, heedful interrelating, which refers to the individual awareness of how one's own contributions purposefully add to the team goal. Teams with more responsive communication patterns, including overlapping or linking own statements to that of colleagues, showed moderately higher team performance and a stronger perception of the team as a whole, which is one facet of team cohesion.

Analyzing and Interpreting

So far, only a few studies have dealt with the cluster analyzing *and interpreting* in the context of SMTs. Findings are limited to the field of *applying expertise and technology*, which refers to using one's technical knowledge and skills or certain specific technologies. This contrasts with building interdisciplinary skills. Tasa et al.'s (2007) robust quantitative study identified task-relevant knowledge as a predictor for moderately higher individual teamwork behavior, which again predicted moderately higher team performance through higher collective efficacy. Based on network analysis, Sarker et al. (2011) found for task-relevant knowledge only a positive association with performance, but showed that knowledge transfer, which was independent of actual knowledge, additionally predicted leadership emergence. Similarly, DeRue et al. (2015) identified peer-rated individual knowledge as a predictor for leadership emergence. Andrés et al. (2015) reported that in self-managing organizations, every employee was required and trained to possess knowledge about financials to enable them to own decision-making. Consequently, although mere knowledge application might not always be sufficient, it is nonetheless necessary for SMT performance.

Creating and Conceptualizing

The literature review showed that within the cluster *creating and conceptualizing*, the competency *learning and researching* especially was relevant. However, we could not distinguish further subcompetencies. *Learning and researching* includes individual knowledge acquisition by an active, self-directed search for relevant information and the support of team and organizational learning by fostering knowledge transfer and information sharing. Based on a network approach, Sarker et al. (2011) found through regression analysis that higher knowledge transfer to others predicted higher individual leadership emergence and performance. Besides, Ainsworth's (2016) case study showed that high-performing individuals shared their research and knowledge with others and gave constructive criticism. In turn, low-performing SMT members lacked strategies to ask for clarification and ensure understanding. Based on an SEM, though relying on a small sample, Politis (2003) found that knowledge acquisition predicted slightly to moderately higher team performance. Furthermore, retaining lessons learned was relevant for agile team maturity (Fontana et al., 2014). Looking for best practices and experimenting with new ways to work more effectively were essential for SMTs' strategic thinking and performance (Wageman, 1997). Team cognition, the intrateam mental organization, representation, and distribution of knowledge necessary for team functioning, was essential for organizational learning and was associated with team performance, team satisfaction, and team cohesion (Guchait et al., 2014). Specifically, transactive memory systems predicted distinctly higher team performance and team satisfaction, while team task understanding predicted distinctly higher team cohesion (Guchait et al., 2014). Transactive memory systems refer to individual memory systems and the interpersonal communication process to create a shared awareness of who knows what (Kozlowski & Ilgen, 2006; Wegner, 1987). Andrés et al. (2015) also reported team cognition as being crucial in self-managing organizations, where information transparency and information accessibility to all employees was a leading principle.

Organizing and Executing

Regarding the cluster organizing *and executing*, previous research has provided evidence for the specific competency *planning and organizing*. It includes behaviors to anticipate, identify, and schedule tasks and corresponding actions, and coordinating actions and other people. Team-level self-management behaviors, such as joint goal setting, joint planning, coordination, and collaboration, predicted slightly to moderately higher team performance

(Lambe et al., 2009). Furthermore, Cohen et al.'s (1997) influential quasi-experimental study with a large, diverse sample showed that SMT members reported the requirements of self-goal-setting and self-criticism more frequently than members of managed teams. In turn, self-goal-setting and self-criticism positively correlated with organizational commitment and satisfaction. Relatedly, case studies reported strengthening time management skills as beneficial, but unrealistic planning as impeding self-management (Attaran & Nguyen, 1999; Moe et al., 2009). Besides, sending coordinating and task-oriented messages was a distinguishing behavior of emerging leaders (Yoo & Alavi, 2004). Oliver and Roos (2003) identified prioritization and a clear product vision as facilitating the handling of critical incidents. Besides, Moe et al. (2009) found that unclear completion criteria for tasks and goals impeded team goal commitment, and hence planning the goal completion is important. The personality trait conscientiousness, which includes behaviors to act carefully, thoroughly, in a goal-directed, organized way (Barrick & Mount, 1991; Roberts et al., 2009), correlated with more positive attitudes regarding SMTs and an advising role within the team (Gill et al., 2020; Thoms et al., 1996). Taggar et al. (1999) found in a considerable student sample a general positive effect of conscientiousness on leadership emergence, whereas Neubert and Taggar (2004) found it only for men in a sample of employees, while for women the effect was reverse. At the team level, high conscientiousness predicted strong team cognition, which in turn was relevant for team performance (Guchait et al., 2014). Interestingly, conscientiousness was especially important in the initial team phases and became less relevant over the team lifecycle (Guchait et al., 2014).

Adapting and coping. The literature review showed that within the cluster adapting and coping, the specific competencies *adapting and responding to change* and *coping with pressure and setbacks* were relevant. However, the findings did not allow a further distinction of subcompetencies.

Adapting and responding to change. *Adapting and responding to change* includes adapting to new conditions, accepting and welcoming new ideas, but also dealing with the ambiguity arising from anticipated changes. One case study showed that, in critical situations, effective SMTs first tried to modify the external conditions, but soon realized and accepted the given conditions and instead adapted themselves to the situation (Oliver & Roos, 2003). Additionally, Yeatts et al. (2001) found that openness to experience correlated moderately with higher team performance. Adding quantitative evidence, de Jong and de Ruyter's (2004) influential study based on multilevel analyses showed that the adaptive recovery behavior at the team level

correlated positively with team performance. Quickly reacting to changing conditions improves performance outcomes. On the other hand, qualitative research showed that recognizing and managing ambiguity and tolerating high uncertainty were positively associated with team performance outcomes, especially in critical situations (Murnighan & Conlon, 1991; Oliver & Roos, 2003). Interestingly, Cheng et al. (2012) found a positive relationship between low uncertainty avoidance of student SMTs and team performance only in early team phases. This time effect may exist because in the early project phases, when little is known, more decisions must be made under more uncertain conditions. In such cases, being unable to make decisions under uncertainty will thus impede performance. Besides, Elloy et al.'s (2001) thorough SEM-based study showed that perceived role conflict and uncertainty about one's organizational position were associated with moderate increases in burnout factors, such as emotional exhaustion, depersonalization, and feelings of low personal accomplishment. Although not directly measured, these findings underpin the relevance of coping with ambiguity and uncertainty, considering that dynamic role definition and distribution are characteristic of SMTs (Lee & Edmondson, 2017).

Coping with pressure and setbacks. This subcompetency refers to handling pressure and setbacks well by regulating the own emotions efficiently but also maintaining a positive outlook despite potential difficulties. Quinteiro et al. (2016) found that thought self-leadership, referring to fostering constructive thoughts by applying mental imagery, (positive) self-dialogue, and evaluation of (dysfunctional) beliefs and assumptions, predicted team performance and viability, mediated through team collective efficacy. Emotional stability, the tendency of feeling confident, secure, and steady (Barrick & Mount, 1991), was found to predict slightly higher leadership emergence in Taggar et al.'s (1999) detailed study. Furthermore, Thoms et al. (1996) found, although based on a predominantly male sample, that low emotional stability not only predicted slightly lower self-efficacy for participating in SMTs, but also correlated negatively with attitude toward SMTs.

Gray (2012) showed that team resilience predicted higher team performance over time. Interestingly, he also found that perceiving and managing own emotions had a weak negative association with team performance but weak to moderate positive associations with team resilience. Overly focusing on dealing with emotions might trap one and impede performance. We propose that moderate levels might be more beneficial to performance, but curvilinear relationships were not investigated. Unfortunately, the findings are of limited validity due to variance restriction and a tiny sample (team level aggregation), as well as using a simulation game to gather data, which limited

the external validity. On the other hand, qualitative research identified calmness and focus under pressure as decisive for dealing with critical incidents and essential for constructive conflict resolution (Murnighan & Conlon, 1991; Oliver & Roos, 2003).

Enterprising and Performing

Within the cluster *enterprising and performing*, the reviewed literature showed the relevance of the competency *achieving personal work goals and objectives*. Specifically, the subcompetencies *working energetically and enthusiastically and demonstrating ambition*, and *pursuing self-development* were relevant.

Achieving personal work goals and objectives

Working energetically and enthusiastically and demonstrating ambition. This subcompetency includes putting effort and desire into one's actions and showing determination to perform and reach goals. Research has identified as relevant making extra efforts to show commitment to the team and its goals, being proactive, and engaging proactively in problem-solving activities (Ainsworth, 2016; Druskat & Kayes, 2000; Hawkins, 2013; Moe et al., 2009; Weerheim et al., 2019). Specifically, personal and task commitment and perseverance were positively related to team performance and agile team maturity (Fontana et al., 2014; Gray, 2012). Furthermore, qualitative and quantitative research found self-regulatory strategies for working autonomously and with focus, which are necessary to keep on track with one's goals, important for individual and team performance (Ainsworth, 2016; Coetzer & Trimble, 2009). Investigating individual motives in a quasi-experimental approach, Sorrentino and Field (1986) identified individual achievement motivation, which refers to taking pride in accomplishments—as a predictor for socio-emotional and task leadership emergence. Achievement orientation helps individuals to work toward their goals energetically. Consequently, more achievement-oriented individuals showed more task-relevant interactions and their peers rated their contribution, competence, and confidence higher (Sorrentino & Field, 1986). Unfortunately, the authors hardly explored the longitudinal effects, although the design would have allowed it.

Pursuing self-development. *Pursuing self-development* refers to seeking out and engaging in activities or behaviors that help one's skills, knowledge, and personality evolve further, and also increase one's level of experience. Based on a thorough SEM, Lee and Paunova (2017) found that individuals who set their goals in terms of competence development instead of mere ability demonstration (learning goal orientation) felt safer in their SMTs.

Besides, these individuals showed more collaborative, team-oriented behaviors, beyond the actual requirements of their roles. Mediated by felt safety, learning goal orientation predicted moderately higher leadership emergence. Furthermore, lack of team member interest in engaging in tasks outside one's specialization area threatened cross-functionality and team performance (Hoda & Murugesan, 2016). Research on this topic is in general still sparse, though findings regarding agility and organizational learning have suggested that individual behaviors to pursue self-development are important as well (Sherehiy & Karwowski, 2014).

Model of KSAOs for SMT Performance

Based on previous research findings, the present paper provides a model of individual KSAOs and traits beneficial to SMT performance. It gives details on the relations of individual KSAOs not only with the three performance aspects (performance outcomes, performance behaviors, and affective and health outcomes), but also with SMT initiation success. Besides the team-level performance perspective, the paper also offers a perspective on individual-level performance, as individual performance is also predictive of team performance (Figure 1 through Figure 4). The model is oriented toward the Bartram (2005) competencies for general job performance to cover all aspects regarding SMT performance, for example, not merely teamwork, but also managerial aspects. Our findings have much in common with the specific research on teamwork KSAOs by Stevens and Campion (1994), which also included managed teams (cf. section on teamwork). We found studies reporting the compound or single teamwork KSAOs as relevant in the field of SMTs (e.g., Hirschfeld et al., 2006; Tasa et al., 2007), and we derived similar competencies from the data. However, despite the commonalities, we found additional KSAOs that are not part of Stevens and Campion's (1994) model, especially regarding *deciding and initiating* action or *adapting and coping*. Therefore, like other authors (e.g., Williams et al., 2010), we think that to understand the individual KSAOs related to SMT performance, general teamwork KSAOs are not sufficient. The range of required activities in SMTs is even broader (i.e., they include more managerial aspects or more uncertainty), as there is no external leader providing safety and direction. Consequently, self-managing team KSAOs are better covered by a derivate of Bartram's (2005) model for general job performance.

Relation to Team Level Competency and Process Models

The present paper focuses on individual-level KSAOs and their relationship to team performance. Other authors have developed models for team-level

KSAOs and processes. Marks et al. (2001) identified mission analysis, goal specification, strategy formulation and planning, monitoring progress toward goals, systems monitoring, team monitoring and backup, coordination, conflict management, motivating and confidence building, and affect management as relevant team processes. Similarly, but in lesser detail, Salas et al. (2005) reported team leadership, mutual performance monitoring, backup behavior, adaptability, team orientation, shared mental models, mutual trust, and closed-loop communication as the most relevant aspects at the team level for teamwork performance. The KSAOs of the present paper are substantially in accordance with these team models and correspond to the individual requirements to contribute to the identified team processes and emergent states. For instance, the team process of conflict management requires, among other things, the individual competency of managing conflict. Still, the individual KSAO perspective adds value through its higher level of detail, as some team processes require several KSAOs. Besides, providing individual starting points makes it functional for practitioners.

The Interplay of Team Members' KSAOs Within SMTs

Despite the upside of relating individual KSAOs to team performance, we obviously cannot confine ourselves to observing team members in isolation. Team performance is always a result of team processes and interaction effects within the team, and therefore team-based perspectives must not be neglected (Mathieu et al., 2014). The question of how competencies and traits will play out if several team members show them is crucial. However, only a few studies so far have addressed the effects of diversity, curvilinear composition effects, fault lines, and KSAO centralization or density.

Research on team composition showed that a higher proportion of collectivist-oriented team members predicted moderately higher perceived team cooperation (Eby & Dobbins, 1997). Besides, Den Hartog et al. (2020) found a positive association of less variance in extraversion and conscientiousness with team innovation over time. The combination of minimal conscientiousness variance and maximized extraversion variance predicted the best short-term and long-term performance (Humphrey et al., 2011). Similarly, Ostermeier et al. (2020) found that too many highly conscientious members predicted less psychological safety, which in turn was related to lower performance. However, the authors did not report the optimal share of conscientious members. Diversity regarding openness was unrelated to team innovation, although, interestingly, low variance in agreeableness was associated with lesser team innovation over time (Den Hartog et al., 2020). Team diversity in proactive behavior predicted worse teamwork behavior, and

consequently less team proactive performance (Williams et al., 2010). This effect was mediated by worse interpersonal treatment in the case of high team diversity regarding proactive behavior, as the more proactive colleagues may complain about the less proactive colleagues. However, as previously mentioned, there was a clear positive main effect of proactivity on performance. Besides, divergence in goal orientation (learning vs. performance) was related to worse performance and information elaboration in SMTs, while in externally led teams the relations were reversed (Nederveen Pieterse et al., 2019). This shows that in SMTs goals have a leadership function, emphasizing the importance of setting and orienting toward goals. A moderate degree of team diversity regarding uncertainty avoidance was related to best performance (Cheng et al., 2012), probably because, on the one hand, too little uncertainty avoidance could promote too risky decisions and thus increase mistakes. On the other hand, too much uncertainty avoidance could impede necessary decisions and thus hinder the project's progress. The diversity probably enables the team to regulate itself and take the right amount of risk.

Similarly, moderate variance levels of relationship orientation were associated with the highest team performance. Relationship orientation variance may be beneficial because the team is diverse enough to regulate itself regarding task- and relationship focus, without entering into disputes due to too great differences. Diversity of expert skills and functional backgrounds was relevant for SMT and organizational performance in several studies, confirming the claim for cross-functional teams in agile work environments (e.g., Cohen et al., 1996; Hoda & Murugesan, 2016; Wageman, 1997). Depending on the type and amount of diversity, as well as its context, therefore, team diversity can either benefit or hinder SMT performance. This is in line with the inconsistent findings reported by Mathieu et al. (2014), who additionally pointed out possible interaction effects of diversity with time or the nature of the teams' tasks.

The relevance of characteristics that only one team member displayed was the subject of only a few studies. Paik et al. (2019) showed that individual emotional intelligence was especially effective when the team average emotional intelligence was low. Similarly, the assertiveness of the team members holding critical roles was predictive of high team performance and satisfaction (Pearsall & Ellis, 2006). In their longitudinal study, Volmer and Sonnentag (2011) found that having expert members for single tasks or team functions predicted higher performance, beyond the team's average expertise level. However, the paper did not clarify the level of self-management of the observed software development teams. Comparative research on shared and central leadership has substantiated the significance of intrateam leadership density for team performance: In the case of low shared leadership, the

positive effect of central leadership disappeared (Carte et al., 2006; Taggar et al., 1999).

Evidently, we need more research on interactions of the levels of one specific KSAO, but also between different KSAOs at the team level. A mere main effect approach, for instance, may overlook the effect of specific competencies that benefit the team only when they are centralized, for example, questioning the status quo (Belbin, 1993; Mathieu et al., 2014). Nonetheless, we think that the identified compound of KSAOs already includes some KSAOs that facilitate positive interaction effects between the individual KSAOs of team members. For instance, adapting to the team or showing empathy presumably supports team members to show the situationally adequate type and dose of behaviors.

Critical Appraisal of the Reviewed Studies

The studies under review relied on quantitative and qualitative methodology, including longitudinal, cross-sectional, experimental, phenomenological, ethnographic, or case study-based approaches. Most studies relied on samples of either permanently installed SMTs in work contexts or newly formed SMTs in academic contexts. The missing shared past of newly formed teams may reduce the results' validity, but otherwise it can give insights into the varying influence of one factor over the team's lifecycle (e.g., Guchait et al., 2014). Notably, most studies relied on real-life academic teams; therefore, differences are not merely explicable by a laboratory study character (as is frequently the case in other areas). However, an extrapolation of findings for student samples to other samples is not always possible, for example, the correlation of conscientiousness with leadership differed between samples of students and employees (Neubert & Taggar, 2004; Taggar et al., 1999). Findings indicate that additional moderating factors such as gender or team age were causal for the differences (Guchait et al., 2014; Neubert & Taggar, 2004). Consequently, multi-sample approaches (e.g., Hu et al., 2019) and the consideration of team age or gender are especially valuable. Indeed, several studies controlled for sociodemographic moderators such as gender (e.g., Gill et al., 2020; Lanaj & Hollenbeck, 2015; Neubert & Taggar, 2004), whereas others did not, which biased findings in the case of unbalanced samples (e.g., Kiffin-Petersen & Cordery, 2003; Politis, 2003; Thoms et al., 1996). Sample size was a recurring challenge of the reviewed studies. Unfortunately, many studies lost statistical power and informative value by exclusively using team-level aggregated data instead of applying a method of multilevel analysis to cover individual and team level simultaneously (e.g., linear mixed models) and thus increase explanatory power (Baayen et al.,

2008). We mainly identified positive competencies from the literature search (Figures 1–4). The quantitative literature in particular revealed primarily positive or neutral relations and only a few negative ones. Negative associations were integrated as opposite poles or discussed as contradictory findings. Furthermore, in some areas the dose or type was decisive (e.g., trust), marked in the figures as mixed findings. Overall, only a few studies reported analyses of curvilinear relations, which thus should be of greater interest for future research.

Limitations

As Stewart et al. (2011) suggested, we defined SMT to include the continuum from self-managing to self-governed teams. We took this approach since a more detailed scaling was impossible for most studies, not only because of missing information and too unspecific definitions but also due to the very fragmented results. However, this trade-off blurred the line between manager-led and self-leading teams and probably fostered the similarities to previous findings for teamwork in general. On the other hand, as SMTs are a specific form of teams, and therefore share many attributes, the high similarity is also plausible. Additionally, we included student SMTs, which made up a significant part (37 of 84) of the studies. This may limit applicability for employee teams, but otherwise, it also offers incremental value by including the perspective of short-term teams, which are also relevant for business but indeed have been less studied. Furthermore, the investigated SMTs' size in some cases varied substantially between and within studies (see Table 3). As group size can affect interrelations (e.g., Barry & Stewart, 1997) our findings may have limited relevance. Lastly, we could not make any statements about the relative and absolute relevance of the single competencies because the data did not allow such conclusions; nevertheless, this is relevant for practice. Similarly, we could not address exhaustively the crucial factors of time and team age (Marks et al., 2001; Mathieu et al., 2014), as only a few studies included a temporal component; where available, though, we reported it.

Implications for Practice, Theory, and Future Research

The present paper advances theory and practice by integrating current knowledge on individual KSAOs in SMTs and showing their relations to the different indicators and dimensions of team performance and effectiveness (Mathieu et al., 2008, 2014). The review expands the knowledge beyond Magpili and Pazos's (2018) previous review of multilevel input factors of

SMTs, by deep-diving into the individual factors and connecting the findings to a broader set of outcome variables. This extension is essential, as Magpili and Pazos's work did not provide exhaustive details for organizational practice.

Implications for Practice

The developed KSAO model can guide different HR practices, including personnel recruitment, selection, and development, but also organizational culture development. In general, the adaption of an established model such as the Bartram model facilitates using existing HR tools. Relatively stable and therefore hard to train subcompetencies such as *working energetically and enthusiastically and demonstrating ambition* serve as selection criteria for personnel recruitment in addition to the specialist requirements. Furthermore, the model provides indications to find adequate candidates not only by their technical knowledge but also by their prior job profiles. For instance, candidates whose previous tasks already required them to bear responsibility due to the nature of the task may fit better into SMTs. Besides, to develop high-performing SMTs and foster value-adding team processes, well-trainable subcompetencies, such as *managing conflict* and *communicating proactively*, should be addressed in training curricula. Hence, the model is helpful for operative and strategic personnel and team development. Besides, it serves also as a basis for developing the organizational culture. Knowing appropriate behaviors for high SMT performance, the organization can build an organizational climate and leadership culture that facilitates and encourages these behaviors. For instance, the subcompetency *trusting others* can be encouraged by structurally providing transparency, building a safe space, or role modeling of the management.

Implications for Theory and Research

Advancing theory and research, the review relates individual competency research to team effectiveness research. The derived propositions serve as testable hypotheses and the identified competencies as behavioral factors in quantitative research. Furthermore, this paper has expanded the existing model of general job performance (Bartram, 2005); it identified specific competencies for SMTs and enhanced the findings by including further relevant outcome variables, like performance behavior and affective and health outcomes (Mathieu et al., 2008). Besides, the review shed light on the mechanisms of team performance reporting the specific relationships of individual KSAOs with the different outcomes relevant to team performance. The

results allow identifying white spots to focus on in future research; for instance competencies, with which only a few studies so far have dealt, for example, *coping with pressure and setbacks*, or relations between specific clusters and outcomes, for example, *enterprising and performing* and affective/health outcomes. For some subcompetencies, the review also showed controversial findings, such as *trusting others*. A further exploration of moderating and mediating effects helps to understand the underlying relations better and draw conclusions for practice.

Addressing the team perspective, the review gives some insights into the interplay of individual KSAOs among team members, shows the significance of team member composition, and identifies the lack of research in this field. It serves as starting point for the valuable further investigation of interactions of individual KSAOs with other team members' same or different KSAOs, the interaction with team age, the effect of fault lines, the role of detrimental ceiling effects, or diversity (c.f. Mathieu et al., 2014).

At the intra-individual level, the identified competencies are partly counteractive, at least in their maximum expression, but curvilinear effects have rarely been explored. Here, the present paper offers a starting point for a quantitative investigation that simultaneously considers all relevant variables to understand the intra-individual interplay of KSAOs. Besides, the review has identified various potentially confounding variables, for example, gender, which future studies on team performance should control.

The review also brings up future research questions. A broad range of qualitative studies has identified aspects, for which additional quantitative research should advance knowledge on effect sizes and relative influences. We have identified more and less trainable KSAOs, but there has so far been hardly any quantitative experimental training study to clarify causal relations, practical relevance, or application possibilities in the field of SMTs. Furthermore, as already mentioned, many studies used only moderately self-leading teams. To expand the knowledge on the effects of high self-leadership, a more substantial consideration of highly self-leading teams is required. Moreover, the majority of findings resulted from SMTs embedded in rather traditional organizational contexts. Considering that more and more organizations are applying self-management principles organization wide, it is promising to explore the transferability of SMT findings to such settings, and any consequent differences.

Conclusion

Based on a systematic review of the empirical literature on SMTs of the last four decades, we have created a comprehensive picture of the individual

competencies related to different performance and success indicators of SMTs. The review showed that individual KSAOs in SMTs differ from those of teams in general and are significant for team performance in various ways. The current review advances theory by offering starting points to identify interdependencies of single factors or white spots, and by providing a starting point for studying team composition regarding individual KSAOs. Also, the results can serve to enhance the quality of personnel and organizational development and personnel selection in SMTs.

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Notes

1. Leadership emergence describes the attribution of a leadership role within the team to an individual by their team colleagues (Judge et al., 2002).
2. The authors applied the asymptotically distribution-free method, which is inadequate for small sample sizes (Bentler & Yuan, 1999).
3. Individualism is characterized by a social framework in which individuals care about themselves and their immediate families, while collectivism suggests a social framework that distinguishes between in- and out-group and within the in-group interpersonal support and loyalty are very important.

References

*Ainsworth, J. (2016). Student-led project teams. *Journal of Management Education*, *40*(4), 453–477. https://doi.org/10.1177/1052562916630575

*Alper, S., Tjosvold, D., & Law, K. S. (1998). Interdependence and controversy in group decision making: Antecedents to effective self-managing teams. *Organizational Behavior and Human Decision Processes*, *74*(1), 33–52. https://doi.org/10.1006/obhd.1998.2748

*Andrés, M. R., Gutiérrez Broncano, S., & Montoya Monsalve, J. N. (2015). Could innovative teams provide the necessary flexibility to compete in the current context? *Cuadernos De Gestión*, *15*(1), 145–164. https://doi.org/10.5295/cdg.130446mr

*Armstrong, S. J., & Priola, V. (2001). Individual differences in cognitive style and their effects on task and social orientations of self-managed work teams. *Small Group Research*, *32*(3), 283–312. https://doi.org/10.1177/104649640103200302

*Attaran, M., & Nguyen, T. T. (1999). Design and implementation of self-directed process teams. *Management Decision*, *37*(7), 553–561. https://doi.org/10.1108/00251749910285683

Baayen, R. H., Davidson, D. J., & Bates, D. M. (2008). Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language*, *59*(4), 390–412. https://doi.org/10.1016/j.jml.2007.12.005

*Banai, M., Nirenberg, J., & Menachem, M. (2000). Leadership in self-managing organizations: Orpheus and a date plantation. *Journal of Leadership Studies*, *7*(3), 3–17. https://doi.org/10.1177/107179190000700301

Bar-On, R., Brown, J. M., Kirkcaldy, B. D., & Thomé, E. P. (2000). Emotional expression and implications for occupational stress; an application of the emotional quotient inventory (EQ-I). *Personality and Individual Differences*, *28*(6), 1107–1118. https://doi.org/10.1016/s0191-8869(99)00160-9

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*(1), 1–26. https://doi.org/10.1111/j.1744-6570.1991.tb00688.x

*Barry, B., & Stewart, G. L. (1997). Composition, process, and performance in self-managed groups: The role of personality. *Journal of Applied Psychology*, *82*(1), 62–78. https://doi.org/10.1037/0021-9010.82.1.62

Bartram, D. (2005). The great eight competencies: A criterion-centric approach to validation. *Journal of Applied Psychology*, *90*(6), 1185–1203. https://doi.org/10.1037/0021-9010.90.6.1185

Belbin, R. M. (1993). *Team roles at work*. Butterworth-Heinemann.

Bentler, P. M., & Yuan, K. H. (1999). Structural equation modeling with small samples: Test statistics. *Multivariate Behavioral Research*, *34*(2), 181–197. https://doi.org/10.1207/S15327906Mb340203

Bernstein, E., Bunch, J., Canner, N., & Lee, M. (2016). Beyond the holacracy hype. *Harvard Business Review*, *94*(7), 8.

*Boone, C., van Olffen, W., & van Witteloostuijn, A. (2005). Team locus-of-control composition, leadership structure, information acquisition, and financial performance: A business simulation study. *Academy of Management Journal*, *48*(5), 889–909. https://doi.org/10.5465/amj.2005.18803929

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. Wiley.

*Bransford, C. L. (2006). The authorization and de-authorization of individual social workers within a small group. *Social Work with Groups: A Journal of Community and Clinical Practice*, *29*(1), 45–62. https://doi.org/10.1300/j009v29n01_05

Breidenbach, J., & Rollow, B. (2020). *The future of work needs inner work: A handbook for companies on the way to self-organisation*. Vahlen.

Byrne, D. (1961). Interpersonal attraction and attitude similarity. *Journal of Abnormal and Social Psychology*, *62*(3), 713–715. https://doi.org/10.1037/h0044721

Campion, M. A., Fink, A. A., Ruggeberg, B. J., Carr, L., Phillips, G. M., & Odman, R. B. (2011). Doing competencies well: Best practices in competency modeling. *Personnel Psychology*, *64*(1), 225–262. https://doi.org/10.1111/j.1744-6570.2010.01207.x

Cannon-Bowers, J., Tannenbaum, S., & Salas, E. (1995). Defining team competencies and establishing team training requirements. In R. A. Guzzo, E. Salas, & I. L. Goldstein (Eds.), *Frontiers of industrial and organizational psychology. Team effectiveness and decision making in organizations* (1st ed., pp. 333–380). Jossey-Bass.

*Caplan, V. F., & Wong, E. S. P. (2016). Diversity within unity: Jazzing up sustainable information literacy teams. *Library Management*, *37*(6–7), 326–339. https://doi.org/10.1108/lm-05-2016-0039

Cappelli, P., & Neumark, D. (2001). Do "high-performance" work practices improve establishment-level outcomes? *ILR Review*, *54*(4), 737–775. https://doi.org/10.1177/001979390105400401

*Carson, J. B., Tesluk, P. E., & Marrone, J. A. (2007). Shared leadership in teams: An investigation of antecedent conditions and performance. *Academy of Management Journal*, *50*(5), 1217–1234.

*Carte, T. A., Chidambaram, L., & Becker, A. (2006). Emergent leadership in self-managed virtual teams. *Group Decision and Negotiation*, *15*(4), 323–343. https://doi.org/10.1007/s10726-006-9045-7

*Cheng, C. Y., Chua, R. Y. J., Morris, M. W., & Lee, L. (2012). Finding the right mix: How the composition of self-managing multicultural teams' cultural value orientation influences performance over time. *Journal of Organizational Behavior*, *33*(3), 389–411. https://doi.org/10.1002/job.1777

*Coetzer, G. H., & Trimble, R. (2009). An empirical examination of the relationships between adult attention deficit, reliance on team mates and team member performance. *Team Performance Management*, *15*(1–2), 78–91. https://doi.org/10.1108/13527590910937739

Cohen, S. G., Chang, L., & Ledford, G. E. Jr. (1997). A hierarchical construction of self-management leadership and its relationship to quality of work life and perceived work group effectiveness. *Personnel Psychology*, *50*(2), 275–308. https://doi.org/10.1111/j.1744-6570.1997.tb00909.x

Cohen, S. G., & Ledford, G. E. (1994). The effectiveness of self-managing teams: A quasi-experiment. *Human Relations*, *47*(1), 13–43. https://doi.org/10.1177/001872679404700102

*Cohen, S. G., Ledford, G. E., & Spreitzer, G. M. (1996). A predictive model of self-managing work team effectiveness. *Human Relations*, *49*(5), 643–676. https://doi.org/10.1177/001872679604900506

Cuff, B. M. P., Brown, S. J., Taylor, L., & Howat, D. J. (2016). Empathy: A review of the concept. *Emotion Review*, *8*(2), 144–153. https://doi.org/10.1177/1754073914558466

*de Jong, A., & de Ruyter, K. (2004). Adaptive versus proactive behavior in service recovery: The role of self-managing teams. *Decision Sciences*, *35*(3), 457–491. https://doi.org/10.1111/j.0011-7315.2004.02513.x

de Jong, A., de Ruyter, K., & Lemmink, J. (2004). Antecedents and consequences of the service climate in boundary-spanning self-managing service teams. *Journal of Marketing*, *68*(2), 18–35. https://doi.org/10.1509/jmkg.68.2.18.27790

*de Jong, A., de Ruyter, K., Streukens, S., & Ouwersloot, H. (2001). Perceived uncertainty in self-managed service teams: An empirical assessment. *International Journal of Service Industry Management*, *12*(2), 158–183. https://doi.org/10.1108/09564230110387533

*Den Hartog, S. C., Runge, J. M., Reindl, G., & Lang, J. W. B. (2020). Linking personality trait variance in self-managed teams to team innovation. *Small Group Research*, *51*(2), 265–295. https://doi.org/10.1177/1046496419865325

Denison, D. R., Hooijberg, R., & Quinn, R. E. (1995). Paradox and performance: Toward a theory of behavioral complexity in managerial leadership. *Organization Science*, *6*(5), 524–540. https://doi.org/10.1287/orsc.6.5.524

DeRue, D. S., & Ashford, S. J. (2010). Who will lead and who will follow? A social process of leadership identity construction in organizations. *Academy of Management Review*, *35*(4), 627–647. https://doi.org/10.5465/amr.35.4.zok627

*DeRue, D. S., Nahrgang, J. D., & Ashford, S. J. (2015). Interpersonal perceptions and the emergence of leadership structures in groups: A network perspective. *Organization Science*, *26*(4), 1192–1209. https://doi.org/10.1287/orsc.2014.0963

*Doorewaard, H., Van Hootegem, G., & Huys, R. (2002). Team responsibility structure and team performance. *Personnel Review*, *31*(3), 356–370. https://doi.org/10.1108/00483480210422750

*Druskat, V. U., & Kayes, D. C. (2000). Learning versus performance in short-term project teams. *Small Group Research*, *31*(3), 328–353. https://doi.org/.1177/104649640003100304

*Duimering, P. R., & Robinson, R. B. (2007). Situational influences on team helping norms: Case study of a self-directed team. *Journal of Behavioral and Applied Management*, *9*(1), 62–87. https://doi.org/10.21818/001c.16779

*Eby, L. T., & Dobbins, G. H. (1997). Collectivistic orientation in teams: An individual and group-level analysis. *Journal of Organizational Behavior*, *18*(3), 275–295. https://doi.org/10.1002/(sici)1099-1379(199705)18:3<275::aid-job796>3.0.co;2-c

*Elloy, D. F., Terpening, W., & Kohls, J. (2001). A causal model of burnout among self-managed work team members. *The Journal of Psychology: Interdisciplinary and Applied*, *135*(3), 321–334. https://doi.org/10.1080/00223980109603702

*Eseryel, U. Y., & Eseryel, D. (2013). Action-embedded transformational leadership in self-managing global information systems development teams. *The Journal of Strategic Information Systems*, *22*(2), 103–120. https://doi.org/10.1016/j.jsis.2013.02.001

*Fausing, M. S., Jeppe Jeppesen, H., Jønsson, T. S., Lewandowski, J., & Bligh, M. C. (2013). Moderators of shared leadership: Work function and team autonomy. *Team Performance Management: An International Journal*, *19*(5–6), 244–262. https://doi.org/10.1108/tpm-11-2012-0038

*Fontana, R. M., Fontana, I. M., da Rosa Garbuio, P. A., Reinehr, S., & Malucelli, A. (2014). Processes versus people: How should agile software development maturity be defined? *Journal of Systems and Software*, *97*(2), 140–155. https://doi.org/10.1016/j.jss.2014.07.030

*Frye, C. M., Bennett, R., & Caldwell, S. (2006). Team emotional intelligence and team interpersonal process effectiveness. *American Journal of Business: Applying Research to Practice*, *21*(1), 49–58. https://doi.org/10.1108/19355181200600005

Gibson, C., H. Hardy Iii, J., & Ronald Buckley, M. (2014). Understanding the role of networking in organizations. *Career Development International*, *19*(2), 146–161. https://doi.org/10.1108/cdi-09-2013-0111

*Gill, C., Metz, I., Tekleab, A. G., & Williamson, I. O. (2020). The combined role of conscientiousness, social networks, and gender diversity in explaining individual performance in self-managed teams. *Journal of Business Research*, *106*, 250–260. https://doi.org/10.1016/j.jbusres.2018.09.003

Glew, D. J. (2009). Personal values and performance in teams: An individual and team-level analysis. *Small Group Research*, *40*(6), 670–693. https://doi.org/10.1177/1046496409346577

Gloger, B., & Rösner, D. (2014). *Selbstorganisation braucht Führung: die einfachen Geheimnisse agilen managements*. Carl Hanser Verlag.

*Gray, D. (2012). The influence of complexity and uncertainty on self-directed team learning. *International Journal of Learning and Change*, *6*(1–2), 79. https://doi.org/10.1504/IJLC.2012.045858

*Guchait, P., Hamilton, K., & Hua, N. (2014). Personality predictors of team taskwork understanding and transactive memory systems in service management teams. *International Journal of Contemporary Hospitality Management*, *26*(3), 401–425. https://doi.org/10.1108/ijchm-05-2013-0197

*Gupta, V. K., Huang, R., & Yayla, A. A. (2011). Social capital, collective transformational leadership, and performance: A resource-based view of self-managed teams. *Journal of Managerial Issues*, *23*(1), 31–45.

Hackman, J. R. (1986). The psychology of self-management in organizations. In M. S. Pallak & R. O. Perloff (Eds.), *Psychology and work: Productivity, change, and employment, The master lectures* (Vol. 5, pp. 89–136). American Psychological Association.

Hackman, J. R. (2002). Why teams don't work. In R. S. Tindale, L. Heath, J. Edwards, E. J. Posavac, F. B. Bryant, Y. Suarez-Balcazar, E. Henderson-King & J. Myers (Eds.), *Theory and research on small groups* (pp. 245–267). Springer.

*Hawkins, B. (2013). Gendering the eye of the norm: Exploring gendered concertive control processes in two self-managing teams. *Gender Work and Organization*, *20*(1), 113–126. https://doi.org/10.1111/j.1468-0432.2011.00588.x

Hiller, N. J., Day, D. V., & Vance, R. J. (2006). Collective enactment of leadership roles and team effectiveness: A field study. *The Leadership Quarterly*, *17*(4), 387–397. https://doi.org/10.1016/j.leaqua.2006.04.004

Hirschfeld, R. R., Jordan, M. H., Feild, H. S., Giles, W. F., & Armenakis, A. A. (2006). Becoming team players: Team members' mastery of teamwork knowl-

edge as a predictor of team task proficiency and observed teamwork effectiveness. *Journal of Applied Psychology*, *91*(2), 467–474. https://doi.org/10.1037/0021-9010.91.2.467

*Hoda, R., & Murugesan, L. K. (2016). Multi-level agile project management challenges: A self-organizing team perspective. *Journal of Systems and Software*, *117*(6), 245–257. https://doi.org/10.1016/j.jss.2016.02.049

*Hoda, R., Noble, J., & Marshall, S. (2012). Developing a grounded theory to explain the practices of self-organizing agile teams. *Empirical Software Engineering*, *17*(6), 609–639. https://doi.org/10.1007/s10664-011-9161-0

Hofstede, G. (1980). Motivation, leadership, and organization: Do American theories apply abroad? *Organizational Dynamics*, *9*(1), 42–63. https://doi.org/10.1016/0090-2616(80)90013-3

*Hu, J., Zhang, Z., Jiang, K., & Chen, W. (2019). Getting ahead, getting along, and getting prosocial: Examining extraversion facets, peer reactions, and leadership emergence. *Journal of Applied Psychology*, *104*(11), 1369–1386. https://doi.org/10.1037/apl0000413

*Humphrey, S. E., Hollenbeck, J. R., Meyer, C. J., & Ilgen, D. R. (2011). Personality configurations in self-managed teams: A natural experiment on the effects of maximizing and minimizing variance in traits. *Journal of Applied Social Psychology*, *41*(7), 1701–1732. https://doi.org/10.1111/j.1559-1816.2011.00778.x

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From input-process-output models to IMOI models. *Annual Review of Psychology*, *56*, 517–543. https://doi.org/10.1146/annurev.psych.56.091103.070250

*Kiffin-Petersen, S., & Cordery, J. (2003). Trust, individualism and job characteristics as predictors of employee preference for teamwork. *The International Journal of Human Resource Management*, *14*(1), 93–116. https://doi.org/10.1080/0958519021015853 8

Koys, D. J. (2001). The effects of employee satisfaction, organizational citizenship behavior, and turnover on organizational effectiveness: A unit-level, longitudinal study. *Personnel Psychology*, *54*(1), 101–114. https://doi.org/10.1111/j.1744-6570.2001.tb00087.x

Kozlowski, S. W., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, *7*(3), 77–124. https://doi.org/10.1111/j.1529-1006.2006.00030.x

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*(2), 281–342. https://doi.org/10.1111/j.1744-6570.2005.00672.x

Krumm, S., Mertin, I., & Dries, C. (2012). *Kompetenzmodelle. Praxis der personalpsychologie: Vol. 27*. Hogrefe.

*Lambe, C. J., Webb, K. L., & Ishida, C. (2009). Self-managing selling teams and team performance: The complementary roles of empowerment and control. *Industrial Marketing Management*, *38*(1), 5–16. https://doi.org/10.1016/j.indmarman.2007.10.003

*Lanaj, K., & Hollenbeck, J. R. (2015). Leadership over-emergence in self-managing teams: The role of gender and countervailing biases. *Academy of Management Journal*, *58*(5), 1476–1494. https://doi.org/10.5465/amj.2013.0303

*Langfred, C. W. (2004). Too much of a good thing? Negative effects of high trust and individual autonomy in self-managing teams. *Academy of Management Journal*, *47*(3), 385–399. https://doi.org/10.5465/20159588

Latané, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology*, *37*(6), 822–832. https://doi.org/10.1037/0022-3514.37.6.822

Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin*, *107*(1), 34–47. https://doi.org/10.1037/0033-2909.107.1.34

Lee, M. Y., & Edmondson, A. C. (2017). Self-managing organizations: Exploring the limits of less-hierarchical organizing. *Research in Organizational Behavior*, *37*, 35–58. https://doi.org/10.1016/j.riob.2017.10.002

*Lee, Y.-T., & Paunova, M. (2017). How learning goal orientation fosters leadership recognition in self-managed teams: A two-stage mediation model. *Applied Psychology: An International Review*, *66*(4), 553–576. https://doi.org/10.1111/apps.12101

*Liu, J., Wang, H., Hui, C., & Lee, C. (2012). Psychological ownership: How having control matters. *Journal of Management Studies*, *49*(5), 869–895. https://doi.org/10.1111/j.1467-6486.2011.01028.x

Magpili, N. C., & Pazos, P. (2018). Self-managing team performance: A systematic review of multilevel input factors. *Small Group Research*, *49*(1), 3–33. https://doi.org/10.1177/1046496417710500

*Markova, G., & Perry, J. T. (2014). Cohesion and individual well-being of members in self-managed teams. *Leadership & Organization Development Journal*, *35*(5), 429–441. https://doi.org/10.1108/lodj-04-12-0058

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review*, *26*(3), 356–376. https://doi.org/10.5465/amr.2001.4845785

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, *34*(3), 410–476. https://doi.org/10.1177/0149206308316061

Mathieu, J. E., Tannenbaum, S. I., Donsbach, J. S., & Alliger, G. M. (2014). A review and integration of team composition models. *Journal of Management*, *40*(1), 130–160. https://doi.org/10.1177/0149206313503014

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. E. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 3–31). Basic Books.

McGrath, J. E., Arrow, H., & Berdahl, J. L. (2000). The study of groups: Past, present, and future. *Personality and Social Psychology Review*, *4*(1), 95–105. https://doi.org/10.1207/s15327957pspr0401_8

*Millikin, J. P., Hom, P. W., & Manz, C. C. (2010). Self-management competencies in self-managing teams: Their impact on multi-team system productivity.

