Received: 11 September 2022 | Revised: 28 March 2024 | Accepted: 29 March 2024

DOI: 10.1111/caim.12611

RESEARCH ARTICLE

WILEY

Why we need employees back at the office: The effect of workplace design on creativity in organizations

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With the ongoing changes in the work environment, specifically turning from fulltime to no time at the office and nowadays pending somewhere in between, there is a need for decision makers to redefine their expectations of a day at the office. Previously, organizations worldwide focussed on creating workplaces that foster interaction and collaboration to enhance knowledge exchange and communication. Both are among the main drivers for stimulating creativity at the workplace, leading to increased innovation activities. Since offices are dramatically changing from lean, work-focused, and hierarchical workstations into employee-oriented, creativity-enhancing spaces with playground artefacts, the need for quantitative research on the effects of workplace design on creativity seems evident for researchers and practitioners. Although prior research has attempted to describe the physical work environment and its impact on creativity, empirical evidence is still lacking on what concrete attributes of a workplace employees perceive as inspiring. We therefore contribute to the existent body of knowledge by establishing a definition for inspiring physical workplaces as perceived by employees in times of digitalization and provide a conceptual model analysing the effects between workplace design, internal knowledge exchange, and creative problem-solving capacity. We assess our survey data with partial least squares structural equation modelling and provide first empirical evidence that our proposed formative index supports the common research agenda within the context of workplace design, and further, that aspects of workplace design not only enhance creative problem-solving capacity as an important dimension of creativity itself, but that this relationship is also partially mediated by internal knowledge exchange.

KEYWORDS
creative problem-solving capacity, internal knowledge exchange, new work, PLS-SEM, working from home, workplace design

1 | INTRODUCTION

In 2020, when the global COVID-19 pandemic hit, companies around the world sent their employees to solely work from home to ensure safety for their workers' health (Cuerdo-Vilches, Navas-Martín, & Oteiza, 2021; Ipsen, van Veldhoven, Kirchner, & Hansen, 2021; Lucius, Damberg, Meinel, & Ringle, 2023; Smite, Moe, Hildrum, Gonzalez-Huerta, & Mendez, 2023), leaving office buildings empty

and social connections and friendships at the workplace on edge. It can be postulated that the pandemic has brought tremendous disruptions into the way we worked pre-pandemic. This forced experiment brought up new flexibility for employees with the broadly introduced concept of working from home (WFH; Gifford, 2022) and the rise of new communication ways, prevalently bringing the IT landscape into management focus as the entry into the digital era; as it enabled new competitive advantages for companies, or at least kept operations alive (Lee & Trimi, 2021). However, this new availability came with challenges such as non-office-conformant seating arrangements at dinner tables and negative impacts on employees' social relationships — inside and outside the offices; as well as different adoption levels of technology and digitalized communication patterns (Jo, Harrison, & Gray, 2021; Moore et al., 2022; Prodanova & Kocarev, 2021; Schifano, Clark, Greiff, Vögele, & D'Ambrosio, 2023). Thereby, the pandemic left companies with a diverse set of challenges to overcome. With employees' minds being occupied by the impact of the pandemic on their personal lives, it remained the managers' tasks to steer their company into prosperity, despite the challenges that disrupted traditional ways of working. However, there is limited prosperity and growth with the absence of innovation, hence the need to spur on innovation must dominate entrepreneurial action to remain relevant on a global business scale (Oe, Yamaoka, & Duda, 2022; Sharma, Kraus, Srivastava, Chopra, & Kallmuenzer, 2022).

Enabling and enhancing creativity can be understood as one of the most important determinants of growth because of enhanced innovation activities in organizations. In an organizational context, creativity is often referred to as the employees' ability to solve problems creatively (Woodman, Sawyer, & Griffin, 1993). Ones' creative problem-solving capacity is conditional to the availability of information and the existing knowledge (Ford, 1996; Kristensen, 2004). To maintain their competitive advantage, companies therefore need to find new ways to enhance their employees' creative problem-solving capacity (Amabile & Pratt, 2016; Carmeli, Gelbard, & Reiter-Palmon, 2013).

Creativity at work is related to employees' access to information and knowledge (Amabile, 1988; Kim, Candido, Thomas, & de Dear, 2016). Hence, spurring on creativity should include measures for exchange at work. With the introduction of the internet, information has become accessible for most people. This has also come along with the development of new technologies, which facilitate internal knowledge exchange (Bullinger, Auernhammer, & Gomeringer, 2004; Lee & Trimi, 2021). However, studies in the context of COVID-19 investigating several effects of WFH have found that remote work led to a lower connection with the workplace and their respective colleagues, negatively impacting knowledge exchange and spontaneous interaction (Gifford, 2022; Lucius et al., 2023; Waight, Kjerfve, Kite, & Smith, 2022). Pre-pandemic, many companies transformed their former office areas to increase communication and collaboration. The office landscape was in the process of transitioning from a place where one solely works into a place for interaction and collaboration to increase creativity and innovation activities (de Paoli & Ropo, 2017; de Paoli, Sauer, & Ropo, 2019; Haner, 2005; Magadley & Birdi, 2009; McCoy, 2005). However, with the broad adaptation of WFH in most industries, one might argue why to keep the office? As it amounts for high fixed cost for real estate and seems to be widely unused since COVID-19's outbreak (McGee, Couillou, & Maalt, 2023; Yunus & Ernawati, 2018).

Even though working from home instead of meeting at the office in person has become the norm in many organizations worldwide, our findings point to the conclusion that organizations might see and market their offices as touchpoints for social and creative gatherings. Additionally, we contribute to the current research agenda on further levels. First, we conceptualize workplace design with a newly formed formative index to understand which areas of a traditional workplace are perceived as inspiring by employees and conducive to creativity. Second, we investigate how knowledge exchange can be emphasized by workplace design to facilitate creativity and innovation post-pandemic. Third, we derive mitigations of potential risks that arise with the broad introduction of WFH. Finally, during and after facing the pandemic situation with COVID-19 and the introduction of online tools for virtual collaboration (Martínez-Caro, Cegarra-Navarro, & Alfonso-Ruiz, 2020; Yang et al., 2022), many companies are confronted with unused offices accompanied with financial efforts and tied liquidity (McCoy, 2005; McGee et al., 2023; Yunus & Ernawati, 2018). With our research, we offer theoretical and practical contributions to companies regarding why and how to keep office spaces that enhance creativity, and thereby ensuring long-term competitive advantage.

The paper is structured as follows: Within the subsequent theoretical discussion, creativity and creative problem-solving capacity, internal knowledge exchange, and physical workplaces are presented by their state of the art and explained within the empirical context. The conceptual development of the path model leads over into a description of the applied methodology, before the findings are presented and discussed in the subsequent sections. The paper ends with a discussion of the study's results and contributions as well as conclusions regarding theoretical and practical implications.

