

The role of collaborative human resource management in supporting open innovation

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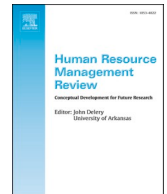
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The role of collaborative human resource management in supporting open innovation: A multi-level model

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ABSTRACT

With open innovation (OI) playing an important role in many organizations' innovation strategy, there is growing interest in the human aspects of OI. An important challenge for managing OI remains the motivation of individuals for knowledge sharing and sourcing (KSS). To address this issue, we argue that managers responsible for OI need to use collaborative human resource management (collaborative HRM) practices to create the conditions to develop relational leadership and an open innovation mindset (OI mindset) among employees. Since OI research is largely focused on the organizational level, the micro-foundations of OI, as well as the interdependencies across team and individual levels are not yet fully understood. There is no systematic approach for understanding the role of collaborative HRM and the process through which employees' KSS and use OI within their organizations. We build on social exchange theory to develop a multi-level model of collaborative HRM practices used through relational leadership and OI mindset to enable employees to KSS and improve OI performance.

1. Introduction

Open innovation (OI) is widely recognized as a distributed innovation model that involves knowledge flows across organizational boundaries (Chesbrough & Bogers, 2014; Dahlander & Gann, 2010; Randhawa, Wilden, & Hohberger, 2016). It embraces leveraging external sources and capabilities to complement internal ones, to accelerate innovation and build a sustainable competitive advantage (Bogers, Chesbrough, Heaton, & Teece, 2019; Chesbrough & Bogers, 2014; Chesbrough, Vanhaverbeke, & West, 2006). However, in the face of OI, employees may exhibit a tendency to reject new ideas from outsiders, the so-called 'Not-Invented-Here' (NIH) syndrome (Antons, Diener, Koch, & Piller, 2017; Katz & Allen, 1982), as well as negative attitudes towards the sharing of internally developed knowledge, the so-called 'Not-Sold-Here' (NSH) syndrome (Burcharth, Knudsen, & Søndergaard, 2014).

While NIH and NSH syndromes are generally recognized in the OI literature, their attributes and how they could be overcome through management practices, are not fully understood. A particular challenge is that NIH and NSH relate to multiple levels of analysis which link the organization to individual employees and work teams. To address this issue, we introduce knowledge sourcing and sharing (KSS) as a central concept representing mutual knowledge exchange at the employee level which translates into the inflow

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and outflow of knowledge at team and subsequent organization levels. We focus on human resource management (HRM) and more specifically collaborative HRM (Hong, Zhao, & Stanley Snell, 2019; Lepak & Snell, 1999), which supports greater information sharing and cooperation, seeking to improve external connections and interpersonal relationships among employees and between external partners necessary to facilitate OI (Hong et al., 2019; Lepak & Snell, 1999).

Responding to the call for more research on how OI functions across different levels of analysis (Bogers et al., 2017), it is important to better understand the process through which collaborative HRM practices (organizational level) impact both OI teams (team level) and employees' ability (individual level) to enable OI through leveraging external sources of knowledge (i.e. knowledge sourcing) and commercialization paths (i.e. knowledge sharing) (Lenz, Pinhanez, De Césaris, & Jacobs, 2016). Organizations are multi-level systems (Bartram & Casimir, 2007; Bowen & Ostroff, 2004) and understanding OI processes across different levels of analysis, within an organization, is crucial to better understand how to enhance OI performance (Bogers et al., 2017).

Critical to understanding the process through which collaborative HRM practices impact OI across different levels of analysis is the role of relational leadership and OI mindset. OI mindset is rooted at the individual level, that is, in the employee's mind, and has been defined as 'an individual's values, attitudes, and beliefs that capture an individual's openness towards KSS inside and outside the organizational boundaries that are used as knowledge structures to make decisions regarding KSS which is critical to OI performance' (Engelsberger, Cavanagh, Bartram, & Halvorsen, 2021, p. 2). Relational leadership brings OI mindset to life in the collective (at the team level) enacted by the line managers' implementation of collaborative HRM practices (Bogers et al., 2019). Relational leadership is described as 'a social process through which emergent coordination (i.e., evolving social order) and change (i.e., new values, attitudes, approaches, behaviors, ideologies, etc.) are constructed and produced' (Uhl-Bien, 2006, p. 668). Relational leadership is crucial for OI teams to develop KSS given the importance of interactive and collaborative information exchange for problem solving (Lee & Kelley, 2008) and creative work (Stephens & Carmeli, 2017).