The Leadership Quarterly, *21*(5), 687–702. https://doi.org/10.1016/j.leaqua.2010.07.001

*Mitchell, T. D., & Bommer, W. H. (2018). The interactive effects of motives and task coordination on leadership emergence. *Group Dynamics Theory Research and Practice*, *22*(4), 223–235. https://doi.org/10.1037/gdn0000092

*Moe, N. B., Dingsøyr, T., & Dybå, T. (2009). Overcoming barriers to self-management in software teams. *IEEE Software*, *26*(6), 20–26. https://doi.org/10.1109/ms.2009.182

*Moe, N. B., Dingsøyr, T., & Dybå, T. (2010). A teamwork model for understanding an agile team: A case study of a scrum project. *Information and Software Technology*, *52*(5), 480–491. https://doi.org/10.1016/j.infsof.2009.11.004

*Murnighan, J. K., & Conlon, D. E. (1991). The dynamics of intense work groups: A study of British string quartets. *Administrative Science Quarterly*, *36*(2), 165–186. https://doi.org/10.2307/2393352

*Nederveen Pieterse, A., Hollenbeck, J. R., van Knippenberg, D., Spitzmüller, M., Dimotakis, N., Karam, E. P., & Sleesman, D. J. (2019). Hierarchical leadership versus self-management in teams: Goal orientation diversity as moderator of their relative effectiveness. *The Leadership Quarterly*, *30*(6), 101343. https://doi.org/10.1016/j.leaqua.2019.101343

*Neubert, M. J., & Taggar, S. (2004). Pathways to informal leadership: The moderating role of gender on the relationship of individual differences and team member network centrality to informal leadership emergence. *The Leadership Quarterly*, *15*(2), 175–194. https://doi.org/10.1016/j.leaqua.2004.02.006

*Nicholls, C. E., Lane, H. W., & Brechu, M. B. (1999). Taking self-managed teams to Mexico. *The Academy of Management Perspectives*, *13*(3), 15–25. https://doi.org/10.5465/ame.1999.2210310

*Oliver, D., & Roos, J. (2003). Dealing with the unexpected: Critical incidents in the LEGO mindstorms team. *Human Relations*, *56*(9), 1057–1082. https://doi.org/10.1177/0018726703569002

*Ostermeier, K., Davis, M., & Pavur, R. (2020). Personality configurations in teams: A comparison of compilation and composition models. *Team Performance Management: An International Journal*, *26*(3–4), 227–246. https://doi.org/10.1108/tpm-09-2019-0097

*Paik, Y., Seo, M. G., & Jin, S. (2019). Affective information processing in self-managing teams: The role of emotional intelligence. *The Journal of Applied Behavioral Science*, *55*(2), 235–267. https://doi.org/10.1177/0021886319832013

*Parker, S. K. (2007). 'That is my job': How employees' role orientation affects their job performance. *Human Relations*, *60*(3), 403–434. https://doi.org/10.1177/0018726707076684

*Paunova, M. (2017). Who gets to lead the multinational team? An updated status characteristics perspective. *Human Relations*, *70*(7), 883–907. https://doi.org/10.1177/0018726716678469

Pearce, C. L., Wassenaar, C. L., & Manz, C. C. (2014). Is shared leadership the key to responsible leadership? *The Academy of Management Perspectives*, *28*(3), 275–288. https://doi.org/10.5465/amp.2014.0017

*Pearsall, M. J., & Ellis, A. P. J. (2006). The effects of critical team member assertiveness on team performance and satisfaction. *Journal of Management*, *32*(4), 575–594. https://doi.org/10.1177/0149206306289099

Petermann, M. K. H., & Zacher, H. (2020). Agility in the workplace: Conceptual analysis, contributing factors, and practical examples. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, *13*(4), 599–609. https://doi.org/10.1017/iop.2020.106

*Politis, J. D. (2003). The connection between trust and knowledge management: What are its implications for team performance. *Journal of Knowledge Management*, *7*(5), 55–66. https://doi.org/10.1108/13673270310505386

Powell, A. W., & Pazos, P. (2017). Building high-performing autonomous teams in complex manufacturing settings: A naturalistic research approach. *Engineering Management Journal*, *29*(3), 206–219. https://doi.org/10.1080/10429247.2017.1324244

Quinn, R. E. (1984). Applying the competing values approach to leadership: Toward an integrative framework. In J. G. Hunt, D-M. Hosking, C. A. Schriesheim, & R. Stewart (Eds.), *Leaders and managers* (pp. 10–27). Elsevier.

*Quinteiro, P. M., Passos, A., & Curral, L. (2016). Thought self-leadership and effectiveness in self-management teams. *Leadership*, *12*(1), 110–126. https://doi.org/10.1177/1742715014543579

*Resick, C. J., Murase, T., Randall, K. R., & DeChurch, L. A. (2014). Information elaboration and team performance: Examining the psychological origins and environmental contingencies. *Organizational Behavior and Human Decision Processes*, *124*(2), 165–176. https://doi.org/10.1016/j.obhdp.2014.03.005

Roberts, B. W., Jackson, J. J., Fayard, J. V., Edmonds, G., & Meints, J. (2009). Conscientiousness. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 369–381). Guilford Press.

*Rozell, E. J., & Scroggins, W. A. (2010). How much is too much? The role of emotional intelligence in self-managed work team satisfaction and group processes. *Team Performance Management*, *16*(1–2), 33–49. https://doi.org/10.1108/13527591011028915

Salas, E., Sims, D. E., & Burke, C. S. (2005). Is there a "big five" in teamwork? *Small Group Research*, *36*(5), 555–599. https://doi.org/10.1177/1046496405277134

*Sarker, S., Sarker, S., Kirkeby, S., & Chakraborty, S. (2011). Path to 'stardom' in globally distributed hybrid teams: An examination of a knowledge-centered perspective using social network analysis. *Decision Sciences*, *42*(2), 339–370. https://doi.org/10.1111/j.1540-5915.2011.00314.x

*Seers, A., Petty, M. M., & Cashman, J. F. (1995). Team-member exchange under team and traditional management: A naturally occurring quasi-experiment. *Group & Organization Management*, *20*(1), 18–38. https://doi.org/10.1177/1059601195201003

Seibert, S. E., Silver, S. R., & Randolph, W. A. (2004). Taking empowerment to the next level: A multiple-level model of empowerment, performance, and satisfaction. *Academy of Management Journal*, *47*(3), 332–349. https://doi.org/10.5465/20159585

Seibert, S. E., Wang, G., & Courtright, S. H. (2011). Antecedents and consequences of psychological and team empowerment in organizations: A meta-analytic review. *Journal of Applied Psychology*, *96*(5), 981–1003. https://doi.org/10.1037/a0022676

Sheese, B. E., & Graziano, W. G. (2004). Agreeableness. In C. D. Spielberger (Ed.), *Encyclopedia of applied psychology* (pp. 117–121). Elsevier.

Sherehiy, B., & Karwowski, W. (2014). The relationship between work organization and workforce agility in small manufacturing enterprises. *International Journal of Industrial Ergonomics*, *44*(3), 466–473. https://doi.org/10.1016/j.ergon.2014.01.002

Silva, T., Pina, E, Cunha, M. P., Clegg, S. R., Neves, P., Rego, A., & Rodrigues, R. A. (2014). Smells like team spirit: Opening a paradoxical black box. *Human Relations*, *67*(3), 287–310. https://doi.org/10.1177/0018726713492349

*Sorrentino, R. M., & Field, N. (1986). Emergent leadership over time: The functional value of positive motivation. *Journal of Personality and Social Psychology*, *50*(6), 1091–1099. https://doi.org/10.1037/0022-3514.50.6.1091

Spence Laschinger, H. K., Finegan, J., Shamian, J., & Wilk, P. (2001). Impact of structural and psychological empowerment on job strain in nursing work settings: Expanding Kanter's model. *JONA The Journal of Nursing Administration*, *31*(5), 260–272. https://doi.org/10.1097/00005110-200105000-00006

Spencer, L. M., McClelland, D. C., & Spencer, S. M. (1994). *Competency assessment methods: History and state of the art*. Hay/McBer Research Press.

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, *38*(5), 1442–1465. https://doi.org/10.5465/256865

*Stephens, J. P., & Lyddy, C. J. (2016). Operationalizing heedful interrelating: How attending, responding, and feeling comprise coordinating and predict performance in self-managing teams. *Frontiers in Psychology*, *7*, 362. https://doi.org/10.3389/fpsyg.2016.00362

Stevens, M. J., & Campion, M. A. (1994). The knowledge, skill, and ability requirements for teamwork: Implications for human resource management. *Journal of Management*, *20*(2), 503–530. https://doi.org/10.1177/014920639402000210

Stewart, G. L., Courtright, S. H., & Manz, C. C. (2011). Self-leadership: A multilevel review. *Journal of Management*, *37*(1), 185–222. https://doi.org/10.1177/0149206310383911

*Taggar, S., Hackew, R., & Saha, S. (1999). Leadership emergence in autonomous work teams: Antecedents and outcomes. *Personnel Psychology*, *52*(4), 899–926. https://doi.org/10.1111/j.1744-6570.1999.tb00184.x

Taris, T. W., & Schreurs, P. J. G. (2009). Well-being and organizational performance: An organizational-level test of the happy-productive worker hypothesis. *Work and Stress*, *23*(2), 120–136. https://doi.org/10.1080/02678370903072555

*Tasa, K., Taggar, S., & Seijts, G. H. (2007). The development of collective efficacy in teams: A multilevel and longitudinal perspective. *Journal of Applied Psychology*, *92*(1), 17–27. https://doi.org/10.1037/0021-9010.92.1.17

*Thoms, P., Moore, K. S., & Scott, K. S. (1996). The relationship between self-efficacy for participating in self-managed work groups and the big five personality dimensions. *Journal of Organizational Behavior*, *17*(4), 349–362. https://doi.org/10.1002/(sici)1099-1379(199607)17:4<349::aid-job756>3.0.co;2-3

Uddin, M. A., Mahmood, M., & Fan, L. (2019). Why individual employee engagement matters for team performance? *Team Performance Management: An International Journal*, *25*(1–2), 47–68. https://doi.org/10.1108/tpm-12-2017-0078

Volmer, J., & Sonnentag, S. (2011). The role of star performers in software design teams. *Journal of Managerial Psychology*, *26*(3), 219–234. https://doi.org/10.1108/02683941111112659

*Wageman, R. (1997). Critical success factors for creating superb self-managing teams. *Organizational Dynamics*, *26*(1), 49–61. https://doi.org/10.1016/s0090-2616(97)90027-9

*Weerheim, W., Van Rossum, L., & Ten Have, W. D. (2019). Successful implementation of self-managing teams. *Leadership in Health Services (Bradford, England)*, *32*(1), 113–128. https://doi.org/10.1108/LHS-11-2017-0066

Wegner, D. M. (1987). Transactive memory: A contemporary analysis of the group mind. In B. Mullen & G. R. Goethals (Eds.), *Theories of group behavior* (pp. 185–208). Springer.

*Williams, H. M., Parker, S. K., & Turner, N. (2010). Proactively performing teams: The role of work design, transformational leadership, and team composition. *Journal of Occupational and Organizational Psychology*, *83*(2), 301–324. https://doi.org/10.1348/096317910x502494

*Wolff, S. B., Pescosolido, A. T., & Druskat, V. U. (2002). Emotional intelligence as the basis of leadership emergence in self-managing teams. *The Leadership Quarterly*, *13*(5), 505–522. https://doi.org/10.1016/s1048-9843(02)00141-8

*Wood, S., Michaelides, G., & Thomson, C. (2013). Successful extreme programming: Fidelity to the methodology or good teamworking? *Information and Software Technology*, *55*(4), 660–672. https://doi.org/10.1016/j.infsof.2012.10.002

*Yang, S-B., & Guy, M. E. (2004). Self-managed work teams: Who uses them? What makes them successful? *Public Performance & Management Review*, *27*(3), 60–79. https://doi.org/10.1080/15309576.2004.11051799

*Yazid, Z., Osman, L. H., & Hamid, R. A. (2018). Managing conflict in the self-managed project team. *International Journal of Business & Management Science*, *8*(2), 405–422.

*Yeatts, D. E., Pillai, V., & Stanley-Stevens, L. (2001). Factors affecting self-managed work team performance: An empirical assessment. *Journal of Applied Sociology*, *18*(1), 79–111.

*Yoo, Y., & Alavi, M. (2004). Emergent leadership in virtual teams: What do emergent leaders do? *Information and Organization*, *14*(1), 27–58. https://doi.org/10.1016/j.infoandorg.2003.11.001

*Zafft, C. R., Adams, S. G., & Matkin, G. S. (2009). Measuring leadership in self-managed teams using the competing values framework. *Journal of Engineering Education*, *98*(3), 273–282. https://doi.org/10.1002/j.2168-9830.2009.tb01024.x

*Zhou, W., Zhu, Z., & Vredenburgh, D. (2020). Emotional intelligence, psychological safety, and team decision making. *Team Performance Management: An International Journal*, *26*(1–2), 123–141. https://doi.org/10.1108/tpm-10-2019-0105

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Does it fit? The relationships between personality, decision autonomy fit, work engagement, and emotional exhaustion in self-managing organizations

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Abstract

The novel organizational form of self-managing organizations decentralizes decision authority, thus promising higher adaptability and sustainability. However, recent practical experiences showed that such organizations struggle with employee turnover and lack of engagement, and thus, levers to improve personnel selection are required. This work investigated the relationship between person-environment fit regarding perceived and ideal decision autonomy and the employee outcomes of work engagement and emotional exhaustion in self-managing organizations. Furthermore, the associations with personality traits were examined. The study relied on cross-sectional survey data from two subsamples of employees working in self-managing and traditional organizations. Group comparison was used to test the elevated level of decision autonomy in self-managing organizations, polynomial regression with response surface analysis was used to investigate the effect of (mis-)fit, and multiple regression analyses evaluated the relationship with personality traits. The findings showed that employees in self-managing organizations experienced higher decision autonomy than those in traditional organizations. Additionally, the fit between ideal and perceived decision autonomy predicted higher work engagement, while extraversion, openness to experience, and low neuroticism predicted higher ideal decision autonomy. As a result, individual person-environment fit regarding decision autonomy and personality requires attention in self-managing organizations to engage employees. The findings imply that the effect of decision autonomy on engagement is not positive per se but depends on the intraindividual characteristics, which must be of concern when decentralizing decision authority organization-wide. Therefore, personnel selection and recruitment processes in self-managing organizations should consider ideal decision autonomy and personality traits as assessment criteria.

KEYWORDS
decision autonomy, ideal decision autonomy, personality, person-environment fit, self-managing organization

Practitioner points

- Personality assessment focusing on high extraversion, high openness to experience, and low neuroticism may help identify those employees with high ideal decision autonomy.
- Recruitment and selection processes in self-managing organizations (SMOs) focused on finding employees with high ideal decision autonomy may help to promote engagement and prevent emotional exhaustion.
- When transforming a traditional organization toward an SMO, human resource management should consider the changes in job characteristics for employees and provide corresponding HR interventions to enable the employees to handle them.

1 | INTRODUCTION

Hiring a suitable employee for an organization that strongly deviates from traditional organizational setups, for example, by eliminating almost all managers, is undoubtedly one of the crucial challenges practitioners face in self-managing organizations (SMOs). "SMOs radically decentralize authority in a formal and systematic way throughout the organization" (Lee & Edmondson, 2017, p. 39). The popularity of New Work[1] approaches and the need for organizational agility fostered the general trend of authority decentralization and hierarchy reduction in organizations in the recent past. Agile organizations adapt to new circumstances in a more flexible, competent, and responsive way and rely on their entire workforce to adapt to changes and challenges rather than depending on only a few top-level decision-makers (Muduli, 2016; Petermann & Zacher, 2020). Thus, they may also benefit from decentralized authority structures, like in SMOs (Alavi et al., 2014; Muduli, 2017). The specific organizational form of an SMO also raised practitioners' and scholars' attention. Although there were early pioneers, such as Semco (Vanderburg, 2004), and popular examples like Whole Foods, W. L. Gore and Morning Star, or Mobile Basel (Demailly, 2014; Stamm & Kaegi, 2019), it is still a rare and novel organizational form (Laloux, 2014; Lee & Edmondson, 2017; Martela, 2019; Schell & Bischof, 2022). An increasing number of organizations has taken incremental approaches toward organizational self-management by experimenting with single principles of SMOs that partly decentralize authority (Lee & Edmondson, 2017). However, SMOs, the subject of this study, follow the most radical approach.

Practitioners and business philosophers considered SMOs a promising future organizational form due to their adaptive capacities and human and holistic approach toward organizations, fostering organizational sustainability (Carney & Getz, 2009; Getz, 2009; Laloux, 2014). Organizational sustainability refers to the sustainable effects of organizational activities and human resource management practices on employee health, well-being, and performance (Pfeffer, 2010; Salgado et al., 2019).

SMOs discard the key control mechanism employed in most organizations – the reporting relationship between the manager and the subordinate (Lee & Edmondson, 2017). This allows for faster, decentralized decision-making and, at the same time, affects several organizational core issues, such as labor division, as well as individual-level factors, such as job autonomy (Martela, 2019). Although authority decentralization presumably affects many other job characteristics, this work's focus is on decision autonomy, as previous research has shown that individual job autonomy could function as a resource but could also create new demands and even become a burden (Banai et al., 2000; Dettmers & Bredehöft, 2020; Lam, 2016; Pérez-Zapata et al., 2016). Similarly, research on person-environment fit (P-E fit) revealed that the effect of autonomy on well-being depends on the fit between individual ideal and perceived autonomy (Ford, 2012; Stiglbauer & Kovacs, 2018).

Besides the organizational practices fostering employee performance, well-being, and health must be promoted to ensure sustainable performance in organizations (Salgado et al., 2019). The entry processes, including employee selection and assessment, played a crucial role in the well-being as they could enable a better P-E fit, which is the "compatibility between an individual and a work environment that occurs when their characteristics are well matched" (Kristof-Brown et al., 2005, p. 281). P-E fit shaped the effect of specific job characteristics as they could only evolve their full positive effects on well-being and performance and, thus, promote organizational sustainability, when individual needs and environmental supplies matched (Edwards et al., 1998; Greguras & Diefendorff, 2009). Therefore, to realize the potential benefits of SMOs and create a sustainable organization, employee characteristics, such as values, skills, and traits, must fit the organizational and job characteristics.

Previous literature showed the relevance of orienting personnel recruitment and selection toward P-E fit and demonstrated the benefit of personality assessments in personnel selection, particularly in modern, dynamic business environments (Barrick & Parks-Leduc, 2019; Barrick et al., 2013; Ostroff & Zhan, 2012; Rothstein & Goffin, 2006). A broad body of research related personality traits with job performance as a criterion (Barrick & Mount, 1991), but as successful personnel selection goes beyond focusing on performance predictors, the investigation of other criteria, such as well-being, was

also necessary (Rothstein & Goffin, 2006; Salgado et al., 2019). Thus far, the literature on selection did not address the challenge of selecting employees who fit well into the specific context of SMOs and, more generally, into jobs with unexpectedly high decision autonomy. However, specific consideration of selection criteria for the work in SMOs is necessary as job characteristics presumably differ from those of traditional organizations due to the SMOs' organization-wide authority decentralization. As P-E fit studies suggested that individual differences in ideal autonomy shaped the effect of autonomy on well-being (Ford, 2012; Stiglbauer & Kovacs, 2018), knowing who desires high decision autonomy could contribute to filling an important gap in the literature on personnel selection. These insights could provide good criteria to select for fit, which is particularly important in SMOs, as wrong personnel decisions might have a worse impact on the whole organization due to the individual employee's large sphere of influence and responsibility in SMOs.

Therefore, this paper aimed to test whether SMO models were indeed associated with more perceived decision autonomy at the individual level than organization models with centralized authority. Secondly, the study aimed to explore the general associations between decision autonomy and important factors for sustainable performance in organizations (Salgado et al., 2019): Individual work engagement and emotional exhaustion. Moreover, the study intended to explore the interactions with the individual ideal decision autonomy and personality traits (Christian et al., 2011; Halbesleben & Bowler, 2007; Schaufeli & Salanova, 2008). Therefore, the following sections will explore the SMO characteristics and relevant prior research regarding autonomy and personality traits and present and discuss the study results eventually.

1.1 | Individual decision autonomy in self-managing organizations

SMOs handled several organizational core issues differently from other, more centralized organizations; thus, the work context for individuals was different and presumably required other skills and behaviors. Firstly, SMOs were characterized by the radical, organization-wide, and systematic decentralization of authority, which implied abolishing middle management and shifting more power toward employees, empowering teams and individuals (Lee & Edmondson, 2017). The disciplinary managerial power over employees' was almost nonexistent, as decision-making was radically decentralized in SMOs (Martela, 2019). Besides, employees and the top management shared the responsibility to create new tasks, and the employees allocated tasks, as they had sufficient authority to choose roles and tasks in which they felt competent. In SMOs, the focus was on intrinsically motivating job conditions instead. Employees ensured performance monitoring and accountability for each other and were trained in explicit conflict resolution techniques to resolve conflicts and combat free-riding effectively. Furthermore, these organizations exhibited exceptional information transparency that enabled every employee to make the best decisions in the interest of the whole organization (Martela, 2019). SMOs often relied on self-managing teams which were responsible for specific issues, highly autonomous in their decisions, and highly self-managing (Doblinger, 2021; Hackman, 1986). Traditional organizations with centralized decision authority (hereafter non-SMOs) differed in those organizational core principles; for instance, task identification and distribution occurred in top-down processes; supervisors allocated compensation and rewards and monitored and controlled work outputs; and broad information distribution was needless due to precise instructions and strict task boundaries (Martela, 2019).

The SMO's way of addressing organizational core issues presumably also affected the individual-level job characteristics: For instance, authority decentralization should increase individual job autonomy in SMOs compared to non-SMOs. Job autonomy was often classified into three types based on the autonomy over the following: autonomy regarding work methods, work schedules, and decisions (Morgeson & Humphrey, 2006). Decision autonomy refers to the extent of freedom, independence, and discretion in decision-making (Morgeson & Humphrey, 2006). Individual autonomy varies based on organizational or job-related characteristics, such as job position or organizational form. Based on the previously described SMO frameworks, which explicitly allowed and required employees to make decisions on their own (Martela, 2019; Robertson, 2015), individual decision autonomy presumably was enhanced, and thus the following hypothesis was proposed:

> **H1:** On average, employees of SMOs perceive higher individual-level decision autonomy than employees of non-SMOs in their daily work.

1.2 | Relation between autonomy and work engagement and emotional exhaustion

Well-being, a state of mental health (Page & Vella-brodrick, 2009), could be positively or negatively influenced by work (Schaufeli et al., 2009). Work engagement, a work-related, fulfilling, positive mental state characterized by vigor, dedication, and absorption (Schaufeli et al., 2002), could increase well-being, while emotional exhaustion, characterized by "feelings of being emotionally drained by one's work" (Bakker & Costa, 2014, p. 113), could decrease well-being (Schaufeli et al., 2009). This study focused on those two outcomes as the promotion of work engagement and prevention of emotional exhaustion were particularly important in SMOs due to their firm grounding in individual self-responsibility (Martela, 2019; Mazmanian et al., 2013; Pérez-Zapata et al., 2016).

The well-established job demands-resources model (JD-R; Bakker & Demerouti, 2007) proposed job resources and demands as opposite antecedents of well-being. Job resources, which were beneficial in either achieving work goals, reducing the cost of job demands, or stimulating personal development, fostered well-being through their positive effect on work engagement and their

protective effect by preventing exhaustion from job demands (Bakker & Demerouti, 2007). In turn, the effort-requiring, cost-generating job demands diminished well-being as they strained employees' health and consumed their energy due to effortful performance-protection strategies. Job autonomy was commonly considered a resource (Schaufeli & Taris, 2014), and a broad body of research showed a positive relationship between job autonomy and increased well-being, satisfaction, work engagement, and performance (Clausen et al., 2022; Dysvik & Kuvaas, 2011; Hakanen et al., 2021; Humphrey et al., 2007). Building on that, the presumably high autonomy level in SMOs should result in high work engagement and low health strain.

However, this study seeks to challenge this assumption for high levels of decision autonomy like in SMOs, as the JD-R's flexibility hypothesis proposed that one particular job characteristic, such as autonomy, acted as a demand or resource, depending on its level and the interactions with one's personal resources as well as the context (Bakker & Demerouti, 2017; Schaufeli & Taris, 2014). Therefore, using the JD-R as a theoretical framework helps develop a nuanced picture of the effect of decision autonomy. Additionally, the conservation of resources theory (Hobfoll, 2011) assumed that a high resource level needed an increased investment of other resources to maintain the high level; thus, these resources could become demanding. For instance, the high decision autonomy prevalent in SMOs may be associated with high levels of particular demands, for example, an increased workload. This was in line with research showing that high job autonomy required designing one's job (Dettmers & Bredehöft, 2020), thus demanding extra investment.

Some studies have already reported a nonlinear effect of autonomy, indicating a leveling out or even inversion of the positive effect of job autonomy. For instance, using a longitudinal study design, Kubicek et al. (2014) found curvilinear effects of job control on work engagement and depersonalization. Work engagement was highest for medium levels of job control, while the burnout facet depersonalization was lowest. Stiglbauer and Kovacs (2018) also discovered a leveling out of the positive effect of autonomy on affective well-being, although, regarding flourishing, the effect was linearly positive. However, findings were mixed: Some studies identified curvilinear relations opposite to the expectation with moderate levels of autonomy relating to the highest levels of depression (Jonge et al., 2000) or poorest mental health (Rydstedt et al., 2006).

Different studies indicated that job autonomy's (non-)linear effect depended on the job type, characteristics, and context (Chung-Yan, 2010; Clausen et al., 2022). However, as participants of these previous studies reported moderate levels of autonomy it seemed like only traditional organizations without decision authority decentralization were examined. This range limitation may have obscured potential curvilinear relations as attenuation presumably occurs only at high autonomy levels. Thus, filling this research gap, it was expected that the positive relation of autonomy with well-being would attenuate at exceptionally high decision autonomy levels, such as those prevalent in SMOs, and therefore, testing it in a combined sample of employees of SMOs and non-SMOs could reveal this curvilinear relation. To understand how decision autonomy relates to well-being, investigating its relationships with positive and negative antecedents of well-being was helpful (Schaufeli et al., 2009). Consequently, the following hypotheses were proposed for the entire sample:

H2: Perceived decision autonomy shows a curvilinear relationship with work engagement, with an almost linear positive relationship at lower levels of autonomy, but at higher levels of autonomy, the slope becomes more negligible and even negative.

H3: Perceived decision autonomy shows a curvilinear relationship with emotional exhaustion, with an almost linear negative relationship at lower levels of autonomy, but at higher levels of autonomy, the slope becomes more negligible and even positive.

1.3 | Person–environment fit and autonomy

The broader P-E fit theory (Edwards et al., 1998; Kristof, 1996) proposed that if the environmental resources (E) fit employees' demands for these resources (P), they would show optimal effect. P differed among individuals depending on personal characteristics, such as values, needs, and traits. If the environmentally provided resources did not fit the person's standards ($P \neq E$), well-being would be reduced. A good P-E fit was associated with higher well-being, job satisfaction, organizational commitment, work engagement, performance, and less strain and turnover (Bednarska, 2017; Kristof-Brown et al., 2005; Morrow & Brough, 2019; O'Reilly et al., 1991; Yu, 2016); thus, it was of concern for organizational sustainability (Pfeffer, 2010; Salgado et al., 2019). The theoretical lens of P-E fit was valuable as it allowed focusing on interindividual differences in the work conditions' effects relevant to personnel selection.

Because every employee in SMOs had exceptionally high individual decision autonomy and previous research showed that job autonomy exceeding the expected level for a specific job position decreased well-being (Ford, 2012), the consideration of decision autonomy fit is essential for well-being in SMOs. SMO practitioners reported that the required decision-making would discourage some employees (Breidenbach & Rollow, 2020; Laloux, 2014), and in line with that, Stiglbauer and Kovacs (2018) showed the moderating influence of individual preferences for autonomy regarding perceived autonomy: Highest levels of well-being and flourishing were reported in the case of fit. As long as the perceived autonomy fell below the ideal level, further autonomy was associated with higher well-being and flourishing but with poorer well-being when perceived autonomy exceeded the ideal level. However, the relationships were only significant for method and schedule and not for decision autonomy, yet that probably reflected a statistical artifact due to the lack of autonomy surplus cases in traditional organizations. Nonetheless, individual decision autonomy is essential in SMOs. Connecting the

P-E fit theory to the JD-R theory, this study proposed autonomy surplus as a job demand based on the JD-R. Due to lacking supporting resources such as supervisor guidance, we expected a detrimental effect of autonomy surplus, particularly in SMOs, and a need to invest in effortful coping strategies (Hobfoll, 2011). In turn, we expected a positive effect of autonomy when the perceived decision autonomy equated to the individual ideal decision autonomy (P = E). However, the closer the perceived decision autonomy level got to the individual ideal level, the lower the increase in well-being would be, as the need is already satisfied. We expected to find significant relationships with (mis-)fit in SMOs and non-SMOs, although it was presumably more salient and statistically detectable in SMOs as the likelihood of a surplus was higher due to the elevated decision autonomy levels. Including employees of SMOs and focusing on the motivational and health antecedents of well-being, the previous findings of Stiglbauer and Kovacs (2018) were extended by testing the following hypotheses in the sample including SMOs and non-SMOs:

H4a: Less discrepancy between the perceived and ideal decision autonomy is associated with higher work engagement. The optimal fit (P = E) between the perceived and ideal decision autonomy is associated with the highest level of work engagement. Increasing decision autonomy shortage (P > E) or surplus (P < E) is associated with decreasing work engagement.

H4b: If the level of perceived decision autonomy matches the level of ideal decision autonomy (P = E), increases in perceived and ideal decision autonomy are related to an increase in work engagement.

H5a: Less discrepancy between the perceived and ideal decision autonomy is associated with less emotional exhaustion. The optimal fit (P = E) between the perceived and ideal decision autonomy is associated with the lowest level of emotional exhaustion. Increasing decision autonomy shortage (P > E) or surplus (P < E) is associated with increased emotional exhaustion.

H5b: If the level of perceived decision autonomy matches the level of ideal decision autonomy (P = E), increases in perceived and ideal decision autonomy are related to decreased emotional exhaustion.

1.4 | Role of personality in the effect of decision autonomy on motivation and well-being

The introduction of organization-wide self-management affected employees differentially (Kumar & Mukherjee, 2018; Lam, 2016). Hence, understanding the factors responsible for interindividual differences is important, for example, in personnel selection. Building on the assumption of the P-E fit theory (Kristof-Brown et al., 2005) regarding the influence of individual standards for job characteristics on the actual effect of those job characteristics, possible antecedents of the individual ideal decision autonomy level were considered. Adding to previous literature, showing that the ideal decision autonomy level was a personal characteristic relatively independent of the environment but likely influenced by personality traits (Edwards et al., 1998; Kristof, 1996; Kristof-Brown & Guay, 2003), the relation of personal characteristics with ideal decision autonomy was considered.

Various personal characteristics might influence the ideal decision autonomy level. For instance, the individual motivation *autonomy orientation*, the tendency to perceive behaviors and choices as volitional (Olesen et al., 2010), was identified as a moderator between empowering leadership and engagement (Li et al., 2016; Liu et al., 2011). Additionally, core self-evaluations, such as *locus of control*—the belief that the results of one's behavior are influenced by oneself (Rotter, 1966), *self-esteem*—the overall assessment of one's self-worth (Rosenberg, 1965), or *generalized self-efficacy*—the belief that one could handle and perform successfully in different situations (Chen et al., 2001), could increase the desire for individual job autonomy as the individuals may feel more confident in their ability to handle autonomy. However, thus far, no study has demonstrated an apparent effect of those concepts on the individual ideal decision autonomy, although positive correlations with perceived job autonomy have been reported (Chang et al., 2012). An empirical study could only find a positive association of self-efficacy with agile orientation but not with the need for autonomy (Seger et al., 2008). Moreover, the individual *desire for power*, referring to the control of others and one's resources (Galinsky et al., 2003), was also a personal characteristic discussed as relevant in the context of autonomy (Lammers et al., 2016).

Building on the initial finding by Bipp (2010) that some Big Five personality traits were predictive of the individual importance attached to job autonomy, this study focused on the relationship between job autonomy and these personality traits, as their assessment was a popular and valid procedure in personnel selection processes (Robertson & Smith, 2001; Rothstein & Goffin, 2006). The Big Five personality traits offered an indicator that was not as obviously related to job autonomy as other indicators, for example, autonomy orientation; thus, measures would be less biased by the effects of social desirability. Consisting of neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience, the Big Five personality traits proved their good predictability and validity in the organizational context, as well as in research on self-managing teams, job autonomy, and P-E fit (Barrick & Mount, 1991, 1993; Kristof-Brown & Guay, 2003; Mount & Barrick, 1995; Thoms et al., 1996). They predicted higher job performance, performance motivation, and job satisfaction (Barrick & Mount, 1991; Barrick, 2005; Judge & Heller, & Mount, 2002; Judge & Ilies, 2002; van den Berg & Feij, 2003) and were related to P-E fit (Kristof-Brown & Guay, 2003) and to job-related attitudes in general and in self-managing teams in particular (Rubenstein et al., 2019; Taggar et al., 1999; Thoms et al., 1996).

High neuroticism manifested as the tendency to experience emotional instability, feelings of fear, worriedness, insecurity, and moodiness (Parks-Leduc et al., 2015; Raab et al., 2010), whereas low neuroticism was equated with emotional stability, referring to the tendency of feeling confident, secure, and steady (Barrick & Mount, 1991). Neuroticism was negatively related to performance motivation and work engagement, while it was positively related to experiencing stress, dysfunctional coping strategies, and emotional exhaustion (Alarcon et al., 2009; Bolger, 1990; Gallagher, 1990; Janssens et al., 2019; Judge & Ilies, 2002; McCrae, 1990; Waldmann et al., 2017).

High extraversion, manifested in sociable, talkative, active behavior (Barrick & Mount, 1991), was positively associated with work engagement, job satisfaction, and performance motivation and negatively associated with burnout indicators, such as emotional exhaustion and withdrawal behavior (Alarcon et al., 2009; Janssens et al., 2019; Judge & Ilies, 2002; Wilmot et al., 2019). High openness to experience, manifested in being imaginative, curious, original, broad-minded, intelligent, and artistically sensitive (Barrick & Mount, 1991), was positively correlated with performance motivation, job engagement, job change into managerial positions over time, stress resilience, and team performance in self-managing teams (Janssens et al., 2019; Judge & Ilies, 2002; Nieß & Zacher, 2015; Ongore, 2014; Williams et al., 2009; Yeatts et al., 2001). High conscientiousness, manifested in responsible, dependable, persistent, and achievement-oriented behaviors (Barrick & Mount, 1993), was related to higher performance and job satisfaction and less emotional exhaustion (Judge & Heller, & Mount, 2002; Periard & Burns, 2014; Zell & Lesick, 2022). High agreeableness, manifested as the tendency to show flexibility, trust, cooperation, forgiveness, and tolerance (Barrick & Mount, 1991), was associated with higher organizational commitment, less emotional exhaustion, and less counterproductive behavior (Periard & Burns, 2014; Wilmot & Ones, 2022).

Building on previous theory and literature, we assumed that personality traits were predictive of individual ideal decision autonomy. The theory of purposeful work behavior assumed that personality traits triggered purposeful goal strivings, and if the job characteristics had matched the purposeful motivational strivings, meaningfulness would be experienced (Barrick et al., 2013). It proposed that openness to experience was related to striving for autonomy, and employees higher in openness to experience preferred jobs with higher autonomy levels. Additionally, it argued that extroverted employees would prefer jobs with power and significance. In turn, employees higher in neuroticism would search for security (Barrick & Parks-Leduc, 2019; Barrick et al., 2013). When meaningfulness was experienced, motivation would increase (Barrick et al., 2013).

Moreover, empirical findings also supported the relevance of personality traits. Bipp (2010) showed that openness to experience predicted significantly higher perceived importance of the job dimensions of responsibility and autonomy. Longitudinal data indicated that extraversion and openness to experience predicted higher decision latitude, while neuroticism predicted lower decision latitude over time (Sutin & Costa, 2010). Neuroticism was positively related to the tendency to try to yield the best, associated with a negative relationship between high choice and satisfaction (Purvis et al., 2011; Schwartz et al., 2002). Research on leadership showed that extraverted employees evaluated transformational leadership, which provided employees with relatively high autonomy and empowerment (Bass, 1999), more positively than less extraverted employees (Felfe & Schyns, 2006).

Sharpening the scope of the research question, this study only focused on the personality traits of extraversion, openness to experience, and neuroticism. Conscientiousness was certainly important for the functioning of SMOs because the organizational principles were primarily based on self-responsibility and responsible behaviors. However, a connection with the desire for decision autonomy could not be identified as this was independent of the ability to cope well with decision autonomy. Similarly, agreeableness was likely important in SMOs to ensure a harmonious collaboration, but no evidence was found suggesting a relation between agreeableness and ideal autonomy. Therefore, despite the benefit of investigating conscientiousness and agreeableness as beneficial personality characteristics in SMOs, they were not considered antecedents of ideal decision autonomy in the current study. Although the relationship of personality traits with ideal decision autonomy, particularly relevant in SMOs, was considered due to the elevated decision autonomy level, this association was still expected to form independently of the organizational form based on the prior research findings. Consequently, based on the previous theory and research, the following relationships were suggested for any employees, including those of SMOs and traditional organizations:

H6: Personality traits relate to the level of ideal decision autonomy (P) in such a way that neuroticism (H6a) predicts lower ideal decision autonomy, while extraversion (H6b) and openness (H6c) both predict higher ideal decision autonomy.

As a result, we also expected an association of personality traits with P-E fit through the level of ideal decision autonomy in SMOs. Prior research examined the relationship of personality traits with the needs-supplies fit in the population of college students, but neither for (decision) autonomy nor in the context of (self-managing) organizations. For instance, Harms et al. (2006) identified openness to experience as the only significant predictor of better needs-supplies fit among the Big Five personality traits. Meanwhile, Roberts and Robins (2004) identified low neuroticism and low agreeableness as the only significant predictors of better needs-supplies fit. However, these studies did not specify the mechanism of how P-E fit was affected. As argued in H1, individuals were expected to perceive higher decision autonomy in SMOs due to the radical authority distribution (Martela, 2019). Therefore, when the perceived decision autonomy was high, and the personality traits predicted the individual ideal level of decision autonomy, the personality traits were expected to predict the fit accordingly, as the level where the ideal and perceived decision autonomy would match in SMOs would be high. Thus, extraversion and openness were expected to predict a

better fit in SMOs due to their positive relationship with ideal decision autonomy. In turn, neuroticism was expected to predict a worse fit due to the negative relationship with ideal decision autonomy. Importantly, these predictions were made exclusively for employees in SMOs, as traditional organizations varied substantially from SMOs. Thus, as the current paper focused on generating insights for SMOs, the sole interest was to test these predictions in the sample of SMO employees. Therefore, the following was proposed:

H7: Personality traits predict the decision autonomy fit in SMOs such that neuroticism (H7a) predicts a worse fit, while extraversion (H7b) and openness (H7c) both predict a better fit.

For a more comprehensive picture of the relationship between the decision autonomy fit and the personality traits, this study also examined the interactions of the personality traits predicting ideal decision autonomy with perceived decision autonomy, which is sensible due to the naturally occurring interaction between personality and the environment (Endler & Magnusson, 1976). Previous literature supported the notion that extraversion and openness to experience increased the resource function of decision autonomy, while neuroticism decreased its resource function. First, the positive relation between extraversion and supervisor-rated and contextual performance was higher under conditions of high autonomy (Barrick & Mount, 1993; Gellatly & Irving, 2001). Second, extraversion predicted a higher mitigating relationship between autonomy and emotional exhaustion and its positive relation with job satisfaction, while neuroticism predicted a less positive relationship between autonomy and job satisfaction (Farfán et al., 2020). Third, research on leadership showed that high autonomy predicted a stronger negative relationship between neuroticism and leader self-efficacy, which was relevant for leader effectiveness (Ng et al., 2008). Fourth, Smith and DeNunzio (2020) reported that higher autonomy predicted less counterproductive work behavior for employees with high openness to experience or high extraversion. Consequently, we suggested that personality and decision autonomy interacted in their prediction of work engagement and emotional exhaustion in any organization, including SMOs and traditional organizations:

H8: Personality traits moderate the positive relationship between perceived decision autonomy and work engagement in such a way that neuroticism (H8a) is associated with a weaker positive relationship, while extraversion (H8b) and openness (H8c) are associated with a stronger positive relationship.

H9: Personality traits moderate the negative relationship between perceived decision autonomy and emotional exhaustion in such a way that neuroticism (H9a) is associated with a weaker negative relationship, while extraversion (H9b) and openness (H9c) are associated with a stronger negative relationship.

2 | METHOD

2.1 | Participants and procedure

H-29 The sample for this study included two different groups of employees without managerial responsibility. Subsample 1 consisted of employees working in SMOs for at least 6 months, whereas subsample 2 comprised employees working in traditional organizations. Based on calculations with the G*Power tool (Faul et al., 2009), the required sample sizes were estimated a priori. The estimated minimum sample size was $N > 130$ for the subgroup of SMO employees to yield satisfying statistical power for the SMO-focused hypotheses, assuming moderate effect sizes. For the more complex hypotheses 4 and 5, testing the effects of fit, a higher sample size of $N > 222$ was needed[2], which was achieved as the analyses were based on both samples. Participants were recruited by sharing the link to the online survey in various self-managed organizations and networks of SMO practitioners or business-related social media platforms. Most participants were recruited through the direct distribution of the questionnaire in SMOs. The authors knew from previous interviews and evaluations that the selected organizations fulfilled the criteria to be considered an SMO. Participants were excluded from the analysis if they had no prior experience in SMOs, did not complete the questionnaire, or had substantially missing data (more than 10% of the questions).

Subsample 2 consisted of employees working in non-SMOs for at least 6 months. Participants were recruited using the research panel Prolific (www.prolific.com), which has proven to yield good data quality (Eyal et al., 2022). Participants who did not complete the questionnaire, had substantially missing data (more than 10% of the questions), or failed at least one of the five attention checks within the questionnaire were excluded from the analysis. Thus, high data quality was ensured. In the questionnaire for subsample 1, attention checks were not included for parsimony because participation was voluntary and only incentivized by providing personalized feedback, which should have motivated people sufficiently to answer honestly and carefully. In turn, for subsample 2, financial interests were presumably a stronger motivation; thus, attention checks were used to exclude inconclusive, careless answers.

The primary data collection for the cross-sectional study was done through an online questionnaire; the survey was available in English and German. Informed consent for participation was gathered from every participant in advance of participation. As a reward for their contribution, all participants were given the option to receive automated, individual feedback on their personality profiles. Participants of subsample 2 (research panel) additionally received a small financial compensation of 0.63£ (7.56£/hour) for their participation. The final sample included 259 participants whose characteristics are presented in Table 1. After data cleaning, the size of the subsample of SMO employees was $n_{SMO} = 143$, and the size of the subsample of employees of traditional organizations

TABLE 1 Sample characteristics.

	All	SMO	Non-SMO
Year of birth			
<1964	4%	3%	6%
1965–1979	33%	30%	29%
1980–1994	52%	54%	39%
>1995	10%	11%	6%
Gender			
Male	46%	44%	40%
Female	53%	54%	41%
Diverse	0%	1%	0%
Autonomy			
P < E	4%	5%	2%
P = E	52%	61%	39%
P > E	44%	34%	59%

Note: $N = 259$, $n_{SMO} = 140$, and $n_{non\text{-}SMO} = 113$. Some data could not be characterized into SMO or non-SMO due to missing data and, therefore, were only considered for the overall analyses.
Abbreviation: SMO, self-managing organization.

was $n_{non\text{-}SMO} = 113$. Due to missing data, some data ($n = 3$) could not be categorized into SMO or non-SMO and were only considered for the overall analyses. The sample size of traditional organization employees was smaller than intended, as cases with failed attention checks were excluded; however, the subsample was still sufficiently large for the planned group comparison (H1), and the entire sample was sufficiently large for the response surface analysis (RSA). The participants in both samples worked in different business sectors, including software development, financial services, and social services, and across three countries: Germany, the UK, and Portugal.

2.2 | Measures

2.2.1 | Ideal and perceived decision autonomy

The ideal and perceived decision autonomy were assessed based on the corresponding three items in the German and English versions of the Work Design Questionnaire (Morgeson & Humphrey, 2006; Stegmann et al., 2010). The items (e.g., "The job allows me to make many decisions on my own") were rated on a 5-point scale with options ranging from *not at all* to *completely*. Following the approach of Stiglbauer and Kovacs (2018), the items to measure the ideal and perceived decision-making autonomy were the same but introduced by two different questions: The introduction for perceived decision autonomy was "To what extent does this apply to your current job?," and for ideal decision autonomy "To what extent does this apply to your ideal job?".

2.2.2 | Personality

The personality traits were assessed using the scales for extraversion (four items), neuroticism (four items), and openness to experience (five items) of the short version of the Big Five Inventory (BFI-K) developed by Rammstedt and John (2005). The items were rated on a 5-point scale with options ranging from *very incorrect* to *very correct*.

2.2.3 | Emotional exhaustion

Emotional exhaustion as an indicator of work-related stress was assessed using the emotional exhaustion scale of the Maslach Burnout Inventory (Maslach & Jackson, 1981; Thorsen et al., 2011) and consisted of nine items (Maslach & Jackson, 1981). The items, for example, "I feel emotionally exhausted because of my work," were rated on a 7-point scale ranging from 1 (*never*) to 7 (*every day*), indicating the frequency of experiencing certain situations such as frustration at work.

2.2.4 | Work engagement

To assess work engagement, the three-item ultrashort Utrecht Work Engagement Scale (UWES-3) was used (Schaufeli et al., 2019). Three items measured each dimension of work engagement, vigor, dedication, and absorption. Each item was rated on a 7-point scale ranging from 1 (*never*) to 7 (*always*).

2.2.5 | Self-managing organization

To determine whether the participants worked in an SMO, they had to complete a checklist with seven statements about the organization, reflecting the characteristics of SMOs based on Martela (2019). Participants confirmed every statement that applied to their current employer by ticking it. Subsequently, participants had to judge whether they worked in an SMO based on the information that all the criteria mentioned above must be met in the case of an SMO. That measure was developed for this study as no previous works investigated SMOs quantitatively. Although an extension was made, the items aligned with the definition of SMOs by Lee and Edmondson (2017) as organizations that radically decentralize decision-making authority. An example item was "Performance control occurs mainly mutually among employees." Only those cases for which the subsequent confirmation of SMO was in line with the checklist were counted as a case of the SMO subsample in this study.