2 | A NEW APPROACH TO ENHANCE CREATIVE PROBLEM-SOLVING AT THE WORKPLACE

2.1 | Creativity and creative problem-solving capacity

Amabile (1988) considers creativity as the preliminary stage of innovation. While innovation is the successful implementation of a solution for a problem, creativity is needed to generate ideas and solutions for a specific problem (Sweller, 2009). According to Rogers (1954), creativity occurs as something neutrally loaded with uniqueness of the individual and its external influences. It may be defined by the contextual environment as positive or negative. However, most researchers define it as something positive that is related to originality and novelty, maybe even considered, or named interesting in its evaluating

context and peer group review (Amabile, 1988; Basadur, 2004; Boden, 1996; Stein, 1991). There is consensus on creativity being the development of something new and useful (Anderson, Potočnik, & Zhou, 2014; Oldham & Cummings, 1996; Shalley, Zhou, & Oldham, 2004). As cognitive processes define creative output (Briggs Myers, 2000; Guilford, 1967), an individual's personality impacts human creative behaviour, leading to different challenges in the application of creativity (Basadur & Gelade, 2005; Shalley et al., 2004).

Referring to an individual's creativity in the work context, Carmeli et al. (2013) use the term *creative problem-solving capacity*, which describes the engagement of an individual in core creative processes. The authors define these as the ability to "identify, construct, search, and acquire information, and generate ideas and evaluate, select and implement them" (p. 97). Individuals use creative problem-solving when there is no possibility to apply common routine solutions to a problem (Nutt, 1984). Creativity and creative problem-solving are not easily differentiated, since the latter can be understood as part of the first (Carmeli et al., 2013). Basadur and Finkbeiner (1983) characterize creative problem-solving as novel and unconventional thinking. It is mostly used in vague situations, which have not been determined or explored before. As such, the confronted problems are often unclear and ill-defined. The authors state that creative problem-solving is both: defining the problem and finding a solution for it; it is based on different thinking skills, but also expertise of the individual (Kozbelt, Beghetto, & Runco, 2010; Mumford, Mobley, Reiter-Palmon, Uhlman, & Doares, 1991). Hence, individuals who approach problems creatively use both kinds of thinking during different stages of the creative process (Basadur & Finkbeiner, 1983). The major difference between general problem-solving and creative problem-solving lies within the originality of the combination of information or knowledge and therefore yet non-existing solutions (Boden, 2004). Sweller (2009) states that information and knowledge are the ultimate good when it comes to creative problem-solving. It not only defines the number of ideas but also the way problems are approached. Problems underlie subjective biases, which are created because of different starting perspectives. Hence, for one problem more than one definition exists, leading to more than one solution (Duncker, 1945; Hélie & Sun, 2010). The environment can have enormous impact on one's creative problem-solving capacity. Even though any person can be creative if one is surrounded by human relationships and its influences (Simonton, 1984), individuals with high creative problem-solving capacity tend to inherit intellectual traits, which are facilitated by spending time within the creative process (Findlay & Lumsden, 1988). Nevertheless, most important are the relationships individuals build with their colleagues at the workplace, as they either foster or destroy their willingness to share knowledge, trust others, and communicate openly (Reiter-Palmon, Mitchell, & Royston, 2019).

2.2 | Creativity and internal knowledge exchange

According to Amabile (1988), individual creativity refers to, inter alia, domain-relevant skills, which are based on knowledge and expertise. Hence, employees must use their existing knowledge to foster the creative and cognitive processes to generate solutions for problems (Ford, 1996; Kristensen, 2004). The way an individual uses knowledge to solve problems depends on one's socialization and environmental influences at work (Kozbelt et al., 2010). Therefore, they must increase their individual knowledge and information base as well as interact and collaborate with their co-workers frequently, as knowledge exchange yields new impulses and facilitates novel perspectives (Allen & Gerstberger, 1973; Brunia, de Been, & van der Voordt, 2016; Kim et al., 2016). Lee (2001) defined knowledge sharing as "activities of transferring or disseminating knowledge from one person, group or organization to another" (p. 324). It includes both, tacit and explicit knowledge, where the former refers to any knowledge, which is already inherited by a person itself and the latter as any knowledge that is brought to someone via social media, networks, or other individuals (Carmeli et al., 2013).

Toker and Gray (2008) conclude that knowledge exchange can happen either spontaneously or planned, within organizations or outside of them, at any time of the day. However, it should be internally prioritized to enable employees' knowledge exchange. Exchanges with colleagues who differ in education, age, or experience, lead to higher problem-solving effectiveness, as co-workers are the first address for information and specific knowledge to an organization (Allen & Gerstberger, 1973; Reiter-Palmon et al., 2019). Overall, organizations tend to incorporate internal and external knowledge sharing strategies to foster innovation and ideation to solve problems (Chen, Magnusson, & Björk, 2022). As the exchange of information is crucial for knowledge workers' creativity enabling competitive advantage and positively enhancing an organization's innovation capability (Carmeli et al., 2013; Dul, Ceylan, & Jaspers, 2011; Yang et al., 2022), we formulate the following hypothesis:

> **H1.** Internal knowledge exchange is positively associated with creative problem-solving capacity.

2.3 | Creativity and workplace design

Research on workplace design most often refers to the physical work environment when suggesting patterns in workplace settings. Dimensions that are often named are architectural details such as walls and windows, spatial organization in terms of office layout or desk distribution, resources such as tools, and environmental or ambiental factors (Dul et al., 2011; McCoy, 2005). Prior research has shown that the workplace plays an important role in enhancing employees' creativity (Meinel, Maier, Wagner, & Voigt, 2017; Oksanen & Ståhle, 2013; van der Lugt, Janssen, Kuperus, & de Lange, 2007; Yekanialibeiglou, Demirkan, & Denti, 2021). Pre-pandemic, organizations were of the belief that inspiration came with the design of the workplace, hence afforded high cost and effort for workplace transformation to enhance employees' creativity (Davis, Leach, & Clegg, 2012; Meinel et al., 2017). Certain design elements within decorative elements or spatial arrangements were a given for workplace designers

and strategists, becoming the new trend in workplace design (de Paoli et al., 2019). Although these (cultural) transformation processes have occupied companies all over the world for decades with the introduction of the next level of workplace design, namely the digital or virtual space of communication, traditional aspects of workplace design may be overthought. While pre-pandemic, remote working or WFH was somehow stigmatized (Smite et al., 2023) and high paid employees were more likely to spend their work remotely than the standard clerk (Gifford, 2022) — the COVID-19 pandemic has changed this perception (Mantesi, Chmutina, & Goodier, 2022). But even pre-pandemic, there was a tendency to the workplace becoming more agile with working from home, in international task forces or with external experts, hence, the requirements of the workplace have changed tremendously again (Harris, 2016; Ipsen et al., 2021; Yang et al., 2022).