In this conceptual paper, we address the following research question: How can collaborative HRM practices enable OI through KSS across organizational, team and individual levels? We theorize, underpinned by social exchange theory (SET) (Birtch, Chiang, & Van Esch, 2016; Cropanzano & Mitchell, 2005) about the importance of collaborative HRM practices that overcome barriers to KSS and enable OI (Gassmann, Enkel, & Chesbrough, 2010). Social exchange theory provides the rationale for the interactions of OI team members, their attitudes and behaviors which may affect KSS and ultimately OI performance.

Our paper makes four contributions to the HRM and OI literatures. First, we provide a more complete understanding of the intersection between OI and HRM. We utilize SET (Birtch et al., 2016; Blau, 1964; Cropanzano & Mitchell, 2005) to develop a multi-level model of the processes through which collaborative HRM practices reduce resistance to KSS and facilitate OI performance. In doing so, we contribute to a greater understanding of the process to enhance OI performance through the use of relational leadership and OI mindset to reduce barriers towards KSS (e.g. NIH and NSH syndromes) in OI teams (Chesbrough et al., 2006). Our multi-level model examines OI processes across different levels of analysis; organizational, team and individual levels (Bowen & Ostroff, 2004) to enhance OI performance. We demonstrate that collaborative HRM and its affects through relational leadership on individual OI mindset and subsequent KSS and OI performance is a multi-level process. Such a multi-level approach represents an important opportunity to 'bridge the micro- and macro-level views' of OI (Bogers et al., 2017, p. 27).

Second, we introduce two new constructs, KSS and OI mindset that mediate the process through which collaborative HRM practices impact OI performance. Importantly, KSS is a new concept that represents the synchronous sourcing and sharing of knowledge among individuals within OI teams both internally and externally to the organization that is critical for OI performance (Rangus & Černe, 2019; Vanhaverbeke, Chesbrough, & West, 2014). We seek to better understand how collaborative HRM practices enable KSS within the organization to support the integration of external knowledge and increase OI performance (Natalicchio, Petruzzelli, Cardinali, & Savino, 2018; West & Bogers, 2014). Moreover, we develop the concept of OI mindset, which we argue, is important to the internalization of OI goals and individual KSS efforts (Engelsberger, Halvorsen, Cavanagh, & Bartram, 2022).

Third, we examine relational leadership for the first time in the context of collaborative HRM and OI to facilitate collaboration in OI teams through building a shared OI mindset and triggering KSS between individuals internal and external to the organization. Fourth, we extend and refine Hong et al.'s (2019) four collaborative-based HRM practices to seven collaborative HRM practices to support OI in contemporary organizations. This is in line with Hong et al.'s (2019) call for further research into additional collaborative HRM practices that can improve OI.

2. Theoretical background

In this paper, SET (Blau, 1964) is used to explain the process through which collaborative HRM enables OI performance, largely through collaboration, which we argue is underpinned by social exchange relationships (Birtch et al., 2016; Cropanzano, Anthony, Daniels, & Hall, 2017; Cropanzano & Mitchell, 2005; Guest & Rodrigues, 2012). SET "views interpersonal interactions from an exchange perspective in which social costs and benefits are 'traded' in relationships governed by normative rules and agreements" (Di Domenico, Tracey, & Haugh, 2009, p. 890). Moreover, SET assumes that people engage in social exchange because they need or desire to acquire rewards or benefits that they cannot obtain alone (Blau, 1964). Cropanzano and Mitchell (2005) suggest each individual's attitudes towards others, and how each individual is included in a group, will influence their level of participation and behavior towards others (e.g. collaboration). According to Meeker (1971) there are six rules that guide such behavior and also contribute towards explaining how decisions are made within groups: reciprocity (the concept of 'giving back'); rationality (use of logic to ascertain likely consequences, such as rewards); altruism (seeking benefits for others at a cost to ourselves); group gain (benefits are communal and shared as required); status consistency (contributions to the group in order to gain status); and competition (harming others, even at a cost to oneself).