2.3 | Data analysis

H1, referring to the group difference in perceived decision autonomy, was tested by conducting a two-sample *t*-test, a suitable method to

identify mean differences between two independent groups (Bortz, 2005). If the statistical requirements were not satisfied sufficiently, the nonparametrical Mann–Whitney *U* Test would have been used instead. The hypotheses on the relationships of perceived decision autonomy with work engagement and emotional exhaustion (H2 and H3) were assessed using hierarchical polynomial regression analysis performed on both subsamples. The hierarchical approach was adopted to identify the added value of the polynomial term compared with the linear term and thus to evaluate whether the data fit better with a curvilinear relation than a linear relation (as applied by Kubicek et al., 2014). To assess the hypotheses on the associations of (mis-)fit between ideal and perceived decision autonomy (H4 and H5), we relied on the entire sample as well as polynomial regression and response surface analysis, as suggested for analyses of personality fit (Edwards, 2002; Schönbrodt et al., 2018; Shanock et al., 2010). A multiple regression analysis based on the entire sample was conducted to identify the predictiveness of neuroticism, extraversion, and openness to experience regarding ideal decision autonomy (H6), as it allows for evaluating the different predictors' unique contributions (Licht, 1995). Likewise, multiple regression analysis based on the entire sample was used to evaluate the interaction effects of autonomy and neuroticism, extraversion, and openness to experience (H8). To test the hypothesis on personality and autonomy fit (H7), only the SMO subsample's data were used for the analysis by multivariate regression and delta method (Bednall & Zhang, 2020). As recommended (Handl & Kuhlenkasper, 2018; Spieß, 2010), a significance level of 5% was chosen for the data analyses.

3 | RESULTS

Table 2 presents the descriptive statistics and intercorrelations of the study variables for the entire sample, and Tables 3 and 4 provide data for the two subsamples. Internal consistencies were satisfactory, as Cronbach's α was ≥.70 for all scales, except for openness to experience within the non-SMO sample (α = .67; Streiner, 2003). The analysis of the distributions of the variables showed that for no variable, the assumptions of normal distribution were violated to the extent that would have impeded parametrical tests. However, the distributions of ideal and perceived decision autonomy showed elevated skewness (perceived decision autonomy = −0.85; ideal decision autonomy = −1.59). Most analyses were controlled for age and gender. However, the analyses did not control for further factors to avoid unnecessary power reduction as the sample size was (due to the specific sample population) at the lower acceptance limit. Instead, the central characteristics of age and gender were focused, as they were associated with many other variables, such as seniority, work experience, and self-esteem (Daveri & Maliranta, 2007; Robins et al., 2002).

3.1 | Differences in perceived decision autonomy between the SMO and non-SMO samples

The Welch two-sample *t*-test, testing the difference in perceived decision autonomy between SMO employees and non-SMO employees, indicated a significant difference between the mean perceived decision autonomy of both groups (M_{SMO} = 4.20, SD_{SMO} = 0.75, $M_{non\text{-}SMO}$ = 3.28, $SD_{non\text{-}SMO}$ = 0.97), $t(206.63) = 8.26$, $p < .001$, $d = 1.07$). Therefore, H1 was confirmed. Explorative analysis showed that the group difference regarding ideal decision autonomy (M_{SMO} = 4.57, SD_{SMO} = 0.61, $M_{non\text{-}SMO}$ = 4.21, SD_{nonSMO} = 0.84) was also significant, with $t(251) = 4.01$, $p < .001$, $d = 0.51$.

3.2 | Perceived decision autonomy as a predictor of engagement and exhaustion

H2, stating that perceived decision autonomy relates curvilinearly to work engagement, was tested by hierarchical regression analysis based on the entire sample, including employees of SMOs and non-SMOs. The first step included the control variables and the linear term for perceived decision autonomy. The second step added the squared term to test for curvilinearity. The results (see Table 5) indicated no curvilinear relation between decision autonomy and work engagement (ß = .02,

TABLE 2 Means (*M*), standard deviations (*SD*), and zero-order correlations between study variables.

	M	*SD*	1	2	3	4	5	6	7
1. Ideal decision autonomy	4.41	0.73	(.92)						
2. Perceived decision autonomy	3.80	0.96	.48**	(.92)					
3. Work engagement	4.95	1.21	.34**	.59**	(.89)				
4. Emotional exhaustion	3.18	1.41	−.18**	−.43**	−.47**	(.93)			
5. Neuroticism	2.76	0.90	−.24**	−.32**	−.26**	.51**	(.78)		
6. Extraversion	3.30	0.99	.30**	.40**	.44**	−.28**	−.33**	(.85)	
7. Openness	3.68	0.67	.27**	.14	.18**	−.09	−.10	.26**	(.70)

Note: N = 259, except for extraversion with N = 254, and openness with N = 255. Values in parentheses are Cronbach's α.
*$p < .05$; **$p < .01$.

TABLE 3 Means (*M*), standard deviations (*SD*), and zero-order correlations between study variables for self-managing organization (SMO) sample only.

	M	*SD*	1	2	3	4	5	6	7
1. Ideal decision autonomy	4.57	0.60	(.91)						
2. Perceived decision autonomy	4.20	0.75	.54**	(.86)					
3. Work engagement	5.32	1.01	.31**	.41**	(.84)				
4. Emotional exhaustion	2.84	1.16	−.12	−.33**	−.33**	(.90)			
5. Neuroticism	2.71	0.78	−.26**	−.33**	−.16	.49**	(.70)		
6. Extraversion	3.68	0.83	.15	.23*	.21*	−.12	−.13	(.77)	
7. Openness	3.99	0.63	.26**	.21*	.13	−.15'	−.13	.14	(.70)

Note: $N = 143$, except for extraversion with $N = 138$ and openness with $N = 139$. Values in parentheses are Cronbach's α.
*$p < .05$; **$p < .01$.

TABLE 4 Means (*M*), standard deviations (*SD*), and zero-order correlations between study variables for non-self-managing organization (non-SMO) sample only.

	M	*SD*	1	2	3	4	5	6	7
1. Ideal decision autonomy	4.21	0.84	(.92)						
2. Perceived decision autonomy	3.28	0.97	.34**	(.92)					
3. Work engagement	4.46	1.3	.27**	.60**	(.90)				
4. Emotional exhaustion	3.58	1.58	−.12	−.40**	−.50**	(.96)			
5. Neuroticism	2.83	1.04	−.21**	−.33**	-.33†	.53**	(.84)		
6. Extraversion	2.86	0.98	.32	.30*	.48*	−.27	−.49	(.87)	
7. Openness	3.72	0.68	.24**	−.04*	.14	.07′	−.05	.23	(.67)

Note: $N = 113$. Values in parentheses are Cronbach's α.
†$p < .10$.
*$p < .05$; **$p < .01$.

TABLE 5 Perceived decision autonomy as predictors of work engagement and emotional exhaustion in SMOs and non-SMOs.

	Work engagement			Emotional exhaustion		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Age	−.04	−.04	−.03	−.03	.05	−.04
Male gender	.02	.02	.01	.04	-.04	.05
Perceived autonomy	.59***	.61***	.53***	-.44***	.04***	−.45***
Perceived autonomy		.02	.03		-.47	−.10†
SMO			.10			−.01
SMO × perceived autonomy			−.13†			.09
SMO × perceived autonomy²			.07†			−.04
N	254	254	248	254	254	248
R^2 (adjusted R^2)	.36 (.35)***	.36 (.35)***	.38 (.36)***	.19 (.18)***	.19 (.18)***	.21 (.19)***

Note: Standardized regression weights ß.
Abbreviations: Aut (E), perceived decision autonomy; SMO, the respondent's organization is self-managed.
†$p < .10$.
***$p < .001$.

p = .681). In a third explorative step, the interaction terms of decision autonomy and the factorial variable SMO versus non-SMO were explored to test for sample-specific associations. The results showed no curvilinear association of autonomy specific to the subsamples (ß = .07, p = .186). However, the results suggested a significant main effect of perceived decision autonomy on work engagement (ß = .53, p < .001): Regardless of the organizational form and level, higher autonomy was related to higher work engagement. Consequently, H2 was rejected.

For testing H3 (perceived decision autonomy relates curvilinearly to emotional exhaustion in SMOs), a hierarchical regression analysis based on the entire sample, analogous to the approach for H2, was conducted. The results (see Table 5) showed no curvilinear relationship of autonomy within the whole sample (ß = −.04, p = .374) nor within a specific subsample (ß = −.04, p = .449). Instead, the results demonstrated a significant main effect of perceived decision autonomy (ß = −.45, p < .001), indicating that an increase in perceived decision autonomy was related to a decrease in emotional exhaustion. Consequently, H3 was rejected.

3.3 | Relationship of autonomy (mis-)fit with work engagement and emotional exhaustion

(Mis-)fit involves the interaction between the ideal and perceived decision autonomy. To assess the associations with (mis-)fit within the entire sample, including employees of SMOs and non-SMOs, polynomial regression and response surface analysis (RSA) were used, following the approach proposed by Shanock et al. (2010). For the RSA, the RSA package in R (Schönbrodt & Humberg, 2021) was used, and grand mean centering was applied, recommended for skewed data (Schönbrodt et al., 2018). The analyses indicated that 44% of the sample experienced less than their ideal decision autonomy, while 4% experienced more than their ideal decision autonomy. For 52% of the participants, the ideal and currently perceived decision autonomy levels were congruent (cutpoint of $|\Delta z| < 0.5$). In line with the current theory, the share of persons indicating an autonomy surplus was higher in the SMO subsample than in the non-SMO subsample (see Table 1). Figure 1a shows the response surfaces for work engagement with ideal (P) and environmental (E) levels of autonomy as predictors and Figure 1b depicts the corresponding surface for emotional exhaustion (see Table 6 for the corresponding parameters).

To test H4a, describing the relationship of decision autonomy (mis-)fit with work engagement, the shape of the surface was considered first. As expected, it was saddle-shaped, and the shape along the line of misfit (E = −P) was convex (see Figure 2). The better fit between the perceived and desired autonomy predicted higher work engagement, as indicated by the RSA parameter a_4, which represents the effect of the degree of discrepancy (a_4 = −0.52, SE = 0.20, p < .01). Besides, the results showed that the direction of discrepancy was irrelevant (a_3 = −0.08, n.s.). Consequently, the significant relationship of (mis-)fit with work engagement confirmed H4a. To test H4b, stating that in the case of fit, higher perceived decision autonomy was associated with higher work engagement, the surface's shape at the line of congruence (P = E) was decisive. The respective parameters showed a positive linear relationship (significant, positive a_1, and nonsignificant a_2): In the case of fit (P = E), an increase in perceived decision autonomy was related to an increase in work engagement (see the line on P = E in Figure 1a). Consequently, the data showed that the absolute level mattered besides the fit, confirming H4b. Interestingly, the ridge was shifted away from the line of congruence, indicating that at lower levels of autonomy, the highest work engagement levels were found when ideal decision autonomy marginally exceeded perceived decision autonomy.

To test H5a, describing the relationship of (mis-)fit with emotional exhaustion, the shape of the surface was initially examined. It was, as expected, bowl-shaped, and the surface at the line of incongruence was u-shaped. The corresponding a_4 coefficient failed to reach the significance level of α = .05, although it showed the expected slope (a_4 = .44, SE = 0.24, p = .063), meaning increased levels of incongruence between the perceived and ideal decision autonomy were related to higher emotional exhaustion. Thus, H5a was not confirmed. To confirm H5b, which assumed that an increase in perceived decision autonomy was related to a decrease in exhaustion in the case of fit (P = E), the slope of the surface along the line of congruence (P = E) had to be negative and significant, while the curvature had to be nonsignificant. A negative, linear, and marginally significant squared term (a_1 = −0.67, se = 0.12, p < .001, a_2 = −0.16, se = 0.09, p = .079) predicted the surface along the line of congruence (see the line at P = E in Figure 1b). Therefore, H5b was confirmed.

Post hoc analysis showed that the relation of (mis-)fit with exhaustion was significant (a_4 = 0.50, SE = 0.25, p < .05) for the subsample of SMO employees (n_{SMO} = 140; see Figure 1c). However, the effect was nonsignificant for the subsample of non-SMO employees (a_4 = 0.68, SE = 0.40, p = .091, $n_{non\text{-}SMO}$ = 113; Figure 1d). Instead, the slope and curvature along the line of congruence were significant (a_1 = −0.84, SE = 0.20, p < .001, a_2 = −0.42, SE = 0.19, p < .05), indicating an initial increase in emotional exhaustion for low to moderate autonomy levels followed by a decrease for moderate to high autonomy levels.

3.4 | The association with personality traits

3.4.1 | Personality traits as predictors of ideal decision autonomy

To test H6a–c, which assumed that personality traits predicted ideal decision autonomy, ideal decision autonomy was regressed on neuroticism, extraversion, and openness, using the entire sample (see Table 7 and Figure 3). Neuroticism showed the expected negative relationship and predicted lower ideal decision autonomy (ß = −0.12, p < .05), while extraversion (ß = .14, p < .01) and openness (ß = .23, p < .001) showed the expected positive relationships, predicting higher ideal decision autonomy. Therefore, H6a–c were confirmed.

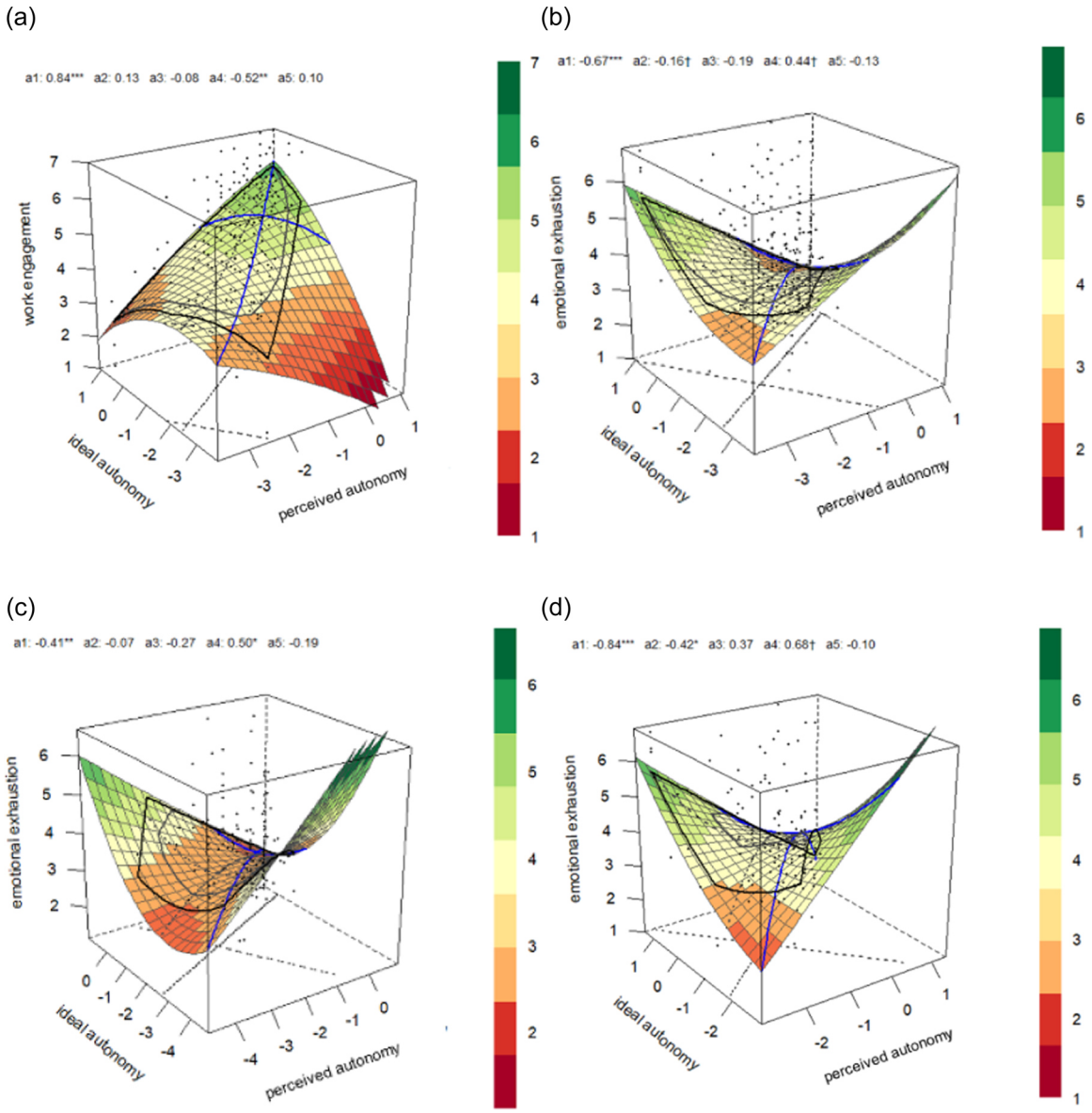

FIGURE 1 Response surface of the perceived level of autonomy (E) and the person's ideal level (P) predicting work engagement and emotional exhaustion. (a) Prediction of work engagement based on the entire sample. (b) Prediction of emotional exhaustion based on the entire sample. (c) Prediction of emotional exhaustion based on the self-managing organization (SMO) subsample. (d) Prediction of emotional exhaustion based on the non-SMO subsample.

3.4.2 | Personality traits as predictors of autonomy fit in SMOs

To test H7a–c, predicting the association of personality traits and decision autonomy fit in SMOs, the approach proposed by Bednall and Zhang (2020) was followed. More precisely, an effect on the absolute directional difference (the systematic difference in the levels of P and E) was expected (Edwards et al., 1998). Based on subsample 1, including only SMO employees, the expected increasing effect of neuroticism and the mitigating effects of extraversion and openness on the absolute directional difference, $|(\alpha_1 - \alpha_2) + X_j \cdot (\beta_1 - \beta_2)|$, were sequentially tested by first running the multivariate regressions of ideal and perceived decision autonomy on the traits to receive the corresponding regression parameters (Table 7). Then, the significance of the directional differences was assessed using the delta method. The resulting, zero-including 95% confidence intervals ($CI_{Neuroticism}$ [−0.07, 0.17], $CI_{Extraversion}$ [−0.32, 0.16], $CI_{Openness}$ [−0.19, 0.27]) indicated that none of the personality traits significantly affected the autonomy fit, leading to the rejection of H7a–c. Notably, the multivariate regressions of ideal and perceived decision autonomy showed that personality traits predicted not only ideal but also perceived decision autonomy, which was not foreseen. That might have undermined the relationship with the fit measure. Interestingly, extraversion was a stronger predictor of perceived decision autonomy than ideal decision autonomy, while openness was only

TABLE 6 Perceived and Ideal decision autonomy as predictors of work engagement and emotional exhaustion.

Variable	Work engagement *b* (*SE*)	Emotional exhaustion *b* (*SE*)
Constant	5.00 (0.11)***	3.09 (0.13)
Perceived autonomy	0.38 (0.13)**	−0.43 (0.16)*
Ideal autonomy	0.46 (0.16)**	−0.24 (0.19)
Perceived autonomy^2	−0.05 (0.04)	0.01 (0.05)
Perceived autonomy × ideal autonomy	0.32 (0.11)**	−0.30 (0.13)*
Ideal autonomy^2	−0.15 (0.10)	0.13 (0.11)
R^2	.38***	.21***
a_1	0.84 (0.09)***	−0.67 (0.13)***
a_2	0.13 (0.09)	−0.16 (0.09)†
a_3	−0.08 (0.27)	−0.19 (0.32)
a_4	−0.52 (0.20)**	0.44 (0.24)†

Note: $N = 259$.

Abbreviations: *b*, unstandardized regression coefficient; *SE*, standard error; a_1 to a_4, specific parameters of the RSA.

†$p < .10$.

*$p < .05$; **$p < .01$; ***$p < .001$.

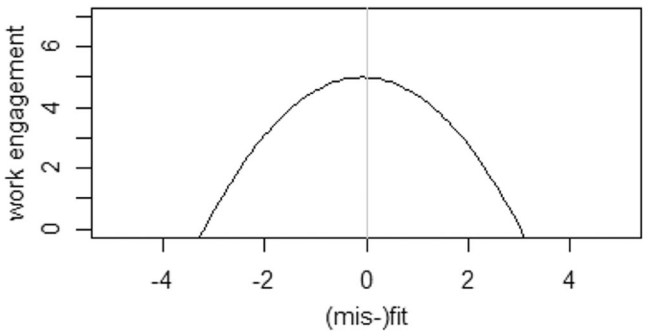

FIGURE 2 Relationship between (mis-)fit of environmental and ideal decision autonomy and work engagement. Lines are based on linear and quadratic regression estimates.

predictive of ideal decision autonomy. Possible content-related and methodological reasons are discussed in the next section.

3.4.3 | Personality traits as moderators

Hypotheses H8a–c, which expected the relationship between perceived decision autonomy and work engagement to be moderated by personality traits in SMOs and traditional organizations, were tested through a multiple regression based on the entire sample. Work engagement was regressed on the perceived decision autonomy, neuroticism, extraversion, openness to experience, and their corresponding dual interactions (see Table 8). The total model, including the covariates of gender and age, the four direct effects, and the three interaction terms, explained a significant part of the variance ($R^2 = .43$, $p < .001$). The regression showed small but significant interactions of perceived decision autonomy with extraversion ($ß = -.14$, $p < .05$) as well as with neuroticism ($ß = -.13$, $p < .05$). The interaction term of perceived decision autonomy and openness was not significant ($ß = .02$, $p = .661$). In line with the predictions, in the case of high neuroticism, the relationship between perceived decision autonomy and work engagement was less positive than in the case of low neuroticism. However, in contrast to the predictions, high extraversion was also related to a less positive relation between perceived decision autonomy and work engagement (see Figure 4). Consequently, H8a was confirmed, while H8b and H8c were rejected.

TABLE 7 Multivariate regression of ideal and perceived decision autonomy on the personality traits neuroticism, extraversion, and openness.

	Full sample[a]		SMO subsample[b]	
	Ideal autonomy ß	Perceived autonomy ß	Ideal autonomy ß	Perceived autonomy ß
Age	−.02	.06	.00	.08
Male	−.03	.03	−.01	.03
Neuroticism	.03*	−.21**	−.23*	−.25**
Extraversion	−.15**	.32***	.10	.20*
Openness	.19***	.04	.23**	.17†
R^2 (adjusted R^2)	.15 (.14)**	.20 (.18)***	.14**	.16***

Note: Values in parentheses are adjusted R^2.

Abbreviation: SMO, self-managing organization.

[a]$n_{SMO} = 127$.

[b]$N = 246$.

†$p < .10$.

*$p < .05$; **$p < .01$; ***$p < .001$.

Similarly, testing the moderation hypotheses H9a–c within the entire sample, emotional exhaustion was regressed on perceived decision autonomy, personality traits, and their dual interactions (see Table 8). The regression model explained a significant part of the variance ($R^2 = .35$, $p < .001$). However, no interaction term reached significance. Therefore, further analyses of the moderation effects were irrelevant, and H9a–c were rejected.

4 | DISCUSSION

The current study examined the relationship between the interaction of perceived and ideal decision autonomy and the antecedents of well-being—work engagement and emotional exhaustion (see Figure 5 for a visualization of the hypotheses). Additionally, the associations with personality traits were investigated. It thus gave

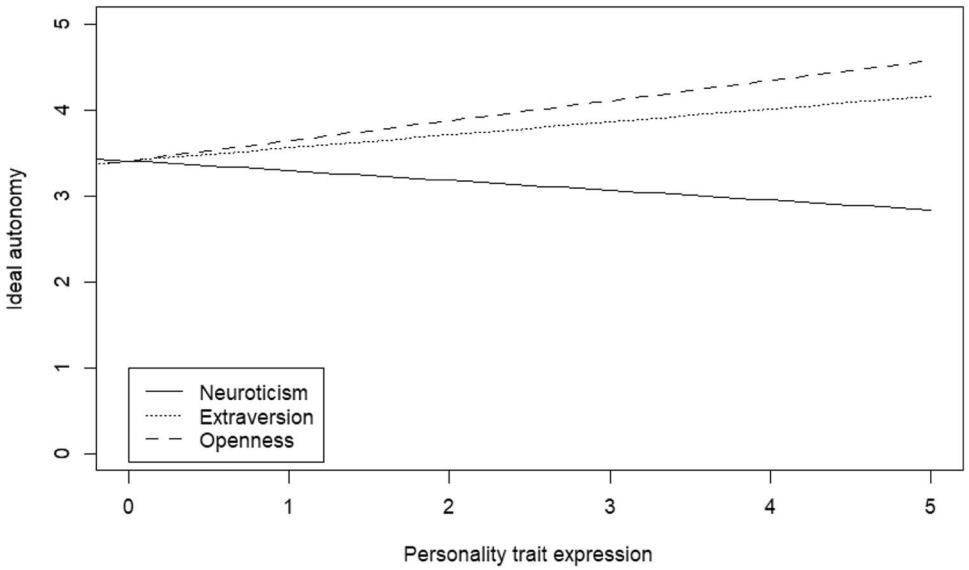

FIGURE 3 Regression of ideal decision autonomy on the personality traits neuroticism, extraversion, and openness. The regression model controlled for age and gender.

TABLE 8 Perceived decision autonomy (E) and personality traits as predictors of work engagement and emotional exhaustion.

	Work engagement	Emotional exhaustion
Age	−.01	.02
Male gender	−.01	−.09
Perceived autonomy	.47***	−.30***
Neuroticism	−.03	.42***
Extra	.23***	−.05
Open	.04	.00
Perceived autonomy x neuroticism	−.13**	.01
Perceived autonomy x extraversion	−.14*	−.04
Perceived autonomy x openness	.02	.00
R^2 (adjusted R^2)	.43 (.41)***	.35 (.33)***
ΔR^2		

Note: $N = 246$. Standardized regression weights ß.
*$p < .05$; **$p < .01$; ***$p < .001$.

insights into employee characteristics associated with a better fit with high individual decision autonomy, as found in SMOs. First, the results confirmed our basic assumption that SMO employees perceive significantly higher decision autonomy than non-SMO employees (H1), verifying the proposition of previous literature on SMOs (Lee & Edmondson, 2017), which is essential in understanding the impact of the self-managing organizational framework on the individual level.

Second, the applicability of the previously described linear relationship between decision autonomy and work engagement/emotional exhaustion was challenged for exceptionally high levels of decision autonomy, as prevalent in SMOs. The results contradicted the curvilinear relationship of decision autonomy with work engagement (H2) and emotional exhaustion (H3) and supported linear relationships. This aligns with the previously mixed findings and shows that a more detailed examination is required. The selective attraction of individuals with high ideal decision autonomy to SMOs and vice versa (Schneider et al., 1995a) may have restricted the variance and thus obscured the curvilinear effect.

To better understand how individual characteristics interact with the potential resource of high decision autonomy in SMOs, we tested whether there was a significant relationship between decision autonomy (mis-)fit and work engagement (H4a) or emotional exhaustion (H5a). The results confirmed H4a, showing the highest levels of work engagement when the perceived decision autonomy fitted the ideal one. Notably, the perceptions of autonomy surplus or shortage were equally related to lower work engagement. Hence, by showing that decision autonomy misfit was also related to lower work engagement, the study extended the previous findings regarding autonomy (mis-)fit and flourishing (Stiglbauer & Kovacs, 2018). In turn, H5a was not confirmed, as the results showed that (mis-)fit was a significant predictor of emotional exhaustion only in the sample of SMOs, while it was only marginally significant in the total sample. These results align with previous findings of Stiglbauer and Kovacs (2018), who found a nonsignificant curvilinear relationship between decision autonomy misfit and job-related affective well-being in a sample of non-SMO employees. However, for the current study's subsample of SMO employees, the expected relation of (mis-)fit and emotional exhaustion was significant; thus, decision autonomy surplus seemed to reveal its health-detrimental effect only in SMOs. One reason for this difference may be a lack of alternatives: High decision autonomy also entails the

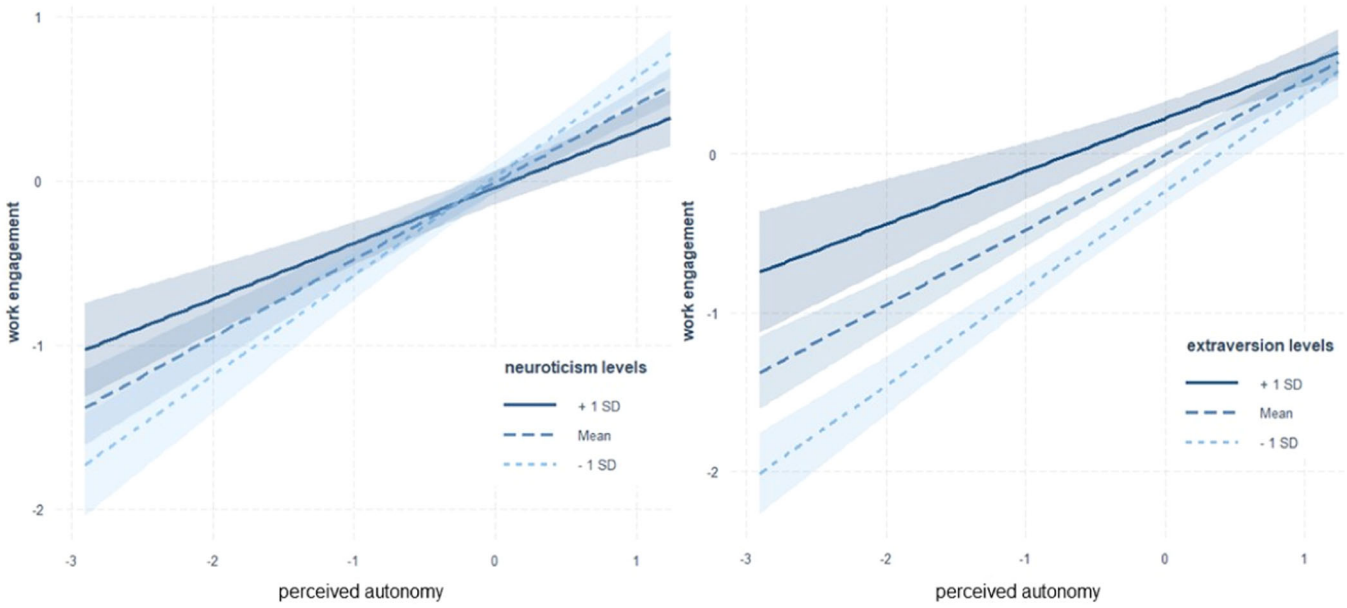

FIGURE 4 The moderating effect of neuroticism and extraversion levels on the relations of work engagement and perceived decision autonomy. Colored fields display 80% confidence intervals. Moderator levels were determined by standard deviations.

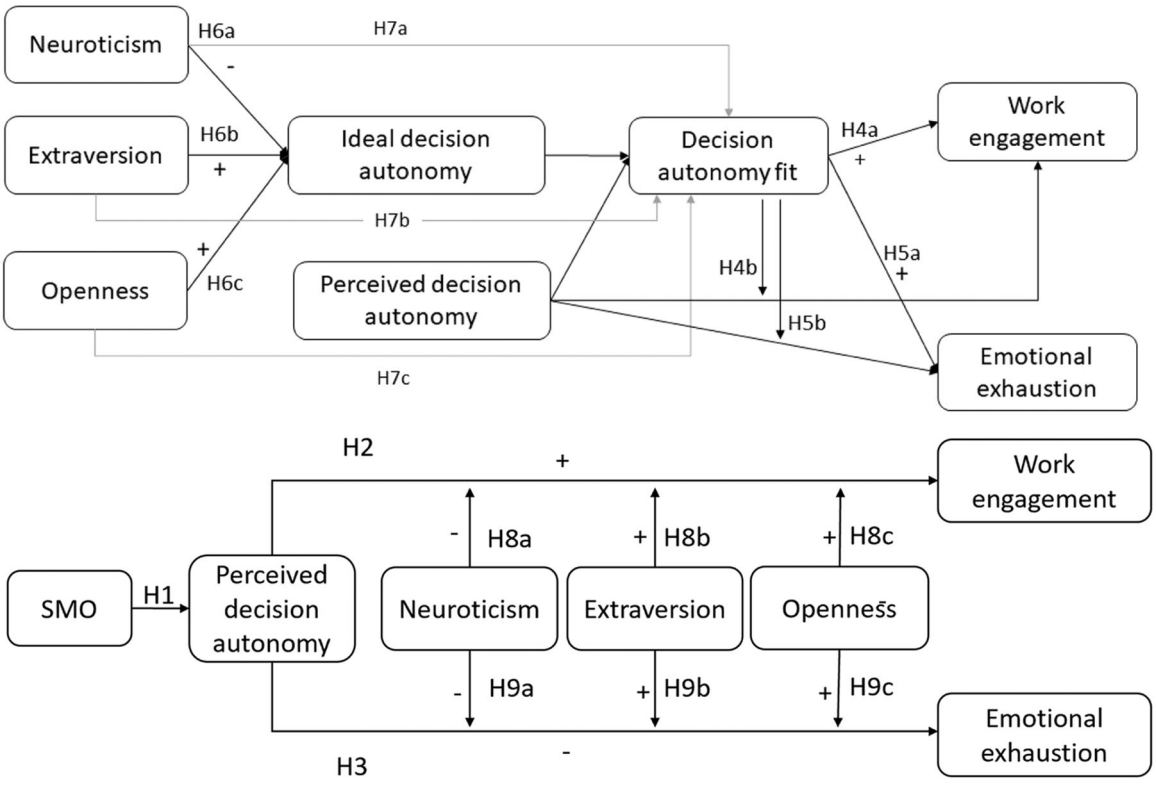

FIGURE 5 Conceptual depiction of hypotheses. H7a–c only refer to the self-managing organization (SMO) sample and are in light gray.

demand to make the required decisions. In contrast to non-SMOs, in SMOs, this responsibility cannot be handed back to a supervisor or a colleague; thus, the demand to fulfill the autonomy-related responsibility consumes resources, causing higher emotional exhaustion (Bakker & Demerouti, 2007). Consequently, to benefit from high levels of decision autonomy, such as those provided by SMOs, employees must also aim to perform according to such high levels, as it may otherwise impede work engagement and health strain.

To further understand the effect of perceived decision autonomy, it was tested whether, in the case of fit, higher decision

autonomy showed its job resource characteristic by relating positively to work engagement (H4b) and negatively to emotional exhaustion (H5b). The results confirmed both hypotheses. These insights support the interplay of the P-E fit theory and JD-R theory. Decision autonomy can have motivational and health-protective characteristics attributed to job resources, but they become more salient when there is a good fit between the person's needs and perception of decision autonomy.

Additionally, we investigated the relationship between personality traits and ideal decision autonomy to enhance the understanding of the interindividual differences in P-E fit. The results supported the hypothesis that neuroticism is related to lower (H6a), while extraversion (H6b) and openness to experience (H6c) are related to higher ideal decision autonomy. As previous research rarely looked into predictors of individual ideal (decision) autonomy, the findings are innovative and support the theory of purposeful work behavior (Barrick et al., 2013) by showing a positive relationship between ideal autonomy and extraversion or openness but a negative one with neuroticism. Openness might motivate the desire for decision autonomy as it allows one to pursue new ideas, shape structures and processes, and seek personal growth, which are openness-associated interests (Mount et al., 2005). In turn, the negative association of neuroticism with ideal decision autonomy might be explained by the preference for security (Barrick & Parks-Leduc, 2019) and the link with worse decision-making performance (Byrne et al., 2015; Denburg et al., 2009). Thus, employees higher in neuroticism may have a reduced interest in decision-making and the corresponding autonomy.

In addition, it was investigated whether personality traits are, as a result, also related to (mis-)fit in SMOs, where perceived decision autonomy would be high (H7a–c). Although personality traits predicted ideal decision autonomy and ideal decision autonomy predicted (mis-)fit, the results contradicted the direct relation of personality traits with autonomy (mis-)fit, resulting in the rejection of H7a–c. However, the significant relationship between personality and perceived decision autonomy could explain the finding: Neuroticism predicted lower perceived decision autonomy, while extraversion and openness predicted higher perceived decision autonomy. That is in line with previous findings (Rubenstein et al., 2019; Sutin & Costa, 2010) and may result from individual job crafting: Job crafting refers to the proactive modification of one's job characteristics (Tims et al., 2012) and can increase not only job resources (Tims et al., 2013) but also P-E fit, specifically, the needs-supplies fit (Tims et al., 2016). Additionally, the tendency to craft one's job was related to personality traits (Roczniewska & Bakker, 2016; Rudolph et al., 2017). Therefore, individual job-crafting behaviors might have blurred the relation between personality and (mis-)fit. On the other hand, other unknown factors could also have obscured the relationship, which is worth exploring in future research.

Lastly, to get the whole picture, we also investigated whether certain personality types could benefit more or less from decision autonomy by examining whether and how personality traits interact with the relation between perceived decision autonomy and work engagement (H8a–c) or emotional exhaustion (H9a–c). In line with our predictions, neuroticism was associated with a less positive relation between decision autonomy and work engagement. The results indicated that individuals scoring high on neuroticism felt more engaged when perceiving higher decision autonomy but less than employees scoring low on neuroticism. Two possible mechanisms might explain the attenuated positive relation: On the one hand, neuroticism was associated with difficulties in decision-making (Byrne et al., 2015; Denburg et al., 2009) and thus might impede work engagement when facing the need to live up to the decision autonomy. On the other hand, decision autonomy might give certain freedom, reducing the anxiety of making wrong decisions.

In contrast to the predictions, extraversion was also associated with a less positive relationship between decision autonomy and work engagement. With increasing extraversion, the relationship between decision autonomy and engagement became less positive, although even for highly extraverted individuals, an increase in decision autonomy was still associated with an increase in engagement. The unexpected mitigation related to extraversion may result from the fact that extraverted people generally tend to feel more engaged, and hence the incremental effect of decision autonomy becomes less relevant for them (Akhtar et al., 2015; Langelaan et al., 2006). The results did not show an interaction between openness to experience and perceived decision autonomy, contradicting H9c.

In contrast to this study's hypotheses, personality traits did not moderate the relationship between decision autonomy and emotional exhaustion. This points to a personality-independent, health-protective character of decision autonomy, which aligns with previous research based on the JD-R, considering it a job resource with a buffering effect on demands. When considering the nonsignificant relation between (mis-)fit and emotional exhaustion in this study, P-E fit seems to play a minor role in emotional exhaustion. This contrasts the core assumption of the P-E fit theory, proposing increased stress in case of a misfit (Edwards et al., 1998). Two possible explanations may justify this finding: First, selective attraction and job crafting may have reduced variance within the sample and obscured relationships. Secondly, the job characteristic decision autonomy may have a particular health-protective role through the increased possibility for self-determination (Ng et al., 2012). Additionally, the findings that neuroticism is relevant for work engagement, and not exhaustion, may point to the fact that the increased autonomy may reduce pressure in general but lead to excessive relaxation in more neurotic persons, resulting in reduced engagement.

Generally, as this study was a cross-sectional nonexperimental study, the effects of selective attraction or job crafting may have skewed the analysis through variance restrictions. For instance, extraverted or open-minded persons might have chosen a job with a decision autonomy level that corresponds to their ideal level or crafted their decision autonomy accordingly and thus reduced variance in the decision autonomy-extraversion combinations (Rubenstein et al., 2019; Schneider et al., 1995; Sutin & Costa, 2010). This is in line with previous research on the relation of personality

traits with perceptions of job demands and resources (Bakker et al., 2010) and the present study's exploratory findings: Ideal decision autonomy was also higher for the SMO group, and personality traits predicted not only perceived decision autonomy but also ideal decision autonomy. Therefore, experimental designs are necessary to account for the potential causalities.

4.1 | Theoretical and practical contributions

This study provides four critical contributions to further theory development. First, the study adds to the literature on P-E fit by proving that decision autonomy (mis-)fit is related to affective well-being (Edwards et al., 1998; Stiglbauer & Kovacs, 2018) and also motivational outcomes such as work engagement. Moreover, it shows that the misfit of decision autonomy is not necessarily associated with increased emotional exhaustion, underlining the need for a more detailed examination. Additionally, it offers insights into the relation of personality traits theory with the intrapersonal antecedents of P-E fit. The findings add to the theory of purposeful work behavior (Barrick et al., 2013) by showing that extraversion and openness to experience were positively related to ideal decision autonomy, while neuroticism was related negatively. The findings support the theory's proposition of openness as a motivator for autonomy striving and also suggest extraversion and neuroticism as further (de-)motivators for autonomy striving.

Second, the study results contribute to the JD-R theory and the research on job resources, providing a more nuanced picture of decision autonomy. The study results show no evidence that decision autonomy functioned as a demand by causing health strain. However, the results support the notion that decision autonomy is a resource whose strength depends on individual values and personality, extending the personal resources considered thus far (Schaufeli & Taris, 2014). Third, it contributes to the connection between the P-E fit and the JD-R theory. The findings of the (mis-)fit–wellbeing-relationship and the additional linear autonomy–wellbeing relation occurring when the environmental supplies fit the person's values add to the understanding of decision autonomy as a resource as well as the mixed findings on (inverted) u-shaped versus linear relationships (Clausen et al., 2022; Kubicek et al., 2014). Additionally, decision autonomy surplus, resulting from misfit, could function as demand and exert detrimental health effects in certain contexts, such as SMOs.

Fourthly, the present study contributes to the research on SMOs. Thus far, research has mainly focused on outcomes and processes at the organizational level; accordingly, adding the individual-level perspective helps clarify the picture. It provides initial quantitative data on SMOs, confirming the so-far theoretical assumption that employees in SMOs perceive more decision autonomy due to the adapted organizational principles. This finding is important as prior research showed that self-managing practices at the team level did not necessarily result in more perceived individual autonomy (Barker, 1993). Besides, the fact that the relation of (mis-)fit and emotional exhaustion was significant only for SMOs supports the notion that P-E fit is essential for mental well-being in SMOs.

The present findings also have relevant implications for organizational practice in SMOs and other organizations experimenting with decentralizing autonomy, as extreme cases can offer valuable transferable insights. The finding that employees perceive high decision autonomy in SMOs helps to understand the requirements and benefits for employees in such organizations; thus, recruitment and selection criteria can be adapted accordingly for better P-E fit (Barrick & Parks-Leduc, 2019). The findings help utilize personality assessment more specifically, as neuroticism, extraversion, openness to experience, and ideal decision autonomy were identified as related to employee well-being. This facilitates the selection of candidates who fit better into the organization and optimally benefit from the provided autonomy. As P-E fit is related to individual work engagement, its consideration is crucial in SMOs: Due to the associated reduced control mechanisms, the intrinsic motivation to do one's job optimally becomes more critical for the organization's success. Consequently, besides considering technical skills, choosing people with high openness to experience and extraversion but low neuroticism levels may be better for SMOs. In turn, people with higher neuroticism and less openness to experience may fit better into organizations with more centralized authority structures because, in such organizations, a surplus in perceived decision autonomy is less likely: Decision autonomy is lower on average and more centralized toward managers, who can give security and support. Additionally, considering the interindividual differences in desired autonomy allows matching employees with apt roles and can help improve person-job fit in organizational transformation and personnel development processes.

Besides, the results are relevant for organizational practices beyond the context of SMOs and recruitment and selection. According to our findings, when developing people, customizing jobs, or developing organizational cultures (e.g., New Work initiatives), providing more autonomy is not a universal motivational mechanism; instead, it must address individual preferences. In turn, as prior research has shown that openness to experience can be developed (Jackson et al., 2012), this could be a lever to make employees more comfortable with decision autonomy.

4.2 | Limitations and future research

An important limitation of this study is the potential bias through uncontrolled covariates. Although this study included important control variables (age and gender), which are associated with other potential intrapersonal control variables, further individual and organizational control variables would have strengthened the validity of the results. Unfortunately, collecting further variables was waived to reduce participant burden, particularly for SMO employees, who had already received many research requests because of their organizational uniqueness. This limits the significance of the group comparison of SMOs versus non-SMOs (H1), as controlling for

potential systematic biases by the organization's size and age or the individual's organizational tenure was not possible. Although a preselection was made regarding the type of organization in the research panel, the full equivalency of the subsamples could not be ensured. Additionally, individual-level organizational tenure may have influenced the relations proposed in H2-9. For instance, organizational tenure was found to be related to work engagement and emotional exhaustion (Bal et al., 2013; Karatepe & Karatepe, 2009; Karatepe & Olugbade, 2009): Increasing tenure was associated with decreasing vigor and engagement but also with a weaker relation between role conflict and emotional exhaustion. Thus, differences in organizational tenure may have biased the relationship between decision autonomy (fit) and work engagement or emotional exhaustion found in this study. These biases might be particularly critical in the context of SMOs, as they strongly rely on the long-term engagement of their employees due to the high individual autonomy and lack of central steering mechanisms. Therefore, the lack of control of this potential covariate clearly limits the significance of the results. Despite the limited significance, the results show a first important tendency of difference in decision autonomy, which should be consolidated in future studies.