Creativity in a traditional workplace can be enhanced by the provisioning of a diverse set of spatial arrangements, allowing for each step within creativity and innovation processes to be explicitly performed (Magadley & Birdi, 2009). Further, workplaces for creativity have been mostly designed by the aspects of autonomy and freedom (Amabile & Gryskiewicz, 1989), increasing the experience of freedom within the workplace setting, leading to higher perception of personal autonomy and job-control (McCoy & Evans, 2002). Smite et al. (2023), otherwise, state that WFH brings flexibility to employees that one can interpret as autonomy or freedom. Flexibility may also lead to user centricity, or as it seems more appropriate to be called employee centricity in this case, which is positively associated with mental health and well-being (Davis, 1984; Yekanialibeiglou et al., 2021), some of the areas that were most impacted by COVID-19 leading to emotional exhaustion (Jo et al., 2021). Originally, employee centricity came along with the freedom to re-arrange the workplace according to personal or team needs (Groves & Marlow, 2016; McCoy & Evans, 2002). Albeit shared desk principles are modern ways to reduce real estate expenditures by using space more efficiently, while dealing with absenteeism of co-workers (Dale & Burrell, 2010; Harris, 2016; Kim et al., 2016), some may also lack of status or safety space (Brunia et al., 2016; Oldham & Brass, 1979; Yunus & Ernawati, 2018).

Prior research considers the availability of necessary tools to express problems and/or solutions as crucial to the whole creativity process and therefore as facilitator for innovation activities (de Paoli et al., 2019; Kristensen, 2004; McCoy & Evans, 2002), specifically graphical ways of expressing information improves viewers capability to 'connect the dots' in explanations themselves, as it stimulates different parts within the brain to commence with creative thinking activities (Bobrow & Norman, 2014). However, Ipsen et al. (2021) found that one disadvantage of WFH can be the low quality in office equipment which may cause difficulties for work. Further aspects of traditional workplace design are: (1) the lighting situation, as it is proven that natural light influences both, the creativity and concentration activities (Lan, Hadji, Xia, & Lian, 2021; Weitbrecht, Bärwolff, Lischke, & Jünger, 2015); and (2) decorations according to working style and culture (Davis et al., 2012), which are known to enhance employee creativity (Davis, 1984; Meinel et al., 2017) and generate guidance to employees (Evans, Fellows, Zorn, & Doty, 1980). The latter is most likely not necessary for home offices' spatial arrangements when it comes to finding the next printer or coffee maker.

Altogether, prior research has already shed light on creativity enhancing workplace design. A workplace that is inspiring consists of different dimensions, which may not all hold true after employees have adapted to their new (remote) work reality. The interest is still increasing as employee creativity is one of the most effective drivers for innovation activities and for overcoming crises. Nevertheless, with the change in the way we work, including the flexibility and partial need for WFH, the need to re-evaluate traditional workplace design effects on creativity when working from home is evident. What may have been inspirational pre-pandemic may be obsolete today. Hence, we postulate the following hypothesis:

> **H2.** Workplace design is positively associated with creative problem-solving capacity.

2.4 | The mediating role of internal knowledge exchange

Increased interaction leads to knowledge exchange (Sugiyama et al., 2021) and hence, increases creativity in organizations (Carmeli et al., 2013). Sharing an understanding and working towards a common goal fosters social significance and impact in creation processes (Robertson, O'Reilly, & Hannah, 2020). As information exchange is one of the key drivers for creativity, employees must be in short proximity with their (most important) co-workers (Davis, 1984; Gastelaars, 2010). The distance between co-workers can be seen as a limiting factor to the frequency and quality of communicational interaction (McCoy, 2005; Sugiyama et al., 2021). Allen (1995) found that with a greater distance, the communication suffers tremendously. In his research, the author states that people in open office landscapes are not only more in interaction with co-workers, but also the number of different interaction partners is increasing. Furthermore, the author asserts that co-workers in different buildings or floors tend to rarely exchange with each other. However, information is not only expressed by talking or writing but also through nonverbal expressions, the distance between co-workers therefore matters in terms of face-to-face communication and transport of nonverbally expressed information (Groves & Marlow, 2016; Sugiyama et al., 2021; Toker & Gray, 2008). But, as companies become more international, WFH seems to become the holy grail for closing distances on a global scale. The introduction of digital communication modes (Lee & Trimi, 2021; Mantesi et al., 2022; Tønnessen, Dhir, & Flåten, 2021) may have increased the perception of overcoming any distance. Although, WFH may be here to stay, connections forged during business hours and relationships built formerly at the coffee maker, may seem under distress nowadays (Yang et al., 2022), leading to interpersonal challenges such as loneliness and decreased interaction and communication with others (McGee et al., 2023).

Changing the workplace regarding project requirements enables the frequent direct interaction with different co-workers, it leads to a high perception of collaboration and communication, which are both expressed via culture and positively associated with creativity and innovation activities (Allen & Gerstberger, 1973; McElroy & Morrow, 2010). As knowledge exchange within a team is highly recommended, so is interaction beyond the confined space of the team. Workplaces that facilitate the creation of so-called weak-ties strengthen knowledge exchange on the organizational level instead of limiting it to the team level (Brunia et al., 2016; Reiter-Palmon & Royston, 2017). Weak ties are defined as "social relationships, which are typified by infrequent interaction, short history, and limited (emotional) closeness" (Baer, 2010, p. 592). Jo et al. (2021) investigated the effects that arose with COVID-19 on different ties, such as the advice tie and the friendship tie. The results show that all tied connections were reclining, being in line with statements by Gifford (2022) that the risk increased to be out of sight and therefore out of mind.

Prior research has shown that humans are most likely to follow behaviour from extraverted people. Therefore, if workplaces are designed for collaboration – followed by the assumption that extraverts need collaboration areas – they may influence co-workers who are less extraverts to develop similar behaviour for creativity, such as interaction and collaboration or exchanging ideas which all lead to higher creativity and therefore more effective innovation activities (Feiler & Kleinbaum, 2015). Grant and Berry (2011) further argue that taking others' perspectives and understanding their needs benefits overall motivation to participate in ideation and creativity activities. This means that whenever co-workers perceive others' behaviours as beneficial, this can have a positive spiralling effect on interaction and knowledge transfer. Although spatial arrangements need to be designed to increase interaction and collaboration, spaces that draw on needs for different personality traits (i.e., extroverts versus introverts) may lead to long-term satisfaction on all levels (Reiter-Palmon et al., 2019). This approach seems also valid when looking at the rise of new working practices such as conference calls and hybrid meetings with an increase in general communication leading to intensified background noise and disturbance of employees (McGee et al., 2023; Mesthrige & Chiang, 2019). However, with challenges like the higher demand in WFH and the constant increase in digitalization, we argue for a re-evaluation of prior workplace design. Hence, we postulate the following hypothesis:

> **H3.** Workplace design is positively associated with internal knowledge exchange.