We argue that social exchange between team members can be facilitated through line managers implementing collaborative HRM practices in OI teams. The implementation of collaborative HRM practices through social exchange processes drive the development of relational leadership and subsequent OI mindset which in turn enhances KSS and ultimately OI performance. Our central argument is that social exchange between OI team members is critical to generating KSS and is facilitated by using collaborative HRM practices. These collaborative HRM practices are designed to promote collaboration among OI team members through generating relational leadership and OI mindset. Collaboration between team members is premised upon positive social exchanges (Gould-Williams & Davies, 2005; Wu, Chuang, & Hsu, 2014). Di Domenico et al. (2009, p. 891) further explain that ‘collaboration is based on mutually beneficial patterns of co-operation that affect and are affected by the access that participants have to resources, their choices between alternative courses of action or reaction, and anticipated outcomes’.

The process through which collaborative HRM and subsequent relational leadership can contribute to collaboration is explained by the development of trust through reciprocity which is important to overcome inhibitors to KSS (Burcharth et al., 2014). Reciprocity occurs when one team member’s contribution is contingent upon another’s (Gouldner, 1960) and as each individual builds trust, the return is the benefit they receive from the social exchange (Blau, 1964). Reciprocity often engenders stronger interpersonal attachments between individuals or groups and supports trust-building behaviors which can become high-quality and trusting relationships (Cropanzano & Mitchell, 2005; Gigliotti, Vardaman, Marshall, & Gonzalez, 2019; Vardaman et al., 2016). Trust is more likely to emerge out of repeated acts of mutually beneficial exchanges by OI team members (Blau, 1964). Lioukas and Reuer (2015) argue that trust is underpinned by either (1) institutionalization of norms of reciprocity and equity (i.e. institutionalization-based trust) and/or (2) trust based on emotional bonds of friendship or kinship (i.e. affect-based trust). Collaborative HRM practices may institutionalize norms of reciprocity through team-based rewards and team-based performance management practices (Shipton, Fay, West, Patterson, & Birdi, 2005). Moreover, collaborative HRM practices such as decentralized decision making, team-based training and semi-autonomous teams may facilitate repeated exchanges and trust-based behaviors. Affect-based trust relationships are founded on personal relationships that have emerged and matured over time (Cropanzano et al., 2017; Lioukas & Reuer, 2015). Rousseau et al. (1998, p. 399) argued that ‘frequent, longer-term interaction leads to the formation of attachments based upon reciprocated interpersonal care and concern’. Relational leadership is an important social exchange relationship that is underpinned by mutual reciprocity that can support the development of trust and subsequent collaboration (Werbel & Henriques, 2009). Murrell (1997) viewed leadership as shared responsibility in that “leadership is a social act, a construction of a ‘ship’ as a collective vehicle to help take us where we as a group, organization or society desire to go” (p. 35). Importantly, shared leadership relies on collaboration through the lateral influence of team members (Werbel & Henriques, 2009).

3. Linking collaborative HRM, relational leadership and OI mindset

3.1. Overcoming barriers to KSS in organizations

For organizations to use OI as a competitive advantage they need to systematically encourage KSS between employees inside and outside their organization (Laursen & Salter, 2006). It is critical for organizations to understand how to overcome barriers caused by employees’ negative attitudes towards KSS and communication challenges due to cultural, functional and/or organizational differences. SET is useful in shedding some light on how to overcome such barriers.

The lack of trust and reciprocity (Meeker, 1971) between internal and external partners (Monteiro, Mol, & Birkinshaw, 2017) may lead to employees’ negative attitudes towards KSS (Burcharth et al., 2014) and pose barriers to the implementation of OI (Chesbrough & Teece, 2009). According to Liao (2008, p. 1883) ‘interpersonal trust is fundamental to all social situations that demand cooperation and interdependence’ such as that of KSS in OI teams. OI can lead to the loss of strategic knowledge for the organization that shares such knowledge which may reduce their ability to compete in the marketplace. It is important for both organizations and employees to protect their knowledge and competitive advantage (Frishammar, Ericsson, & Patel, 2015). Employees themselves can also be potential recipients of knowledge loss (Christensen, Olesen, & Kjær, 2005) or may be concerned about their reputation when acquiring knowledge from colleagues. If individuals focus on potential problems rather than benefits of knowledge sourcing or perceive knowledge sharing as a potential loss of control or expert power (Herzog, 2011), this may result in negative attitudes towards KSS, such as the NIH syndrome (Katz & Allen, 1982) and the NSH syndrome (Burcharth et al., 2014). The emergence of negative attitudes towards KSS, which are fundamentally rooted in a lack of trustful social relationships (Liao, 2008), may stifle OI (e.g. Manzini, Lazzarotti, & Pellegrini, 2017).