Ceiling effects regarding perceived and ideal decision autonomy were observed in the subsample of SMO employees. The used scale was initially developed to describe work situations in non-SMOs, where employees have less decision autonomy than those in SMOs. The left-skewed data showed that the scale probably could not capture the entire autonomy variance in the sample, which may have restricted the analyses, although the conventions for the statistical analyses' requirements were satisfied. Thus, using an adapted scale to measure decision autonomy in SMOs would probably have improved the results. Based on our assumption that SMOs would particularly affect decision autonomy, only decision autonomy was assessed, for which the effects of (mis-)fit seemed to be different from those in other forms of autonomy (Stiglbauer & Kovacs, 2018). However, the conditions in SMOs also likely affect other forms of autonomy, such as method autonomy, and therefore, its future investigation is also relevant.

Another challenge of this study was measuring SMOs appropriately. A scale for measuring the SMO characteristics was not available from previous research; thus, we developed one based on the qualitative data gathered by Martela (2019). A limitation of the current study is that the scale was not previously validated, but the preselection of organizations to recruit participants from ensured the inclusion of SMO employees only in our SMO subsample. Nonetheless, using a validated scale to measure the affiliation to an SMO would further improve the significance of the data.

The questionnaire was provided in English and German so that most participants could answer in their native language. However, the sample also included Portuguese participants, answering in English as a foreign language. Nonetheless, we are confident that this did not endanger the validity, as the participants were fluent in English due to their workplace's conversation language English.

Another challenge of the study was the minimum sample size. The sample sizes were calculated to guarantee sufficient power to detect an effect of moderate size within the whole sample of employees of SMOs and non-SMOs. The total sample size of $N = 259$ was sufficient, but for the explorative analyses limited to the subsamples, the sizes were not sufficiently large for RSA, which limited these analyses' significance. However, this limitation is acceptable as the subsample analyses were post hoc and explorative. Further, the samples were sufficiently large for all hypothesis-testing analyses.

The study's SMO subsample comprised employees mainly working in the software, social, and finance sectors. The sample included only employees of organizations with a workforce smaller than 500. A broader range of organizational size would have been desirable, but accessibility reasons proved to be a hindrance. Although this offers a selective perspective, the sectors and organizational sizes presumably did not affect the investigated relations of ideal and perceived decision autonomy significantly, as those relations are supposed to be universal.

Due to the limited accessibility of SMO participants and presumably high dropout rates in longitudinal designs, a cross-sectional approach was adopted to gain first valuable insights into how the autonomy surplus is related to current work engagement and mental health. However, as cross-sectional studies cannot account for causality but only correlations, the results regarding the relational hypothesis must be interpreted as correlations accordingly. Those first promising insights should be extended by future research by employing additional longitudinal or experimental approaches.

Due to the complex nature of difference scores, polynomial regression analyses were used. This method is a valuable tool for investigating fit hypotheses (Shanock et al., 2010), but it cannot account for the integrated analysis of several interdependent hypotheses like structural equation modeling can. Thus far, there has been no seminal paper on the usage of difference scores in structural equation models; thus, a molecular measure of P-E fit would be necessary to use structural equation models, but this would impede the investigation of the role of ideal decision autonomy. As discussed above, the findings pointed to certain effects of selective attraction and job crafting, which probably limited the analyses. Therefore, using experimental designs could help get a less biased picture. On the other hand, examining potential job-crafting-fit relations is promising, as they can be enhanced through interventions (Gordon et al., 2018) and are thus of interest for personnel development and selection.

For parsimony, the traits of agreeableness and conscientiousness were excluded from the study. Although they were found to be related to performance, burnout, and work engagement (Akhtar et al., 2015; Barrick, 2005; Barrick & Mount, 1993), there was no evidence of their impact on ideal decision autonomy and thus fit, which was the main focus of the paper. However, investigating conscientiousness or agreeableness as moderators of the relationship between autonomy and work engagement or emotional exhaustion could offer even more insights and thus be subject to future research. Building on the finding

of high decision autonomy in SMOs and the relevance of fit, other predictors of ideal decision autonomy and additional characteristics of such organizations should be considered, for example, the need for collaboration. Moreover, in addition to personality, the role of competencies could be addressed, as they are trainable. Additionally, team-based research could add information regarding the intrateam interactions of individual personality traits or ideal decision autonomy levels and their impact on team performance and work engagement. Moreover, although predictors of job performance were addressed in the present study, a direct investigation of the misfit-job performance relationship would be beneficial.

SMOs are based on various unique and intertwining principles, and despite their many advantages, quantitative research can only grasp a few aspects of these complex constructs. Besides, the extent of certain job characteristics, such as decision autonomy, exceeds the usual dimensions and previously validated scales presumably cannot capture the entire range. Therefore, more holistic approaches whereby the researcher can interact with the participants, like in qualitative methodologies or action research (Huxham & Vangen, 2003), could provide valuable insights into individual behaviors and reactions toward those organizational principles.

4.3 | Conclusions

The present study provides initial empirical evidence that self-management at the organizational level is associated with higher perceived decision autonomy at the individual level. The previously mentioned is essential to consider in personnel selection processes, as the study also showed that the fit between the individual ideal decision autonomy and the perceived decision autonomy was related to feeling engaged in one's work. This adds to the literature on job resources and P-E fit as it might explain the mixed findings on linear versus curvilinear relations between autonomy and work engagement or mental health. To select suitable candidates for job positions in SMOs or positions with high decision autonomy, individual personality traits can be considered, as this study revealed that extraversion and openness to experience were related to higher ideal decision autonomy. In contrast, neuroticism was related to lower ideal decision autonomy. Hence, this work also advances the research on the predictors of P-E fit and the interindividual differences in the associations of perceived decision autonomy. Conclusively, high decision autonomy is not the best choice for everyone. Instead, suitable individual characteristics are related to the motivational character of decision autonomy.

ACKNOWLEDGMENTS

The data that support the findings of this study are available from the corresponding author upon reasonable request.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ENDNOTES

[1] New Work is a philosophy pursuing the inversion of the former relationship between work and humans such that work would serve as a source of fulfillment and energy for employees, instead of consuming their energy and using them as a tool (Bergmann, 2019). The purpose-oriented, self-managed work in SMOs is in line with those aims.

[2] Due to the relatively complex nature of the response surface analysis (RSA), the sample size must be at least 2–3 times as high for the detection of the linear main effects (Aiken et al., 1998; Humberg et al., 2019). According to power analysis in G*Power, the minimal sample size to detect the linear main effects (assuming moderate effect sizes) was $N = 74$.

REFERENCES

Aiken, L. S., West, S. G., & Reno, R. R. (1998). *Multiple regression: Testing and interpreting interactions* [Reprint]. SAGE.

Akhtar, R., Boustani, L., Tsivrikos, D., & Chamorro-Premuzic, T. (2015). The engageable personality: Personality and trait EI as predictors of work engagement. *Personality and Individual Differences*, *73*, 44–49. https://doi.org/10.1016/j.paid.2014.08.040

Alarcon, G., Eschleman, K. J., & Bowling, N. A. (2009). Relationships between personality variables and burnout: A meta-analysis. *Work & Stress*, *23*(3), 244–263. https://doi.org/10.1080/02678370903282600

Alavi, S., Abd. Wahab, D., Muhamad, N., & Arbab Shirani, B. (2014). Organic structure and organisational learning as the main antecedents of workforce agility. *International Journal of Production Research*, *52*(21), 6273–6295. https://doi.org/10.1080/00207543.2014.919420

Bakker, A. B., & Costa, P. L. (2014). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research*, *1*(3), 112–119. https://doi.org/10.1016/j.burn.2014.04.003

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*, 309–328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273–285.

Bakker, A. B., Boyd, C. M., Dollard, M., Gillespie, N., Winefield, A. H., & Stough, C. (2010). The role of personality in the job demands-resources model. *Career Development International*, *15*(7), 622–636. https://doi.org/10.1108/13620431011094050

Bal, P. M., De Cooman, R., & Mol, S. T. (2013). Dynamics of psychological contracts with work engagement and turnover intention: The influence of organizational tenure. *European Journal of Work and Organizational Psychology*, *22*(1), 107–122. https://doi.org/10.1080/1359432X.2011.626198

Banai, M., Nirenberg, J., & Menachem, M. (2000). Leadership in self-managing organizations: Orpheus and a date plantation. *Journal of Leadership Studies*, *7*(3), 3–17. https://doi.org/10.1177/107179190000700301

Barker, J. R. (1993). Tightening the iron cage: Concertive control in self-managing teams. *Administrative Science Quarterly*, *38*(3), 408–437. https://doi.org/10.2307/2393374

Barrick, M. R. (2005). Yes, personality matters: Moving on to more important matters. *Human Performance*, *18*(4), 359–372. https://doi.org/10.1207/s15327043hup1804_3

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*(1), 1–26. https://doi.org/10.1111/j.1744-6570.1991.tb00688.x

Barrick, M. R., & Mount, M. K. (1993). Autonomy as a moderator of the relationships between the Big Five personality dimensions and job performance. *Journal of Applied Psychology*, *78*(1), 111–118. https://doi.org/10.1037/0021-9010.78.1.111

Barrick, M. R., Mount, M. K., & Li, N. (2013). The theory of purposeful work behavior: The role of personality, higher-order goals, and job characteristics. *Academy of Management Review*, *38*(1), 132–153. https://doi.org/10.5465/amr.2010.0479

Barrick, M. R., & Parks-Leduc, L. (2019). Selection for fit. *Annual Review of Organizational Psychology and Organizational Behavior*, *6*(1), 171–193. https://doi.org/10.1146/annurev-orgpsych-012218-015028

Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology*, *8*(1), 9–32. https://doi.org/10.1080/135943299398410

Bednall, T. C., & Zhang, Y. (2020). Modeling (in)congruence between dependent variables: The directional and nondirectional difference (DNDD) framework. *Journal of Applied Psychology*, *105*(9), 1013–1035. https://doi.org/10.1037/apl0000475

Bednarska, M. A. (2017). Does the effect of person-environment fit on work attitudes vary with generations? Insights from the tourism industry. *International Journal of Management and Economics*, *53*(1), 65–83. https://doi.org/10.1515/ijme-2017-0005

Bergmann, F. (2019). *New work new culture: Work we want and a culture that strengthens us*. John Hunt Publishing.

Bipp, T. (2010). What do people want from their jobs? The Big Five, core self-evaluations and work motivation. *International Journal of Selection and Assessment*, *18*(1), 28–39. https://doi.org/10.1111/j.1468-2389.2010.00486.x

Bolger, N. (1990). Coping as a personality process: A prospective study. *Journal of Personality and Social Psychology*, *59*(3), 525–537.

Bortz, J. (2005). Statistik für Human- und Sozialwissenschaftler *(6., vollst. überarb. und aktualisierte Aufl.)*. Springer-Lehrbuch. Springer.

Breidenbach, J., & Rollow, B. (2020). *The future of work needs inner work: A handbook for companies on the way to self-organisation*. Vahlen.

Byrne, K. A., Silasi-Mansat, C. D., & Worthy, D. A. (2015). Who chokes under pressure? The Big Five personality traits and decision-making under pressure. *Personality and Individual Differences*, *74*, 22–28. https://doi.org/10.1016/j.paid.2014.10.009

Carney, B. M., & Getz, I. (2009). *Freedom, Inc.: Free your employees and let them lead your business to higher productivity, profits, and growth*. Crown Business.

Chang, C. H., Ferris, D. L., Johnson, R. E., Rosen, C. C., & Tan, J. A. (2012). Core self-evaluations. *Journal of Management*, *38*(1), 81–128. https://doi.org/10.1177/0149206311419661

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, *4*(1), 62–83.

Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*, *64*(1), 89–136.

Chung-Yan, G. A. (2010). The nonlinear effects of job complexity and autonomy on job satisfaction, turnover, and psychological well-being. *Journal of Occupational Health Psychology*, *15*(3), 237–251. https://doi.org/10.1037/a0019823

Clausen, T., Pedersen, L. R. M., Andersen, M. F., Theorell, T., & Madsen, I. E. H. (2022). Job autonomy and psychological well-being: A linear or a non-linear association? *European Journal of Work and Organizational Psychology*, *31*(3), 395–405. https://doi.org/10.1080/1359432X.2021.1972973

de Jonge, J., Reuvers, M. M. E. N., Houtman, I. L. D., Bongers, P. M., & Kompier, M. A. J. (2000). Linear and nonlinear relations between psychosocial job characteristics, subjective outcomes, and sickness absence: Baseline results from SMASH. *Journal of Occupational Health Psychology*, *5*(2), 256–268. https://doi.org/10.1037/1076-8998.5.2.256

Daveri, F., & Maliranta, M. (2007). Age, seniority and labour costs: Lessons from the Finnish IT revolution. *Economic Policy*, *22*(49), 118–175. http://www.jstor.org/stable/4502193

Demailly, C. (2014). Shaping the organization of the future. *People & Strategy*, *37*(1), 54–56.

Denburg, N. L., Weller, J. A., Yamada, T. H., Shivapour, D. M., Kaup, A. R., LaLoggia, A., Cole, C. A., Tranel, D., & Bechara, A. (2009). Poor decision making among older adults is related to elevated levels of neuroticism. *Annals of Behavioral Medicine*, *37*(2), 164–172. https://doi.org/10.1007/s12160-009-9094-7

Dettmers, J., & Bredehöft, F. (2020). The ambivalence of job autonomy and the role of job design demands. *Scandinavian Journal of Work and Organizational Psychology*, *5*(1), Article 81–13. https://doi.org/10.16993/sjwop.81

Doblinger, M. (2021). Individual competencies for self-managing team performance: A systematic literature review. *Small Group Research*, *53*(1), 128–180. https://doi.org/10.1177/1046496421104111 4

Dysvik, A., & Kuvaas, B. (2011). Intrinsic motivation as a moderator on the relationship between perceived job autonomy and work performance. *European Journal of Work and Organizational Psychology*, *20*(3), 367–387. https://doi.org/10.1080/13594321003590630

Edwards, J. R. (2002). Alternatives to difference scores: Polynomial regression and response surface methodology. In F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in Measurement and Data Analysis*, (pp. 350–400). Josse-Bass/Wiley.

Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28–67). OUP Oxford.

Endler, N. S., & Magnusson, D. (1976). Toward an interactional psychology of personality. *Psychological Bulletin*, *83*(5), 956–974. https://doi.org/10.1037/0033-2909.83.5.956

Eyal, P., David, R., Andrew, G., Zak, E., & Ekaterina, D. (2022). Data quality of platforms and panels for online behavioral research. *Behavior Research Methods*, *54*, 1643–1662. https://doi.org/10.3758/s13428-021-01694-3

Farfán, J., Peña, M., Fernández-Salinero, S., & Topa, G. (2020). The moderating role of extroversion and neuroticism in the relationship between autonomy at work, burnout, and job satisfaction. *International Journal of Environmental Research and Public Health*, *17*(21), 8166.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Felfe, J., & Schyns, B. (2006). Personality and the perception of transformational leadership: The impact of extraversion, neuroticism, personal need for structure, and occupational self-efficacy. *Journal of Applied Social Psychology*, *36*(3), 708–739. https://doi.org/10.1111/j.0021-9029.2006.00026.x

Ford, M. T. (2012). Job-occupation misfit as an occupational stressor. *Journal of Vocational Behavior*, *80*(2), 412–421. https://doi.org/10.1016/j.jvb.2011.10.004

Galinsky, A. D., Gruenfeld, D. H., & Magee, J. C. (2003). From power to action. *Journal of Personality and Social Psychology*, *85*(3), 453–466. https://doi.org/10.1037/0022-3514.85.3.453

Gallagher, D. J. (1990). Extraversion, neuroticism and appraisal of stressful academic events. *Personality and Individual Differences*, *11*(10), 1053–1057. https://doi.org/10.1016/0191-8869(90)90133-C

Gellatly, I. R., & Irving, P. G. (2001). Personality, autonomy, and contextual performance of managers. *Human Performance*, *14*(3), 231–245. https://doi.org/10.1207/S15327043HUP1403_2

Getz, I. (2009). Liberating leadership: How the initiative-freeing radical organizational form has been successfully adopted. *California Management Review*, *51*(4), 32–58. https://doi.org/10.2307/41166504

Gordon, H. J., Demerouti, E., Le Blanc, P. M., Bakker, A. B., Bipp, T., & Verhagen, M. A. M. T. (2018). Individual job redesign: Job crafting interventions in healthcare. *Journal of Vocational Behavior*, *104*, 98–114. https://doi.org/10.1016/j.jvb.2017.07.002

Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using self-determination theory. *Journal of Applied Psychology*, *94*(2), 465–477.

Hackman, J. R. (1986). The psychology of self-management in organizations. In M. S. Pallak & R. O. Perloff (Eds.), *The Master lectures, Vol. 5. Psychology and work: Productivity, change, and employment* (pp. 89–136). American Psychological Association. https://doi.org/10.1037/10055-003

Hakanen, J. J., Bakker, A. B., & Turunen, J. (2021). The relative importance of various job resources for work engagement: A concurrent and follow-up dominance analysis. *BRQ Business Research Quarterly*, *32*, 234094442110124. https://doi.org/10.1177/23409444211012419

Halbesleben, J. R. B., & Bowler, W. M. (2007). Emotional exhaustion and job performance: The mediating role of motivation. *Journal of Applied Psychology*, *92*(1), 93–106. https://doi.org/10.1037/0021-9010.92.1.93

Handl, A., & Kuhlenkasper, T. (2018). *Einführung in die Statistik*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-56440-0

Harms, P. D., Roberts, B. W., & Winter, D. (2006). Becoming the Harvard man: Person-environment fit, personality development, and academic success. *Personality and Social Psychology Bulletin*, *32*(7), 851–865. https://doi.org/10.1177/0146167206287720

Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology*, *84*(1), 116–122. https://doi.org/10.1111/j.2044-8325.2010.02016.x

Humberg, S., Nestler, S., & Back, M. D. (2019). Response surface analysis in personality and social psychology: Checklist and clarifications for the case of congruence hypotheses. *Social Psychological and Personality Science*, *10*(3), 409–419. https://doi.org/10.1177/1948550618757600

Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology*, *92*(5), 1332–1356. https://doi.org/10.1037/0021-9010.92.5.1332

Huxham, C., & Vangen, S. (2003). Researching organizational practice through action research: Case studies and design choices. *Organizational Research Methods*, *6*(3), 383–403. https://doi.org/10.1177/1094428103254454

Jackson, J. J., Hill, P. L., Payne, B. R., Roberts, B. W., & Stine-Morrow, E. A. L. (2012). Can an old dog learn (and want to experience) new tricks? Cognitive training increases openness to experience in older adults. *Psychology and Aging*, *27*(2), 286–292. https://doi.org/10.1037/a0025918

Janssens, H., De Zutter, P., Geens, T., Vogt, G., & Braeckman, L. (2019). Do personality traits determine work engagement? Results from a Belgian study. *Journal of Occupational & Environmental Medicine*, *61*(1), 29–34. https://doi.org/10.1097/JOM.0000000000001458

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology*, *87*(3), 530–541. https://doi.org/10.1037//0021-9010.87.3.530

Judge, T. A., & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology*, *87*(4), 797–807. https://doi.org/10.1037//0021-9010.87.4.797

Karatepe, O. M., & Karatepe, T. (2009). Role stress, emotional exhaustion, and turnover intentions: Does organizational tenure in hotels matter? *Journal of Human Resources in Hospitality & Tourism*, *9*(1), 1–16. https://doi.org/10.1080/15332840903323364

Karatepe, O. M., & Olugbade, O. A. (2009). The effects of job and personal resources on hotel employees' work engagement. *International Journal of Hospitality Management*, *28*(4), 504–512. https://doi.org/10.1016/j.ijhm.2009.02.003

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, *49*(1), 1–49.

Kristof-Brown, A., & Guay, R. P. (2003). Focusing on personality in person-organization fit research: Unaddressed issues. In M. R. Barrick & A. Ryan (Eds.), *Personality and work: Reconsidering the role of personality in organizations* (pp. 262–288). Jossey-Bass.

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*(2), 281–342. https://doi.org/10.1111/j.1744-6570.2005.00672.x

Kubicek, B., Korunka, C., & Tement, S. (2014). Too much job control? Two studies on curvilinear relations between job control and eldercare workers' well-being. *International Journal of Nursing Studies*, *51*(12), 1644–1653.

Kumar, V., & Mukherjee, S. (2018). Holacracy–the future of organizing? The case of Zappos. *Human Resource Management International Digest*, *26*(7), 12–15. https://doi.org/10.1108/HRMID-08-2018-0161

Laloux, F. (2014). *Reinventing organizations: A guide to creating organizations inspired by the next stage in human consciousness*. Nelson Parker.

Lam, B. (2016). Why are so many Zappos employees leaving? *The Atlantic*. https://www.theatlantic.com/business/archive/2016/01/zappos-holacracy-hierarchy/424173/

Lammers, J., Stoker, J. I., Rink, F., & Galinsky, A. D. (2016). To have control over or to be free from others? The desire for power reflects a need for autonomy. *Personality & Social Psychology Bulletin*, *42*(4), 498–512. https://doi.org/10.1177/0146167216634064

Langelaan, S., Bakker, A. B., van Doornen, L. J. P., & Schaufeli, W. B. (2006). Burnout and work engagement: Do individual differences make a difference? *Personality and Individual Differences*, *40*(3), 521–532. https://doi.org/10.1016/j.paid.2005.07.009

Lee, M. Y., & Edmondson, A. C. (2017). Self-managing organizations: Exploring the limits of less-hierarchical organizing. *Research in Organizational Behavior*, *37*, 35–58. https://doi.org/10.1016/j.riob.2017.10.002

Li, M., Liu, W., Han, Y., & Zhang, P. (2016). Linking empowering leadership and change-oriented organizational citizenship behavior. *Journal of Organizational Change Management*, *29*(5), 732–750. https://doi.org/10.1108/JOCM-02-2015-0032

Licht, M. H. (1995). Multiple regression and correlation. In L. G. Grimm & P. R. Yarnold (Eds.), *Reading and understanding multivariate statistics* (pp. 19–64). American Psychological Association.

Liu, D., Zhang, S., Wang, L., & Lee, T. W. (2011). The effects of autonomy and empowerment on employee turnover: Test of a multilevel model in teams. *Journal of Applied Psychology*, *96*(6), 1305–1316. https://doi.org/10.1037/a0024518

Martela, F. (2019). What makes self-managing organizations novel? Comparing how Weberian bureaucracy, Mintzberg's adhocracy, and self-organizing solve six fundamental problems of organizing. *Journal of Organization Design*, *8*(1), 23. https://doi.org/10.1186/s41469-019-0062-9

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*, 99–113. https://doi.org/10.1002/job.4030020205

Mazmanian, M., Orlikowski, W. J., & Yates, J. (2013). The Autonomy Paradox: The implications of mobile email devices for knowledge professionals. *Organization Science*, *24*(5), 1337–1357. https://doi.org/10.1287/orsc.1120.0806

McCrae, R. R. (1990). Controlling neuroticism in the measurement of stress. *Stress Medicine*, *6*(3), 237–241. https://doi.org/10.1002/smi.2460060309

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, *91*(6), 1321–1339. https://doi.org/10.1037/0021-9010.91.6.1321

Morrow, R., & Brough, P. (2019). It's off to work we go!' Person–environment fit and turnover intentions in managerial and administrative mining personnel. *International Journal of Occupational Safety and Ergonomics*, *25*(3), 467–475. https://doi.org/10.1080/10803548.2017.1396028

Mount, M. K., & Barrick, M. R. (1995). The Big Five personality dimensions: Implications for research and practice in human resources management. *Research in Personnel and Human Resources Management*, *13*(3), 153–200.

Mount, M. K., Barrick, M. R., Scullen, S. M., & Rounds, J. (2005). Higher-order dimensions of the big five personality traits and the big six vocational interest types. *Personnel Psychology*, *58*(2), 447–478.

Muduli, A. (2016). Exploring the facilitators and mediators of workforce agility: An empirical study. *Management Research Review*, *39*(12), 1567–1586. https://doi.org/10.1108/MRR-10-2015-0236

Muduli, A. (2017). Workforce agility: Examining the role of organizational practices and psychological empowerment. *Global Business & Organizational Excellence*, *36*(5), 46–56. https://doi.org/10.1002/joe.21800

Ng, J. Y. Y., Ntoumanis, N., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Duda, J. L., & Williams, G. C. (2012). Self-determination theory applied to health contexts: A meta-analysis. *Perspectives on Psychological Science*, *7*(4), 325–340. https://doi.org/10.1177/1745691612447309

Ng, K. Y., Ang, S., & Chan, K. Y. (2008). Personality and leader effectiveness: A moderated mediation model of leadership self-efficacy, job demands, and job autonomy. *Journal of Applied Psychology*, *93*(4), 733–743. https://doi.org/10.1037/0021-9010.93.4.733

Nieß, C., & Zacher, H. (2015). Openness to experience as a predictor and outcome of upward job changes into managerial and professional positions. *PLoS One*, *10*(6), e0131115. https://doi.org/10.1371/journal.pone.0131115

O'Reilly, III, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*, *34*(3), 487–516.

Olesen, M. H., Thomsen, D. K., Schnieber, A., & Tønnesvang, J. (2010). Distinguishing general causality orientations from personality traits. *Personality and Individual Differences*, *48*(5), 538–543.

Ongore, O. (2014). A study of relationship between personality traits and job engagement. *Procedia - Social and Behavioral Sciences*, *141*, 1315–1319. https://doi.org/10.1016/j.sbspro.2014.05.226

Ostroff, C., & Zhan, Y. (2012). Person–environment fit in the selection process. In N. Schmitt (Ed.), *Oxford library of psychology. The Oxford handbook of personnel assessment and selection* (pp. 252–273). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199732579.013.0012

Page, K. M., & Vella-brodrick, D. A. (2009). The 'what', 'why' and 'how' of employee well-being: A new model. *Social Indicators Research*, *90*(3), 441–458. https://doi.org/10.1007/s11205-008-9270-3

Parks-Leduc, L., Feldman, G., & Bardi, A. (2015). Personality traits and personal values: A meta-analysis. *Personality and Social Psychology Review*, *19*(1), 3–29. https://doi.org/10.1177/1088868314538548

Pérez-Zapata, O., Pascual, A. S., Álvarez-Hernández, G., & Collado, C. C. (2016). Knowledge work intensification and self-management: The autonomy paradox. *Work Organisation, Labour and Globalisation*, *10*(2), 27–49. https://doi.org/10.13169/workorgalaboglob.10.2.0027

Periard, D. A., & Burns, G. N. (2014). The relative importance of Big Five Facets in the prediction of emotional exhaustion. *Personality and Individual Differences*, *63*, 1–5. https://doi.org/10.1016/j.paid.2014.01.036

Petermann, M. K. H., & Zacher, H. (2020). Agility in the workplace: Conceptual analysis, contributing factors, and practical examples. *Industrial and Organizational Psychology*, *13*(4), 599–609. https://doi.org/10.1017/iop.2020.106

Pfeffer, J. (2010). Building sustainable organizations: The human factor. *Academy of Management Perspectives*, *24*(1), 34–45.

Purvis, A., Howell, R. T., & Iyer, R. (2011). Exploring the role of personality in the relationship between maximization and well-being. *Personality and Individual Differences*, *50*(3), 370–375. https://doi.org/10.1016/j.paid.2010.10.023

Raab, G., Unger, A., & Unger, F. (2010). Marktpsychologie: Grundlagen und Anwendung *(3., überarb. Aufl.)*. Gabler-Lehrbuch. Gabler.

Rammstedt, B., & John, O. P. (2005). Kurzversion des Big Five Inventory (BFI-K). *Diagnostica*, *51*(4), 195–206. https://doi.org/10.1026/0012-1924.51.4.195

Roberts, B. W., & Robins, R. W. (2004). Person-Environment Fit and its implications for personality development: A longitudinal study. *Journal of Personality*, *72*(1), 89–110. https://doi.org/10.1111/j.0022-3506.2004.00257.x

Robertson, B. J. (2015). *Holacracy: The revolutionary management system that abolishes hierarchy*. Penguin.

Robertson, I. T., & Smith, M. (2001). Personnel selection. *Journal of Occupational and Organizational Psychology*, *74*(4), 441–472.

Robins, R. W., Trzesniewski, K. H., Tracy, J. L., Gosling, S. D., & Potter, J. (2002). Global self-esteem across the life span. *Psychology and Aging*, *17*(3), 423–434.

Roczniewska, M., & Bakker, A. B. (2016). Who seeks job resources, and who avoids job demands? The link between dark personality traits and job crafting. *The Journal of Psychology*, *150*(8), 1026–1045. https://doi.org/10.1080/00223980.2016.1235537

Rosenberg, M. (1965). *PsycTESTS Dataset*. American Psychological Association (APA). https://doi.org/10.1037/t01038-000

Rothstein, M. G., & Goffin, R. D. (2006). The use of personality measures in personnel selection: What does current research support? *Human Resource Management Review*, *16*(2), 155–180. https://doi.org/10.1016/j.hrmr.2006.03.004

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, *80*(1), 1–28.

Rubenstein, A. L., Zhang, Y., Ma, K., Morrison, H. M., & Jorgensen, D. F. (2019). Trait expression through perceived job characteristics: A meta-analytic path model linking personality and job attitudes. *Journal of Vocational Behavior*, *112*, 141–157. https://doi.org/10.1016/j.jvb.2019.02.002

Rudolph, C. W., Katz, I. M., Lavigne, K. N., & Zacher, H. (2017). Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes. *Journal of Vocational Behavior*, *102*(6), 112–138. https://doi.org/10.1016/j.jvb.2017.05.008

Rydstedt, L. W., Ferrie, J., & Head, J. (2006). Is there support for curvilinear relationships between psychosocial work characteristics and mental well-being? Cross-sectional and long-term data from the Whitehall II study. *Work & Stress*, *20*(1), 6–20.

Salgado, J. F., Otero, I., & Moscoso, S. (2019). Cognitive reflection and general mental ability as predictors of job performance. *Sustainability*, *11*(22), 6498.

Schaufeli, W. B., Bakker, A. B., & van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior*, *30*(7), 893–917. https://doi.org/10.1002/job.595

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of happiness studies*, *3*(1), 71–92.

Schaufeli, W. B., & Salanova, M. (2008). Enhancing work engagement through the management of human resources. In K. Naswall, J. Hellgren, & M. Sverke (Eds.), *The individual in the changing working life* (pp. 380–402). Cambridge University Press.

Schaufeli, W. B., Shimazu, A., Hakanen, J., Salanova, M., & De Witte, H. (2019). An ultra-short measure for work engagement. *European Journal of Psychological Assessment*, *35*(4), 577–591. https://doi.org/10.1027/1015-5759/a000430

Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands-resources model: Implications for improving work and health. In G. F. Bauer & O. I. Hämmig (Eds.), *Bridging occupational, organizational and public health* (pp. 43–68). Springer.

Schell, S., & Bischof, N. (2022). Change the way of working. Ways into self-organization with the use of Holacracy: An empirical investigation. *European Management Review*, *19*(1), 123–137. https://doi.org/10.1111/emre.12457

Schneider, B., Goldstiein, H. W., & Smith, D. B. (1995). The ASA framework: An update. *Personnel Psychology*, *48*(4), 747–773.

Schönbrodt, F. D., & Humberg, S. (2021). *Response surface analysis* (Version 0.10.4) [Computer software].

Schönbrodt, F. D., Humberg, S., & Nestler, S. (2018). Testing similarity effects with dyadic response surface analysis. *European Journal of Personality*, *32*(6), 627–641.

Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology*, *83*(5), 1178–1197. https://doi.org/10.1037/0022-3514.83.5.1178

Seger, T., Hazzan, O., & Bar-Nahor, R. (2008). Agile orientation and psychological needs, self-efficacy, and perceived support: A two job-level comparison. *Agile 2008 Conference* (pp. 3–14). IEEE. https://doi.org/10.1109/Agile.2008.27

Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., & Heggestad, E. D. (2010). Polynomial regression with response surface analysis: A powerful approach for examining moderation and overcoming limitations of difference scores. *Journal of Business and Psychology*, *25*(4), 543–554. https://doi.org/10.1007/s10869-010-9183-4

Smith, R. W., & DeNunzio, M. M. (2020). Examining personality-job characteristic interactions in explaining work outcomes. *Journal of Research in Personality*, *84*, 103884. https://doi.org/10.1016/j.jrp.2019.103884

Spieß, M. (2010). Der Umgang mit fehlenden Werten. In C. Wolf & H. Best (Eds.), *Handbuch der sozialwissenschaftlichen Datenanalyse* (pp. 117–142). VS Verlag für Sozialwissenschaften.

Stamm, S. E., & Kaegi, U. (2019). Von Orange zu Türkis: Herausforderungen für die Führung beim organisationalen Wandel zu einer integral-evolutionären Organisation. In M. W. Fröse, B. Naake, & M. Arnold (Eds.), *Perspektiven Sozialwirtschaft und Sozialmanagement. Führung und Organisation: Neue Entwicklungen im Management der Sozial- und Gesundheitswirtschaft* (pp. 249–266). Springer VS. https://doi.org/10.1007/978-3-658-24193-3_13

Stegmann, S., van Dick, R., Ullrich, J., Charalambous, J., Menzel, B., Egold, N., & Wu, T. T.-C. (2010). *Der work design questionnaire*. Zeitschrift Für Arbeits-Und Organisationspsychologie A&O.

Stiglbauer, B., & Kovacs, C. (2018). The more, the better? Curvilinear effects of job autonomy on well-being from vitamin model and PE-fit theory perspectives. *Journal of Occupational Health Psychology*, *23*(4), 520–536. https://doi.org/10.1037/ocp0000107

Streiner, D. L. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, *80*(1), 99–103. https://doi.org/10.1207/S15327752JPA8001_18

Sutin, A. R., & Costa, P. T. (2010). Reciprocal influences of personality and job characteristics across middle adulthood. *Journal of Personality*, *78*(1), 257–288. https://doi.org/10.1111/j.1467-6494.2009.00615.x

Taggar, S., Hackew, R., & Saha, S. (1999). Leadership emergence in autonomous work teams: Antecedents and outcomes. *Personnel Psychology*, *52*(4), 899–926. https://doi.org/10.1111/j.1744-6570.1999.tb00184.x

Thoms, P., Moore, K. S., & Scott, K. S. (1996). The relationship between self-efficacy for participating in self-managed work groups and the Big Five personality dimensions. *Journal of Organizational Behavior*, *17*(4), 349–362. https://doi.org/10.1002/(SICI)1099-1379(199607)17:4<349::AID-JOB756>3.0.CO;2-3

Thorsen, V. C., Tharp, A. L. T., & Meguid, T. (2011). High rates of burnout among maternal health staff at a referral hospital in Malawi: A cross-sectional study. *BMC Nursing*, *10*, 9. https://doi.org/10.1186/1472-6955-10-9

Tims, M., Bakker, A. B., & Derks, D. (2012). Development and validation of the job crafting scale. *Journal of Vocational Behavior*, *80*(1), 173–186. https://doi.org/10.1016/j.jvb.2011.05.009

Tims, M., Bakker, A. B., & Derks, D. (2013). The impact of job crafting on job demands, job resources, and well-being. *Journal of Occupational Health Psychology*, *18*(2), 230–240. https://doi.org/10.1037/a0032141

Tims, M., Derks, D., & Bakker, A. B. (2016). Job crafting and its relationships with person–job fit and meaningfulness: A three-wave study. *Journal of Vocational Behavior*, *92*(1), 44–53. https://doi.org/10.1016/j.jvb.2015.11.007

van den Berg, P. T., & Feij, J. A. (2003). Complex relationships among personality traits, job characteristics, and work behaviors. *International Journal of Selection and Assessment*, *11*(4), 326–339.

Vanderburg, D. (2004). The story of Semco: The company that humanized work. *Bulletin of Science, Technology & Society*, *24*(5), 430–434.

Waldmann, C., Wolfradt, U., Klement, A., Fuchs, S., Riemenschneider, H., & Heise, M. (2017). Zum Zusammenhang zwischen Persönlichkeitsmerkmalen und Burnout-Risiken. *Prävention Und Gesundheitsförderung*, *12*(1), 61–67. https://doi.org/10.1007/s11553-016-0573-y

Williams, P. G., Rau, H. K., Cribbet, M. R., & Gunn, H. E. (2009). Openness to experience and stress regulation. *Journal of Research in Personality*, *43*(5), 777–784. https://doi.org/10.1016/j.jrp.2009.06.003

Wilmot, M. P., & Ones, D. S. (2022). Agreeableness and its consequences: A quantitative review of meta-analytic findings. *Personality and Social Psychology Review*, *26*(3), 242–280. https://doi.org/10.1177/10888683211073007

Wilmot, M. P., Wanberg, C. R., Kammeyer-Mueller, J. D., & Ones, D. S. (2019). Extraversion advantages at work: A quantitative review and synthesis of the meta-analytic evidence. *Journal of Applied Psychology*, *104*(12), 1447–1470. https://doi.org/10.1037/apl0000415

Yeatts, D. E., Pillai, V., & Stanley-Stevens, L. (2001). Factors affecting self-managed work team performance: An empirical assessment. *Journal of Applied Sociology*, *18*(1), 79–111.

Yu, K. Y. T. (2016). Inter-relationships among different types of person-environment fit and job satisfaction. *Applied Psychology*, *65*(1), 38–65. https://doi.org/10.1111/apps.12035

Zell, E., & Lesick, T. L. (2022). Big five personality traits and performance: A quantitative synthesis of 50+ meta-analyses. *Journal of Personality*, *90*(4), 559–573. https://doi.org/10.1111/jopy.12683

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Autonomy and engagement in self-managing organizations: exploring the relations with job crafting, error orientation and person-environment fit

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Introduction: Self-managing organizations are a novel organizational form that radically decentralizes decision authority to adapt to the volatile business environment and the demands of knowledge work, resulting in new resources and demands for the employees. Therefore, building on the job demands-resources theory and the person-environment fit theory, the associations of self-managing organizations with higher perceived individual autonomy were tested. Additionally, the study investigated how job crafting and handling mistakes related to the relationship between job autonomy and work engagement/satisfaction.

Method: A cross-sectional study was conducted to gather data from employees of different self-managing organizations and non-self-managing organizations, and group comparisons and path analyses were applied to test the preregistered hypotheses.

Results: Increased method and decision autonomy, job crafting behaviors, error management orientation, work engagement, and job satisfaction were found in self-managing organizations. Additionally, a surplus of perceived autonomy compared to the ideal autonomy was associated with lower work engagement and job satisfaction compared to a fit between ideal and perceived autonomy. However, job crafting did not relate to a better fit between ideal and perceived autonomy. Decision autonomy predicted higher crafting of challenging demands and structural resources for employees with low error strain. Depending on the autonomy type, learning from errors enhanced or reduced the relationship between perceived autonomy and job crafting.

Discussion: This study showed the importance of addressing the higher level of individual autonomy in self-managing organizations and offered starting points for interventions to support employees with handling high autonomy. Reducing error strain but increasing error learning and risking errors could help increase job crafting and work engagement, particularly in self-managing organizations.

KEYWORDS

self-managing organization, decision autonomy, error orientation, job crafting, learning from errors, risking errors, error strain, work engagement

1. Introduction

What if we change the game, abolish middle management, and let the employees self-manage? This question arised in the search for an adaptive strategy toward the increasingly dynamic and uncertain business environment, the employees' demand for more self-determination and purpose, and the increasing societal demand to contribute purposefully. The COVID-19 pandemic fueled all these challenges, which caused turbulences

in the market but also turned upside down the daily job and family routine for many employees (Kaushik and Guleria, 2020; Shirmohammadi et al., 2022; Chung et al., 2023; Leslie-Miller et al., 2023). First studies showed that self-managing processes and flat hierarchies helped handle the COVID-19 challenges, like the sudden remote work (Maurer et al., 2022).

Self-managing organizations (SMOs) are organizations that "radically decentralize authority in a formal and systematic way throughout the organization" (Lee and Edmondson, 2017, p. 39). This organizational setup allows for faster decision-making as decisions can be made directly at the point where needed (Puranam and Håkonsson, 2015; Burton et al., 2017; Lee and Edmondson, 2017). However, engaged and healthy employees are the prerequisite for the sustainable success of any organization (Pfeffer, 2010). Initial practice reports showed that not all employees feel more engaged in SMOs (Maier, 2013; Lam, 2016; Schell and Bischof, 2022), and thus, individual-level factors seem to be important as well. As authority decentralization also implies changes in other organizational core issues, such as labor division or provision of rewards, and also in job conditions, like decision autonomy or supervisor support (Lee and Edmondson, 2017; Martela, 2019), employees in SMOs may face new job resources and demands. This may require certain changes in the employees' behaviors, attitudes, or competencies to adapt to these altered job conditions and, thus, stay engaged and healthy.

Initial research on SMOs proposed the need for specific personal characteristics, such as *proactiveness*, *motivation to learn*, and *accepting responsibility* (Corbett-Etchevers et al., 2019; Reitzig, 2022; Schell and Bischof, 2022). Additionally, a series of individual behavioral competencies, such as *assuming responsibility*, *deciding and initiating action*, or *learning from mistakes,* was identified as important (Doblinger, 2023). However, previous research did not look into the mechanism of why these personal characteristics are related to work engagement or job satisfaction in SMOs. Nonetheless, to better understand the relevance of these factors, opening the black box by looking into the interaction of employee characteristics and the job characteristics affected by the organizational changes in SMOs, e.g., person-environment fit regarding job autonomy, is necessary.

Therefore, to support employees in this novel, adaptive organizational form, a better understanding of resources and demands in SMOs is necessary, as that allows for targeted interventions to ensure the employees' long-term wellbeing. Although the decentralization of decision authority in SMOs implies changes in various job conditions, this work focuses on job autonomy in particular as it is a crucial element in the success of SMOs: on the one hand, higher autonomy, resulting from the decentralization of authority, enables those employees who are most knowledgeable to make decisions and thus get better decisions as an organization. On the other hand, this requires engaged employees, and prior research on job design showed that high levels of job autonomy were not a surefire success (Stiglbauer and Kovacs, 2018; Dettmers and Bredehöft, 2020).

Initial research on SMOs identified a range of personal traits and competencies that might be beneficial to flourish in SMOs (Corbett-Etchevers et al., 2019; Reitzig, 2022; Schell and Bischof, 2022; Doblinger, 2023). However, these studies were mainly based on qualitative methodology, impeding understanding of the effect mechanism and preventing the broader generalization. Therefore, to get insights into the operating principles of SMOs, this work investigates how proactive behaviors toward crafting one's job and the attitude toward errors relate to the associations between job autonomy and work engagement or job satisfaction in SMOs. The paper focuses on these two aspects because both characteristics were found relevant in SMOs (Schell and Bischof, 2022; Doblinger, 2023), and both are modifiable through training or cultural interventions and, thus, are of particular relevance for organizational practice.

2. Theory

2.1. Self-managing organizations and individual job autonomy

SMOs are a novel organizational form changing organizational core principles to radically decentralize authority at an organization-wide scope, thus allowing all employees to hold a specific amount of decision rights that others cannot simply overrule, which is necessary for self-management (Lee and Edmondson, 2017; Martela, 2019). These changes usually imply abolishing traditional middle management, reducing disciplinary manager-over-subordinate-power to a minimum, and shifting authority toward individual employees (Lee and Edmondson, 2017). Notably, the authority decentralization in SMOs does not mean that SMOs are hierarchy-free. However, person-related hierarchy, as known from classic organizational setups, is abolished. Instead, it is replaced by a role-based, task-related hierarchy that is not bound to specific persons and is changing over time (Laloux, 2014; Lee and Edmondson, 2017; Martela, 2019). Hence, in SMOs, individuals can still hold particular formal leadership roles, but they are bound to revocable consent from those being managed, constrained by clear boundaries, or temporarily held (Lee and Edmondson, 2017).

According to Martela (2019), SMOs also differ in several organizational core principles from traditional organizations with more centralized decision authority (hereafter non-SMOs): the responsibility of creating new tasks is shared by employees and top management, and employees allocate tasks, as they are allowed to choose the roles and tasks for which they are competent. Rewards and incentives focus on intrinsic motivating job conditions instead of monetary compensations. Frequently, a peer-based process determines payments. Employees monitor performance and accountability of each other. Conflict resolution and combating free-riding occurs among the involved employees, supported by training and methods. Furthermore, high information transparency is required to enable every employee to make decisions in the interest of the whole organization (Martela, 2019). In contrast, in non-SMOs, task identification and distribution occur in top-down processes, and broad information distribution is obsolete due to precise instructions and strict task boundaries. Moreover, supervisors allocate compensation and rewards and monitor and control work outputs (Martela, 2019). Therefore, SMOs depict a novel organizational form requiring specific consideration.