While most of the work force has settled into WFH practices and would like to work two to three days a week either from home or the office (Lucius et al., 2023; Smite et al., 2023), knowledge exchange and personal interaction becomes more important in workplace design than carrying out the actual work to stay creative. We follow the definition of Carmeli et al. (2013) who refer to creative problem-solving capacity as the ability of an individual to approach problems creatively and, more importantly, successfully. There is a huge body of research on knowledge parameters affecting creative problem-solving capacity (Almeshal & Aloud, 2019; Carmeli, Levi, & Peccei, 2021; Ford, 1996; Isaksen, 2019; Kristensen, 2004). However, empirical evidence is still missing on workplace design and creative problem-solving capacity (de Paoli & Ropo, 2017; Magadley & Birdi, 2009; Meinel et al., 2017). Based on previous research of Carmeli et al. (2013), internal knowledge exchange has (positive) direct effects on creative problem-solving capacity. Further, we assume that workplace design has direct effects on creative problem-solving and internal knowledge exchange, as it enables autonomy and freedom and provides different settings for diverse work requirements as collaboration or privacy (Amabile & Gryskiewicz, 1989; Lee & Brand, 2005). We further assume that (successful) internal knowledge exchange mediates the relationship between workplace design and creative problem-solving capacity, as it is found to increase the interaction frequency (Kristensen, 2004). We therefore derive the following hypothesis:

> **H4.** Internal knowledge exchange mediates the relationship between workplace design and creative problem-solving capacity.

Figure 1 displays the conceptual model, which shows the influence of workplace design (WPD) on creative problem-solving capacity (CPSC). This relationship is mediated by internal knowledge exchange (IX). It further shows that WPD influences the internal knowledge exchange.

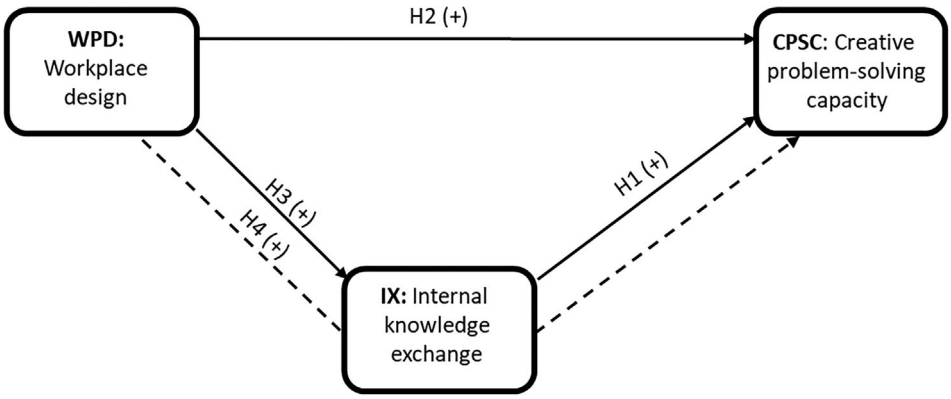

FIGURE 1 Conceptual model (own illustration).

3 | METHOD & DATA ANALYSIS

3.1 | Method

To test and assess the relationships in our proposed research model, we applied the partial least squares structural equation modelling (PLS-SEM) methodology. PLS-SEM is a composite-based statistical analyses method, which enables researchers to assess causal-predictive relationships in structural path models based on theory and furthermore allows for theory development (Sarstedt, Ringle, & Hair, 2021). More specifically, we chose this research methodology for the following reasons. First, Ringle, Sarstedt, and Straub (2012) showed that PLS-SEM is especially applicable when it comes to formative measured latent variables. As the developed construct, that is, workplace design, is measured formatively, PLS-SEM is favourable. Second, Hair, Risher, Sarstedt, and Ringle (2019) suggest using PLS-SEM when assumptions regarding theoretical models are tested. Even though our hypotheses were developed based on extensive literature research, not all had previously been analysed within an empirical model, which we see one of our main contributions also from a more methodological point of view. Third, PLS-SEM works well with small sample sizes, creating high levels of statistical power (Hair, Hult, Ringle, & Sarstedt, 2022). Further, behind PLS-SEM stands a causal modelling approach intending to maximize the model's explained variance of the dependent variables (Méndez-Suárez, 2021). Prior research on HR measures has applied the PLS-SEM approach (Munir & Beh, 2019) with a focus on deriving recommendations for both researchers and HR practitioners (Legate, Hair, Chretien, & Risher, 2021; Sarstedt & Danks, 2022). We estimated the model by using the latest version of the SmartPLS 4 software (Ringle, Wende, & Becker, 2024).

3.2 | Sample

To collect our data, we followed a systematic approach as recommended by previous research (e.g., Olsen, 2011). The sample was collected during summer 2021 via an online survey which was set up with the survey tool Qualtrics XM (Qualtrics LLC, 2021). The authors used snowball sampling to collect the sample, that is, the survey was distributed via e-mail and social media direct messages to personal and professional contacts of one of the authors. The recipients were selected by department and/or function within their organization. All contacted and participating organizations have locations in Germany, but not all have their headquarters in Germany. All participants work in any of the following departments: strategy, innovation management, product development, or similar. While all recipients were asked to participate, some were further asked to distribute the survey depending on their function in the organization. All these multiplicators had previously been contacted and the requirements for this distribution task had been explained in a personal online meeting. The respondents were assured confidentiality.

Various measures were deployed to avoid common method bias, that is, explanations of the survey's purpose to respondents in the introduction text during data collection; translations of the items back and forth from English to German during item development to ensure correct translations; iterative improvements of understanding during two pre-test rounds; and reverse-coding of questions to check participants attention. All survey questions were set to mandatory to ensure as few surveys with missing values as possible. Surveys that had not been completed and had more than 15% of missing values, were excluded from the analysis as well as responses with suspicious response behaviour (such as responses that were fully agreeing to all items for the whole survey) as recommended by the most recent PLS-SEM guidelines (Hair et al., 2022). The data cleaning led to a final sample of 168 responses out of 237 initially collected responses, which was used for the data analysis. Regarding the descriptive statistics, the participants' average age was 38 years and their tenure in the organization being approx. 6 years on average. Regarding the gender of the respondents, 58.3% were male, while 39.9% were female, 1.2% identified themselves as diverse, and 0.6% preferred not to answer. While 61.9% held a master's degree and 19.6% a bachelor's degree, 2.4% finished high school and 6.5% vocational school. A small number (6.5%) of the participants had a PhD or similar and 3% preferred not to answer. Because of COVID-19 restrictions, many respondents worked both, in the office and from home (WFH 3.16 workdays per week – SD 1.63). Tenure and education further served as control variables.