These SMO-specific changes in organizational principles also affect the team and individual levels. At the team level, for instance, decision-making processes are affected, while at the individual level, job characteristics change. For instance, authority decentralization shifts authority to the employees, and thus, the individual employee should perceive more autonomy than in traditional organizations. It is crucial to look at that, as it is the prerequisite of the intended mechanism to enable decentralized decision-making (Lee and Edmondson, 2017; Martela, 2019). Work design theory differentiates between three types of autonomy: autonomy regarding work methods, work schedules, and decisions (Morgeson and Humphrey, 2006). I expect that SMOs provide higher individual-level decision and method autonomy. The decentralization of authority allows employees to decide and choose their methods to reach a goal and thus provides employees with more decision and method autonomy than in non-SMOs. However, although this may sound obvious at first glance, it is important to empirically validate it to understand organizational behavior in SMOs, because interactions with other SMO characteristics may impede individual autonomy. For instance, Barker (1993) showed that team processes in autonomous teams restricted individual autonomy. Additionally, rigid SMO frameworks such as Holacracy, the demand for methodological synchronization, or organizational alignment could prevent employees from perceiving higher method autonomy despite the decentralization of authority (e.g., Moe et al., 2021).

Initial research on SMOs already pointed out that in SMOs, individual decision autonomy is higher than in other organizations (Doblinger and Class, 2023). However, the study did not consider method autonomy and was potentially biased by the organizational size or age of the researched organizations, as the study lacked the corresponding control variables. Thus, to understand the functioning of SMOs and their impact on employees, more information on the perceived individual autonomy in SMOs is needed. Therefore, this paper aims to test whether the desired effect of SMOs indeed occurs, independently from organizational size or tenure.

H1: Perceived decision (a) and method (b) autonomy are significantly higher in SMOs than in non-SMOs.

2.2. Job autonomy, person-environment fit, and employee wellbeing

In principle, several theories on work design and motivation attributed a positive effect to job autonomy regarding motivation, health, and wellbeing (Hackman and Oldham, 1975; Bakker and Demerouti, 2007). In particular, the well-established job demands-resources theory (JD-R) distinguishes job resources from job demands (Bakker and Demerouti, 2007). Job resources refer to those aspects that are either functional in achieving work goals, reducing the costs of job demands, or stimulating personal development, fostering motivational and buffering health-detrimental processes. In turn, job demands are those aspects of the job that require effort and come with a particular cost, and thus, strain health and energy due to effortful performance-protection strategies. The definitions of resources and demands reveal a certain flexibility: specific factors can function as resources or demands, depending on their extent and context (Bakker and Demerouti, 2017). Autonomy usually is considered a resource (Schaufeli and Taris, 2014), and there is a broad body of research confirming the positive effect of job autonomy on work engagement, job satisfaction, and wellbeing (e.g., Chung-Yan, 2010; Spiegelaere et al., 2016; Clausen et al., 2022), particularly in the case of high job complexity (Chung-Yan, 2010). Consequently, SMOs are likely to foster work engagement and job satisfaction through the provision of high job autonomy.

Nonetheless, the positive relation of job autonomy is not universal. There is also theory and research pointing to a curvilinear relationship between autonomy and work engagement or satisfaction, with the best outcomes at moderate levels of job autonomy (Kubicek et al., 2014; Stiglbauer and Kovacs, 2018). In particular, method autonomy was found to function also as job demand by increasing work intensification (Bipp et al., 2021). Additionally, the individual fit regarding ideal and perceived job autonomy is essential. Person-environment fit (P-E fit) refers to the "compatibility between an individual and a work environment that occurs when their characteristics are well matched" (Kristof-Brown et al., 2005, p. 281). The theory of P-E fit suggests that P-E fit reduces stress and turnover but increases work engagement and performance (O'Reilly III et al., 1991; Edwards et al., 1998; Kristof-Brown et al., 2005; Morrow and Brough, 2019). Several studies showed that the effect of autonomy is a question of P-E fit. Too much autonomy could have a diminishing effect on satisfaction, health, or motivation. The perception of too much autonomy depends on individual preferences and job-related expectations (Ford, 2012; Stiglbauer and Kovacs, 2018).

Ford (2012) found that job satisfaction was highest and depression lowest when the perceived autonomy matched the autonomy expected for this vocation. If it surpassed or fell below the expected level, satisfaction decreased while depression increased. That is critical for SMOs, as here, the employees hold more decision rights than in other organizations, and hence, it may exceed, in many cases, the usual autonomy in this type of vocation. Indeed, a study including employees of SMOs showed that the (mis-)fit regarding decision autonomy was related to work engagement, and in the case of fit, increases in decision autonomy were related to increases in work engagement (Doblinger and Class, 2023). Such curvilinear relations were also found between (mis-)fit and wellbeing, flourishing, and satisfaction in samples of non-SMO employees (Edwards and Rothbard, 1999; Stiglbauer and Kovacs, 2018). These findings align with the job demands-resources model that assumes that one particular aspect of a job, for instance, the autonomy level, can function as a demand or resource, depending on its level and personal resources, among others. Personal resources are aspects of the self that relate to self-efficacy and resilience (Hobfoll et al., 2003), which is the "positive adaptation, or the ability to maintain or regain mental health, despite experiencing adversity" (Herrman et al., 2011, p. 259).

In application to SMOs, this implies that the decentralization of decision authority brings the potential to increase work engagement and satisfaction [which in turn fosters sustainable

performance (Pfeffer, 2010)]. As this positive effect mainly occurs when perceived autonomy fits the individual preference, identifying influencing factors for P-E fit is necessary to support employees and prevent excessive demand by their job autonomy.

2.3. Job-crafting as behavior to cope and deal with job autonomy

Proactive behavior was relevant in SMOs and other work contexts with high authority decentralization (Dettmers and Bredehöft, 2020; Doblinger, 2021, 2023; Schell and Bischof, 2022). Thus, it may also be a helpful behavior to achieve a better person-environment fit regarding job autonomy in SMOs. One well-established type of proactive behavior in the context of job design research is *job-crafting*, a bottom-up process of job design, referring to the proactive modification of one's work (Wrzesniewski and Dutton, 2001; Tims et al., 2012). Job crafting was found to be related to increased work engagement, satisfaction, performance, wellbeing (Bakker et al., 2012; Tims et al., 2013; Vogt et al., 2016), and person-environment fit (Chen et al., 2014; Tims et al., 2016; Kooij et al., 2017; Wang et al., 2017). Scholars focused on different job-crafting subjects, for instance, different types of resources or job-related cognitions (Wrzesniewski and Dutton, 2001; Tims et al., 2012; Zhang and Parker, 2019). The current work considers Zhang and Parker's concept of behavioral approach crafting, which refers to actions to increase one's job resources and challenging demands, which are particularly relevant in SMOs because it includes elements of self-management and bottom-up task creation (Martela, 2019).

Different relations between work engagement and job crafting have been proposed (Demerouti, 2014). One stream of research focused on the positive effect of job crafting on work engagement (Bakker et al., 2012; Petrou et al., 2012; Vogel et al., 2016; van Wingerden et al., 2017). For instance, according to Moreira et al.'s (2022) study, job crafting behaviors were positively related to work engagement mediating the relationship between crafting social resources and challenging demands with job performance. However, this effect was not found for structural resources. In contrast, another stream focused on the positive impact of work engagement on job crafting, arguing that job crafting is how engaged employees create resources increasing engagement over time and creating gain spirals (Bakker, 2011). Looking at SMOs, where proactive behaviors have been identified as important, this work focuses on the effect of job crafting on work engagement. Job crafting allows for modifying job resources and demands and thus can increase the person-environment fit (Tims et al., 2016; Kooij et al., 2017; Wang et al., 2017). Misfit was also considered as a trigger for job crafting, potentially in order to increase fit. For instance, Dust and Tims (2020) showed increased job crafting behaviors when the interdependence supply exceeded or failed the individual interdependence need. Additionally, the effect was increased by autonomy. Therefore, I argue that job-crafting behaviors predict work engagement and job satisfaction in SMOs because they help increase the person-environment fit regarding job autonomy and, thus, enhance the positive effect of job autonomy on work engagement and satisfaction.

Additionally, I suggest job crafting in terms of behavioral approach crafting is more important and prevalent in SMOs than in traditional organizations. As the decision and method autonomy is unusually high, potentially resulting in autonomy excess, the P-E-fit-increasing role of job crafting is more important. Secondly, higher job autonomy was associated with more job-crafting behavior (Petrou et al., 2012; Rudolph et al., 2017; Kim et al., 2018). Additionally, previous research showed that job crafting was used to cope with new situations and handle organizational change (Kira et al., 2010, 2012) and positively related to readiness for change (Lyons, 2008). Hence, this work is aimed at testing the following hypotheses:

H2: Job crafting predicts higher job satisfaction and work engagement, mediated by better P-E fit regarding decision autonomy (a) and method autonomy (b).

H3: Job crafting is more critical in SMOs than in other organizations.

2.4. Error orientation

Prior research showed that *handling mistakes constructively* was an important individual competency in SMOs (Doblinger, 2023) and may also interact with individual job autonomy. Constructively handling mistakes means that mistakes are considered an opportunity to learn instead of mere failure. Thus, the risk of mistakes is also accepted to increase knowledge and advance in uncertain conditions. Although prior research investigated the orientation toward mistakes often at the organizational level (Dahlin et al., 2018), Rybowiak et al. (1999) developed the error orientation questionnaire to measure how individuals perceive and appraise mistakes. The questionnaire is based on eight dimensions, including risking errors, learning from errors, strain from errors, thinking about errors, covering up errors, or error anticipation[1]. The dimensions of risking errors, learning from errors, and strain from errors reflect critical aspects of handling mistakes constructively, and thus their role in SMOs regarding handling job autonomy might be of particular interest. Previous literature used *error management orientation* or simply *error orientation* when referring to constructively handling mistakes (Rybowiak et al., 1999; van Dyck et al., 2005; Keith and Frese, 2008). Therefore, in the following, *error orientation* refers to the constructive handling of mistakes.

Research on the relation of individual error orientation with work engagement or job autonomy is still lacking. However, individual-level error orientation related positively to opportunity identification, entrepreneurial decision-making, and performance under uncertainty (Arenas et al., 2006; Wei and Hisrich, 2016; Roose, 2018), which are both important behaviors in SMOs (Martela, 2019; Doblinger, 2023), and likely, for handling high decision autonomy. Additionally, the comparison of managers and employees regarding error orientation showed a stronger appraisal of mistakes as learning opportunities by managers than employees; however, there was no difference regarding mistake-related strategies or emotions (Harteis et al., 2008). Additionally,

1 All factors make unique contributions, allowing for usage as single predictors (Farnese et al., 2020).

Loh et al. (2013) showed an effect of training interventions by finding increased performance after error management training, while error avoidance training decreased performance. Moreover, team and organizational-level error orientation was positively related to performance and innovation (van Dyck et al., 2005; Tjosvold and Yu, 2007; Putz et al., 2013; Javed et al., 2020).

Job autonomy in SMOs requires the individual to make decisions—even under uncomfortable uncertainty, but the delegation to one's leader, as done in more hierarchical organizations, is not possible or accepted anymore. Hence, to make decisions under uncertainty, accepting the risk of making errors is necessary (Tjosvold and Yu, 2007). Due to the natural tendency toward risk aversion, this is a challenging point in SMOs.

Having a positive attitude toward mistakes can become a personal resource, as it links to resilience (Hobfoll et al., 2003; Xanthopoulou et al., 2009). I argue that error management orientation in terms of learning from errors, risking errors, and low strain from errors is relevant to the effect of job autonomy on work engagement. Error orientation functions as a personal resource in the context of SMOs as it can strengthen personal resilience (Xanthopoulou et al., 2009; Herrman et al., 2011). The decision authority employees receive in SMOs leads to high job autonomy and consequently requires the corresponding decisions. Making decisions seems more manageable when the fear of making mistakes is low, and mistakes are considered learning opportunities (Wei and Hisrich, 2016; Metcalfe, 2017). Therefore, I expect that individuals with a positive attitude toward mistakes will benefit more from high levels of autonomy than individuals struggling with making mistakes, and thus, I propose the following hypothesis:

H4: Error orientation in terms of taking error risks (a), learning from errors (b), and low error strain (c) increases decision and method autonomy's positive relationship with work engagement and job satisfaction.

In addition, I also expected an enhancing effect of error orientation on job crafting. Prior research provided evidence of a positive relationship between learning from mistakes or error risk acceptance and job crafting. For instance, error orientation was positively associated with readiness for change and personal initiative (Rybowiak et al., 1999), and job crafting can be considered a specific type of personal initiative. Besides, individual error orientation was found to be positively related to job crafting, mediated through personal growth initiative (Fischer, 2021). According to the regulatory focus theory (Higgins, 1997), humans seek pleasure but avoid pain through behaviors to either avoid pain or promote pleasure. Linking that to error orientation, the dimensions of error orientation represent either an avoidance focus, which includes concentrating on safety, responsibilities, and avoiding losses (e.g., error strain, cover-up), or a promotion focus, which includes hopes, accomplishments, and gains while pursuing their goals (e.g., learning from errors, error risk). Research on regulatory focus showed that a general prevention focus predicted more hindrance demands reduction and prevention-focused job-crafting, while a promotion focus predicted promotion-focused job crafting, including increasing challenging demands and resources (Rudolph et al., 2017; Lichtenthaler and Fischbach, 2019). Similarly, approach temperament was positively related to reducing demands (Bipp and Demerouti, 2015). Hence, based on the assumption that learning from mistakes and risking errors align with a promotion focus while strain from errors aligns with a prevention focus, I assume that they predict job crafting behavior to increase resources and challenging demands. Higher job autonomy also predicted more job crafting behavior (Petrou et al., 2012), so I expect an interaction between job autonomy and error management orientation. Consequently, the following hypotheses are proposed:

H5: Learning from errors (a), taking error risks (b), and low error strain (c) enhance the positive relation between decision (method) autonomy and job crafting.

In SMOs, individual job autonomy and the requirement for proactive behaviors are higher, so handling uncertainties and making decisions that could turn out to be wrong is more often necessary. Having an error management orientation is helpful in this case because it reduces the burden of potentially harmful decisions. Additionally, previous literature showed the importance of constructively handling mistakes in SMOs (Doblinger, 2023). I also expect risking errors, learning from errors, and low error strain to be more important in SMOs than in other organizations.

H6: Error orientation in terms of learning from errors (a), taking error risks (b), and low error strain (c) is more critical in SMOs than in other organizations.

3. Method

All hypotheses have been pre-registered before complete data collection (https://doi.org/10.17605/OSF.IO/9SQWU).

3.1. Sample

In order to include employees from SMOs and non-SMOs, the participants were recruited through two different approaches. Firstly, employees of SMOs were recruited through direct contact with SMOs. Secondly, employees of non-SMOs were recruited through social media platforms and the research panel Prolific (Prolific, 2022). The final sample consisted of 278 participants in total. Although the planned sample size (non-SMOs and SMOs) was at least 100 participants of each group, due to participant burden and losses in the data cleaning phase, the study relied on a smaller sample of SMO employees ($n_{SMO} = 78$, $n_{non-SMO} = 167$, $n_{other} = 33$). However, the subsample was large enough to make the planned group comparisons. The characteristics of the sample are displayed in detail in Table 1. All participants had the option to receive customized feedback on their answers regarding job crafting and error orientation, and participants of the research panel additionally received financial compensation of 0.75£ (= 9.00£/h; amount suggested by the panel provider).

3.2. Procedure

Participants were invited to answer the online questionnaire via direct contact with SMOs, social media platforms, and the prolific

TABLE 1 Sociodemographic characteristics of the sample.

	All	SMO	non-SMO
Age			
19 years or younger	2	1	1
20–24 years	12	3	6
25–29 years	52	12	33
30–34 years	51	12	33
35–39 years	41	12	22
40–44 years	29	10	17
45–49 years	22	8	12
50–54 years	25	9	14
55–59 years	24	7	13
60–64 years	9	1	8
65 years or older	6	1	5
Gender			
Female	155	42	89
Male	111	34	68
Leadership			
No leadership responsibility	132	33	86
Leadership responsibility	145	44	81
Org size			
Microenterprise	19	8	10
Small and medium-sized enterprises	95	27	55
Large enterprise	135	40	77
Organizational age			
<1 year	21	2	18
1–2 years	9	38	7
2–5 years	61	37	15
>5 years	186		127
Business sectors			
Administration	11	0	11
Automotive	21	4	17
Architecture/construction	10	1	9
Consulting	9	6	3
Education	19	1	18
Chemistry	2	0	2
Services	5	2	3
IT	47	37	10
Finance	9	0	9
Research and development	9	0	9
Retail	10	5	5
Industry/manufacturing	9	0	9
Health	30	11	19
Food/agriculture	1	1	0
Public administration	3	0	3
Human resources	1	0	1
Legal	2	0	2
Others	10	1	9
Social institutions	23	9	14
Tourism/hospitality	3	0	3
Logistics/transport	4	0	4

Numbers depict the absolute amount of persons with this value.

research platform. In order to incentivize participation, automated personalized feedback on one's answers to the questionnaire was offered. After confirming the informed consent, participants answered the items on perceived and ideal autonomy, job crafting, error orientation, work engagement, job satisfaction, self-managing, and more general organizational characteristics of the current employer. Participants were also asked about their work experience in SMOs and, in general, their job position, potential leadership role, and working hours in an employment relationship. The leadership role was assessed by asking the participants whether they held a specific leadership responsibility, such as processual or technical. In the end, participants were asked to provide information on their sociodemographic characteristics. After finishing the questionnaire, the participants could receive feedback on their answers regarding job crafting and error orientation, and the feedback was displayed accordingly.

Common source bias was encountered by several procedural remedies, recommended by Podsakoff et al. (2003): (1) participants were informed that answers were anonymous and desired to be as honest as possible as there was no correct answer; (2) question order was counterbalanced by alternating questions measuring the predictor and questions measuring the criterion; (3) variations in response scales; (4) the items in use were checked to fulfill the criteria of clarity, unambiguity and simplicity; and (5) mid- and endpoints of scales were labeled.

3.3. Measures

3.3.1. Ideal and perceived decision and method autonomy

Ideal and perceived decision and method autonomy were assessed by the corresponding six items of the German and English versions of the Work Design Questionnaire (Morgeson and Humphrey, 2006; Stegmann et al., 2010). The items (e.g., "The job allows me to make a lot of decisions on my own") were rated on a 5-point scale ranging from *not at all* to *completely*. Following Stiglbauer and Kovacs's (2018) approach, the items to measure ideal and perceived decision-making autonomy were the same but introduced by two different questions: the items on perceived autonomy were introduced by the question "To what

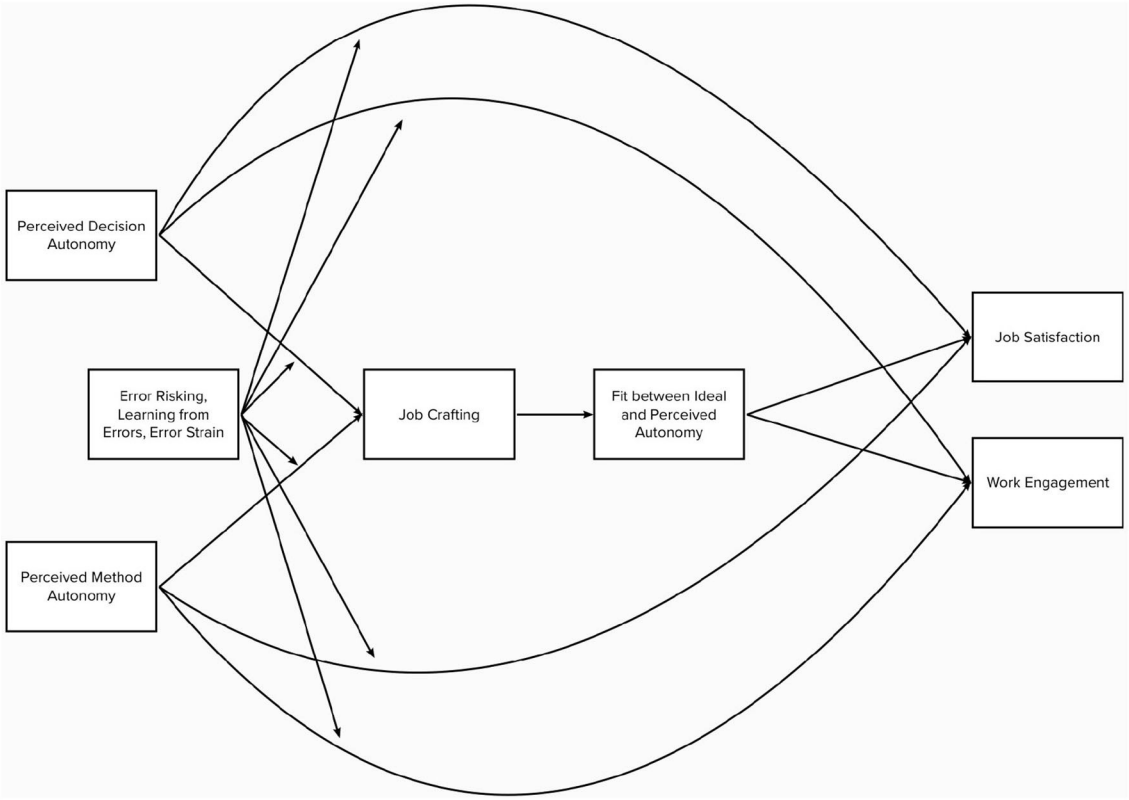

FIGURE 1
Conceptual model.

extent does this apply to your current job?" whereas the items on ideal autonomy were introduced by the question "To what extent does this apply to your ideal job?".

3.3.2. Error orientation

Taking error risks, learning from errors, and low error strain were measured by using the corresponding scales of Rybowiak et al. (1999). A sample item of the four items measuring taking error risks was "If one wants to achieve at work, one has to risk making mistakes". A sample item of the four items to measure learning from errors was "Mistakes assist me to improve my work". A sample item of the four items to assess error strain was "I am often afraid of making mistakes". All items were rated on a 5-point Likert scale ranging from *not at all* to *completely*.

3.3.3. Job crafting

In order to assess the job-crafting dimensions of increasing structural job resources, increasing challenging job demands, and increasing social job resources, the corresponding scales of Lichtenthaler and Fischbach (2016) (based on Tims et al., 2012) were used. All items were rated on a 5-point Likert scale, ranging from *never* too *often*. Five items measured increasing structural job resources, and a sample item was "I try to learn new things at work". Five items measured increasing challenging job demands, and a sample item was "When an interesting project comes along, I offer myself proactively as a project coworker". Five items measured increasing social job resources, and a sample item was "I ask others for feedback on my job performance". The items of this scale were adapted to the framework of self-management by extending the term "supervisor" to "supervisor/colleagues".

3.3.4. Work engagement

For assessing work engagement, the three-item ultrashort Utrecht Work Engagement Scale (UWES-3) to measure work engagement was used (Schaufeli et al., 2019). Three items measured each dimension of work engagement, vigor, dedication, and absorption. Each item was rated on a seven-point scale ranging from *never* (1) to *always* (7).

3.3.5. Job satisfaction

Job satisfaction was assessed by two items based on the scale of Kovacs et al. (2018). Initially, it was presented as a reliable 1-item scale, but in order to prevent biased results through input errors, the item was repeated in its negative version at another position in the questionnaire. "I'm satisfied with my job" was a sample item, and both items were rated on a 7-point Likert scale.

TABLE 2 Means, standard deviations, correlations, and reliabilities between the study variables.

		M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Ideal decision autonomy[a]	4.26	0.81	(0.89)													
2	Perceived decision autonomy	3.86	0.92	0.60***	(0.88)												
3	Ideal method autonomy[a]	4.36	0.80	0.87***	0.54***	(0.90)											
4	Perceived method autonomy	3.96	0.93	0.56***	0.82***	0.59***	(0.87)										
5	Work engagement[a]	5.16	1.07	0.35***	0.39***	0.38***	0.40***	(0.85)									
6	Job satisfaction	5.25	1.31	0.26***	0.43***	0.31***	0.45***	0.71***	(0.95)								
7	Error learning[a]	3.94	0.72	0.29***	0.24***	0.32***	0.23***	0.23***	0.21***	(0.85)							
8	Error risking[a]	3.61	0.84	0.31***	0.23***	0.33***	0.27***	0.28***	0.24***	0.53***	(0.80)						
9	Error strain[a]	2.89	0.84	−0.18***	−0.2 ***	−0.15*	−0.20***	−0.24***	−0.18***	−0.17*	−0.24***	(0.81)					
10	Structural resources crafting	4.03	0.63	0.50***	0.47***	0.53***	0.46***	0.46***	0.39***	0.41***	0.44***	−0.21***	(0.76)				
11	Challenging demands crafting[a]	3.49	0.83	0.40***	0.29***	0.40***	0.32***	0.43***	0.26***	0.30***	0.42***	−0.17***	0.62***	(0.80)			
12	Social resources crafting	3.30	0.85	0.14*	0.12.	0.17*	0.18***	0.19***	0.16*	0.19***	0.08	0.15*	0.34***	0.33***	(0.81)		
13	Age	–	–	0.02	−0.05	0.00	−0.07	0.05	−0.02	−0.02	0.07	−0.16*	−0.03	0.03	−0.25*	–	
14	Male gender	–	–	−0.04	−0.01	−0.09	−0.05	−0.12	−0.07	0.00	0.03	−0.20***	−0.15*	−0.11	−0.28*	0.15*	–
15	Leadership responsibility	–	–	0.14*	0.13*	0.11	0.08	0.18*	0.01	0.03	0.21*	−0.15*	0.16*	0.23***	0.02	0.16*	0.05

Reliabilities in ().

[a]reduced N = 277, otherwise N = 278. *$p < 0.05$; ***$p < 0.001$.

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3.3.6. Self-managing organization

In order to assess whether the participants worked in an SMO, the checklist approach of Doblinger and Class (2023) was taken. Participants answered a checklist with seven statements on the organization based on the characteristics of SMOs by Martela (2019). Every statement that applied to the participant's current employer should be confirmed by ticking it. Subsequently, participants additionally evaluated whether they worked in an SMO. Participants were informed that all the criteria mentioned above must be met in the case of an SMO. The checklist contained the following items: (1) the organizational hierarchy is flat; (2) decisions are not always made centrally by managers, but instead employees can make decisions on their own responsibility (decentralized decision-making); (3) not only managers but also employees define and create new tasks; (4) employees themselves decide which tasks they will work on; (5) performance control occurs mainly mutually among employees; (6) there are explicit conflict resolution mechanisms that do not require a disciplinary manager; (7) there is a high level of information transparency to enable employees to make decisions. Only those cases for which the subsequent confirmation of SMO was in line with the checklist were counted as a case of the SMO subsample in this study.

3.4. Analysis

All analyses were done using the statistical software R (R Core Team, 2022). The group comparison required to test H1, was done by analyses of covariance (ANCOVA). The conceptual model (as presented in Figure 1) was divided into different parts to limit model complexity. First, the impact of job crafting on work engagement and job satisfaction, mediated through autonomy fit, was analyzed in a separate path model, and in a second path model, the moderating role of error orientation on job crafting and work engagement/job satisfaction was investigated. Given the sample size, I relied on path analysis with manifest variables because latent interactions require a larger sample size. All path models were estimated using a covariance-based approach using maximum likelihood with robust standard errors as estimation method. Four path models with ideal and perceived decision (method) autonomy, their polynomials, and the interaction term of both variables as mediators of the relationship between job crafting behaviors and work engagement (job satisfaction) were estimated to test H2. H3 and H6 were tested using group comparisons. H4 and H5 were tested based on an additional moderated mediation path model, including the interactions of error orientation dimensions and decision/method autonomy as predictors of job crafting and work engagement/job satisfaction. For the group comparisons car package (Fox and Weisberg, 2019) and for the path models the lavaan package (Rosseel, 2012) were used. The response surfaces were analyzed using the RSA package (Schönbrodt and Humberg, 2023).

The data were screened for cases signaling insufficient attention by evaluating the attention checks, the control question ("Can we use your data?"), and a relative speed index (Leiner, 2019). Only those cases in which the last survey page was reached were considered. In line with the suggestion of the research panel Prolific, one failed attention check was accepted as long as the relative speed index was not significantly increased (as suggested by Leiner, 2019), resulting in two deletions and a final sample of $N = 278$. Additionally, we examined the answers regarding SMO. The data showed some inconsistencies regarding the answers to whether the organization was an SMO or not. Some participants did choose none or only a few characteristics of SMOs but confirmed that their organization was an SMO. Different interpretations were possible but also speculative. In order to ensure good data quality for the group comparisons, the ambiguous cases were coded as a third, additional group, which was the case for $n = 25$. Additionally, eight cases in which the participants said they could not judge were also assigned to the third group, resulting in $n_{other} = 33$.

4. Results

Table 2 shows the correlations of all variables. All reliability scores were acceptable (Cronbach's alpha > 0.70). 12-factor confirmatory factor analysis using the lavaan package (Rosseel, 2012) showed that the measurement model with the distinct but related variables of ideal and perceived decision and method autonomy, crafting structural and social resources, crafting challenging demands, risking errors, learning, and strain from errors, work engagement, and job satisfaction fitted well with the data (CFI = 0.92; RMSEA = 0.049). Item loadings were also all in the expected direction and significant at the $p < 0.001$ level.

In addition to the procedural remedies regarding common source bias, *post hoc* statistical control was taken. Common source bias was tested by the unmeasured latent factor technique recommended by Podsakoff et al. (2012). The comparison of the standardized regression weights of the model with a common latent factor and the model without one did not point to a common method bias for most variables, except for perceived decision and method autonomy, for which the differences between the indicators exceeded the level of 0.20. Common method bias can inflate bivariate correlations and, thus, reduce the reliability of the results.

TABLE 3 Autonomy surplus, fit and shortage in the sample and subsamples.

	Decision autonomy			Method autonomy		
	all	SMOs	non-SMOs	all	SMOs	non-SMOs
Surplus	21%	21%	23%	19%	18%	20%
Congruence	56%	65%	49%	57%	67%	51%
Shortage	23%	14%	28%	23%	15%	29%

The cutpoints for congruence were $|\Delta z| < 0.5$.

TABLE 4 Results of path model predicting work engagement and job satisfaction by job crafting mediated through autonomy fit.

	Model with decision autonomy							Model with method autonomy						
	Autonomy (E) x (P)	Autonomy (E)	Autonomy (P)	Autonomy $(E)^2$	Autonomy $(P)^2$	Work engagement	Job satisfaction	Autonomy (E) x (P)	Autonomy (E)	Autonomy (P)	Autonomy $(E)^2$	Autonomy $(P)^2$	Work engagement	Job satisfaction
Structural resources crafting	−0.57**	0.48***	0.42***	−0.51**	−0.87**	0.21*	0.21*	−0.54*	0.44***	0.48***	−0.55**	−1.02**	0.19*	0.17*
Challenging demands crafting	0.03	−0.01	0.16*	0.11	−0.04	0.19**	0.04	0.01	0.04	0.13	0.12	−0.04	0.18*	0.02
Social resources crafting	0.04	−0.04	−0.05	0.00	0.02	0.01	0.04	0.01	0.02	−0.04	0.02	0.00	0.00	0.03
Age	0.11	−0.05	0.00	0.13	0.11	0.08	0.03	0.01	−0.06	0.01	0.22*	0.08	0.08	0.03
Male gender	0.03	0.06	0.02	−0.05	0.06	0.08	−0.02	0.02	0.04	−0.02	−0.09	0.08	0.08	0.00
Leadership responsibility	0.14	0.07	0.05	0.01	0.09	−0.06	−0.08	0.07	0.01	0.01	−0.04	0.03	−0.06	−0.06
Autonomy (E) x (P)						0.16**	0.22**						0.14	0.23*
Autonomy $(E)^2$						−0.07	−0.15*						0.01	−0.05
Autonomy (E)						0.13	0.23*						0.21*	0.32***
Autonomy $(P)^2$						−0.15**	−0.10						−0.15**	−0.15*
Autonomy (P)						−0.02	−0.02						−0.05	−0.03
a1						0.12	0.21**						0.16	0.27*
a2						−0.05	−0.03						0.00	0.03
a3						0.15	0.25***						0.26	0.38**
a4						−0.38***	−0.47***						−0.29***	−0.43***

All results are controlled for gender, age, and leadership role. N = 262. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

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However, interaction and quadratic effects can only be deflated in case of severe common source bias (Siemsen et al., 2010). In the current study, mainly interactions with perceived autonomy were tested. Thus, the common method bias is less problematic. The impact of common method bias on H1 should also be neglectable as the bias should have affected both groups (SMOs and non-SMOs) similarly. Therefore, in the current study, common source bias could not increase the type I error rate, only the type II error rate, which was tolerated acknowledging that *post hoc* statistical control also comes with several disadvantages (Conway and Lance, 2010). Analyses of statistical power showed that the power was for all relevant analyses at an acceptable level of $1 - \beta > 0.80$.

4.1. Hypothesis 1

In order to test H1a (higher perceived decision autonomy in SMOs), the group means were compared using the ANCOVA method. Gender, age, leadership responsibilities, organizational age, and organizational size were used as covariates. The results showed that perceived decision autonomy was significantly and moderately higher in SMOs ($n = 78$, $M = 4.20$, $SD = 0.77$) than in non-SMOs ($n = 167$, $M = 3.68$, $SD = 0.96$), $F_{(1,206)} = 13.10$, $p < 0.001$, Cohen's $d = 0.58$. Therefore, H1a was confirmed. In order to test H1b (higher perceived method autonomy in SMOs), the same statistical approach and covariates were applied. Perceived method autonomy was significantly and moderately higher in SMOs ($n = 78$, $M = 4.28$, $SD = 0.76$) than in non-SMOs ($n = 167$, $M = 3.77$, $SD = 0.98$), $F_{(1,206)} = 11.26$, $p < 0.001$, Cohen's $d = 0.56$. Therefore, H1b was confirmed.

4.2. Explorative analysis regarding fit

The analysis of the shares of autonomy excess, autonomy shortage, and autonomy fit showed that SMOs had more cases of congruence between ideal and perceived decision and method autonomy but fewer cases of autonomy shortage (Table 3). In turn, the cases of autonomy surplus were even a little higher in non-SMOs, where the total level of autonomy was lower.

4.3. Hypothesis 2

In order to test H2a and b, predicting job satisfaction and work engagement through job crafting, mediated by better decision (method) autonomy fit, path analysis was used. Following Edward's recommendations for analyzing fit, perceived and ideal decision (method) autonomy, their squared terms and the terms of their interactions were used as mediators, and the job crafting dimensions as predictors. Due to the small sample size, separate models were run for method and decision autonomy, work engagement, and job satisfaction. For the resulting four models, fit indices were good (CFI > 0.97).

The results (Tables 4, 5, Figure 2) showed a significant indirect effect of crafting structural resources on work engagement and job satisfaction, mediated through ideal and perceived decision autonomy ($\beta_{WE} = 0.13$; $\beta_{JS} = 0.14$) and method autonomy ($\beta_{WE} = 0.14$; $\beta_{JS} = 0.18$). The indirect effects of crafting social resources or challenges were not significant. The β-weights between independent variables and mediator variables showed a problem with high multicollinearity between the mediator variables. However, this multicollinearity must be tolerated due to the methodological requirements resulting from the aim to investigate the P-E fit. The overall fit was good, so the indirect effect could be interpreted cautiously.

TABLE 5 Mediational paths.

Total indirect effects	Autonomy	
	Decision	Method
Structural resources crafting → Work engagement	0.13**	0.14**
Challenging demands crafting → Work engagement	0.00	0.01
Social resources crafting → Work engagement	0.00	0.01
Structural resources crafting → Job satisfaction	0.14**	0.18***
Challenging demands crafting → Job satisfaction	−0.01	0.01
Social resources crafting → Job satisfaction	0.00	0.01

**$p < 0.01$; ***$p < 0.001$.

In order to test the increasing effect of job crafting behavior on the fit between ideal and perceived decision (method) autonomy, Bednall and Zhang's (2020) approach to predicting the directional difference was used. Accordingly, the effect of job crafting on autonomy fit was assessed by testing the significance of the regression weight $\beta_{diff} = \beta_E - \beta_P$, where β_P was the regression weight of job crafting as a predictor of ideal autonomy, and β_E the weight as a predictor of perceived autonomy. Using the delta method, implemented in the lavaan package (Rosseel, 2012), the analyses showed a significant effect of crafting challenging resources on the directional difference between perceived and ideal decision autonomy ($\beta = -0.17$, $p < 0.05$) but not regarding method autonomy. The regression weight of ideal decision autonomy ($\beta = 0.16$, $p < 0.05$) was significant and positive, but the weight of perceived decision autonomy ($\beta = -0.01$, n.s.) was insignificant, which contradicted the proposed theory. Crafting structural and social resources showed no significant effects (Table 6).

Additionally, the effects of fit on work engagement and job satisfaction were tested. The surface parameters were calculated and tested for significance using the approach of Shanock et al. (2010) (Table 4 and Figure 3 for results). To assess the impact of (mis-)fit, the slope and curvature along the line of congruence and incongruence were relevant. Regarding decision autonomy, the curvature along the line of incongruence was significant for work engagement ($a_4 = -0.38$, $p < 0.001$) and job satisfaction ($a_4 = -0.47$, $p < 0.001$). Additionally, the parameter a_1 indicating the slope at the line of congruence was significant for job satisfaction ($a1 = 0.21$, $p < 0.01$) but not for work engagement, showing the positive association of the fit at a higher decision autonomy

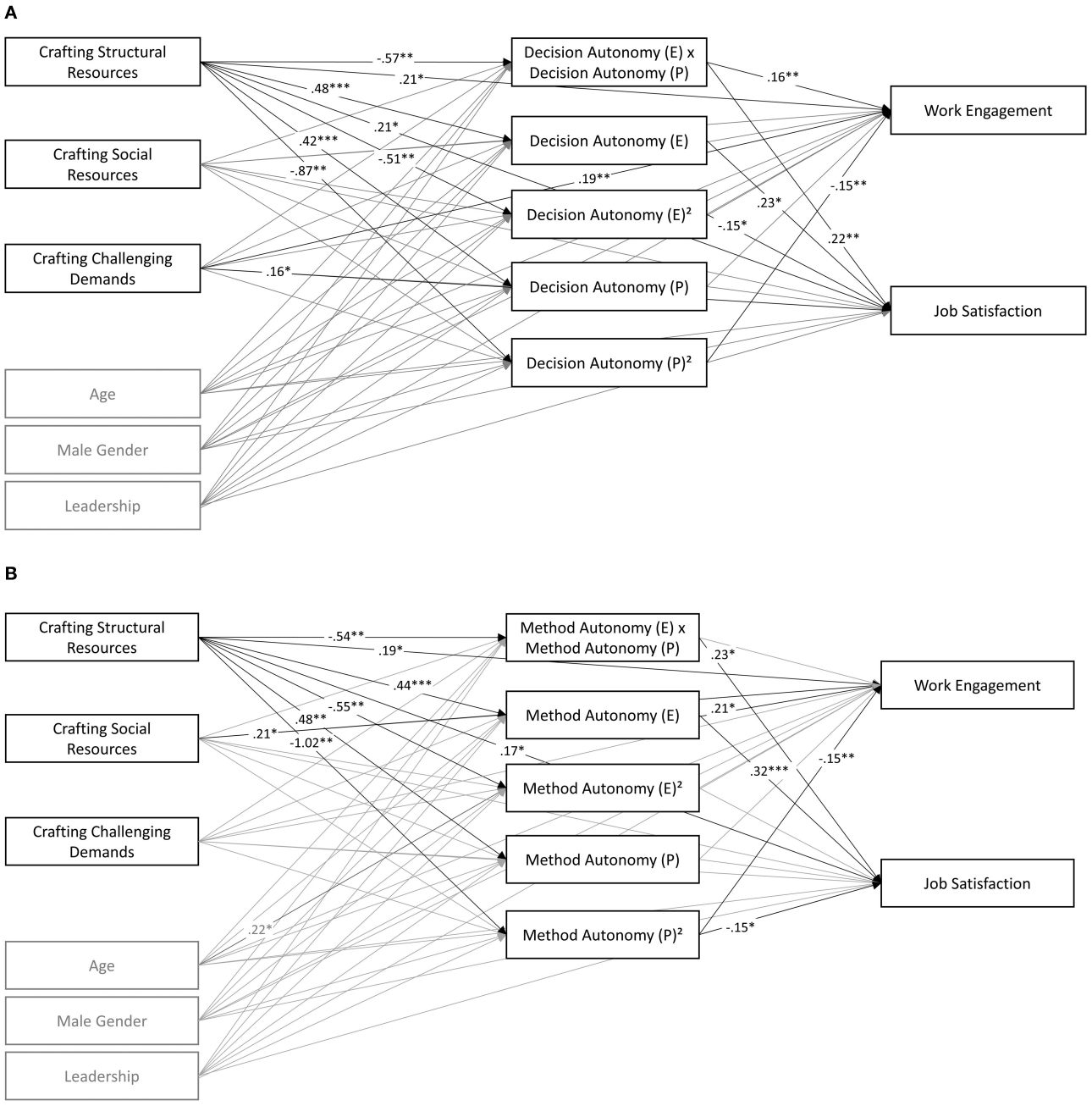

FIGURE 2
Pathmodel 1: fit between ideal decision (method) autonomy as a mediator between job crafting and work engagement/job satisfaction. **(A)** Method autonomy. **(B)** Decision autonomy. All estimated lines are displayed and colored according to their significance (gray: $p \geq 0.05$; black: $p < 0.05$). Black dotted lines show the total effects that were significant. All models controlled for age, gender, and leadership. $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

level with higher job satisfaction. Regarding method autonomy, the curvature along the line of incongruence was significant for work engagement ($a_4 = -0.29$, $p < 0.001$) and job satisfaction ($a_4 = -0.43$, $p < 0.001$). Additionally, the parameter a_1 indicating the slope at the line of congruence was significant for job satisfaction ($a_1 = 0.29$) but not for work engagement, showing the positive association of the fit at a higher decision autonomy level with higher job satisfaction.

Consequently, H2 stating that job crafting behavior predicts higher work engagement and job satisfaction mediated by better decision and method autonomy fit was not confirmed. However, the positive relations between P-E fit and work engagement/job satisfaction were confirmed.

4.4. Hypothesis 3

H3, predicting higher criticality of job crafting behavior, was tested by comparing the group means of the different types of job crafting behaviors between SMOs and non-SMOs. Controlling for

TABLE 6 Effects of job crafting behaviors on the fit between perceived and ideal autonomy.

	Person-environment fit	
	Decision autonomy	Method autonomy
	ß	ß
Structural resources crafting	0.06	−0.05
Challenging demands crafting	−0.17*	−0.09
Social resources crafting	0.01	0.06

ß = $ß_E - ß_P$. *$p < 0.05$.

age, gender, leadership, organizational size, and tenure, crafting social resources [$F_{(1,223)} = 10.43$, $p < 0.01$, $d = 0.45$], seeking challenging demands [$F_{(1,206)} = 6.47$, $p < 0.05$, $d = 0.35$], and crafting structural resources [$F_{(1,206)} = 13.59$, $p < 0.001$, $d = 0.51$] were more prevalent in SMOs (Table 7 for group means).

Additionally, the relationships between job crafting behaviors and work engagement (job satisfaction) were compared between the SMO and non-SMO groups, as these variables were critical in SMOs. Firstly, work engagement and job satisfaction were regressed on the job crafting behaviors and their interactions with the group variable of SMO vs. non-SMO, controlling for age, gender, and leadership. The interaction effect of crafting social resources and the group variable on work engagement was marginally significant, indicating a stronger relationship in SMOs (Table 7). The other interactions were not significant. Secondly, the model was estimated separately for both groups (Table 8) to analyze the significant interaction effect further. The group difference of the regression weight of crafting social resources was significant ($ß_{SMO} = 0.18$, $ß_{nonSMO} = -0.06$, z-$value_\Delta = 1.80$, $p < 0.05$)[2], pointing in the assumed direction. The differences in the regression weights of crafting structural resources and challenging demands were not significant. Interestingly, crafting structural resources and increasing challenging demands were significant predictors of work engagement in SMOs, whereas only increasing structural resources was significant in non-SMOs. Regarding job satisfaction, there were no significant interaction effects. The group comparison showed no significant group differences regarding the ß-weights of the three job crafting dimensions. Consequently, H3 could not be confirmed: Although the levels of job crafting were higher in SMOs, there were only hypothesis-confirm group differences in the relationships between crafting social resources and challenging demands and work engagement, but not regarding job satisfaction.

4.5. Hypothesis 4 and 5

In order to examine H4 and H5, path analysis based on the lavaan package in R (Rosseel, 2012) was used. Robust estimators were used as multivariate normal distribution was violated. Each type of job crafting was predicted by method and decision autonomy, the three dimensions of error orientation, and their corresponding interactions. Job crafting, in turn, predicted work engagement and job satisfaction. Direct effects of the predictors on the outcomes were allowed, and the model was controlled for age, gender, and leadership role. Fit indices were not interpretable as the model was just identified ($df = 0$). The results are shown in Table 9, and Figure 4 presents the path model. The models showed two significant interaction effects: error strain interacted with decision autonomy in its effect on crafting challenging demands ($ß = -0.23$, $p < 0.05$), and learning from errors showed a significant interaction effect with decision autonomy on crafting structural resources ($ß = -0.17$, $p < 0.05$). Additionally, learning from errors showed a significant main effect on crafting social resources ($ß = 0.16$, $p < 0.01$). Risking errors was a significant predictor of crafting structural resources ($ß = 0.23$, $p < 0.001$) and challenges ($ß = 0.31$, $p < 0.001$). Error strain was a negative predictor of crafting structural resources ($ß = -0.12$, $p < 0.05$) but a positive one of crafting social resources ($ß = 0.12$, $p < 0.05$). There were no significant interactions of error orientation dimensions and method autonomy regarding the prediction of job crafting behaviors.

In order to further examine the moderation effects, separate models based on the data of participants with high (>2nd tercile) vs. low (<1st tercile) error strain and learning from errors (Table 10) were estimated. The models were reduced to the minimum of necessary variables in order to ensure sufficient power for the smaller sample sizes of the respective high- and low-expression subgroups ($n = 92$).

The results showed that in the case of low strain from error, decision autonomy was related to moderately higher crafting of challenging demands ($ß_{low} = 0.49$, $p < 0.05$), while in the case of high error strain, decision autonomy was unrelated to crafting of challenging demands ($ß_{high} = -0.04$, $p = 0.814$). The difference was significant (z-$value_\Delta = 1.89$, $p < 0.05$). Additionally, low error strain was associated with a more positive relation between decision autonomy and crafting structural resources than high error strain was ($ß_{low} = 0.56$, $p < 0.01$ vs. $ß_{high} = 0.24$, $p = 0.116$), but the difference was only marginally significant (z-$value_\Delta = 1.38$, $p = 0.084$). There was no group difference in the association between decision autonomy and crafting social resources; both were non-significant. The associations of method autonomy with the three job crafting dimensions did not vary significantly between the groups.

The results of the group comparison of low vs. high learning from errors showed that in the case of low learning from errors, perceived decision autonomy predicted higher crafting of structural resources ($ß = 0.65$, $p < 0.01$) than in the case of high learning from errors ($ß = 0.13$, $p = 0.207$, z-$value_\Delta = 2.19$, $p < 0.05$), which contradicted H5a. In turn, the group differences in the relationships of decision autonomy with crafting social resources and challenging demands were in the expected direction but of marginal size and non-significant. In line with H5a, method autonomy was positively related to crafting structural resources in the group with high error learning ($ß = 0.23$, $p < 0.05$), whereas it was unrelated in the group with low error learning ($ß = 0.03$, $p = 0.866$), but the group difference was non-significant (z-$value_\Delta = -0.83$, n.s.). In

2 Comparisons were made by applying the formula of proposed by Clogg et al. (1995).

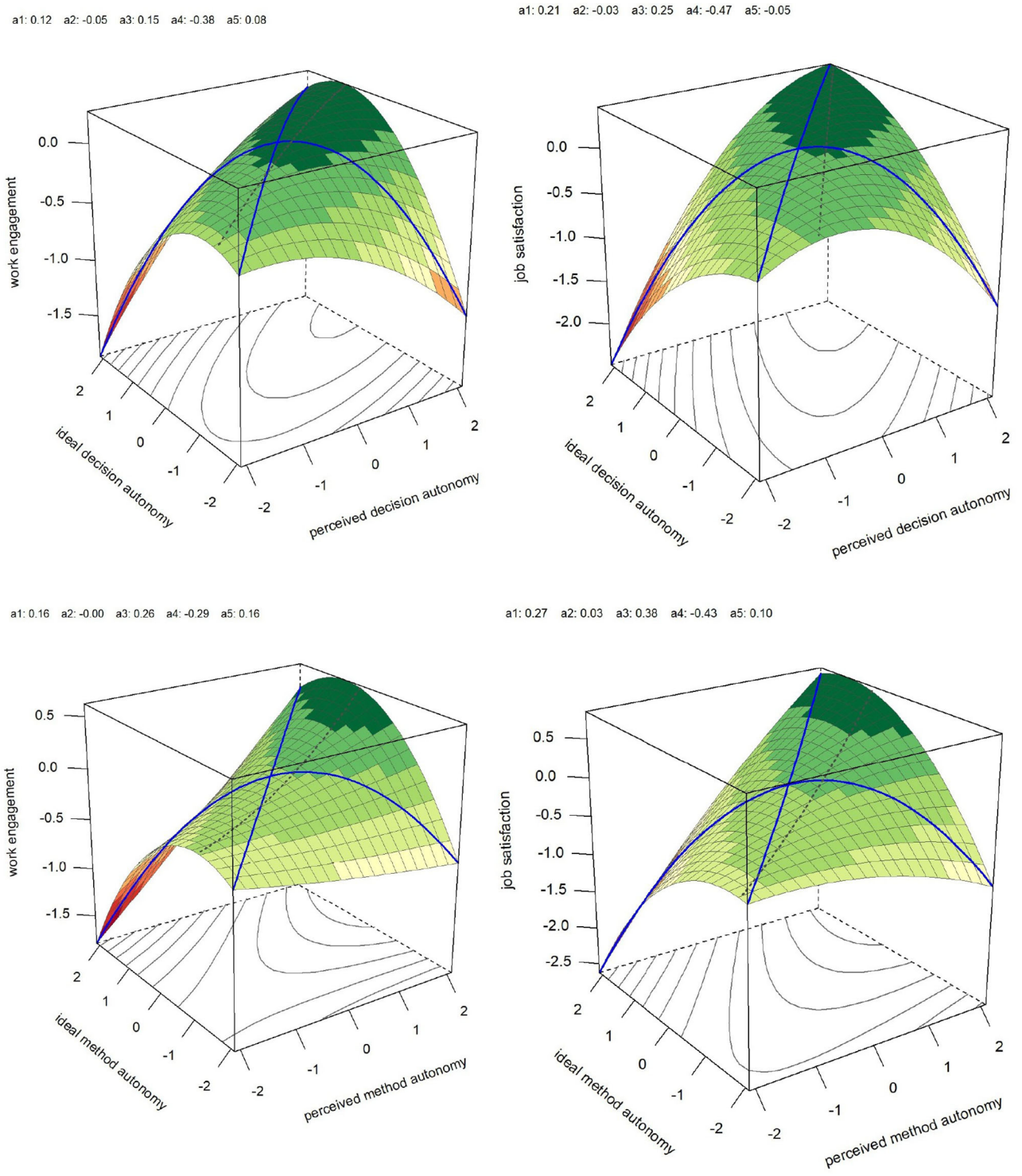

FIGURE 3
Response surface of the perceived level of autonomy (E) and the Person's ideal level (P) predicting work engagement and job satisfaction. All models controlled for age, gender, and leadership. Blue lines display lines of congruence and incongruence.

contrast to H5a, method autonomy predicted higher crafting of social resources in the group of low learning from errors (β = 0.40, $p < 0.05$), compared to high learning from errors (β = 0.09, $p = 0.523$). In turn, there was no group difference regarding the relation between method autonomy and crafting challenging demands. Consequently, H5 was partially confirmed but partially also disconfirmed.

In order to examine H4, proposing learning from errors (a), taking error risks (b), and low error strain (c) as moderators of the relationship between decision and method autonomy and

TABLE 7 Group differences between SMOs and Non-SMOs.

Variable	M (SD) SMO	M (SD) non-SMO	*F* value	*p*-value	Cohen's d
Structural resources crafting	4.25 (0.47)	3.90 (0.68)	13.59	<0.001	0.51
Social resources crafting	3.51 (0.78)	3.18 (0.84)	10.43	0.001	0.45
Challenging demands crafting	3.70 (0.74)	3.35 (0.85)	6.48	0.012	0.35
Error learning	4.21 (0.65)	3.82 (0.72)	13.09	<0.001	0.50
Error risking	4.00 (0.77)	3.38 (0.83)	23.75	<0.001	0.67
Error strain	2.58 (0.83)	3.03 (0.8)	13.14	<0.001	0.50
Work engagement	5.41 (0.94)	5.04 (1.13)	7.11	0.013	0.37
Job satisfaction	5.72 (0.98)	5.01 (1.41)	14.87	<0.001	0.53

$n_{SMO} = 78$, $n_{non-SMO} = 167$.

TABLE 8 Relations of job crafting compared between SMOs and non-SMOs.

		WE			JS		
		all	SMO	non-SMO	all	SMO	non-SMO
Model job crafting	Structural resources crafting	0.36***	0.33*	0.38***	0.33***	0.27	0.36***
	Social resources crafting	0.01	0.18	−0.06	0.02	0.08	−0.01
	Challenging demands crafting	0.20*	0.31*	0.14	0.00	0.09	−0.05
	SMO x structural resources crafting	−0.04			−0.04		
	SMO x challenging demands crafting	0.08			0.08		
	SMO x social resources crafting	0.10.			0.04		
	SMO	0.03			0.18**		
Model error orientation	Error learning	0.13.	0.02	0.18.	0.13.	0.09	0.16
	Error risking	0.16*	0.36**	0.06	0.10	0.22*	0.03
	Error strain	−0.16*	0.02	−0.25**	−0.11	0.12	−0.21*
	SMO x error learning	−0.07			−0.05		
	SMO x error risking	0.14.			0.12.		
	SMO x error strain	0.12.			0.13*		
	SMO	0.05			0.18**		

$N_{all} = 230$, $n_{SMO} = 73$, $n_{non-SMO} = 157$. All results were controlled for gender, age, and leadership role. $.p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

work engagement and job satisfaction, the total effects of the path model 2 (Figure 4) were interpreted. Regarding work engagement, the interaction of method autonomy with learning from errors showed a marginal significant total effect ($ß = -0.17$, $p = 0.094$). The other interaction effects did not reach the significance level (Table 9). Although the comparison of the groups with low and high learning from errors showed a group difference in the *ß*-weights of method autonomy as a predictor of work engagement, the difference was non-significant.

The findings regarding job satisfaction were mixed: the interaction of learning from errors with decision autonomy showed a significant positive effect ($ß = 0.27$, $p < 0.05$), while the interaction with method autonomy was significant and negative ($ß = -0.21$, $p < 0.05$). The group analysis revealed a positive total effect of decision autonomy on job satisfaction in the group of high learning from mistakes, while the effect was neglectable in the low-learning-from-mistakes group ($ß_{low} = -0.08$, $p = 0.728$ vs. $ß_{high} = 0.36$, $p = 0.055$). The group difference was marginally significant ($z\text{-value}_{\Delta} = -1.47$, $p = 0.708$). In turn, method autonomy showed a positive total effect on job satisfaction in the group with low learning from mistakes, whereas in the other group, the total effect was non-existent ($ß_{low} = 0.57$, $p < 0.01$, vs. $ß_{high} = 0.00$, n.s., $z\text{-value}_{\Delta} = 2.12$, $p < 0.05$).

4.6. Mediational analyses

The explorative analyses of the mediational paths showed that the positive effect of risking errors ($ß = 0.10$, $p < 0.01$) as well as the negligibly small interaction effect of error strain and decision autonomy ($ß = -0.07$, $p < 0.05$) on work engagement were partly

TABLE 9 Work engagement, job satisfaction, and job crafting behavior predicted by perceived decision and method autonomy.

	Structural resources crafting	Social resources crafting	Challenging demands crafting	Work engagement	Job satisfaction
Structural resources crafting				0.17.	0.17.
Social resources crafting				0.02	0.03
Challenging demands crafting				0.19*	0.00
Decision autonomy (E)	0.20**	−0.09	0.07	0.06	0.09
Error learning x decision autonomy (E)	−0.17*	0.10	0.07	0.09	0.29**
Error risking x decision autonomy (E)	−0.11	−0.06	−0.24	−0.04	−0.15
Error strain x decision autonomy (E)	−0.12	−0.08	−0.23*	0.04	0.08
Error learning	0.12*	0.16**	0.04	0.02	0.03
Error risking	0.23***	−0.01	0.31***	0.01	0.06
Error strain	−0.12*	0.12*	−0.07	−0.13*	−0.07
Error learning x method autonomy (E)	0.06	−0.12	−0.04	−0.17	−0.21*
Error risking x method autonomy (E)	0.06	−0.02	0.17	0.03	0.04
Error strain x method autonomy (E)	0.04	0.01	0.02	0.02	0.00
Method autonomy (E)	0.14.	0.20*	0.15	0.14	0.26**
Total effects				Work engagement	Job satisfaction
Decision autonomy (E)				0.11	0.12
Error learning x decision autonomy (E)				0.08	0.27*
Error risking x decision autonomy (E)				−0.11	−0.17
Error strain x decision autonomy (E)				−0.03	0.06
Error learning				0.05	0.05
Error risking				0.10	0.10
Error strain				−0.16**	−0.09
Error learning x method autonomy (E)				−0.17.	−0.21*
Error risking x method autonomy (E)				0.07	0.05
Error strain x method autonomy (E)				0.03	0.01
Method autonomy (E)				0.20.	0.29**

All results are controlled for gender, age, and leadership role. .$p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

mediated through job crafting behaviors. The group comparison showed that in the group with low strain from errors, the effect of decision autonomy on work engagement was partially mediated by job crafting ($ß = 0.28$, $p < 0.05$), while in the group of high strain, no mediation was found ($ß = 0.04$, $p = 0.469$, z-value$_\Delta = 1.95$, $p < 0.05$).

Additionally, the group comparison of high vs. low error learning yielded an interesting pattern: for employees with low learning from errors, decision autonomy was stronger related to crafting structural resources ($ß_{low} = 0.65$, $p < 0.01$ vs. $ß_{high} = 0.13$, $p = 0.647$; z-value$_\Delta = 2.19$, $p < 0.05$), but crafting structural resources itself was related with job satisfaction only in the group of high learning from errors, but not in the group of low learning from errors ($ß_{high} = 50$, $p < 0.01$, vs. $ß_{low} = 0.02$, n.s.; z-value$_\Delta = -2.26$, $p < 0.05$).

4.7. Hypothesis 6

To test H6, predicting higher criticality of the dimensions of error orientation in SMOs, firstly, the group means of the three dimensions of error orientation were compared between SMOs and non-SMOs. Controlling for age, gender, leadership, organizational size, and tenure, risking errors [$F_{(1,206)} = 23.75$, $p < 0.001$, $d = 0.67$], learning from errors [$F_{(1,206)} = 19.09$, $p < 0.001$, $d = 0.50$] were higher, while strain from errors [$F_{(1,206)} = 13.14$, $p < 0.001$, $d = 0.50$] was lower in SMOs (see Table 7).

Secondly, the relevance of the three dimensions of error orientation for work engagement and job satisfaction was compared between SMOs and non-SMOs. Firstly, the full model with interaction terms of the group variable with the dimensions of error orientation, controlling for age, gender, and leadership, was

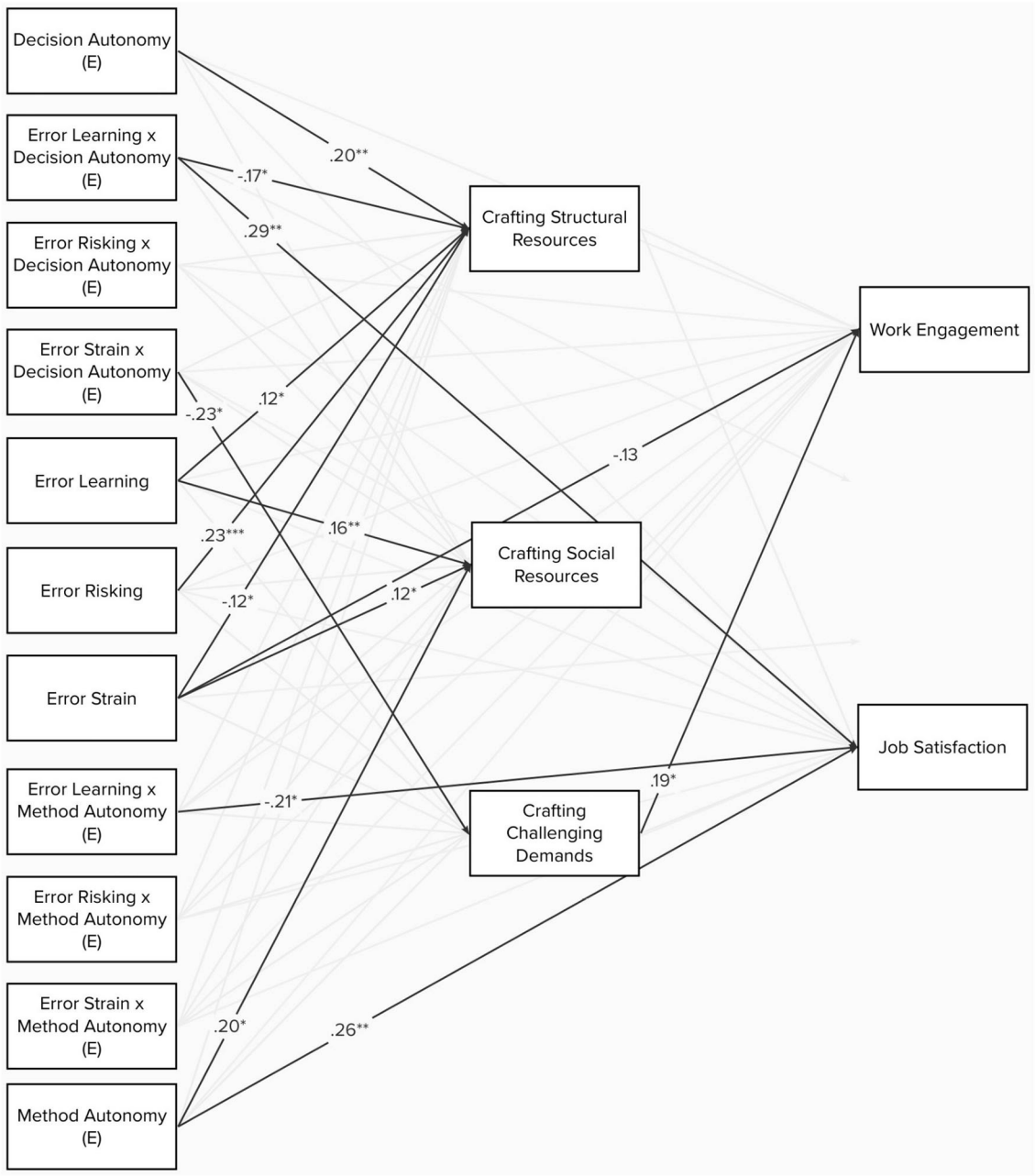

FIGURE 4
Pathmodel 2: the moderating effect of error orientation on the effect of decision and method autonomy on job crafting behaviors. All estimated lines are displayed and colored according to their significance (gray: $p \geq 0.05$; black: $p < 0.05$). Black dotted lines show the total effects that were significant. The model was controlled for age, gender, and leadership; the covariates were included like in the smaller models (Figure 5), but not displayed due to clarity. $.p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

estimated. Secondly, two separate models based on the subsamples of SMOs and non-SMOs were estimated (Table 8).

The model based on the full sample showed (marginal) significant interactions, making the group comparison reasonable. The group analysis showed no differences in the relationships between learning from errors with work engagement/job satisfaction between SMOs and non-SMOs. In turn, risking errors was a significant positive predictor of work engagement ($\beta_{SMO} = 0.36$, $p < 0.01$; $\beta_{non-SMO} = 0.06$, $p = 0.543$) and job satisfaction ($\beta_{SMO} = 0.22$, $p < 0.05$; $\beta_{non-SMO} = 0.03$, $p = 0.807$) among SMO employees but not among non-SMO employees. In contrast to our predictions, only in non-SMOs, strain from errors was related to less work engagement ($\beta_{non-SMO} = -0.25$, $p < 0.01$; $\beta_{SMO} = 0.06$, $p = 0.881$) and job satisfaction ($\beta_{non-SMO} = -0.21$, $p < 0.05$; $\beta_{SMO} = 0.03$, $p = 0.189$). Consequently, the results partially aligned with the hypotheses (H6b) but partially contradicted the hypotheses (H6a and c).

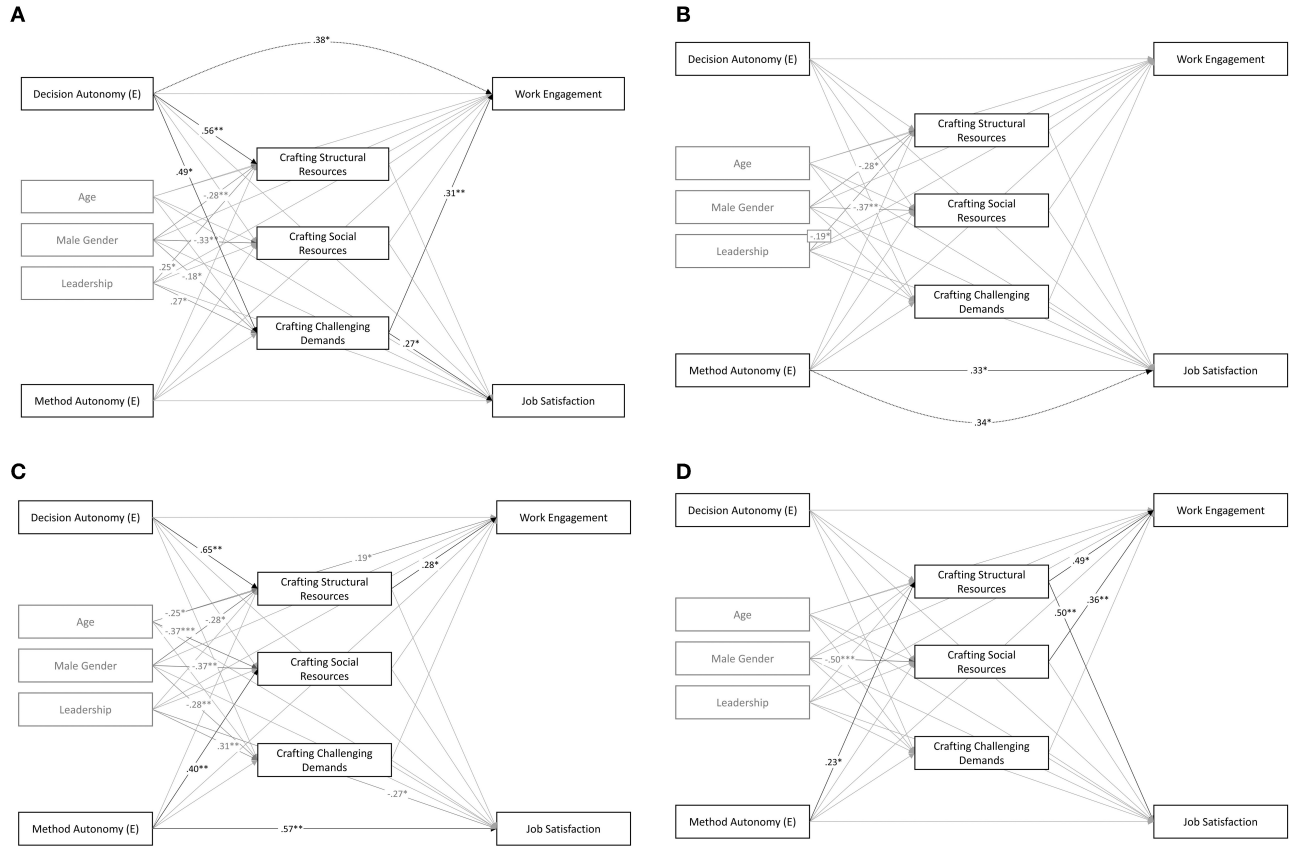

FIGURE 5
The relation between autonomy, job crafting and work engagement and satisfaction according to differences in learning from errors and strain from errors. **(A)** Low strain from error. **(B)** High strain from error. **(C)** Low learning from errors. **(D)** High learning from errors. All estimated lines are displayed and colored according to their significance (gray: $p \geq 0.05$; black: $p < 0.05$). Black dotted lines show the total effects that were significant. All models controlled for age, gender, and leadership. $.p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

4.8. Explorative analyses

In order to understand the effect of error orientation better, the relationship between error orientation and ideal autonomy was examined. Regressing ideal decision and method autonomy on learning from errors, risking errors, and error strain under the control of age, gender, and leadership showed a significant positive relation between risking errors and ideal decision ($\beta = 0.19$, $p < 0.05$) and method autonomy ($\beta = 0.21$, $p < 0.05$), while learning from errors predicted higher ideal method autonomy ($\beta = 0.19$, $p < 0.05$), but no decision autonomy ($\beta = 0.15$, n.s.). Strain from error showed a negative, albeit non-significant, effect on both types of autonomy ($\beta_{method} = -0.08$, n.s.; $\beta_{decision} = -0.12$, n.s.).

5. Discussion

This work provides several valuable insights into the novel organizational form of SMOs and its attributes at the individual level. The current results confirm that the organizational changes in SMOs are associated with a higher perception of decision and method autonomy at the individual level (H1). Thus, the results improve the first evidence of Doblinger and Class (2023) on decision autonomy by including method autonomy and controlling for the influence of organizational age and size to prevent systematic bias. Both forms of autonomy were outstandingly high, requiring further attention when looking at the mechanisms within SMOs. However, despite the higher absolute autonomy levels in SMOs, the shares of autonomy shortage and autonomy surplus were higher in non-SMOs. This finding shows that ideal autonomy varies between individuals and that employees with high ideal decision autonomy may feel attracted to SMOs in particular, which contributes to the success of SMOs (Maier, 2013; Reitzig, 2022; Schell and Bischof, 2022) and is an important insight for the theory about SMOs.

The results did not confirm that job crafting behaviors were related to higher work engagement and job satisfaction through increased fit between ideal and perceived decision or method autonomy (H2). Nonetheless, the results gave several essential insights. Although there was a significant indirect effect of crafting structural resources on work engagement, mediated through perceived and ideal decision and method autonomy and their interactions, crafting structural resources had no significant effect on the directional difference, contradicting the assumption of an enhancing effect on the fit between ideal and perceived autonomy. Crafting structural resources was related to higher perceived and

TABLE 10 Work engagement, job satisfaction, and job crafting behavior predicted by perceived decision and method autonomy compared between the groups of high vs. low error learning and error strain.

		Crafting structural resources		Crafting social resources		Crafting challenging demands		Work engagement		Job satisfaction	
		Low	High	Low	High	Low	High	Low	High	Low	High
Error learning[a]	Crafting structural resources							0.28*	0.49*	0.02	0.50**
	Crafting social resources							0.11	0.09	0.00	0.13
	Crafting challenging demands							−0.09	0.36**	0.01	0.15
	Decision autonomy (E)	0.65**	0.13	−0.18	−0.02	0.05	0.12	0.08	0.25	−0.09	0.28
	Method autonomy (E)	0.03	0.23*	0.40*	0.09	0.29	0.37	0.30	−0.29.	0.57**	−0.19
Error strain[b]	Crafting structural resources							0.24	0.16	−0.01	0.05
	Crafting social resources							−0.03	−0.03	−0.05	0.08
	Crafting challenging demands							0.31**	0.03	0.27*	0.00
	Decision autonomy (E)	0.56**	0.24	0.09	−0.06	0.49*	−0.04	0.09	0.17	0.07	0.18
	Method autonomy (E)	0.07	0.16	0.13	0.19	0.07	0.10	−0.01	0.20	0.11	0.33*

All results are controlled for gender, age, and leadership role.
[a]subsample of low error learning n = 77; Subsample of high error learning n = 78.
[b]both subsamples n = 92. . $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

ideal decision and method autonomy, thus weakening the relation to the directional difference. This contrasts the previous findings of Tims et al. (2016), Chen et al. (2014), and Kooij et al. (2017), who found that different types of job crafting were predictive of needs-supplies and person-job fit. One possible explanation of the different findings may be using the molecular measure of fit based on the scale of Cable and DeRue (2002).

The finding that crafting challenging demands was only associated with higher ideal decision autonomy, not perceived autonomy, contradicts the hypothesized effect direction and could be explained by a reversed relationship, such as proposed by Tims and Bakker (2010): High ideal decision autonomy may cause crafting challenging demands to increase the perceived autonomy and, thus, P-E-fit. Additionally, job crafting could be a moderator, buffering the negative effect of decision autonomy (mis-)fit (Vogel et al., 2016).

The hypothesis-confirm curvilinear relationships between autonomy (mis-)fit and work engagement/job satisfaction add to the prior research of Stiglbauer and Kovacs (2018), who found already effects of decision and method autonomy (mis-)fit on flourishing and wellbeing by showing that the relationship also holds for work engagement and job satisfaction. The current findings emphasize the relevance of means to increase the P-E fit regarding decision and method autonomy, particularly in organizational transformations that increase individual job autonomy. However, according to the current results, job crafting is not necessarily the suitable method to improve P-E fit, although testing the relation in a longitudinal design and an additional measure of fit could thoroughly verify or falsify the hypothesis. The non-significant direct effect of crafting social resources on work engagement is surprising and contradicts prior findings of Moreira et al. (2022). One potential explanation for this difference might lie in the minor modification of the scale in the current study: Crafting social resources included getting advice from peers, not only from supervisors (as in the original job crafting scale).

The hypothesis of higher criticality of job crafting behaviors in SMOs (H3) was supported by the higher expression of job crafting behaviors in the SMO employees' group than in the non-SMO employees' group. While crafting social resources and crafting challenging demands showed more substantial relationships with work engagement in SMOs than in other organizations, crafting structural resources was equally related to work engagement in SMOs and non-SMOs. Hence, the latter association seems to be independent of the organizational context, which aligns with the findings on the general positive relation (Bakker et al., 2012). The insignificant group difference concerning the relationship between job crafting and job satisfaction points to other SMO-inherent factors that foster job satisfaction: for example, an excellent person-environment fit regarding autonomy caused by the selective attraction of those employees who strive for high decision autonomy (Schneider et al., 1995; Barrick and Parks-Leduc, 2019). Consequently, although job crafting is more present in SMOs, there is no evidence that it is more critical for job satisfaction but partial evidence that it may be more critical for work engagement. Nonetheless, as job crafting is more present in SMOs, it may also be more critical for other outcomes, such as burnout (Tims et al., 2013).

In contrast to the predictions of H4, method autonomy only related positively to job satisfaction in the low learning from errors group but did not relate to it in the other group. However, in line with the predictions, decision autonomy was stronger related to job satisfaction and work engagement in the case of high learning from errors compared to low learning from errors, but these effects did not reach (marginal) significance. A relieving effect of method autonomy may explain these contradictory findings, which aligns with the proposed buffering effect of job resources (Bakker and Demerouti, 2007; Xanthopoulou et al., 2007). Method autonomy may reduce the fear of making mistakes, which likely is higher when mistakes are not considered an opportunity to learn, and thus, increase satisfaction.

In contrast to the predictions, there was no evidence of a moderating effect of error strain and risking errors regarding the relationship between job autonomy and work engagement or satisfaction. Hence only learning from errors seems to influence the relationship between autonomy and work engagement.

However, the current results showed that strain from errors, learning from errors, and risking errors are associated with job crafting behaviors. The moderating effect of strain from errors was partially confirmed (H5c): for employees with low strain from error, higher decision autonomy was associated with higher crafting of structural resources and crafting of challenging demands, while for those with high strain from error, it was associated less or not at all. That aligns with the proposed theory: crafting challenges increases the possibility of mistakes, and thus high strain from mistakes may prevent employees from proactively using their decision autonomy to look for new challenges (Wei and Hisrich, 2016). In contrast to the hypothesis, decision autonomy seems to be of minor importance to crafting social resources; thus, the extent of error strain was also irrelevant. No error-strain-related group differences regarding the relationship between method autonomy and job crafting behaviors were found, again contradicting H5c. Thus, error strain may be a more serious threat when using decision autonomy compared to method autonomy.

The hypotheses about the moderating effects of learning from errors (H5a) and risking errors (H5b) regarding job crafting behaviors were not confirmed. While there was no evidence of any interaction between risking errors and decision or method autonomy (H5b), the results revealed a hypothesis-contradicting interaction effect regarding learning from errors (H5a). In the case of low learning from errors, there was a strong relation between decision autonomy and crafting structural resources, but a neglectable one when learning from errors was high. Interestingly, the results also showed that crafting structural resources was less related to work engagement in the low-error-learning group than in the high-error-learning group. Additionally, only in the case of low error learning the relationship between decision autonomy and work engagement was partially mediated through crafting structural resources. One explanation could be that employees who see errors as a learning opportunity dare to craft their job independently of receiving explicit autonomy. Employees who see errors less as learning opportunities may need decision autonomy to dare to craft structural resources, which aligns with the previous finding that a learning-oriented organizational climate was directly related to individual proactive behaviors (Caniëls and Baaten, 2019). There were no significant relations of decision autonomy with the other job crafting dimensions. However, the relations pointed in the hypothesized directions with negative relations of decision autonomy with crafting social resources in the case of low learning from errors but independence in the case of high learning from errors. A subsample of too small size may be one reason for the non-significance. Nonetheless, the effect direction is interesting: it points to the fact that if learning from errors was low, decision autonomy could be used to avoid confrontations through peer feedback. This hypothesis aligns with Aben et al.'s (2022) finding that error tolerance predicts higher feedback tolerance.

The results for H5a were also mixed regarding method autonomy: in line with H5a, for employees with high learning from errors, method autonomy was positively related to crafting structural resources, whereas both variables were unrelated in the other group. In contrast to H5a, method autonomy was positively associated with higher social resources crafting for employees with low learning from errors, whereas this relationship was neglectable for employees with high learning from errors. This finding also supports the notion that the effect mechanisms of the method and decision autonomy differ (Spiegelaere et al., 2016; Muecke et al., 2020). Muecke et al. (2020) found that feelings of responsibility mediated the relationship between decision autonomy and work engagement, whereas the relationship with method autonomy was mediated through cognitive demands. Hence, interpreting the current results, method autonomy may trigger the search for feedback by peers or supervisors to handle the cognitive demand and thus prevent mistakes when mistakes are not seen as learning opportunities. In contrast, employees with a learning attitude toward mistakes may handle the cognitive demand more easily as they can tolerate potential mistakes better. In turn, when it comes to decisions, employees with low learning from errors may fear the judgment of their peers or the exposure in the case of a potentially wrong decision in the recent past, as they feel responsible and, thus, avoid confrontation with peers (Aben et al., 2022). Additionally, instead of a moderating effect (H5c), the results identified risking errors as a predictor of increasing structural resources and challenging demands of small to moderate size, pointing to an autonomy-independent relationship between risking errors and job crafting behaviors.

In line with the predictions of H6, the comparison of the SMO employees with the non-SMO employees showed that learning from errors and risking errors was higher, and strain from errors was lower in SMOs compared to non-SMOs, pointing to a higher criticality of these attitudes in SMOs. Additionally, in line with the predictions, risking errors was related positively to work engagement and job satisfaction in SMOs but not in non-SMOs (H6b). In contrast to our predictions, strain from errors was negatively associated with work engagement and job satisfaction only in non-SMOs, but it was irrelevant in SMOs (H6c). This finding may result from a third variable associated with SMOs mitigating the relevance of strain from errors, such as psychological safety (Edmondson and Lei, 2014), a context-related variable influencing the expected consequences of making mistakes. Learning from errors showed independence of work engagement or job satisfaction in SMOs and non-SMOs (H6a).

Yet learning from errors was, on average, higher in SMOs, and thus, it may be relevant for other outcomes, such as job crafting or innovative behaviors (Gu et al., 2013). Consequently, risking errors seems to be more important in SMOs than in non-SMOs, whereas the picture is not as clear regarding strain from errors and learning from errors.

5.1. Theoretical implications

The current work contributes in several ways to previous theories and research on job crafting, person-environment fit, error orientation, and SMOs. Firstly, the work adds quantitative evidence to the qualitative findings about the functioning of SMOs (Lee and Edmondson, 2017; Martela, 2019) by proving that method and decision autonomy are higher in SMOs, despite other inter-organizational variations. Showing that employees in SMOs differ from non-SMO employees in their behaviors and attitudes supports the controversial idea that SMOs differ significantly from other organizational forms (Martela, 2019).

The fact that these behaviors and attitudes were partially stronger related to work engagement and job satisfaction supports the notion that SMOs have different requirements for their employees. However, the exact effect is still unclear, but these insights pave the way for further investigations of the effect mechanisms.

Secondly, the current work added to the research on P-E fit by investigating potential antecedents of P-E fit, such as job crafting behavior. Based on the non-significant relationship between job crafting and work engagement, the results support the notion that the atomic measurement of P-E-fit does not equate to the molecular approach (Edwards, 2001), adding a new perspective to the previous positive findings based on a molecular approach (Cable and DeRue, 2002; Chen et al., 2014; Tims et al., 2016; Kooij et al., 2017). As previous literature argued that the atomic approach could be a more exact measurement (Edwards, 2001; Stiglbauer and Kovacs, 2018), the current results support the value of further investigating the causal relationships between job crafting and P-E fit. Additionally, the current study extended the knowledge about the relevance of P-E fit for work engagement and job satisfaction by showing that a surplus of method and decision autonomy was also associated with worse engagement and satisfaction. This supports the universality of this effect, at least when it comes to very high levels of autonomy.

Thirdly, the current work builds a first connection between the job crafting theory (Wrzesniewski and Dutton, 2001; Tims et al., 2012; Zhang and Parker, 2019) and the error orientation theory (Rybowiak et al., 1999; Keith and Frese, 2008): the results support that individual error orientation is a further relevant interindividual antecedent of job crafting that can explain interindividual variations. Importantly, the finding that it interacted with the other antecedents, decision and method autonomy, enriches the knowledge about the autonomy-job crafting relationship and can help explain potential variations in findings. The results also demonstrated that the dimensions of job crafting differ in their relationships with the dimensions of error orientation, emphasizing the need for distinction between the types of job crafting (Zhang and Parker, 2019). While learning from errors showed associations with development-related behaviors (structural resources), strain from errors was associated with crafting behaviors to reduce uncertainty (challenging demands) but increase support (social resources). Consequently, the results also deepen the understanding of the concept of error orientation (Rybowiak et al., 1999; Keith and Frese, 2008), as these different associations with job crafting and autonomy indicate that a separate consideration of the dimensions is valuable.

Lastly, the results extend the knowledge of job autonomy. The distinct relations of decision and method autonomy with dimensions of error orientation support the assumption of different types of job autonomy (Morgeson and Humphrey, 2006) and the differences in the effect mechanisms related (Spiegelaere et al., 2016; Muecke et al., 2020). It thus confirms the incremental value of a differentiating consideration of the job autonomy types.

5.2. Practical implications

There are several important implications for organizational practice in SMOs and potentially in other organizations with high individual job autonomy or in transition phases. Firstly, the job crafting and error orientation levels were higher in SMOs, pointing to a higher benefit in these organizations. Measures for organizational development, therefore, should add to an environment where risking errors is welcome and learning from errors is expected. Thus, employees can learn and embrace taking calculated risks. These implications align with prior research emphasizing the importance of handling mistakes constructively in SMOs but specify which aspects to focus on.

Secondly, the study showed that crafting social resources and challenging demands was related to higher work engagement in SMOs, and thus supporting employees in crafting their jobs could help engage employees in SMOs. Although it was not related to job satisfaction and thus may seem less important at first glance, it is essential as it relates to work engagement, which is particularly important in SMOs due to the need for proactive employees to work without supervisors. Thirdly, the results show the necessity of consciously addressing the high level of autonomy in SMOs. The perceived decision and method autonomy were higher in SMOs, and a misfit between ideal and perceived autonomy was related to worse work engagement and job satisfaction. Therefore, when organizations want to function as SMO, they need to address the fit of autonomy.

Fourthly, the findings regarding error orientation also provide ideas for personal development measures. Employees with low strain from errors were more likely to search for new challenges when they perceived more decision autonomy; thus, helping employees to feel less strain from errors could increase the innovativeness and pioneering of employees in SMOs, as they would look more for new challenges. The results also indicated

the importance of supporting learning from errors, as otherwise increased method autonomy could lead to avoiding peer feedback, which is an essential part of SMOs (Martela, 2019; Reitzig, 2022; Schell and Bischof, 2022; Doblinger, 2023). Fifthly, the levels of work engagement and job satisfaction were higher in SMOs, showing that besides the entrepreneurial advantages related to SMOs, the organizational form was also associated with direct employee benefits, which makes SMOs more attractive to companies and their owners and managers.

5.3. Limitations and future research

Despite its relevant findings, this research has some limitations and scope for further research. Firstly, the measurement of P-E fit was challenging. Due to its more exact measurement, the atomic approach (measuring ideal and perceived autonomy separately) was chosen for measuring fit (Edwards, 2001). This approach created the challenge of using difference scores. The problem was resolved by including polynomials in the path analysis and testing the effect on P-E fit and the effect of P-E fit in separate steps. Latent moderated structural equation models (Cheung, 2009; Edwards, 2009; Su et al., 2019) would have been the exacter approach, but the small sample did not allow for such complex analyses. Other authors used a molecular approach (Cable and DeRue, 2002; Chen et al., 2014; Tims et al., 2016; Kooij et al., 2017), avoiding the statistical challenges, which interestingly yielded other results than the current study. However, according to Edwards (2001), that approach only shifts the responsibility of building the difference score to the participant and, thus, will not increase reliability and validity. Therefore, the approach of integrating the polynomial regression with response surface analysis into the path model was taken. Using latent moderated structural equation models based on a bigger sample size could be the scope for future research. Another issue in this context was problems with multicollinearity due to the high correlations between the autonomy variables. That reduced the related predictors' reliability, despite the affected variables' good reliability. However, the other paths could be interpreted as the model's fit was good. Although this study intended to increase validity using the atomic approach, due to the problems mentioned above, future research could also investigate the proposed relations based on a molecular approach or a longitudinal design, as this could reveal the time-delayed association of job crafting and better P-E-fit.

Secondly, as already mentioned, the study was based on a minimum sample size due to the hard accessibility of SMO employees. The sample size was sufficient for the analysis based on the whole group but was marginal for the group analysis related to the moderation hypotheses. Unfortunately, it also hindered comparing the full path model between SMO and non-SMO employees (H3, H6). Instead, less complex relations were investigated, which pointed in the right direction. Future research could test these relations in a larger sample based on the current first evidence of group-related differences. Additionally, the sociodemographic characteristics of the study samples varied to a certain degree (e.g., industries), which may have biased the comparison. However, as various industries are included in both subsamples, this potential bias is mitigated.

Thirdly, the measurement of SMO was another challenge of this study. Previous research did not provide a validated scale for measuring SMO characteristics. Therefore, we relied on a checklist (Doblinger and Class, 2023), based on the characteristics of SMOs identified by Martela (2019). This could have limited the proper selection of SMO employees as the scale was not adequately validated. However, the preselection of organizations to recruit participants from ensured the inclusion of organizations that, indeed, were SMOs. Nonetheless, a validated scale to confirm that participants belong to an SMO would further improve the significance of the results and could be the scope of future research.

Fourthly, this study relied on a cross-sectional design, which does not allow for detecting time-delayed relationships, let alone causalities, which may have explained better the relationship between job-crafting behavior and autonomy fit. Therefore, the interpretation of the results is limited as only relationships could be described. Nonetheless, the detected relationships provide first essential insights into the associations between relevant variables for the different groups and thus can trigger future incremental research.

Lastly, the current study also shows the scope for future research. A further investigation of the relationship between job crafting and P-E fit could be valuable. On the one hand, the potentially reverse relationship between P-E fit and job crafting could be investigated by testing a theoretical model where ideal decision autonomy causes crafting challenging demands to increase the perceived autonomy and, thus, reach a better P-E fit. Similarly, investigating job crafting as a moderator of the effect of (mis-)fit on work engagement and job satisfaction promises valuable insights. Additionally, as job crafting is more present in SMOs, it may also be more critical for other outcomes, such as burnout, which could be subject to future studies. Another interesting research focus could be the exploration of other levers than job crafting that may help increase P-E fit. Moreover, future research should investigate the role of learning from errors in SMOs more in depth, for instance, by relating it to innovative behavior.

5.4. Conclusion

The results support that P-E-fit regarding job autonomy is important for work engagement and job satisfaction and that this fit likely occurs at a higher autonomy level in SMOs. Job crafting is more prevalent in SMOs but does not necessarily relate to P-E-fit. Although the dimensions of error orientation relate to job crafting, they differ in their ways of relating: While error strain and error learning interact with the effect of decision and method autonomy, risking errors did not interact but was directly related to job crafting and even with work engagement in SMOs. Reducing error strain but increasing error learning and risking errors could help increase job crafting and work engagement in

SMOs or also other organizations where individual autonomy is high.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethikkommission der Fakultät für Verhaltens- und Empirische Kulturwissenschaften der Ruprecht-Karls-Universität Heidelberg. The patients/participants provided their written informed consent to participate in this study.