3.3 | Operationalization of variables

All items were drawn from the existing literature and adapted to fit the research context (see Appendix A). Items were measured on a 5-point Likert scale, with 1 meaning "not at all" and 5 meaning "to a large extent". The adapted items of the constructs' creative problem-solving capacity and internal knowledge exchange were drawn from Carmeli et al. (2013; see also Appendix A for further literature that built on this prior research). The first scale is subdivided according to the four steps of creative problem-solving which were established by Reiter-Palmon and Illies (2004); namely: (1) problem definition and construction, (2) idea generation, (3) idea evaluation, and (4) idea implementation. Each step is described by two items, leading to eight items in total. To maintain content validity, we assessed creative problem-solving capacity as a higher-order construct measured via a reflective-formative hierarchical component model (HOC; Hair et al., 2022). For the reflectively measured construct internal knowledge exchange, items were based on former research by Lee (2001) and Lu, Leung, and Koch (2006).

We developed the workplace design construct based on extensive literature research, leading to seven dimensions of attributes for a workplace conducive to creativity, such as seating arrangements, flexibility, or lighting situation (see Appendix A for more details). These dimensions are following the current trends in modern office design and are set to inspire employees to be innovative (Allen &

Gerstberger, 1973; de Paoli et al., 2019; de Paoli & Ropo, 2017; Groves & Marlow, 2016; Kohlert & Cooper, 2018). To validate these assumptions, several expert interviews were conducted. Identified experts for the initial round of interviews had a background in workplace design and creation for innovation or creativity. In a second round, experts for each individual dimension were interviewed to develop the index further. Because of the diverse setup of the construct we decided to measure it formatively. To grasp the extent of workplace design, we first provided contextual descriptions to the participants, which were then transferred into a 5-point Likert scale, ranging from 1 = "not inspiring" to 5 = "highly inspiring". We saw the need to understand the actual setup of an office and not the subjectively perceived reality of employees, which may differ to a great extent. Therefore, the objectively described answering scales per item describe only objects, which have been referred to as inspiring or less inspiring because of the existing body of knowledge. We transferred the scale into a 5-point Likert scale system to allow data analysis.

3.4 | Data analysis

The data analysis follows the guidelines provided by Hair et al. (2019, 2022) to estimate the model results. First, we assessed the reflective and formative measurement models, before assessing the structural model. We ran bias-corrected bootstrapping in the SmartPLS-software with 10,000 subsamples and chose the one-tailed test based on a 95% significance level.

We assessed the reflective measurement model and the reflective lower-order constructs (LOC) by analysing indicator reliability, internal consistency, convergent validity, and discriminant validity. All indicator loadings in the reflective measurement model and the LOCs are well above the recommended threshold of 0.708 (see Table 1).

To assess the internal consistency, Cronbach's Alpha values were assessed for the reflective constructs. For all reflective constructs, values lie within the interval of 0.6 and 0.9 (Hair et al., 2022). This is also confirmed by the ρ_A-values (see Table 2). All constructs' values are satisfactory. Next, the average variance extracted (AVE) was used to measure the construct's convergent validity. As can be seen in Table 2, the values exceed the threshold of 0.5, confirming convergent validity.

The heterotrait–monotrait ratio of correlations (HTMT) was then used to assess discriminant validity (Henseler, Ringle, & Sarstedt, 2015). The value for all reflective constructs is significantly below the conservative threshold of 0.85, and the constructs can therefore be clearly distinguished from one another (see Table 3), wherefore discriminant validity is found to be established.

Next, we assessed the formative indicators. All weights of the workplace design construct are significant, whereas the lighting situation (LIGHT; 0.411) has the highest importance, followed by the possibility to select where to sit (SELECT; 0.339) and the availability of tools and equipment (TOOL; 0.305; see Table 4). Following the same approach to assess the lower-order construct's (LOCs) weights for creative problem-solving capacity (CPSC), we confirm significance for all four dimensions of the higher-order construct.

We then tested the HOC for potential collinearity issues since we decided to measure creative problem-solving capacity as a reflective-

TABLE 1 Outer loadings of the reflective measurement models.

Construct	Item	Loading
IX – Internal knowledge exchange	IX_1	0.831***
	IX_2	0.908***
	IX_3	0.851***
	IX_4	0.830***
PROB (LOC) – Problem definition	PROB_1	0.948***
	PROB_2	0.936***
IDEA (LOC) – Idea generation	IDEA_1	0.902***
	IDEA_2	0.920***
EVAL (LOC) – Idea evaluation	EVAL_1	0.909***
	EVAL_2	0.919***
IMPL (LOC) – Idea implementation	IMPL_1	0.944***
	IMPL_2	0.947***

Note: Significance intervals; 95% confidence interval, one-tailed testing.
Abbreviations: LOC, lower-order construct; PCI, percentile confidence interval.
***$p < .01$.

TABLE 3 Discriminant validity (HTMT results).

Constructs	EVAL	IDEA	IMPL	IX
EVAL	1			
IDEA	0.626	1		
IMPL	0.378	0.379	1	
IX	0.442	0.447	0.225	1
PROB	0.480	0.686	0.287	0.355

Abbreviaiton: VIF, variance inflation factor.

TABLE 2 Construct reliability and validity.

	Cronbach's alpha	ρ_A	Composite reliability	Average variance extracted (AVE)
PROB	0.874	0.880	0.941	0.888
IDEA	0.796	0.801	0.907	0.830
EVAL	0.804	0.806	0.911	0.836
IMPL	0.882	0.882	0.944	0.732
IX	0.878	0.891	0.916	0.732

Note: HTMT, Heterotrait–Monotrait ratio of correlations; PCI, percentile confidence interval; 95% confidence interval, one-tailed testing.

TABLE 4 Outer weights and collinearity statistics formative measurement models.