Author contributions

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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References

Aben, J. E., Timmermans, A. C., Dingyloudi, F., Lara, M. M., and Strijbos, J.-W. (2022). What influences students' peer-feedback uptake? Relations between error tolerance, feedback tolerance, writing self-efficacy, perceived language skills and peer-feedback processing. *Learn. Individ. Differ.* 97, 102175. doi: 10.1016/j.lindif.2022.102175

Arenas, A., Tabernero, C., and Briones, E. (2006). Effects of goal orientation, error orientation and self-efficacy on performance in an uncertain situations. *Soc. Behav Pers.* 34, 569–586. doi: 10.2224/sbp.2006.34.5.569

Bakker, A. B. (2011). An evidence-based model of work engagement. *Curr. Dir. Psychol. Sci.* 20, 265–269. doi: 10.1177/0963721411414534

Bakker, A. B., and Demerouti, E. (2007). The job demands-resources model: state of the art. *J. Managerial Psychol.* 22, 309–328. doi: 10.1108/02683940710733115

Bakker, A. B., and Demerouti, E. (2017). Job demands-resources theory: taking stock and looking forward. *J. Occup. Health Psychol.* 22, 273–285. doi: 10.1037/ocp0000056

Bakker, A. B., Tims, M., and Derks, D. (2012). Proactive personality and job performance: the role of job crafting and work engagement. *Hum. Relat.* 65, 1359–1378. doi: 10.1177/0018726712453471

Barker, J. R. (1993). Tightening the iron cage: concertive control in self-managing teams. *Adm. Sci. Q.* 38, 408–437. doi: 10.2307/2393374

Barrick, M. R., and Parks-Leduc, L. (2019). Selection for fit. *Annu. Rev. Organ. Psychol. Organ. Behav.* 6, 171–193. doi: 10.1146/annurev-orgpsych-012218-015028

Bednall, T. C., and Zhang, Y. (2020). Modeling (in)congruence between dependent variables: the directional and nondirectional difference (DNDD) framework. *J. Appl. Psychol.* 105, 1013–1035. doi: 10.1037/apl0000475

Bipp, T., and Demerouti, E. (2015). Which employees craft their jobs and how? Basic dimensions of personality and employees' job crafting behaviour. *J. Occu. Organizat. Psychol.* 88, 631–655. doi: 10.1111/joop.12089

Bipp, T., Oberländer, M., and Walczok, M. (2021). The dark side of autonomy: the role of autonomy facets and work intensification. *Acad. Manag. Proc.* 2021, 11153. doi: 10.5465/AMBPP.2021.11153abstract

Burton, R. M., Håkonsson, D. D., Nickerson, J., Puranam, P., Workiewicz, M., and Zenger, T. (2017). GitHub: exploring the space between boss-less and hierarchical forms of organizing. *J. Organizat. Desig.* 6, 1–19. doi: 10.1186/s41469-017-0020-3

Cable, D. M., and DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *J. Appl. Psychol.* 87, 875. doi: 10.1037/0021-9010.87.5.875

Caniëls, M. C. J., and Baaten, S. M. J. (2019). How a learning-oriented organizational climate is linked to different proactive behaviors: the role of employee resilience. *Soc. Indic. Res.* 143, 561–577. doi: 10.1007/s11205-018-1996-y

Chen, C.-Y., Yen, C.-H., and Tsai, F. C. (2014). Job crafting and job engagement: the mediating role of person-job fit. *Int. J. Hospital. Manag.* 37, 21–28. doi: 10.1016/j.ijhm.2013.10.006

Cheung, G. W. (2009). Introducing the latent congruence model for improving the assessment of similarity, agreement, and fit in organizational research. *Organ. Res. Methods* 12, 6–33. doi: 10.1177/1094428107308914

Chung, G. S. K., Chan, X. W., Lanier, P., and Wong, P. Y. J. (2023). Associations between work-family balance, parenting stress, and marital conflicts during COVID-19 pandemic in Singapore. *J. Child Fam. Stud.* 32, 132–144. doi: 10.1007/s10826-022-02490-z

Chung-Yan, G. A. (2010). The nonlinear effects of job complexity and autonomy on job satisfaction, turnover, and psychological well-being. *J. Occup. Health Psychol.* 15, 237–251. doi: 10.1037/a0019823

Clausen, T., Pedersen, L. R. M., Andersen, M. F., Theorell, T., and Madsen, I. E. (2022). Job autonomy and psychological well-being: A linear or a non-linear association? *Eur. J. Work Organizat. Psychol.* 31, 395–405. doi: 10.1080/1359432X.2021.1972973

Clogg, C. C., Petkova, E., and Haritou, A. (1995). Statistical methods for comparing regression coefficients between models. *Am. J. Sociol.* 100, 1261–1293. doi: 10.1086/230638

Conway, J. M., and Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *J. Bus. Psychol.* 25, 325–334. doi: 10.1007/s10869-010-9181-6

Corbett-Etchevers, I., Perea, C., Richard, D., Colle, R., and Defélix, C. (2019). Freedom-form organisations, innovation and quality of work life: towards a new model of interaction. *Int. J. Technol. Manag.* 79, 345–365. doi: 10.1504/IJTM.2019.099609

Dahlin, K. B., Chuang, Y.-T., and Roulet, T. J. (2018). Opportunity, motivation, and ability to learn from failures and errors: review, synthesis, and ways to move forward. *Acad. Manag. Ann.* 12, 252–277. doi: 10.5465/annals.2016.0049

Demerouti, E. (2014). Design your own job through job crafting. *Eur. Psychol.* 19, 237–247. doi: 10.1027/1016-9040/a000188

Dettmers, J., and Bredehöft, F. (2020). The ambivalence of job autonomy and the role of job design demands. *Scand. J. Work Organ. Psychol.* 8, 1–13. doi: 10.16993/sjwop.81

Doblinger, M. (2021). Individual competencies for self-managing team performance: a systematic literature review. *Small Group Res.* 53, 104649642110411. doi: 10.1177/10464964211041114

Doblinger, M. (2023). *Ready for Self-Management? A Model of Individual Competencies to Work in Self-Managing Organizations*.

Doblinger, M., and Class, J. (2023). Does it fit? The relationships between personality, decision autonomy fit, work engagement, and emotional exhaustion in self-managing organizations. *Int. J. Select Assessm*. doi: 10.1111/ijsa.12440

Dust, S. B., and Tims, M. (2020). Job crafting via decreasing hindrance demands: the motivating role of interdependence misfit and the facilitating role of autonomy. *Appl. Psychol.* 69, 881–912. doi: 10.1111/apps.12212

Edmondson, A. C., and Lei, Z. (2014). Psychological safety: the history, renaissance, and future of an interpersonal construct. *Annu. Rev. Organ. Psychol. Organ. Behav.* 1, 23–43. doi: 10.1146/annurev-orgpsych-031413-091305

Edwards, J. R. (2001). Ten difference score myths. *Organ. Res. Methods* 4, 265–287. doi: 10.1177/109442810143005

Edwards, J. R. (2009). Latent variable modeling in congruence research. *Organ. Res. Methods* 12, 34–62. doi: 10.1177/1094428107308920

Edwards, J. R., Caplan, R. D., and Harrison, R. V. (1998). "Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research," in *Theories of Organizational Stress,* Cooper, C. L. (ed.). Oxford: OUP Oxford, 28–67.

Edwards, J. R., and Rothbard, N. P. (1999). Work and family stress and well-being: An examination of person-environment fit in the work and family domains. *Organ. Behav. Hum. Decis. Process.* 77, 85–129. doi: 10.1006/obhd.1998.2813

Farnese, M. L., Fida, R., and Picoco, M. (2020). Error orientation at work: Dimensionality and relationships with errors and organizational cultural factors. *Curr. Psychol.* 9, 339. doi: 10.1007/s12144-020-00639-x

Fischer, I. (2021). "Errors in organizations: the impact of error orientation on work-related personal development," in *Geprüft am Original*.

Ford, M. T. (2012). Job-occupation misfit as an occupational stressor. *J. Vocat. Behav.* 80, 412–421. doi: 10.1016/j.jvb.2011.10.004

Fox, J., and Weisberg, S. (2019). *An R Companion to Applied Regression, 3rd Edn*. Sage Publications. Available online at: https://socialsciences.mcmaster.ca/jfox/Books/Companion/

Gu, Q., Wang, G. G., and Wang, L. (2013). Social capital and innovation in RandD teams: the mediating roles of psychological safety and learning from mistakes. *Randd Manag.* 43, 89–102. doi: 10.1111/radm.12002

Hackman, J. R., and Oldham, G. R. (1975). Development of the job diagnostic survey. *J. Appl. Psychol.* 60, 159. doi: 10.1037/h0076546

Harteis, C., Bauer, J., and Gruber, H. (2008). The culture of learning from mistakes: how employees handle mistakes in everyday work. *Int. J. Educ. Res.* 47, 223–231. doi: 10.1016/j.ijer.2008.07.003

Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., and Yuen, T. (2011). What is resilience? *Can. J. Psychiat.* 56, 258–265. doi: 10.1177/070674371105600504

Higgins, E. T. (1997). Beyond pleasure and pain. *Am. Psychol.* 52, 1280. doi: 10.1037/0003-066X.52.12.1280

Hobfoll, S. E., Johnson, R. J., Ennis, N., and Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *J. Personality Social Psychol.* 84, 632–643. doi: 10.1037/0022-3514.84.3.632

Javed, B., Jalees, T., Herani, G. M., and Rolle, J. A. (2020). Moderated mediation model linking error management culture to organizational performance. *Bus. Manag. Rev.* 11, 159–170. doi: 10.24052/BMR/V11NU01/ART-17

Kaushik, M., and Guleria, N. (2020). *The impact of pandemic COVID−19 in workplace*. European Journal of Business and Management. Advance online publication.

Keith, N., and Frese, M. (2008). Effectiveness of error management training: a meta-analysis. *J. Appl. Psychol.* 93, 59. doi: 10.1037/0021-9010.93.1.59

Kim, H., Im, J., and Qu, H. (2018). Exploring antecedents and consequences of job crafting. *Int. J. Hospitality Manag.* 75, 18–26. doi: 10.1016/j.ijhm.2018.02.014

Kira, M., Balkin, D. B., and San, E. (2012). Authentic work and organizational change: Longitudinal evidence from a merger. *J. Change Manag.* 12, 31–51. doi: 10.1080/14697017.2011.652374

Kira, M., van Eijnatten, F. M., and Balkin, D. B. (2010). Crafting sustainable work: development of personal resources. *J. Org. Change Manag.* 23, 616–632. doi: 10.1108/09534811011071315

Kooij, D. T. A. M., van Woerkom, M., Wilkenloh, J., Dorenbosch, L., and Denissen, J. J. A. (2017). Job crafting towards strengths and interests: The effects of a job crafting intervention on person-job fit and the role of age. *J. Appl. Psychol.* 102, 971–981. doi: 10.1037/apl0000194

Kovacs, C., Stiglbauer, B., Batinic, B., and Gnambs, T. (2018). Exploring different forms of job (dis)satisfaction and their relationship with well-being, motivation and performance. *Appl. Psychol.* 67, 523–556. doi: 10.1111/apps.12128

Kristof-Brown, A. L., Zimmerman, R. D., and Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Pers. Psychol.* 58, 281–342. doi: 10.1111/j.1744-6570.2005.00672.x

Kubicek, B., Korunka, C., and Tement, S. (2014). Too much job control? Two studies on curvilinear relations between job control and eldercare workers' wellbeing. *Int. J. Nursing Stud.* 51, 1644–1653. doi: 10.1016/j.ijnurstu.2014.05.005

Laloux, F. (2014). *Reinventing Organizations: A Guide to Creating Organizations Inspired by the Next Stage in Human Consciousness*. Toronto: Nelson Parker.

Lam, B. (2016). *Why Are so many Zappos Employees Leaving? The Atlantic*. Available online at: https://www.theatlantic.com/business/archive/2016/01/zappos-holacracy-hierarchy/424173/ (accessed August 01, 2022).

Lee, M. Y., and Edmondson, A. C. (2017). Self-managing organizations: exploring the limits of less-hierarchical organizing. *Res. Organizational Behav.* 37, 35–58. doi: 10.1016/j.riob.2017.10.002

Leiner, D. J. (2019). Too fast, too straight, too weird: non-reactive indicators for meaningless data in internet surveys. *Surv. Res. Methods* 13, 229–248. doi: 10.18148/srm/2019.v13i3.7403

Leslie-Miller, C. J., Cole, V. T., and Waugh, C. E. (2023). Positive distraction in daily activities as a predictor of good coping: a 'day in the life' during the COVID-19 pandemic. *Front. Psychol.* 14, 1142665. doi: 10.3389/fpsyg.2023.1142665

Lichtenthaler, P. W., and Fischbach, A. (2016). Promotion- and prevention-focused job crafting: A theoretical extension and meta- analytical test. *Acad. Manag. Proc.* 2016, 10818. doi: 10.5465/ambpp.2016.10818abstract

Lichtenthaler, P. W., and Fischbach, A. (2019). A meta-analysis on promotion- and prevention-focused job crafting. *Eur. J. Work. Organ. Psychol.* 28, 30–50. doi: 10.1080/1359432X.2018.1527767

Loh, V., Andrews, S., Hesketh, B., and Griffin, B. (2013). The moderating effect of individual differences in error-management training: who learns from mistakes? *Hum. Factors* 55, 435–448. doi: 10.1177/0018720812451856

Lyons, P. (2008). The crafting of jobs and individual differences. *J. Bus. Psychol.* 23, 25–36. doi: 10.1007/s10869-008-9080-2

Maier, E. (2013). *Case Study: Valve's Flat Hierarchy isn't for Everyone. Inc.* Available online at: https://www.inc.com/em-maier/i-drank-the-koolaid-valve-flat-management.html (accessed November 15, 2022).

Martela, F. (2019). What makes self-managing organizations novel? Comparing how Weberian bureaucracy, Mintzberg's adhocracy, and self-organizing solve six fundamental problems of organizing. *J. Org. Design.* 8, 215–238. doi: 10.1186/s41469-019-0062-9

Maurer, M., Bach, N., and Oertel, S. (2022). Forced to go virtual. Working-from-home arrangements and their effect on team communication during COVID-19 lockdown. *German J. Human Res. Manag.* 26, 23970022221083698. doi: 10.1177/23970022221083698

Metcalfe, J. (2017). Learning from errors. *Annu. Rev. Psychol.* 68, 465–489. doi: 10.1146/annurev-psych-010416-044022

Moe, N. B., Šmite, D., Paasivaara, M., and Lassenius, C. (2021). Finding the sweet spot for organizational control and team autonomy in large-scale agile software development. *Empirical Software Eng.* 26, 5. doi: 10.1007/s10664-021-09967-3

Moreira, A., Encarnação, T., Viseu, J., and Sousa, M. J. (2022). Job crafting and job performance: the mediating effect of engagement. *Sustainability.* 14, 14909. doi: 10.3390/su142214909

Morgeson, F. P., and Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *J. Appl. Psychol.* 91, 1321–1339. doi: 10.1037/0021-9010.91.6.1321

Morrow, R., and Brough, P. (2019). 'It's off to work we go!' Personenvironment fit and turnover intentions in managerial and administrative mining personnel. *Int. J. Occup. Saft. Ergonom.* 25, 467–475. doi: 10.1080/10803548.2017.1396028

Muecke, S., Linderman-Hill, K., and Greenwald, J. M. (2020). Linking job autonomy to work engagement: The mediating role of challenge demands. *Acad. Manag. Proc.* 2020, 13553. doi: 10.5465/AMBPP.2020.13553abstract

O'Reilly III, C. A., Chatman, J., and Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Acad. Manag. J.* 34, 487–516.

Petrou, P., Demerouti, E., Peeters, M. C. W., Schaufeli, W. B., and Hetland, J. (2012). Crafting a job on a daily basis: contextual correlates and the link to work engagement. *J. Organ. Behav.* 33, 1120–1141. doi: 10.1002/job.1783

Pfeffer, J. (2010). Building sustainable organizations: the human factor. *Acad. Manag. Perspect.* 24, 34–45. doi: 10.5465/AMP.2010.50304415

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., and Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88, 879–903. doi: 10.1037/0021-9010.88.5.879

Podsakoff, P. M., MacKenzie, S. B., and Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annu. Rev. Psychol.* 63, 539–569. doi: 10.1146/annurev-psych-120710-100452

Prolific (2022). *[Computer software]. Prolific. London, UK*. Available online at: https://www.prolific.com (accessed June 07, 2022).

Puranam, P., and Håkonsson, D. D. (2015). Valve's way. *J. Organizat. Desig.* 4, 2–4. doi: 10.7146/jod.20152

Putz, D., Schilling, J., Kluge, A., and Stangenberg, C. (2013). Measuring organizational learning from errors: development and validation of an integrated model and questionnaire. *Manag. Learn.* 44, 511–536. doi: 10.1177/1350507612444391

R Core Team. (2022). *R (Version 4.0.2) [Computer software]. The R Foundation for Statistical Computing*. Available online at: https://cloud.r-project.org/ (accessed February 15, 2023).

Reitzig, M. (2022). How to get better at flatter designs: considerations for shaping and leading organizations with less hierarchy. *J. Organizat. Design.* 11, 5–10. doi: 10.1007/s41469-022-00109-7

Roose, W. (2018). *Do Intrapreneurs Learn from Their Mistakes?* Ghent: Ghent University.

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *J. Stat. Softw.* 48, 1–36. doi: 10.18637/jss.v048.i02

Rudolph, C. W., Katz, I. M., Lavigne, K. N., and Zacher, H. (2017). Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes. *J. Vocat. Behav.* 102, 112–138. doi: 10.1016/j.jvb.2017.05.008

Rybowiak, V., Garst, H., Frese, M., and Batinic, B. (1999). Error orientation questionnaire (EOQ): reliability, validity, and different language equivalence. *J. Organ. Behav.* 20, 527–547. doi: 10.1002/(SICI)1099-1379(199907)20:4<527::AID-JOB886>3.0.CO;2-G

Schaufeli, W. B., Shimazu, A., Hakanen, J., Salanova, M., and Witte, H., de (2019). An ultra-short measure for work engagement. *Eur. J. Psychol. Assessm.* 35, 577–591. doi: 10.1027/1015-5759/a000430

Schaufeli, W. B., and Taris, T. W. (2014). "A critical review of the job demands-resources model: implications for improving work and health," in *Bridging Occupational, Organizational and Public Health*, Bauer, G. F., and Hämmig, O. (eds.). Berlin: Springer, 43–68.

Schell, S., and Bischof, N. (2022). Change the way of working. Ways into self-organization with the use of Holacracy: an empirical investigation. *Eur. Manag. Rev.* 19, 123–137. doi: 10.1111/emre.12457

Schneider, B., Goldstiein, H. W., and Smith, D. B. (1995). The ASA framework: an update. *Pers. Psychol.* 48, 747–773. doi: 10.1111/j.1744-6570.1995.tb01780.x

Schönbrodt, F. D., and Humberg, S. (2023). *RSA: An R Package for Response Surface Analysis (Version 0.10.6)*. Available online at: https://cran.r-project.org/package=RSA

Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., and Heggestad, E. D. (2010). Polynomial regression with response surface analysis: a powerful approach for examining moderation and overcoming limitations of difference scores. *J. Bus. Psychol.* 25, 543–554. doi: 10.1007/s10869-010-9183-4

Shirmohammadi, M., Au, W. C., and Beigi, M. (2022). Remote work and work-life balance: lessons learned from the covid-19 pandemic and suggestions for HRD practitioners. *Human Res. Dev. Int.* 25, 163–181. doi: 10.1080/13678868.2022.2047380

Siemsen, E., Roth, A., and Oliveira, P. (2010). Common method bias in regression models with linear, quadratic, and interaction effects. *Organ. Res. Methods* 13, 456–476. doi: 10.1177/1094428109351241

Spiegelaere, S., de, van Gyes, G., and van Hootegem, G. (2016). Not all autonomy is the same. Different dimensions of job autonomy and their relation to work engagement and innovative work behavior. *Hum. Factors Ergon. Manuf.* 26, 515–527. doi: 10.1002/hfm.20666

Stegmann, S., van Dick, R., Ullrich, J., Charalambous, J., Menzel, B., Egold, N., and Wu, T. T.-C. (2010). Der work design questionnaire. *Zeitschrift Für Arbeits-Und Organisationspsychologie AandO*. 54, 1–28. doi: 10.1026/0932-4089/a000002

Stiglbauer, B., and Kovacs, C. (2018). The more, the better? Curvilinear effects of job autonomy on well-being from vitamin model and PE-fit theory perspectives. *J. Occup. Health Psychol.* 23, 520–536. doi: 10.1037/ocp0000107

Su, R., Zhang, Q., Liu, Y., and Tay, L. (2019). Modeling congruence in organizational research with latent moderated structural equations. *J. Appl. Psychol.* 104, 1404–1433. doi: 10.1037/apl0000411

Tims, M., and Bakker, A. B. (2010). Job crafting: towards a new model of individual job redesign. *SA J. Industrial Psychol.* 36, 1–9. doi: 10.4102/sajip.v36i2.841

Tims, M., Bakker, A. B., and Derks, D. (2012). Development and validation of the job crafting scale. *J. Vocat. Behav.* 80, 173–186. doi: 10.1016/j.jvb.2011.05.009

Tims, M., Bakker, A. B., and Derks, D. (2013). The impact of job crafting on job demands, job resources, and well-being. *J. Occup. Health Psychol.* 18, 230–240. doi: 10.1037/a0032141

Tims, M., Derks, D., and Bakker, A. B. (2016). Job crafting and its relationships with person–job fit and meaningfulness: a three-wave study. *J. Vocat. Behav.* 92, 44–53. doi: 10.1016/j.jvb.2015.11.007

Tjosvold, D., and Yu, Z. (2007). Group risk taking. *Group Organizat. Manag.* 32, 653–674. doi: 10.1177/1059601106287110

van Dyck, C., Frese, M., Baer, M., and Sonnentag, S. (2005). Organizational error management culture and its impact on performance: a two-study replication. *J. Appl. Psychol.* 90, 1228–1240. doi: 10.1037/0021-9010.90.6.1228

van Wingerden, J., Bakker, A. B., and Derks, D. (2017). The longitudinal impact of a job crafting intervention. *Eur. J. Work. Organ. Psychol.* 26, 107–119. doi: 10.1080/1359432X.2016.1224233

Vogel, R. M., Rodell, J. B., and Lynch, J. W. (2016). Engaged and productive misfits: How job crafting and leisure activity mitigate the negative effects of value incongruence. *Acad. Manag. J.* 59, 1561–1584. doi: 10.5465/amj.2014.0850

Vogt, K., Hakanen, J. J., Brauchli, R., Jenny, G. J., and Bauer, G. F. (2016). The consequences of job crafting: a three-wave study. *Eur. J. Work. Organ. Psychol.* 25, 353–362. doi: 10.1080/1359432X.2015.1072170

Wang, H., Demerouti, E., and Bakker, A. B. (2017). "A review of job crafting research," in *Organization and Management Series. Proactivity at Work: Making Things Happen in Organizations*, Parker, S. K., and Bindl, U. K. (eds.). London: Routledge, 77–104.

Wei, X., and Hisrich, R. D. (2016). Error orientation and entrepreneurial decision making in Chinese enterprises: opportunity identification as mediator. *Social Behav. Personal.* 44, 555–568. doi: 10.2224/sbp.2016.44.4.555

Wrzesniewski, A., and Dutton, J. E. (2001). Crafting a job: revisioning employees as active crafters of their work. *Acad. Manag. Rev.* 26, 179–201. doi: 10.2307/259118

Xanthopoulou, D., Bakker, A. B., Demerouti, E., and Schaufeli, W. B. (2009). Work engagement and financial returns: a diary study on the role of job and personal resources. *J. Occup. Organ. Psychol.* 82, 183–200. doi: 10.1348/096317908X285633

Xanthopoulou, D., Bakker, A. B., Dollard, M. F., Demerouti, E., Schaufeli, W. B., Taris, T. W., and Schreurs, P. J. (2007). When do job demands particularly predict burnout? *J. Manag. Psychol.* 22, 766–786. doi: 10.1108/02683940710837714

Zhang, F., and Parker, S. K. (2019). Reorienting job crafting research: a hierarchical structure of job crafting concepts and integrative review. *J. Organ. Behav.* 40, 126–146. doi: 10.1002/job.2332

Manuscript 4

Doblinger, M. (2023). Ready for self-management? Individual competencies in self-managing organizations.

Abstract

Self-managing organizations (SMOs), which radically decentralize authority, can facilitate agile project management (APM). However, they also confront employees with new demands. Therefore, this work investigated important individual competencies in SMOs. Using critical incidents and concept mapping, interviews with SMO employees identified 21 competencies, such as self-reflection, assuming responsibility, self-leadership, and learning from mistakes. Critical incidents showed how they were interlocked with the organizational self-management principles, demonstrating the necessary individual behavioral adaption. The findings add to agile project management practice by identifying individual competencies required in the APM-facilitating SMOs and guiding agile project coaches regarding training or selecting project members in self-managed environments.

Ready for Self-management? Individual Competencies in Self-managing Organizations

The novel organizational form of *self-managing organization* (SMO), which radically decentralizes authority formally and systematically throughout the organization (Lee & Edmondson, 2017), promises to speed up decisions and foster agility (Ackermann et al., 2021; Laloux, 2014; Martela, 2019; Schell & Bischof, 2022). It raised the practitioners' and scholars' interest in the recent past (Burton et al., 2017; Hamel, 2011; Laloux, 2014; Puranam et al., 2014) due to its revolutionary principles of organizing (Martela, 2019), but also because its decentralized authority structure provides enabling conditions for agile project management (APM; Almeida et al., 2012; Conforto et al., 2014; Schell & Bischof, 2022). APM is currently a popular way of managing projects and refers to a more flexible approach toward product development that is adaptable to the environment's contingencies (Ciric Lalic et al., 2022; Conforto et al., 2014) and, thus, can increase competitiveness in a volatile, uncertain, and complex business environment (Boden, 2017). However, many organizations see deficiencies regarding skills and organizational culture as barriers to APM, particularly when implementing it in organizations typically using classic project management (Ciric et al., 2019). By decentralizing decision authority, SMOs provide an organizational environment that can benefit agile project management (Almeida et al., 2012; Conforto et al., 2014; Lappi et al., 2018; Saynisch, 2010). APM is conceptually different from SMOs as APM focuses on managing projects or teams using iterative approaches and specific agile frameworks and limits the scope to projects. In turn, SMOs focus on creating an organization providing teams and individuals with high autonomy and accountability, but they are not limited per se to agile frameworks and methods (Martela, 2019). However, APM and SMOs do have beneficial commonalities, including adaptability, team and individual-level autonomy and responsibility,

collaboration, customer focus, people centricity, continuous improvement, and results orientation (Fernandez & Fernandez, 2008; Lee & Edmondson, 2017; Martela, 2019; Petermann & Zacher, 2021). Hence, SMOs provide a fertile environment for APM by implementing several agile principles organization-wide.

The organizational changes made by SMOs also affect the requirements for the employees (also within agile projects), for instance, handling the increased decision autonomy while sufficiently aligning with colleagues. Thus, the employees require, among others, the right competencies to perform within SMOs; otherwise, undesired consequences like employee turnover may follow (Lam, 2016). Therefore, the current work aims to identify the relevant competencies in SMOs. Although this research question primarily contributes to the literature on SMOs, the outcomes also inform APM practice: SMOs have the potential to foster the success of APM by providing an organizational context fostering the principles of APM, but therefore, the SMO-relevant competencies also need to be considered by APM practitioners.

The Research Gap

There are numerous competency models with different purposes and application contexts, including a range from job-specific models to common-competency models, such as project management, teamwork, managerial, or digitalization competencies (Boyatzis, 1982; International Project Management Association, 2015; Mansfield, 1996; Oberländer et al., 2020; Stevens & Campion, 1994). However, applying an existing model is insufficient, as to yield a benefit, competencies must match the unique work environment's requirements (Boyatzis, 2008; Kristof-Brown et al., 2005; Kurz & Bartram, 2002). Thus far, little is known about competencies in SMOs. Martela (2019) showed that the SMO's organizational

principles differ from those of other organizational forms and are vulnerable to being undermined (Reitzig, 2022). Prior research has already identified single, relevant competencies in SMOs. Corbett-Etchevers et al.'s (2019) case study identified *curiosity* and *the motivation to step out of one's comfort zone and learn* as employee selection criteria. Dettmers and Bredehöft (2020) identified the need to *design one's job actively* in case of high job autonomy. Schell and Bischof (2022) found *self-leadership*, *conflict management*, *applying specific organizational principles*, *learning self-reliantly,* and *accepting responsibility* important in newly established SMOs. Reitzig (2022) proposed the *need for achievement*, *conscientiousness*, *cognitive abilities*, *proactiveness*, *agreeableness*, *honesty,* and *humbleness* as attributes that let employees thrive in SMOs. A systematic literature review also showed that assuming responsibility, acting *on one's own initiative*, *supporting others*, or *adapting to the team* were relevant individual competencies in self-managing teams (Doblinger, 2021).

Despite those insights regarding competencies, the field still lacks a comprehensive picture of important competencies in SMOs. This is needed to address the competencies in an efficient, targeted way and thus improve organizational performance and enable APM in SMOs.

Individual Competencies and Person-environment Fit

"A competency is defined as a capability or ability. It is a set of related but different sets of behavior organized around an underlying construct, […] the "intent". The behaviors are alternate manifestations of the intent, as appropriate in various situations or times." (Boyatzis, 2008, p. 6). Individual competencies showed their validity and benefit for human resource

management practices, and competencies became popular among practitioners (e.g., Campion et al., 2011; Krumm et al., 2012; Kurz & Bartram, 2002).

Research and practice came up with a variety of competency models with different abstraction levels and focus, such as project management, teamwork, managerial, or digitalization competencies (Boyatzis, 1982; International Project Management Association, 2015; Mansfield, 1996; Oberländer et al., 2020; Stevens & Campion, 1994). The diversity of competency models brought the challenge of alignment (Nijhuis et al., 2018), but empirically based competency taxonomies support developing new models aligned with previous work. Kurz and Bartram (2002) developed such a taxonomy with eight competency clusters into which every individual competency could be sorted (Bartram, 2005): (1) *Leading and deciding* included competencies related to exercising control and leadership but also initiating acting and assuming responsibility. (2) *Supporting and cooperating* included collaborative behavior, people focus, and behavioral consistency with personal and organizational values. (3) *Interacting and presenting* included effective communication, relating with others, and influencing others. (4) *Analyzing and interpreting* contained analyzing, understanding complex problems, and applying expertise. (5) *Creating and conceptualizing* contained handling new ideas, learning, change, and creative thinking. (6) *Organizing and executing* contained planning, following instructions, and delivering results. (7) *Adapting and coping* included handling change, pressure, and setbacks. (8) *Enterprising and performing* included achieving objectives, career development, and business administration (Bartram, 2005). These clusters were related to overall job performance (Bartram, 2005). Based on these eight clusters, Bartram (2005) described a universal, work-related competency framework that

further distinguishes 20 competencies and 120 subcompetencies, helping to identify job-specific competencies.

Importantly, besides the individual-level competencies, competencies can also exist at the team and organizational levels, relating to organizational and team effectiveness (Escrig-Tena & Bou-Llusar, 2005; Krumm et al., 2012; Mathieu et al., 2014). Nonetheless, this paper focuses on individual competencies as they were affected by the SMO principles (Bischof, 2019; Lee & Edmondson, 2017; Reitzig, 2022) and can help increase person-environment fit through personnel development and selection (Campion et al., 2011; Mansfield, 1996). Person-environment theory suggests that person-environment fit, the "compatibility between an individual and a work environment that occurs when their characteristics are well matched" (Kristof-Brown et al., 2005), reduces stress and turnover and increases organizational commitment, work engagement, and performance (Edwards et al., 1998; Kristof-Brown et al., 2005). Several different types of person-environment fit exist (Barrick & Parks-Leduc, 2019; Edwards & Rothbard, 1999; Kristof-Brown et al., 2005), and this paper focuses on the fit between the environment's demands and the person's abilities, as SMOs implement several self-management practices that also imply specific demands at the individual level due to changing job-characteristics.

Processes and Structures in SMOs Affecting Individual Competencies

SMOs apply different organizational principles (Martela, 2019), which also bring changes at the team and individual levels. SMOs decentralize authority throughout the organization, and every employee holds a specific decision authority, which cannot be superseded by any manager (Lee & Edmondson, 2017). The hierarchical reporting relationship between manager and subordinate, the key control mechanism in most organizations, is eliminated. Task

division occurs bottom-up and top-down, and performance monitoring and accountability occur among the employees; explicit conflict resolution mechanisms help resolve conflicts and combat free-riding effectively. Vital information is transparent to enable every employee to make decisions in the interest of the whole organization. Additionally, SMOs are often based on self-managing teams practicing agile project management (Dikert et al., 2016; Edison et al., 2021; Petermann & Zacher, 2020). Alternative leadership and coordination forms occur at the team or project level, such as project staffing based on self-selection or peer assessment processes, which must be considered in project management (Foss & Dobrajska, 2015).

Conclusively, various essential principles distinguish SMOs from other organizations with a more centralized decision authority structure, and thus, SMOs provide a specific work environment that differs from those of other organizational forms (Getz, 2009; Lee & Edmondson, 2017; Martela, 2019). In any case, to make decentralized authority structures beneficial to organizational agility through faster and better decisions, changed employee behavior as an answer to the empowering structures is essential (Lee & Edmondson, 2017; Petermann & Zacher, 2020; Schell & Bischof, 2022; Spreitzer, 2008).

Nykodym et al. (1994) described several potential pitfalls related to initiatives of partial authority distribution. For instance, too many options to choose from due to the enhanced decision authority can be frustrating and exhausting (Edwards & Rothbard, 1999; Ford, 2012; Stiglbauer & Kovacs, 2018), intrateam communication can be dishonest, or formal and former hierarchy differences can endanger collaboration at eye level in project teams, thus threatening the base for APM. Research on person-environment fit showed the

need for suitable autonomy levels, but what is suitable depends, among others, on individual competencies.

Research Question, Design, and Contribution

Consequently, this paper aimed to develop a model of competencies important for the individual's fit into SMOs and, thus, their ability to perform and thrive in SMOs. To this end, a threefold qualitative approach, including an indirect and direct assessment of competencies and their comparison, was taken based on semi-structured interviews with employees of different SMOs. Based on the interviews with SMO employees, 21 competencies were identified and described based on the related critical incidents. The paper offers a competency model for work in SMOs that advances the theory on SMOs and helps practitioners to develop employees in SMOs systematically and foster the potential of SMOs as enablers for APM.

After this introduction, the method section follows, including details on the sample, the interview procedure, methods, and analysis. Subsequently, the results section presents the competencies, definitions, example behaviors, and related critical incidents. Eventually, the implications, relations with prior literature, limitations, and future research will be discussed and followed by the conclusion.

Method

Semi-structured interviews were conducted to explore the full range of individual competencies required for working in SMOs. The interviews relied on a twofold approach recommended for behavior taxonomies (McClelland, 1998; Petermann & Zacher, 2021; Pulakos et al., 2000). The critical incident technique (CIT; Flanagan, 1954) and concept mapping (CM; Trochim, 1989) were combined to assess the competencies from different

perspectives. The CIT method allows for an indirect and detailed approach toward competencies by focusing on real-world behaviors in critical incidents, enabling a contextual, micro-level deduction of competencies. In turn, the CM technique is a direct approach toward identifying competencies and allows for gathering the employees' perceptions and evaluations and detecting a structure within the mentioned competencies. Combining both methods reduces the risk of a biased perception resulting from a merely direct approach while the perception of the involved persons is still considered, which facilitates a comprehensive picture of necessary competencies in SMOs.

Participants and Procedure

The sample included 25 employees from nine different SMOs, all located in the DACH region and Portugal (due to accessibility reasons; Table 1 presents participant details; Table 2 presents SMO case details). An online search for organizations claiming to live the principles of SMOs identified the participant organizations. The search aimed to find SMOs from different sectors and of different sizes. Most organizations were spotted through blog articles and podcast interviews. Additional pre-interviews based on an SMO-characteristics checklist (Martela, 2019) with potential participants ensured that the organizations were indeed SMOs and that all participants had experience regarding organizational self-management. As Krumm et al. (2012) recommended, the sample composition was optimized for representativeness: The sample was diverse regarding sectors, types of managerial responsibility, job areas, and previous work experience. Job areas included sales, software, human resources management, engineering, marketing, consulting, and care.

Interviews occurred partly in person and partly online via video calls from December 2019 to August 2020. Interviews were all conducted personally by the author in a trustful

setting where only the participant and the author attended, and informed consent was gathered beforehand. After providing a definition of SMOs, introducing the critical incident method, and defining and explaining a critical incident, the participants were asked to report at least three incidents that were particularly critical for their performance in the organization in either a positive or a negative way in the recent past. Participants were asked to focus on critical incidents related to the SMO context and probably would have differed in other contexts. The interviewer supported the interviewee in creating valid critical incidents through additional questions on details, such as preceding behaviors, important factors, feelings, or thoughts in the situation, as Chell (2004) recommended. The interviewer wrote down the formulated critical incidents and confirmed the validity of the recording with the interviewee (as suggested by Flanagan, 1954; Gremler, 2004; Petermann & Zacher, 2021). Subsequently, the interviewee was asked, "which competencies are important to work and perform in a self-managing organization?", resulting in a list of several ideas. In the end, participants were asked for any other relevant addition, and socio-demographic information was collected. The entire interviews took between 45 and 90 minutes and covered $M = 8.75$ ($SD = 3.50$) incidents and $M = 11.05$ ($SD = 4.10$) brainstorming ideas.

Table 1

Sample Characteristics

Sample Size N	25
Age range in years	24 – 56
> 40 years	21
Male gender	17
Work experience	
> 3 years	25
> 5 years	22
Work experience in SMOs	
> 3 years	17
> 5 years	4
Any managerial responsibility	17
Managing director	4
Technical leadership	10
Processual leadership	3

Note. Units for all categories are participants, except for age range.

Table 2

SMO Characteristics

No.	Head-count	Years as SMO	Org. age	SMO system	Business sector	Other information
1	350	5	5	Holacracy	Software development for online sales	A subsidiary of an OEM corporation
2	70	8	10	Free, organic form without formalized organigram	Digital marketing	The organization started as SMO, became less self-managed, and then returned again to full self-management
3	40	3	55	Free form	Engineering	SMO is part of a greater organization
4	2200	2		Holacracy	FinTech	Part of a business group with other SMOs
5	100	3	19	Free form based on circles	Health care	
6	800		18	Free form	Software Development	
7	95	< 5	< 50	Free form based on circles	Electronic components	
8	3	3	3	Free, organic form without formalized organigram	Consulting	Consulting and coaching of organizations introducing Holacracy
9	580	3	20	Free form	Online sales	

Critical Incidents Technique

The CIT requires interviewees to report critical incidents, their related behaviors, and the context of these incidents. "An incident is critical if it makes a 'significant' contribution, either positively or negatively, to the general aim of the activity" (Flanagan, 1954, p. 338). The CIT-based approaches showed their validity for the identification of behaviors in general (for instance, Bitner et al., 1994; Chell, 1998; Gremler, 2004) and competencies in specific, for instance, in the areas of management, specialists, or health sector employees (for instance, Ekaterini, 2011; Patterson et al., 2000; Turley & Bieman, 1995). For our research question, the analysis aimed to identify the underlying competencies of manifested behaviors in critical situations in SMOs and, thus, deduct important competencies in SMOs.

Incidents reported were considered valid when they (1) were critical (positive or negative) for the individual performance of the interviewees themselves, for a close colleague, or their team; (2) by extension, related to SMO conditions; (3) included the outcome-relevant behaviors; (4) provided sufficient detail to be understood by others. After data collection, the author cleaned the recorded incidents by excluding those missing these criteria. The focus was on maintaining as much content as possible to avoid improper influence on the results while ensuring interpretable and relevant incidents. In total, 15 incidents were excluded, and 195 entered the analyses.

A deductive-inductive approach (Kuckartz, 2018; Pulakos et al., 2000) toward data analysis was taken to yield a sufficiently customized but comparable, comprehensive model at once. Firstly, a category system of eight competency clusters based on the taxonomy by Kurz and Bartram (2002) and Bartram (2005) was defined (see Table 3). Secondly, three organizational and industrial psychologists (thereafter coders) with prior experience in competency modeling (required to identify the underlying concepts of behaviors and find the

right abstraction level; Krumm et al., 2012) categorized the data accordingly. Afterward, the category definitions were discussed and adapted accordingly. Then, subcategories within the previously appointed categories were built (Kuckartz, 2018). Based on the first 50 incidents, the three coders individually found and assigned codes less abstract to the incidents. They oriented toward the universal competency framework (Bartram, 2005) and used the proposed subcompetencies as an orientation for the abstraction level. Afterward, the results were jointly discussed and refined and the coders agreed on the final list of 60 category codes. Then, two further psychologists and the initial coders coded all incidents. After discussion, all coders agreed on a final solution. In order to complement the picture built up by the CIT approach, concept mapping was used in the second step to include another perspective, which is described in the following section.

Table 3

Coding Scheme of Competency Clusters as High-level Categories

Competency domain title	**Competency domain definition**	**Application** The category is assigned, for instance, in the case of behaviors of…	**Application example**	**Differentiation** The category is not assigned in the case of behaviors of…
Leading and deciding	Includes competencies of showing initiative and leadership. Initiating action, providing feedback, and taking responsibility.	- acting as a role model - coaching others - making decisions - showing initiative	- wanting to take responsibility for tasks, in small teams, you can afford fewer "implementers only"	- operatively planning and organizing - supporting others operatively - presenting - negotiating
Supporting and cooperating	Includes competencies of supporting and appreciating others. Having a people-centric mindset and working effectively with other people.	- showing cooperation with others - adapting to the team - showing appreciation for others	- being generous: if you are in a certain role, you may have to give it up and let others have a chance too	- leading and coaching others - supervising others - communicating and sharing information - controlling other's work results
Interacting and presenting	Includes competencies of effectively communicating, persuading, and influencing others. Confidently relating to others and networking.	- building relations - communicating - showing self-confidence - relating with ease	- creating transparency: no building up of information silos	- acting as a role model - supporting others

Competency domain title	**Competency domain definition**	**Application** The category is assigned, for instance, in the case of behaviors of…	**Application example**	**Differentiation** The category is not assigned in the case of behaviors of…
Analyzing and interpreting	Includes competencies of analytical thinking, complex problem solving, and applying expertise.	- analytical thinking - quickly grasping relations in complex situations	-	- questioning the status quo and looking for improvements - communicating knowledge and expertise
Creating and conceptualizing	Includes competencies of dealing well with situations demanding openness to new ideas and experiences. Seeking opportunities to learn and develop. Driving innovation and showing creativity. Questioning the status quo, thinking broadly and strategically. Seeking and driving organizational change.	- searching for new ideas and inspiration - striving for innovation - questioning the status quo - driving change	- curiosity, always looking for new approaches	- adapting to new situations - planning and organizing
Organizing and executing	Includes competencies of planning and organizing, working systematically and following orders and procedures. Customer satisfaction focus and the delivery of quality service or product.	- organizing - following processes - showing solution-orientation - managing time effectively	- you have to follow the Holacracy processes	- setting goals for oneself and others - proactively taking initiative
Adapting and coping	Includes competencies of adapting and responding well to change, managing pressure effectively, and coping well	- adapting to new situations and changing conditions - handling high workload	- self-reflection, being able to assess oneself well, and being able to self-reflect	- proactively initiating change - participating in team reflection processes

Competency domain title	**Competency domain definition**	**Application** The category is assigned, for instance, in the case of behaviors of…	**Application example**	**Differentiation** The category is not assigned in the case of behaviors of…
	with setbacks.	- coping with setbacks		
Enterprising and performing	Includes competencies of focusing on results and achieving personal work objectives. Entrepreneurial behavior. Seeking opportunities for further personal development and career advancement.	- considering the business perspective - looking for personal development - showing ambition and motivation	- willingness to continuously develop further	- organizing and planning - following rules and processes

Note. Clusters and definitions are based on Kurz and Bartram (2002) and Bartram (2005).

Concept Mapping

Concept mapping (CM) was used to analyze the answers to the direct question, "which competencies are important to work and perform in a self-managing organization?". CM is a method to analyze answers to open-ended questions and explore and define a concept by single statements (Jackson & Trochim, 2002; Ohly & Schmitt, 2015). It offers various advantages compared to other methods: It increases the trustworthiness of the conclusions from the interviewees' answers, as the CM data analysis includes various raters and avoids forced categorizations (Ohly & Schmitt, 2015; Trochim, 1989). During the interview, participants listed competencies that are important in SMOs. Subsequently, ten previously trained industrial and organizational psychologists sorted the mentioned concepts ($N = 223$) into piles of similar concepts[1] based on their corresponding latent competency. Any number of piles was allowed as long as there were fewer groups than concepts, more than one group, and no miscellaneous group (Jackson & Trochim, 2002; Ohly & Schmitt, 2015). The resulting groups varied substantially from 10 to 56, with $M = 27.80$ ($SD = 12.38$).