Construct	Item	Weight	Inner VIFs
WPD – Workplace design	DECO	0.293***	1.244
	FLEX	0.201**	1.214
	IND	0.156*	1.083
	LIGHT	0.411***	1.092
	PROX	0.153**	1.165
	SELECT	0.339***	1.245
	TOOL	0.305***	1.131
CPSC – Creative problem-solving capacity	PROB	0.338***	1.540
	IDEA	0.394***	1.756
	EVAL	0.354***	1.424
	IMPL	0.241***	1.161

***p < .01.**p < .05.*p < .1.

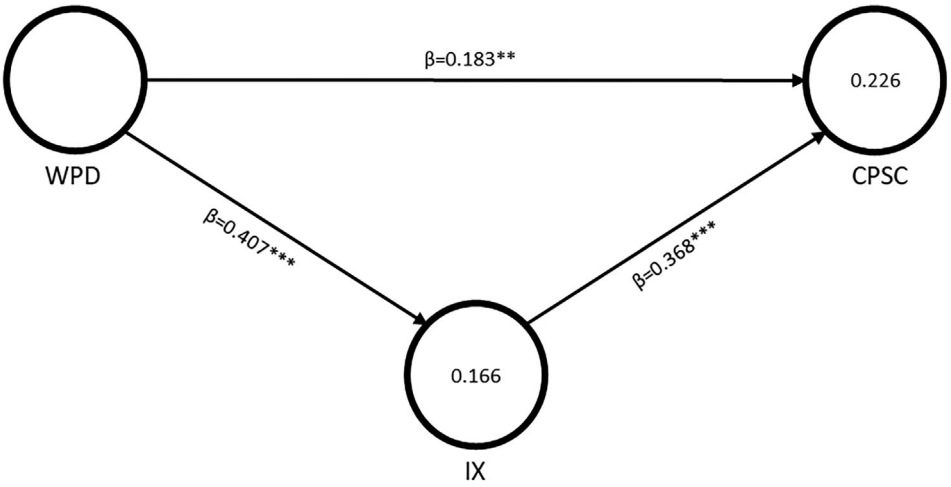

FIGURE 2 Empirical results derived from the SmartPLS 4.0 software (note: ***p < .01; **p < .05; CPSC, creative problem-solving capacity; IX, internal knowledge exchange; WPD, workplace design.).

formative hierarchical component model (HCM). Following the embedded two stage approach as suggested by Ringle et al. (2012) and Sarstedt, Hair, Cheah, Becker, and Ringle (2019), we first estimated the reflective measurement models (the satisfactory results can be found in Tables 1 and 2), before we derived the outer VIFs for the HOC (see Table 4). Again, we found no sign of critical collinearity issues.

Next, we evaluated the structural model. We first looked for potential collinearity issues and then assessed the significance and relevance of the path coefficients. The inner VIFs are all below the conservative threshold of 3.3 (Kock, 2015). As the highest value is 1.199, we assume that there are no critical collinearity issues. Based on the low inner VIF values, we also confirm statistically that common method bias does not affect our results.

Moreover, the R^2-value is 0.226, that is, our path model explains 22.6% of the variance in the target construct, that is, creative problem-solving capacity, among our respondents. Compared with similar studies such as Carmeli et al. (2013), which explained 23% of the variance in creative problem-solving capacity, we find our explanatory model power to be sufficient. Moreover, the model's path coefficients show significant results (see Figure 2). WPD points to a higher likelihood of IX ($\beta = .407$) as to CPSC ($\beta = .183$), with both effects being significant. The effect of IX on CPSC ($\beta = .368$) is significant as well.

The specific indirect effect is also significant (0.150***). As both effects show positive values, the indirect is a complementary effect, meaning that the relationship between workplace design (WPD) and creative problem-solving capacity (CPSC) is partially mediated by internal knowledge exchange (IX; Nitzl, Roldan, & Cepeda, 2016).

4 | DISCUSSION

Although working from home has broadly been accepted and lived by knowledge workers these days, we set the purpose for this study to challenge the perception that going to the office has become a long-

gone trend; specifically, when looking at much needed creativity at the workplace. Hence, we developed a formative index that allowed us to understand which parts of workplace design can be understood as creativity enhancing and therefore, as inspiring. Therefore, we define workplace design that is conducive for creativity as a place which inspires employees to act creatively by supporting collaboration and interaction, stimulating employees' minds to think differently and furthermore facilitating different steps within the innovation and creativity processes (Kristensen, 2004; McCoy & Evans, 2002; Magadley & Birdi, 2009). These are aspects of former workplace design that still hold true, verified by the outcome of our analysis.

We tested our assumptions by means of a structural path model with internal knowledge exchange as a mediator between workplace design and creative problem-solving capacity. The discussion of our results shows that we were able to confirm all posited hypotheses. As stated in our results section, the lighting situation has the highest impact on creativity. This is certainly a valid point in workplace design. However, there are certain workplace regulations implemented by governments making this statement a necessity as such, with restrictions stating that a desk for example is not allowed to be further away from the windows then a specific number of meters. The exact amount differs between countries, with the Netherlands having introduced one of the lowest distances between windows and desks (Lan et al., 2021; Steidle & Werth, 2013; Weitbrecht et al., 2015). Although we provide evidence for these regulations with our results, this may not be the most interesting finding. Instead, most surprisingly seems to be the unexpected result that proximity to one's co-workers seems to have the lowest impact on creativity. Although various studies have found that for effective communication it is not only relevant what someone says, but also what they show and how often they interact with their colleagues (Sugiyama et al., 2021), this may not hold true for all stages of the creativity process, and further indicates that a certain amount of working remotely can even benefit employees' creativity as it liberates autonomy and freedom when handed over the control of their work-life balance. Specifically with the rise of digitalization in recent years and many different online platforms that facilitate exchange (Lee & Trimi, 2021). However, as we wanted to know more about the interaction between co-workers, we asked the participants to tell us about their interaction behaviour, in the sense if it has become more or less spontaneous or remained the same as before COVID-19. The vast majority (61.4%) stated that it has become less spontaneous. Further, we asked them to tell us what they miss about the office as an open question with no given answers to choose from. Supporting other researchers results, participants missed most their social life when thinking about the office. Named categories were the colleagues, the social interaction, and the spontaneity. These results further indicate that although creativity may not be directly impacted by proximity, low informal or social interaction in a work context will lead eventually to lower well-being and can critically endanger creativity (Lucius et al., 2023; Mantesi et al., 2022).

Based on our findings, we argue that employees who are able to select their workplaces according to their tasks tend to be more creative, as it fosters autonomy and freedom, which is related to a high creativity among workers. This effect was also examined by prior research (Allen & Gerstberger, 1973; Kim et al., 2016; Yunus & Ernawati, 2018), providing the basis for this item in our study. While opponents to shared desk principles argue that users will lose status or perceive it as a loss of their own retreat or safety space (Brunia et al., 2016; Oldham & Brass, 1979; Yunus & Ernawati, 2018), it does not seem to affect creativity as it rather enables flexibility to sit with different project teams or colleagues as one likes. Further, sufficient, and available equipment facilitates creative problem-solving capacity among employees. It gives employees the possibility to express and describe their problems and ideas and further leads to a higher understanding on side of their counterparts (Levie & Lentz, 1982; Magadley & Birdi, 2009). This may have been one of the biggest challenges for workers during the pandemic, when being sent home (Ipsen et al., 2021; McGee et al., 2023).

However, based on the findings of our study, we find that workplace design is positively associated with creative problem-solving capacity of employees. Hence, our results confirm previous results that creative problem-solving capacity can be enhanced by a physical work environment (Dul et al., 2011; Magadley & Birdi, 2009; McCoy, 2005; Meinel et al., 2017; Yekanialibeiglou et al., 2021). Furthermore, and most importantly, with our research, we are the first to provide a quantitative measure for how workplace design dimensions inspire creativity as perceived by employees, which we find to also be positively associated with internal knowledge exchange in our data analysis. Our results confirm previous research empirically (Allen, 1995; Davis, 1984; Gastelaars, 2010; Sugiyama et al., 2021; Toker & Gray, 2008). While the relationship between internal knowledge exchange and creative problem-solving capacity is evident within research and literature, being validated inter alia by fundamental facts on how creativity works (Amabile, 1988; Sweller, 2009), the impact of workplace design on both is still in its infancy. This goes along with only a few research projects on a topic, which seems to be highly relevant in economics nowadays. Nevertheless, as there has only been marginal empirical research on the inspirational part of workplace designs confirming effects on creative problem-solving yet, we argue that this assumption seems valid from our results.

5 | MANAGERIAL IMPLICATIONS

With an eye on workplace design to enhance creativity and inspire employees, we argue that companies, or more specifically, senior decision makers, must rethink their office strategy, specifically their wished outcome and purpose. Social interaction as a driver for creativity should be brought into focus leading to offices that resemble inspiring spaces for intentional collaboration, spontaneous interaction, and more importantly ongoing communication. Although many offices may now have been broadly equipped with high-standard desktops and adjustable desks, offices at home have gotten a needed upgrade since the beginning of COVID-19 pandemic (Cuerdo-Vilches et al., 2021; McGee et al., 2023). This means that organizations must find new ways of intriguing employees to come back to the office.

While pre-pandemic workplaces were designed to foster (spontaneous) encounters leading co-workers to exchange ideas, problems, or general topics over a cup of coffee or at the printer station (de Paoli & Ropo, 2017), we advise organizations not only to present these opportunities, but rather emphasize in person coffee chats or meeting days, with opportunities to meet old and new colleagues at the office. This may also foster knowledge exchange further by identifying potential internal stakeholders and new sources for information (Ipe, 2003; Levin & Cross, 2004). Our results do not point towards a totalitarian approach for returning to the office all days a week, but rather for handling the new way of working with creativity by creating lasting memories on office sites, as former research has shown, that WFH for a couple of days per week should still be the norm to foster creativity and identification (Lucius et al., 2023).

While different factors enable working from home for employees, there are also some arguments that hinder them to return to the office full-time, such as commuting ways, childcare or just in general work-life balance (Ipsen et al., 2021). Although some employees value the flexibility of working from home (such as due to the time saved for commuting) more than the interaction at the office, from a company perspective it makes sense to encourage this employee segment to show up at the office, specifically as solely working from home has disadvantages for the well-being of the employees (Jo et al., 2021) and potentially to their career (Gifford, 2022). However, with diverse characteristics, personal challenges, and expectations to their workplace, employees make it difficult for their employers to satisfy all needs and it would be illusionary to assume that there exists the perfect office for all the employees at the same time (Smite et al., 2023). Hence, conducting employee surveys to better understand employees' preferences might therefore be a valuable tool for managers to better understand the value of workplace design. When management follows the survey results, this can even enhance employees' perception on having a word to say in establishing the workspace, leading to increased ownership and higher motivation to use their creativity at work.

Office spaces that support internal knowledge exchange, while at the same time offering space(s) for concentrated work, need to be created to emphasize collaboration and interaction among team members. Even though virtual collaboration tools have rapidly been developed (Lee & Trimi, 2021; Tønnessen et al., 2021; Yang et al., 2022), we emphasize keeping offices as marketplaces for innovation activities and stimulants for creativity. Further, we suggest that companies that want to transform their traditional offices, or are in search of new locations and buildings, integrate their employees' knowledge on processes and structures and ask them openly for participation and contribution. When in search of a new office location, better commuting options for employees might be another way to encourage employees to come to the office two or three days per week. Independently of being in search or not, this could include sustainable solutions, such as free public transport for employees or work bicycles. The opportunity for a short coffee break with colleagues either at the office or in the close surroundings can increase employees' willingness to come to the office and lead to better communication as well as collaboration because of the establishment of weak-ties and thereby facilitate innovation at the workplace. Policymakers need to consider how to encourage companies in this movement, as unused space and high real estate cost might hinder companies in investing in creativity-enhancing tools and mechanisms. Rather than offering obvious benefits for shutting down offices, for the overall economy it might be more beneficial to subsidize flexible office spaces that different companies can use at different days or times during a week. As the cost for office rent and energy has increased, transition into collaboration and interaction areas (Mantesi et al., 2022; Parker, 2020) might be one rational way to tackle this from a company perspective.

In summary, an inspiring workplace should encourage people to exchange and share ideas. Companies can structurally transform their workplace and pay particular attention to lighting, flexibility, and well-equipped conference rooms and workstations. However, this alone will not motivate employees to come back to the office. Hence, beyond that, there are cultural aspects that a company can address, such as incentivizing employees to come to the office by offering gatherings for social activities rather than forcing them to return, when it seems to be more common and comfortable staying at home for work. To conclude, we recommend decision makers to find a balance between remote and onsite work, showing empathy for their employees changed situations, while at the same time welcoming them back to the office to seek inspiration and social interaction in a work context.

6 | LIMITATIONS AND FUTURE RESEARCH

With the ongoing COVID-19 situation during our research process, we faced some limitations. First, the rather simple model shows only some effects that play a role in increasing employees' creative problem-solving capacity as a measure for creativity. Future research could build on and extend our proposed model to include further drivers of creative problem-solving capacity. Moreover, our data was collected in Germany only. To account for potential differences, the model should be tested in various countries in the future to compare and derive implications of cultural or national differences in work ethics and behaviour. Another limitation is the generally self-reported nature of survey designs.

Nevertheless, these limitations offer avenues for future research. Based on the results, we find that workplace design can inspire employees and has a significant effect on employees' creativity. Therefore, to further validate the developed model, we recommend that future research should be conducted within a certain time after the pandemics impact on the workplace situation has decreased. In addition, it should be conducted within different contexts of influences of employees' creativity such as human resource practices or in different work settings, for example, before starting to work at an organization, employees could be asked about their preferences as it is often the case now already regarding remote work. This would not only underpin all constructs' validity due to different and larger samples, but also establish evidence for the relationship between an

inspiring physical workplace and creative problem-solving capacity as well as the role of internal knowledge exchange as a mediator in this relationship. In addition, researchers are now able to use attributes or items from the proposed workplace design index to assess specific behavioural influences on employees to deepen the understanding of these aspects. Nevertheless, qualitative in-depth interviews could be conducted with employees from different workplace settings to learn about even more specific needs based on the developed quantitative instrument. More factual data could additionally be used in future research to look at actual employee output before and after offering more inspiring workplace designs. To get a better picture before its implementation, experimental research designs could be conducted to test a variety of preferences.