The individual sorting results were transferred into binary symmetric similarity matrices for each sorter and aggregated into one combined group similarity matrix (Weller & Romney, 1988). The similarity matrices displayed every item on the y- and the x-axis. Two concepts sorted together were marked with "1" and otherwise with "0". Following Kane and Trochim's (2007) recommendation, we applied non-metric multidimensional scaling to visualize the level of similarity of the individual concepts in a Cartesian coordinate system based on the pairwise distances of all concepts. We then ran a hierarchical cluster analysis to identify interpretable groups of similar concepts within the data. Hierarchical cluster analysis

[1] Pile sorting allows the judgement of similarity for large numbers of data, while alternative approaches such as triads and pairwise comparisons are hardly feasible for large datasets (Weller and Romney, 1988).

successively combines the most similar concepts or groups of concepts until only one group is left. A dendrogram was inspected visually to detect the range of possible clusters. It did not reveal a clear-cutting point, so the number of clusters was defined content-wise. It was chosen based on the solution with maximum clusters, for which a content-related differentiation was still reasonable, resulting in 29 clusters. Then, three experts labeled the clusters and checked whether they were sufficiently distinguishable.

Synthesis

The identified categories from CIT and CM overlapped largely but were not identical. Instead, both approaches yielded incremental content, confirming the added value of the combined approach. The 60 CIT and 29 CM categories were further summarized into higher-level categories to identify the final competencies. Three coders made the assignments independently and combined them into a joint solution. The goal was a parsimonious model with sufficient detail for applied use cases. Bartram's (2005) competencies served as guidance regarding the abstraction level. The competencies were named, defined, and described based on the included categories. Where possible, definitions were built based on existing material of O*NET OnLine, Stewart et al. (2019), and Ehlers (2020).

Results

The analyses yielded 21 competencies within seven of eight previously defined clusters (Table 3). Figure 1 provides an overview of the results.

Competencies Related to Leading and Deciding

Within the cluster of *Leading and Deciding*, four competencies were identified: (1) *assuming responsibility*, (2) *deciding and initiating action*, (3) *leading oneself*, and (4) *leading others cooperatively*. *Assuming responsibility* refers to taking responsibility for decisions and their consequences. For example, persons showing this competency take proactively and voluntarily responsibility for tasks and decisions. They show ownership and become the driver for specific topics and tasks. Definitive statements were:

> My team is very successful in what it does. […] you have to influence the decision yourself and not pass the responsibility to the hierarchy. (incident 129)
>
> Wanting to take responsibility for the task, you can afford fewer "implementers-only" in small teams. (concept 125)

Deciding and initiating action refers to making informed decisions and initiating corresponding actions. For example, persons with this competency take action, show initiative for issues, and make decisions to drive topics independently. They take calculated risks and tolerate uncertainty when making decisions. They consider their intuition for decisions. They have and demonstrate confidence in their actions and decisions. Definitive statements were:

> For the first two years, I didn't do any training, I didn't have it on my radar. […] Especially in the beginning, it's hard to show initiative, but it's super important.[…] No one is looking at you, if you don't approach someone yourself, then nothing happens. (incident 20)
>
> Proactivity: Searching for tasks and addressing topics oneself. (concept 172)

Leading oneself refers to influencing oneself towards actions and behaviors that are effective in reaching one's goals but are not necessarily motivating. For example, a person with this competency finds and pursues tasks and goals self-reliantly. They set goals for themselves

autonomously and lead themselves toward the achievement of these goals. They show self-reliantly initiative. Definitive statements were:

> My master's thesis within the organization was demanding, but I made it […] I could talk to everyone, but no one looks at it. You are responsible for yourself. […] You must keep pulling yourself out of your rut. Having or finding a quiet minute helped me to take myself out and think about it. You need a lot more discipline here. […] To make progress anyway, it helps me to set myself deadlines because then I have a clearly defined goal. In general, it is helpful to have clearly defined goals. It also helps to have quiet minutes in which I can reflect. (incident 132)

> Being able to motivate oneself […]. (concept 115)

Leading others cooperatively refers to providing leadership to colleagues at eye level. For example, a person with this competency coaches others by helping them to find their path and solutions instead of telling them what their path should be. They empower others for their personal development by providing feedback. They act as a role model regarding the organization's principles and values to inspire others to follow. They give appreciative, constructive feedback, ask for it, and accept receiving it. An exemplary incident was:

> Two colleagues in my team do not (want to) make their own decisions. They need increased guidance when we have to perform because the momentum is very low. I am currently doing this very well. […] It's balancing between leaving room for personal development and working together to achieve something. My patience, perseverance, and gentleness help me bring people along and drive the entire process forward. (incident 8)

Competencies Related to Supporting and Cooperating

Within the cluster of *Supporting and Cooperating*, three competencies were identified: (1) *appreciating others' competence and perspective*, (2) *collaborating with others*, and (3) *engaging in feedback and team reflection processes.*

Appreciating others' competence and perspective refers to recognizing, honoring, and relying on the perspectives and capabilities of others. For example, persons with this competency appreciate the diversity of personalities and opinions. They seek and appreciate other perspectives. They trust in others by relying on their good intentions and their competence. They consult others when they feel unsure or not competent enough. They show sensitivity when interacting with others. They show tolerance, consideration, and empathy toward others. They appreciate the uniqueness and diversity of personalities and opinions. Definitive statements were:

> The fact that everyone can say something means that many want to make and participate in decisions. As a result, votes often turn into endless discussions. Even if the proposals are actually good, everyone wants to share their opinion again, which often makes it very exhausting. Here it is helpful to trust the opinions of others. (incident 15)
>
> I have to be able to rely on colleagues to indicate when something is going in the wrong direction. Otherwise, you have to check everything down to the smallest detail. (concept 132)

Collaborating with others refers to interacting with others and integrating oneself into a group to reach (joint) goals. For example, persons with this competency adapt to the team's goals and needs and support them. They deprioritize their own needs. They integrate themselves into the team. They collaborate with and appreciate team colleagues. They share knowledge with colleagues and go through positive and negative events together. They care for others. They consult others to align and improve their own decisions. They demonstrate reliability and trustworthiness. They put aside personal sensitivities and give space to others. Definitive statements were:

> I have successfully built up a new theme. […] The management trusted me without having an idea of what I was doing. The people here in the company were helpful: I had sparring

> partners for structure topics. In the beginning, I had no idea about the system. It helps me a lot to exchange ideas with my colleagues here. (incident 54)
>
> Great willingness to help, and deprioritize one's own goals if other goals are more important at that moment. (concept 138)

Engaging in feedback and team reflection processes refers to reflect about past behaviors and incidents in group settings. For example, persons with this competency participate in team reflection processes by opening up to the team, acknowledging different points of view, and drawing joint conclusions. They communicate proactively by addressing issues on their initiative and with forethought. They act focused on finding a solution. An exemplary incident was:

> We successfully implemented regular retrospectives. People are quick to complain. You have to be very careful not to get stuck on the negative, but that dynamic develops. For a good retrospective, a mentality that looks for mistakes outside is not helpful. You have to find things that you can influence yourself. But even if it was external factors, you have to ask yourself why we didn't react earlier when it was already known. It is essential to make the successes clear and question what can help us do this better now. […] Formulate a concrete next step, but if everyone agrees that it couldn't be changed, then we have to let it go; we don't have to keep talking about it. Then you can focus on how to deal with the issue. What is my contribution, what can I change? (incident 148)

Competencies Related to Interacting and Presenting

Within the cluster of *Interacting and Presenting*, three competencies were identified: (1) *showing strong communication*, (2) *negotiating skillfully*, and (3) *relating with confidence.*

Showing strong communication refers to adequate, comprehensive communication. For example, persons with this competency provide transparency about their own work, decisions, and other relevant issues to colleagues within and outside the team. They present and convey information concisely and convincingly. They communicate clearly and

proactively, even when encountering conflicts. They adapt the communication style to the respective target groups. They convince others of ideas and arguments. They show confidence in their own convictions. Definitive statements were:

> Successful implementation of the personnel planning system: We were in charge of the project from the initial system selection to the implementation. We informed the management once and got the go. We approached stakeholders, but we didn't have to get their “O.K.”. We included all stakeholders in the project team and then took that out to manufacturing. Without managers having to approve something, we avoid whisper mail and can communicate directly. That's also how we get direct feedback. I went to the line a lot and talked directly to the line workers, so we didn't have to make loops. (incident 29)
>
> Creating transparency: no building up of information silos. (concept 122)

Negotiating skillfully refers to bringing others together and trying to reconcile differences (National Center for O*NET Development., 2022). For example, persons with this competency negotiate skillfully in a manner that seeks a good solution for each stakeholder. They integrate others through communication. They engage all stakeholders by involving the relevant parties in the development and change processes and informing them about all relevant decisions. They consider the needs of the stakeholders. They mediate between two or more parties to find an acceptable solution for all parties involved. They see conflicts as a constructive element and accept them as a means to develop personally, progress, and find new solutions. They separate professional and interpersonal issues when interacting with colleagues. Definitive statements were:

> Before I successfully reintroduced the structures, I spoke with colleagues individually several times and spent a total of 1.5 weeks only talking to people. Others might have looked at the company's figures first, but I think the people are the most important thing; you first have to inspire them again. (incident 12)

> Exchange about expectations, who has which expectations, and how to find a common denominator. (concept 7)

Relating with confidence refers to building good relations with others with ease and at eye level. For example, persons with this competency act and relate with others with self-confidence. They act authentically and follow their principles and values. They communicate with people at eye level, regardless of status, age, etcetera. They are aware of their different roles, distinguish between these roles when acting or interacting with others, and consciously shift between these roles as needed. They build relationships across different levels and areas inside and outside the organization. Definitive statements were:

> There was great disappointment among more experienced colleagues because they were supposed to get different superiors. In addition, the status they have worked for over the years is felt to be diminished. For me, how the older colleagues reacted was a concern. I immediately created transparency, I do not want to question colleagues' wealth of experience but rather create a conducive framework for their work and thus support them. (incident 50)

> Being able to say no sometimes, being able to set yourself apart. (concept 44)

Competencies Related to Creating and Conceptualizing

Within the cluster of *Creating and Conceptualizing*, three competencies were identified: (1) *learning from mistakes*, (2) *striving for innovation and improvement*, and (3) *welcoming new ideas.*

Learning from mistakes refers to taking a constructive stance toward mistakes. For example, persons with this competency deal constructively with mistakes and focus on the learning potential of the mistakes. They work iteratively and use the opportunity to learn from mistakes to make small steps toward improvement. Definitive statements were:

> The attempt to introduce structure creates a great deal of irritation in the system and causes precisely the opposite of what you want. I used to warn other companies not to fall into the

> trap we suddenly fell into ourselves. I corrected that, and now I believe it and know it. (incident 18)
>
> Very good at dealing with uncertainty: We work iteratively, so you can't exactly plan what comes next. (concept 61)

Striving for innovation and improvement refers to innovating. For example, persons with this competency seek and support change. They seek inspiration for further development. They strive for improvements and innovation. They question the status quo and the existing processes. They think outside the box. Definitive statements were:

> I did a project for the redesign of a process. I never personally liked the process because I thought a different approach made more sense, so I went for it. […] As a result, we moved forward much faster, and there was more money in it for the company; we saved internal resources. […] I talked to all the teams and asked about current pains. Through this, I derived a solution with benefits for all. (incident 34)
>
> Curiosity, always looking for new approaches. (concept 175)

Welcoming new ideas refers to accepting and adapting new ideas. For example, persons with this competency embrace new ideas and show openness toward new concepts and approaches. They accept new ideas and show cross-cultural awareness. Definitive statements were:

> The co-managing director started as an intern and came into his new role in a very short time. He came here with great confidence; he got involved, let himself drift, was open to all possibilities, took on different tasks, and thus gained experience for the position of managing director. (incident 13)
>
> Ability to engage with the organism. (concept 145)

Competencies Related to Organizing and Executing

One competency was identified within the cluster of *Organizing and Executing*: *Aligning with existing processes* refers to independently aligning with committed processes. For example,

persons with this competency follow previously established processes. An exemplary incident was:

> In my role, I have to hold regular meetings, a lot of which are about finding responsibility for tasks, and the organizational form dictates the framework of the meetings. Time and again, we get caught up in discussions about the extent to which we should or should not follow the prescribed rules of self-organization, and there is sometimes a significant lack of understanding among colleagues. Colleagues often push ahead because they do not (want to) deal with the organizational form's rules. The meeting framework is not adhered to; appointments are "misused" for their own topics. That leads to less feedback overall because not everyone gets a chance to speak. Whoever shouts the loudest gets his way. (incident 95)

Competencies Related to Adapting and Coping

Within the cluster of *Adapting and Coping*, three competencies were identified: (1) *adapting to change*, (2) *coping with pressure*, and (3) s*elf-reflecting.*

Adapting to change refers to coping with changes in conditions, requirements, or goals. For example, persons with this competency adapt quickly to new situations and changing conditions. They handle uncertainty and ambiguity optimistically and adaptively. An exemplary statement was:

> I won a fellow campaigner for my project. At first, when he came to the company […], I thought, oh dear, it will take extra effort to onboard him, but he quickly became a valuable team member, and we became a really good team. I adapted myself to the new situation, and we complemented each other well in terms of competencies, and everyone could concentrate on their own topics […]. (incident 66)

Coping with pressure and setbacks refers to handling stressful situations well. For example, persons with this competency care for themselves and show tolerance. They deliberately set themselves apart from the expectations of others. They demonstrate patience

and maintain a positive outlook despite all setbacks and unclear prospects. They manage emotions sustainably and appropriately to the situation. They handle high workloads sustainably well. They show social behavior despite feeling high pressure.

> There was a big clash between the board and me. After the escalation meeting, it slowly dissipated. I wasn't feeling well, so I then focused on my work. […] I got away from the idea that I was getting understanding from him, I delineated my own opinion. That took a few months, but now it has really taken off. I've never worked in Holacracy before. It was important to me that the lead link had my back, but I was missing that. […]. (incident 39)
>
> Self-care: sacrificing oneself is ineffective in self-organization; one must also pay attention to what is important in one's role. (concept 27)

Self-reflecting refers to questioning oneself to foster further constructive development (Ehlers, 2020). For example, persons with this competency question and evaluate their own behaviors, attitudes, competencies, emotions, and interactions with the social environment. They learn from those reflection processes. They are aware of their competencies. Exemplary statements were:

> Initially, I had difficulties getting involved with agile working, but now I wouldn't want to return to it because it makes work much more fun. […] It was challenging for me. I had the role of a product owner and had to learn and get used to taking myself back. For example, it was tough not to participate in the Daily and not to interfere. It was tough to let them run and "let them fail." Intensive self-reflection about my drivers and fears helped me. (incident 90)
>
> Self-reflection and being able to assess oneself well. (concept 25)

Competencies Related to Enterprising and Performing

Within the cluster of *Leading and Deciding*, four competencies were identified: (1) *Acting as an organization's owner,* (2) *focusing on development*, (3) *pursuing personal work goals*, and (4) *showing self-responsibility*.

Acting as an organization's owner refers to thinking and acting according to the organization's goals. For example, persons with this competency use the financial and material resources of the organization responsibly. They act in the organization's interest by aligning their actions to its success and purpose. They reflect on and question the current organizational structures to improve the organization. An exemplary incident was:

> I had an idea in the marketing area, and we managed to implement a large project within a month. Although it involved an investment of more than 100,000€, we only had to coordinate it once with management. It was helpful that we made our decisions on a reasonable, objective evaluation basis, keeping the company's goals in mind. We presented arguments, including that we are also cost-effective as a team and that others can benefit from the project. […]. (incident 88)

Showing self-responsibility refers to "overlooking, understanding, and taking responsibility for one's own actions" (Ehlers, 2020, p. 67). For example, a person with this competency shows responsibility for their behavior and its consequences. They take ownership of one's work conditions and personal development. Definitive statements were:

> I was extremely overworked. I just took things in stride, and others probably less. […] I took on the task of making processes better in addition to my own work because I didn't want to put up with the inefficiencies in our team's work, but that meant a hefty workload for me. In the new system, we all have many more responsibilities. However, I must take responsibility for myself and manage my workload to get out of the overhaul. (incident 56)
>
> Responsible use of freedoms. (concept 191)

Focusing on development refers to prioritizing development over other goals. For example, persons with this competency aim for and focus on development. They seek and take advantage of opportunities for personal and professional growth. Definitive statements were:

> On my initiative, I started a dual master's program here at the company. After I realized that I didn't yet feel sufficiently qualified, I reflected on myself. […] First, I did my own research on continuing education opportunities and the various formats. Then, I submitted the proposal to the managing director and presented arguments in favor of it, thus convincing her to support me. (incident 5)
>
> Willingness to constantly develop further. (concept 73)

Pursuing personal work goals refers to motivating oneself to focus on reaching personal work goals. For example, persons with this competency demonstrate ambition through high commitment and performance. They persistently follow their convictions, even if this means headwinds and obstacles. They work with focus and know how to prioritize and pursue short and long-term goals. Definitive statements were:

> […] Now, I have been named for it in the last few months and have been allowed to take on the responsibility. In the process, I was persistent and persevering, but I also always came up with concrete proposals. I had to be active and show creativity by proposing solutions. I needed to have concrete goals regarding the company and the people. (incident 46)
>
> Willingness to perform: you immediately notice who is doing what; you can't hide. (concept 57)

Showing self-responsibility refers to "overlooking, understanding, and taking responsibility for one's own actions." (Ehlers, 2020, p. 67). For example, persons with this competency show responsibility for their behavior and its consequences. They take ownership of their work conditions and personal development. Definitive statements were:

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me. In the new system, we all have many more responsibilities. However, I must take responsibility for myself and manage my workload to get out of the overhaul. (incident 56) Responsible use of freedoms. (concept 191)

Figure 1

Overview of Important Competencies in SMOs.

Note. Competencies are clustered according to the great eight competencies by Bartram (2005).

[3] Ehlers (2020, p. 67); [2] based on Ehlers (2020); [1] based on National Center for O*NET Development.

Discussion

This study systematically developed a model of individual competencies required in SMOs. The twofold approach resulted in 21 competencies within seven competency clusters (see Figure 1). The following sections will first discuss the study's implications for theory and practice, then discuss the results with the prior literature, address the limitations and future research, and close with conclusions from the current work.

Implications for Theory and Practice

This work has three major implications for further theory development. Firstly, it offers a model that defines and describes the individual competencies important for performance in SMOs. Although prior literature already proposed different competencies, this research is the first to provide a systematically developed taxonomy fitted to the work and organizational conditions of SMOs. Additionally, the current results are unique within the research on SMOs as they are systematically developed based on real-life work situations, providing helpful context to understand the functioning of SMOs and the resulting need for this competency in critical situations. To illustrate, many incidents showed that eliminating middle management increased the need for self-reflection and self-leadership at the individual level.

Secondly, it contributes to the question of who strives or struggles in SMOs (Lee and Edmondson, 2017): Individually different expressions of SMO competencies may explain why, despite the potential increases in job resources (for instance, through higher job autonomy), not every employee is necessarily more engaged in SMOs (Lam, 2016; Schell & Bischof, 2022): For example, high job autonomy may act only as a resource when one has the competencies to handle it (Stiglbauer & Kovacs, 2018).

Thirdly, this work also contributes to the APM literature: It elaborates on SMOs as potential host organizations for managed agilely, temporary projects. This study used critical incidents to provide detailed examples of challenges in SMOs, and by providing the situational contexts, the results made the similarities and relevance for APM more evident.

Additionally, deriving the competencies from critical incidents also allows for understanding which situations require specific competencies, which can also be related to APM.

The present findings also have relevant implications for organizational practice. The identified competencies help offer employees targeted training and development courses, facilitating the transition toward self-managing organizations and incremental approaches of more self-management, particularly in organizations introducing scaled agile frameworks. Besides, they are also helpful for organizations that have already been practicing organization-wide self-management, as knowing the necessary competencies helps to induce self-reflection processes, awareness, and shared understanding of desired behaviors in SMOs (Redmond, 2013; Vazirani, 2010).

Additionally, it is valuable for (scaled) APM in SMOs: Agile coaches can use the model to train their teams accordingly, thus improving project management and outcomes. It could also function as a reflection taxonomy for team retrospectives or individual team member coaching to look at challenges from another perspective. Similarly, the SMO competencies allow for building an organizational culture that supports the required competencies, such as fostering constructive handling of conflicts by establishing corresponding team or organizational practices. Additionally, competency models are a valuable guide for staffing and employee selection.

Discussion with Prior Literature

The findings showed commonalities and significant differences to the previously developed competency models or SMO-specific competencies (see Table 4 for comparison). The comparison demonstrates that the work in SMOs requires a specific set of competencies that differs in its scope from other competency sets. A unique feature of the SMO competency set is the intense focus on self-leadership, peer leadership, and self-reflection.

Comparing the results with Martela's (2019) description of SMOs shows that several aspects of the organizational principles were reflected in the critical incidents and that the

identified competencies align with them. For instance, in line with the proposed shared responsibility to create new tasks between employees and management, the identified competencies of *deciding and initiating action* and *striving for innovation and improvement* enable employees to identify and create new tasks. This interlocking between the SMO principles (Martela, 2019) and the competencies emphasizes that employees must have the competencies to live up to the organizational principles. Otherwise, those principles will lose effectiveness and even risk organizational goals through the negative impact of lacking commitment or abusive behaviors (Reitzig, 2022). The reported critical incidents demonstrated this interdependence. Transferring the findings to APM, the identified competencies likely will also interlock with the self-managed, evolutionary principles of Project Management Second Order (Saynisch, 2010), and thus, will also help to implement APM.

Some of the identified competencies (e.g., high levels of self-reflection, self-awareness, and proactivity) question the universal applicability of this organizational form as an enabler for APM in any sector or department within the organization. Organizational practice showed that several employees are not used to or willing to be proactive and prefer only to execute their assigned tasks (Bakker et al., 2012), which could be explained by individual personality traits or organizational learning experiences (Demerouti, 2014; Kim et al., 2018). With those high standards, SMOs are probably more effective enablers of APM in work areas where employees are used to self-reflection or proactive behavior. However, practice examples showed that collective self-management could even work in areas where a strongly hierarchical organization is typical, such as manufacturing (Getz, 2009), but in turn, can also fail in knowledge work areas where less hierarchical work is more popular (Laloux, 2014; Lam, 2016; Lee & Edmondson, 2017). Thus, the success of SMO principles cannot be taken for granted or be impossible; instead, continuous support and development of the employees is necessary.

Table 4

Comparison of Current Results With Prior Models

Model	Competencies overview	Similarities	Differences*
General job performance (Bartram, 2005)	- Leading and Deciding (2) - Supporting and Cooperating (2) - Interacting and Presenting (3) - Analyzing and Interpreting (3) - Creating and Conceptualizing (3) - Organizing and Executing (3) - Adapting and Coping (2) - Enterprising and Performing (2)	Considerable overlap regarding competency clusters	No/fewer competencies in the domain of analyzing and interpreting and organizing and executing; Additional competencies related to self-leadership, self-responsibility, and self-reflection
Teamwork competencies (Stevens & Campion, 1994)	Interpersonal - Conflict Resolution KSAs (3) - Collaborative Problem Solving KSAs (2) - Communication KSAs (5) Self-management - Goal Setting and Performance Management KSAs (2) - Planning and Task Coordination KSAs (2)	Large overlap regarding collaboration-related and self-management-related competencies, although the SMO model focuses on the individual self-management while the teamwork model focuses on team-level self-management	Additional competencies related to entrepreneurial mindset, leadership, responsibility, innovation, adapting, and coping

Model	- Competencies overview	Similarities	Differences*
Project management KSAs (International Project Management Association, 2015)	- Perspective: deals with the context of a project (5) - People: deals with the personal and social competencies of the individual (10) - Practice: Deals with the core project competencies (12)	Overlap regarding collaboration-related competencies, including self-reflection, negotiation, or conflict resolution	Differences regarding the definition of the competencies: the leadership competency described by the project management competencies included exerting power over others, whereas this aspect is not part of the SMO model
Self-managing teams (Doblinger, 2021)	- Leading and Deciding (4) - Supporting and Cooperating (5) - Interacting and Presenting (4) - Analyzing and Interpreting (1) - Creating and Conceptualizing (1) - Organizing and Executing (1) - Adapting and Coping (2) - Enterprising and Performing (2)	Significant overlap regarding competency clusters	Additional self-management-related and self-leadership-related competencies, such as engaging in feedback and team reflection processes, showing self-leadership, showing self-responsibility, and acting as an organization's owner
KSAOs related to SMOs (Corbett-Etchevers et al., 2019; Dettmers & Bredehöft, 2020; Schell & Bischof, 2022)	- Curiosity - Motivation to go beyond one's comfort zone and to learn - Actively designing one's job - Self-leadership - Assuming responsibility	The mentioned competencies are reflected considerably in the SMO competency model	The SMO competency model is far more comprehensive, going beyond the collection of single competencies

Note. Number in brackets indicate the number of (sub)competencies within the competency (cluster).

*Comparisons are made from the perspective of the current model of SMO competencies.

Limitations and Future Research

The current work is based on a qualitative approach to explore the unique features of SMOs and their impact on individual competencies. This methodology bears a relatively high level of subjectivity caused by the interviewee, the interviewer, and the evaluating persons. Like any qualitative methodology, the CIT strongly relies on the interviewee's perspective as they decide which situations they consider critical for their performance and what behaviors they remember and report. Nonetheless, inquiring about past events and behaviors instead of only direct competencies allows for a more precise definition. Besides, comparing and integrating different perspectives increase the conclusions' trustworthiness, making it adequate for identifying promoting or hindering factors of a specific experience or activity (Viergever, 2019). Despite their advantages, these methods can lead to overestimating single observations or opinions. Consequently, further research is needed to prove the competencies' convergent validity and their impact on performance.

A deductive-inductive approach to analysis was used (Kuckartz, 2018) to integrate different perspectives. It ensured theoretical grounding and rigor through the deductive part and enough flexibility and contextual sensitivity through the inductive approach. Nonetheless, this approach risked overlooking important patterns and bias in competency identification through the selected framework for the deductive analysis. Therefore, the framework for the deductive analysis was carefully developed based on the meta-analytic competency clusters of general job performance (Bartram, 2005).

As Nijhuis et al. (2018) discussed, the precise definition and adequate extent of competencies are challenging as different perspectives can be taken. In our model, competencies were defined in behavioral terms at a high level, and examples of specific, characteristic behaviors were provided for each competency to explain the possible manifestations (Krumm et al., 2012). Nijhuis et al. (2018) also criticized the mistaken focus on important instead of critical competencies. According to those authors, critical

competencies are the role-specific, distinguishing ones, whereas important competencies refer to all relevant competencies, including basic or generic ones. This work intentionally focused on important competencies as the aim was a generic model for understanding what employees need in order to cope with and thrive within such structures, but not a role-specific one to identify the optimal candidate to work in an SMO, which would have required more specificity.

The study relied on a small sample due to the specific target group. This was tolerable as each participant created multiple data points (several critical incidents per person; Flanagan, 1954; Ohly & Schmitt, 2015; Viergever, 2019), and saturation was observed within the last participants' data. Besides, the sample was diversified to maximize representativeness. As suggested for competency modeling (Krumm et al., 2012), different managerial roles were included to consider multiple perspectives. The sample was not restricted to the information systems sector but included organizations of various industries to reduce the influence of technical skills and requirements and instead identify the aspects related to scaled self-management. Indeed, facets of SMOs may differ between the sectors, so an additional sector-specific observation could also add value.

Another potential limitation may result from the limitation of the participant sample to the DACH region in Europe. Culture-inherent attributes like the degree of power distance, uncertainty avoidance, or collectivism (Hofstede, 1980) can influence the perception of the specific need for certain competencies in SMOs: Depending on the culture, the perspective varies, and specific competencies become more salient. The indirect assessment via CIT may have mitigated this effect, but the reliability of the results would increase when broadening the sample context.

Despite its limitations, the current study provides directions for future research. This study was based on a sample of employees working in SMOs, which was adequate for the current research question. However, the principles of SMOs can also be applied to

educational contexts (Reinventing Organizations Wiki, 2023), and future research may expand to educational settings experimenting with self-management. Moreover, future research should test the identified SMO competencies' validity and practical relevance. For instance, the predictive value of SMO competencies and the relations to relevant outcomes at the organizational and individual level are of interest: How are business KPIs or project management success related to the identified competencies, and how do employee well-being and performance relate to the competencies?

Besides, the specificity of the identified competencies should be examined: Are these competencies more or even exclusively predictive for SMOs, or could incrementally decentralized hierarchies also benefit from those competencies? Additionally, investigating whether different levels of SMO competencies are needed to correspond with different roles within the organization is relevant; to illustrate, does a product owner need the same expressions of the SMO competencies as a development team member? (Mansfield, 1996).

Additionally, being a potential host organization for managed agilely, temporary projects, SMOs share several commonalities with APM despite their conceptual differences. Thus, future research should investigate this connection and its impact on competency development. Is it more effective to establish an SMO, build up the relevant individual competencies, and then implement APM in an agility-fostering organization, or can implementing APM and the corresponding APM competencies pave the way towards building up an SMO and the required competencies? Similarly, how to enhance those SMO competencies is an essential question for future research. Presumably, there are differences in their trainability. Therefore, identifying the most predictive and best trainable competencies is promising.

Conclusion

As SMOs differ from more traditional organizations regarding various characteristics and organizational principles, they can enable APM. These organizational principles require

certain behaviors from the employees, and the current study identified a broad spectrum of competencies that is required, reaching from competencies usually assigned to managers, such as assuming responsibility or leading others cooperatively, over self-competencies like self-reflection to enterprising competencies, such as acting as an organization's owner. The identified competencies partly differ from previous competency models and interlock with the SMO principles, showing the need for competency adaption to yield the intended effect of SMO structures and enable APM. By providing insight into critical incidents in SMOs and identifying required competencies, the study informs about the prerequisites at the employee level and advances the theory on SMOs and APM. The results can support APM practitioners, as they can guide personnel development, -selection, and other practices in that field. Future research should further validate the findings by directly relating the competencies to relevant business, employee, or project outcomes.

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References

Ackermann, M., Schell, S., & Kopp, S. (2021). How Mercedes-Benz addresses digital transformation using Holacracy. *Journal of Organizational Change Management*, *34*(7), 1285–1299. https://doi.org/10.1108/JOCM-12-2020-0395

Almeida, L. F. M., Conforto, E. C., Silva, S. L., & Amaral, D. C [Daniel Capaldo] (2012). Fatores críticos da agilidade no gerenciamento de projetos de desenvolvimento de novos produtos. *Produto & Produção*, *13*(1).

Bakker, A. B., Tims, M., & Derks, D. (2012). Proactive personality and job performance: The role of job crafting and work engagement. *Human Relations*, *65*(10), 1359–1378. https://doi.org/10.1177/0018726712453471

Barrick, M. R., & Parks-Leduc, L. (2019). Selection for fit. *Annual Review of Organizational Psychology and Organizational Behavior*, *6*(1), 171–193. https://doi.org/10.1146/annurev-orgpsych-012218-015028

Bartram, D. (2005). The Great Eight competencies: A criterion-centric approach to validation. *Journal of Applied Psychology*, *90*(6), 1185–1203. https://doi.org/10.1037/0021-9010.90.6.1185

Bischof, N. (2019). Self-Leadership in selbstorganisierten Systemen am Beispiel Holacracy. In *Führen in der Arbeitswelt 4.0* (pp. 63–72). Springer.

Bitner, M. J., Booms, B. H., & Mohr, L. A. (1994). Critical service encounters: The employee's viewpoint. *Journal of Marketing*, *58*(4), 95–106. https://doi.org/10.1177/002224299405800408

Boden, J. (2017). State of flux: agile approaches are becoming ubiquitous. *PM Network*, *31*(7), 16–17.

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. John Wiley & Sons.

Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of Management Development*, *27*, 5-12. https://doi.org/10.1108/02621710810840730

Burton, R. M., Håkonsson, D. D., Nickerson, J., Puranam, P., Workiewicz, M., & Zenger, T. (2017). GitHub: exploring the space between boss-less and hierarchical forms of organizing. *Journal of Organization Design*, *6*(1), 1–19. https://doi.org/10.1186/s41469-017-0020-3

Campion, M. A., Fink, A. A., Ruggeberg, B. J., Carr, L., Phillips, G. M., & Odman, R. B. (2011). Doing competencies well: Best practices in competency modeling. *Personnel Psychology*, *64*(1), 225–262. https://doi.org/10.1111/j.1744-6570.2010.01207.x

Chell, E. (1998). Critical incident technique. In G. Symon & C. Cassell (Eds.), *Qualitative methods and analysis in organizational research: A practical guide* (pp. 51–72). SAGE.

Chell, E. (2004). Critical incident technique. *Essential Guide to Qualitative Methods in Organizational Research*, *45*, 60.

Ciric, D., Lalic, B., Gracanin, D., Tasic, N., Delic, M., & Medic, N. (2019). Agile vs. traditional approach in project management: strategies, challenges and reasons to introduce agile. *Procedia Manufacturing*, *39*, 1407–1414. https://doi.org/10.1016/j.promfg.2020.01.314

Ciric Lalic, D., Lalic, B., Delić, M., Gracanin, D., & Stefanovic, D. (2022). How project management approach impact project success? From traditional to agile. *International Journal of Managing Projects in Business*, *15*(3), 494–521. https://doi.org/10.1108/IJMPB-04-2021-0108

Conforto, E. C., Salum, F., Amaral, D. C [Daniel C.], da Silva, S. L., & Almeida, L. F. M. de (2014). Can agile project management be adopted by industries other than software development? *Project Management Journal*, *45*(3), 21–34.

Corbett-Etchevers, I., Perea, C., Richard, D., Colle, R., & Defélix, C. (2019). Freedom-form organisations, innovation and quality of work life: towards a new model of interaction. *International Journal of Technology Management*, *79*(3/4), Article 99609, 345–365. https://doi.org/10.1504/IJTM.2019.099609

Demerouti, E. (2014). Design your own job through job crafting. *European Psychologist*, *19*(4), 237–247. https://doi.org/10.1027/1016-9040/a000188

Dettmers, J., & Bredehöft, F. (2020). The ambivalence of job autonomy and the role of job design demands. *Scandinavian Journal of Work and Organizational Psychology*, *5*(1), Article 8, 1–13. https://doi.org/10.16993/sjwop.81

Dikert, K., Paasivaara, M., & Lassenius, C. (2016). Challenges and success factors for large-scale agile transformations: A systematic literature review. *Journal of Systems and Software*, *119*, 87–108. https://doi.org/10.1016/j.jss.2016.06.013

Doblinger, M. (2021). Individual competencies for self-managing team performance: a systematic literature review. *Small Group Research*, 104649642110411. https://doi.org/10.1177/10464964211041114

Edison, H., Wang, X., & Conboy, K. (2021). Comparing methods for large-scale agile software development: A systematic literature review. *IEEE Transactions on Software Engineering*, *48*(8), 2709–2731. https://doi.org/10.1109/TSE.2021.3069039

Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of Organizational Stress* (pp. 28–67). OUP Oxford.

Edwards, J. R., & Rothbard, N. P. (1999). Work and family stress and well-being: An examination of person-environment fit in the work and family domains. *Organizational Behavior and Human Decision Processes*, *77*(2), 85–129. https://doi.org/10.1006/obhd.1998.2813

Ehlers, U.-D. (2020). *Future Skills*. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-29297-3

Ekaterini, G. (2011). A qualitative approach to middle managers' competences. *Management Research Review*, *34*(5), 553–575.

Escrig-Tena, A. B., & Bou-Llusar, J. C. (2005). A model for evaluating organizational competencies: An application in the context of a quality management initiative. *Decision Sciences*, *36*(2), 221–257. https://doi.org/10.1111/j.1540-5414.2005.00072.x

Fernandez, D. J., & Fernandez, J. D. (2008). Agile project management—agilism versus traditional approaches. *Journal of Computer Information Systems*, *49*(2), 10–17.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*(4), 327–358. https://doi.org/10.1037/h0061470

Ford, M. T. (2012). Job-occupation misfit as an occupational stressor. *Journal of Vocational Behavior*, *80*(2), 412–421. https://doi.org/10.1016/j.jvb.2011.10.004

Foss, N. J., & Dobrajska, M. (2015). Valve's way: vayward, visionary, or voguish? *Journal of Organization Design*, *4*(2), 12–15. https://doi.org/10.7146/jod.20162

Getz, I. (2009). Liberating leadership: How the initiative-freeing radical organizational form has been successfully adopted. *California Management Review*, *51*(4), 32–58. https://doi.org/10.2307/41166504

Gremler, D. D. (2004). The critical incident technique in service research. *Journal of Service Research*, *7*(1), 65–89. https://doi.org/10.1177/1094670504266138

Hamel, G. (2011). The world‟ s most creatively managed company. *Harvard Business Review, South Asia*. https://www.personalstrengths.ro/docs/2016/Harvard-Article.pdf

Hofstede, G. (1980). Motivation, leadership, and organization: Do American theories apply abroad? *Organizational Dynamics*, *9*(1), 42–63. https://doi.org/10.1016/0090-2616(80)90013-3

International Project Management Association. (2015). *Individual Competence Baseline for Project, Programme & Portfolio Management*. https://edisciplinas.usp.br/pluginfile.php/5481002/mod_resource/content/1/IPMA_ICB_4_0_WEB.pdf

Jackson, K. M., & Trochim, W. M. K. (2002). Concept mapping as an alternative approach for the analysis of open-ended survey responses. *Organizational Research Methods*, *5*(4), 307–336.

Kane, M., & Trochim, W. M. K. (2007). *Concept mapping for planning and evaluation*. Sage Publications Thousand Oaks, CA.

Kim, H., Im, J., & Qu, H. (2018). Exploring antecedents and consequences of job crafting. *International Journal of Hospitality Management*, *75*, 18–26. https://doi.org/10.1016/j.ijhm.2018.02.014

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*(2), 281–342. https://doi.org/10.1111/j.1744-6570.2005.00672.x

Krumm, S., Mertin, I., & Dries, C. (2012). *Kompetenzmodelle*. *Praxis der Personalpsychologie: Vol. 27*. Hogrefe.

Kuckartz, U. (2018). *Qualitative Inhaltsanalyse: Methoden, Praxis, Computerunterstützung* (4. Auflage). *Grundlagentexte Methoden*. Beltz Juventa. http://www.beltz.de/de/nc/verlagsgruppe-beltz/gesamtprogramm.html?isbn=978-3-7799-3682-4

Kurz, R., & Bartram, D. (2002). Competency and individual performance: Modelling the world of work. In D. Bartram, I. T. Robertson, & M. Callinan (Eds.), *Organizational effectiveness: The role of psychology.* Wiley.

Laloux, F. (2014). *Reinventing organizations: A guide to creating organizations inspired by the next stage in human consciousness*. Nelson Parker.

Lam, B. (2016). Why are so many Zappos employees leaving? *The Atlantic*. https://www.theatlantic.com/business/archive/2016/01/zappos-holacracy-hierarchy/424173/

Lappi, T., Karvonen, T., Lwakatare, L. E., Aaltonen, K., & Kuvaja, P. (2018). Toward an improved understanding of agile project governance. *Project Management Journal*, *49*(6), 39–63. https://doi.org/10.1177/8756972818803482

Lee, M. Y., & Edmondson, A. C. (2017). Self-managing organizations: Exploring the limits of less-hierarchical organizing. *Research in Organizational Behavior*, *37*, 35–58. https://doi.org/10.1016/j.riob.2017.10.002

Mansfield, R. S. (1996). Building competency models: Approaches for HR professionals. *Human Resource Management*, *35*(1), 7–18. https://doi.org/10.1002/(SICI)1099-050X(199621)35:1<7::AID-HRM1>3.0.CO;2-2

Martela, F. (2019). What makes self-managing organizations novel? Comparing how Weberian bureaucracy, Mintzberg's adhocracy, and self-organizing solve six fundamental problems of organizing. *Journal of Organization Design*, *8*(1), 215–238. https://doi.org/10.1186/s41469-019-0062-9

Mathieu, J. E., Tannenbaum, S. I., Donsbach, J. S., & Alliger, G. M. (2014). A review and integration of team composition models. *Journal of Management*, *40*(1), 130–160. https://doi.org/10.1177/0149206313503014

McClelland, D. C. (1998). Identifying competencies with behavioral-event interviews. *Psychological Science*, *9*(5), 331–339. https://doi.org/10.1111/1467-9280.00065

National Center for O*NET Development. (2022). *O*NET OnLine.* https://www.onetonline.org/

Nijhuis, S., Vrijhoef, R., & Kessels, J. (2018). Tackling project management competence research. *Project Management Journal*, *49*(3), 62–81. https://doi.org/10.1177/8756972818770591

Nykodym, N., Simonetti, J. L., Nielsen, W. R., & Welling, B. (1994). Employee empowerment. *Empowerment in Organizations*, *2*(3), 45–55. https://doi.org/10.1108/09684899410071699

Oberländer, M., Beinicke, A., & Bipp, T. (2020). Digital competencies: A review of the literature and applications in the workplace. *Computers & Education*, *146*(16), 103752. https://doi.org/10.1016/j.compedu.2019.103752

Ohly, S., & Schmitt, A. (2015). What makes us enthusiastic, angry, feeling at rest or worried? Development and validation of an affective work events taxonomy using concept mapping methodology. *Journal of Business and Psychology*, *30*(1), 15–35. https://doi.org/10.1007/s10869-013-9328-3

Patterson, F., Ferguson, E., Lane, P., Farrell, K., Martlew, J., & Wells, A. (2000). A competency model for general practice: implications for selection, training, and development. *British Journal of General Practice*, *50*(452), 188–193. https://bjgp.org/content/50/452/188.short

Petermann, M. K. H., & Zacher, H. (2020). Agility in the workplace: Conceptual analysis, contributing factors, and practical examples. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, *13*(4), 599–609. https://doi.org/10.1017/iop.2020.106

Petermann, M. K. H., & Zacher, H. (2021). Development of a behavioral taxonomy of agility in the workplace. *International Journal of Managing Projects in Business*, *14*(6), 1383–1405. https://doi.org/10.1108/IJMPB-02-2021-0051

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *The Journal of Applied Psychology*, *85*(4), 612–624. https://doi.org/10.1037/0021-9010.85.4.612

Puranam, P., Alexy, O., & Reitzig, M. (2014). What's "new" about new forms of organizing? *Academy of Management Review*, *39*(2), 162–180.

Redmond, E. (2013). Competency models at work: The value of perceived relevance and fair rewards for employee outcomes. *Human Resource Management*, *52*(5), 771–792. https://doi.org/10.1002/hrm.21560

Reinventing Organizations Wiki. (2023). *Happy*. https://reinventingorganizationswiki.com/en/cases/happy/

Reitzig, M. (2022). How to get better at flatter designs: considerations for shaping and leading organizations with less hierarchy. *Journal of Organization Design.* Advance online publication. https://doi.org/10.1007/s41469-022-00109-7

Saynisch, M. (2010). Mastering complexity and changes in projects, economy, and society via Project Management Second Order (PM-2). *Project Management Journal*, *41*(5), 4–20. https://doi.org/10.1002/pmj.20167

Schell, S., & Bischof, N. (2022). Change the way of working. Ways into self-organization with the use of Holacracy: an empirical investigation. *European Management Review*, *19*(1), 123–137. https://doi.org/10.1111/emre.12457

Spreitzer, G. M. (2008). Taking stock: A review of more than twenty years of research on empowerment at work. In Barling, J., Cooper, C. L. (Ed.), *The SAGE Handbook of Organizational Behavior: Volume I - Micro Approaches* (Vol. 1, pp. 54–72). SAGE Publications Ltd. https://doi.org/10.4135/9781849200448.n4

Stevens, M. J., & Campion, M. A. (1994). The knowledge, skill, and ability requirements for teamwork: Implications for human resource management. *Journal of Management*, *20*(2), 503–530. https://doi.org/10.1177/014920639402000210

Stewart, G. L., Courtright, S. H., & Manz, C. C. (2019). Self-Leadership: A paradoxical core of organizational behavior. *Annual Review of Organizational Psychology and Organizational Behavior*, *6*(1), 47–67. https://doi.org/10.1146/annurev-orgpsych-012218-015130

Stiglbauer, B., & Kovacs, C. (2018). The more, the better? Curvilinear effects of job autonomy on well-being from vitamin model and PE-fit theory perspectives. *Journal of Occupational Health Psychology*, *23*(4), 520–536. https://doi.org/10.1037/ocp0000107

Trochim, W. M. K. (1989). An introduction to concept mapping for planning and evaluation. *Evaluation and Program Planning*, *12*(1), 1–16. https://doi.org/10.1016/0149-7189(89)90016-5

Turley, R. T., & Bieman, J. M. (1995). Competencies of exceptional and nonexceptional software engineers. *Journal of Systems and Software*, *28*(1), 19–38. https://doi.org/10.1016/0164-1212(94)00078-2

Vazirani, N. (2010). Review paper: Competencies and competency model – a brief overview of its development and application. *SIES Journal of Management*, *7*(1), 121–131. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.469.7219&rep=rep1&type=pdf#page=123

Viergever, R. F. (2019). The critical incident technique: Method or methodology? *Qualitative Health Research*, *29*(7), 1065–1079. https://doi.org/10.1177/1049732318813112

Weller, S. C., & Romney, A. K. (1988). *Systematic data collection*. Sage Publications.

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