As the focus of this study was the office environment in Germany, researchers may address cultural differences in knowledge exchange and creativity and the impact of modern office designs. Finally, as the digitalization is overtaking modern office communication, as was the case also specifically during COVID-19, the requirements for offices have changed in many ways. Future research therefore needs to consider what the office of the future should best look like to encourage employees to come back to their physical office, and which aspects are more important than others as perceived by employees. After all, what companies need is employees' creative ideas for developing solutions to their problems of tomorrow, and an inspiring physical workplace is one important element in reinforcing this development with the potential of ensuring long-term competitive advantage of the organization.

ACKNOWLEDGEMENTS

This paper is part of the corresponding author's doctoral research. Open Access funding enabled and organized by Projekt DEAL.

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How to cite this article: Lucius, Z. K., & Damberg, S. (2024). Why we need employees back at the office: The effect of workplace design on creativity in organizations. *Creativity and Innovation Management*, 1–17. https://doi.org/10.1111/caim.12611

APPENDIX A

Construct	Items		Scale		Source
WPD	TOOL	To which extent do you have access to available tools/equipment (e.g., workshop material, white-boards, 3D-printer, etc.)? Please consider only work- relevant equipment or tools.	1	I do not have access to equipment.	Levie and Lentz (1982), Bobrow and Norman (2014), de Paoli et al. (2019)
			2	I have limited access to equipment due to office regulations.	
			3	I have access to equipment for purpose-driven events with booking in advance.	
			4	I have access to the equipment, which is available in specific/assigned areas at all time.	
			5	I have open access to all kinds of equipment at all time.	
	FLEX	To which extent can you adjust your workplace?	1	I have no possibility to adjust my workplace.	Davis (1984), Dale and Burrell (2010), Groves and Marlow (2016)
			2	I have a limited possibility to adjust my workplace (e.g., height-adjustable table and chair).	
			3	I have the possibility to move furniture within my assigned workplace.	
			4	I have the possibility to adjust and move the furniture within my assigned office and in conference rooms.	
			5	I have the possibility to adjust all areas by moving furniture conditional to tasks and or projects.	
	LIGHT	To which extent do you have access to windows and daylight?	1	I do not have windows within my office room.	Tomassoni, Galetta, and Treglia (2015), Weitbrecht et al. (2015), Lan et al. (2021)
			2	I sit in a room with windows, but do not have direct access to the window.	
			3	I am in reach of a window, but cannot view outside.	
			4	I sit next to a window and can look outside.	
			5	I sit next to a window and see nature outside (forest, park, a river).	
	DECO	To which extent is your workplace interior decoration matching your corporate culture?	1	There is no decoration.	Kristensen (2004), Dul et al. (2011), Davis et al. (2012)
			2	There is a basic decoration with no recognizable line/strategy (occasionally an image, a plant or a colourful highlight).	

(Continues)

Construct	Items		Scale		Source
			3	There are decoration elements matching corporate culture in representative rooms as entrance area or managers' offices.	
			4	There are decoration elements in every office and entrance areas matching corporate culture.	
			5	There is a design concept through all areas matching corporate culture.	
Construct	Items		Scale		Source
	PROX	In what spatial distribution do you and your momentarily most important co-workers (same location) work together?	1	We work in different buildings within one location.	Allen (1995), McCoy (2005), Gastelaars (2010)
			2	We work in one building, but on different floors with individual kitchen and conference rooms directly enclosed, no need to change floors.	
			3	We work on one floor in separated offices, all rooms (offices, kitchen, and conference rooms) are parted by walls.	
			4	We work in offices, which are directly enclosed and/or connected with each other. Open community areas with kitchenettes and conference rooms are separated.	
			5	We work in merging rooms were community spaces, kitchenettes, private and community workplaces, and conference areas are intertwining.	
	SELECT	To which extend did you choose your current workplace yourself?	1	I do not have the possibility to choose my individual office or shared office (max. 2 people).	Allen and Gerstberger (1973), McCoy and Evans (2002), Harris (2016)
			2	I do not have the possibility to choose my cubicle within the open office landscape where I sit.	
			3	I had the possibility to choose my workplace within an assigned area.	
			4	I have the possibility to choose my workplace according to project work occasionally all over the place.	
			5	I have the possibility to choose my workplace daily - according to my tasks and projects all over the place.	
	IND		1	I was not able to individualize my workplace.	

Construct	Items		Scale		Source
		To which extent have you been able to individualize your workplace?	2	I was able to put up some individualization on my assigned desk.	Amabile and Gryskiewicz (1987), Wells, Thelen, and Ruark (2007), Harris (2016)
			3	I was able to individualize my direct workplace incl. Surrounding walls, boards, desks, etc.	
			4	I was able to individualize my whole working area including community spaces and/or meeting areas.	
			5	I was able to participate within the decision-making process on how to set up the office.	
Construct	Items		Scale	Source	
IX	IX_1	I meet with my colleagues in this organization and exchange ideas with them regularly.	1 (not at all) to 5 (to a large extent)	Lee (2001), Lu et al. (2006), Carmeli et al. (2013)	
	IX_2	I access/approach my colleagues in this organization and exchange new ideas and developments with them.	1 (not at all) to 5 (to a large extent)	Lee (2001), Lu et al. (2006), Carmeli et al. (2013)	
	IX_3	I interact with my colleagues in this organization to discuss suggestions and ideas.	1 (not at all) to 5 (to a large extent)	Lee (2001), Lu et al. (2006), Carmeli et al. (2013)	
	IX_4	I make sure to be available for sharing experiences with my colleagues in this organization.	1 (not at all) to 5 (to a large extent)	Lee (2001), Lu et al. (2006), Carmeli et al. (2013)	
CPSC	PROB_1	I have the capability to define work problems creatively.	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	
	PROB_2	I have the skill to creatively articulate work problems.	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	
	IDEA_1	I have the ability to generate novel ideas to solve wok problems.	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	
	IDEA_2	I have the capability to suggest creative solutions to work problems.	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	
	EVAL_1	I have the capability to appreciate what ideas are best for solving work problems.	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	
	EVAL_2	I have the capability to choose the optimal solution for a specific work problem.	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	
	IMPL_1	I have the capability to effectively implement novel ideas chosen to solve a specific work problem	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	
	IMPL_2	I have the capability to implement the chosen creative solution to solve a specific work problem.	1 (not at all) to 5 (to a large extent)	Reiter-Palmon and Illies (2004), Carmeli et al. (2013), Almeshal and Aloud (2019)	