Moreover, communication difficulties can be a barrier to the implementation of OI through hindering KSS among team members. Team members who work together and belong to different organizations may use different ways of working or different technologies. OI teams consisting of employees who work in diverse teams (e.g., cross-functional and inter-organizational) from different disciplinary, technical and organizational backgrounds may increase the likelihood of miscommunication (Ungureanu, Cochis, Bertolotti, Mattarelli, & Scapolan, 2021). Challenges include: difficulties in establishing overarching goals; conflict escalation due to diverse backgrounds; high coordination costs due to heterogeneous capabilities and motivations; and difficulty of incorporating external ideas into a single organization’s product and service offerings (Ungureanu & Bertolotti, 2018; West & Bogers, 2014).

3.2. How HRM affects OI

Recent research has begun to unpack the processes through which organizational strategy, employee characteristics and HRM influences the adoption of OI (Bogers et al., 2017; Bogers, Foss, & Lyngsie, 2018; Hong et al., 2019; Salampasis, Mention, & Torkkeli,

2015). However, only a few studies describe the human aspects of inter-organizational and intra-organizational processes of OI (Hong et al., 2019; Papa, Dezi, Gregori, Mueller, & Miglietta, 2020). Human resource management literature assumes that the contribution of HRM to organizational performance is facilitated through a configuration or bundle of HRM practices, rather than individual HRM practices (Colakoglu, Hong, & Lepak, 2010; Cooper, Wang, Bartram, & Cooke, 2019; Shipton et al., 2005). For example, Barba-Aragon and Jimenez-Jimenez (2020) indicate that strategic HRM practices have a positive and direct effect on organizational innovation. Intra-organizational and inter-organizational HRM practices play a critical role for organizational OI innovation strategy and required KSS behaviors from individuals. Knowledge flows between organizations, teams and individuals are dependent on trust and reciprocity to promote collaborative relationships that encourage KSS (Martin-Rios, 2014). Such collaborative relationships are underpinned by trust, loyalty, and mutual commitments where parties abide by agreed rules of exchange (Cropanzano et al., 2017; Cropanzano & Mitchell, 2005). Such positive social exchange through collaboration is essential to ensure the willingness of internal and external OI partners to engage in KSS (Monteiro et al., 2017). Without collaboration between OI actors, Subramaniam and Youndt (2005) suggest that knowledge may not be shared, further developed or communicated, and may be less likely to lead to innovation. We therefore argue that collaborative HRM practices designed to facilitate collaboration between OI actors are critical to KSS and ultimately OI performance.

Collaborative HRM is underpinned by Lepak and Snell's (1999, p. 40) 'collaborative HR configuration' that focuses on using HRM practices to build relationships between internal and external actors. Zhou, Hong, and Liu (2013) expanded on this seminal work and focused on the desirability of social relationships as an important mechanism through which HRM systems drive innovation. Zhou et al. (2013) differentiated between two innovation-enhancing HRM sets of practices: 1) commitment-orientated HRM (e.g., HRM practices such as self-managed teamwork, egalitarian participation, extensive training, job rotation, information sharing, and development-orientated feedback) to foster intra-organizational innovation; and 2) collaboration-orientated HRM to foster inter-organizational innovativeness (e.g., HRM practices such as a formal external learning program with business partners, consulting service buy-in, flexible partnership with autonomous external professionals and building extensive social networks). The premise of collaboration-orientated HRM is based on the use of external human capital for internal innovation (Zhou et al., 2013).

More recently, Hong et al. (2019) extends both Lepak and Snell's (1999) conceptualization of collaborative HRM and Zhou et al.'s (2013) collaboration-orientated HRM to develop four collaborative-based HRM practices to support OI inclusive of team-based recruitment, training in teamwork skills, team-based appraisals and rewards, and rotational job design. We discuss these collaborative-based HRM practices (we refer to them as collaborative HRM practices) in more detail below. Collaborative-based HRM practices may reduce 'organizational-capability-related barriers to OI while also enhancing employees' capabilities and motivation to participate in [...] open innovation' (Hong et al., 2019, p. 44). Despite this important study, there is limited and piecemeal research on the process through which HRM impacts OI through KSS. Current research has neglected a comprehensive and theoretically underpinned examination of HRM practices to facilitate KSS (Lenz et al., 2016). We extend Hong et al.'s (2019) study to develop seven collaborative HRM practices.

4. Promoting OI through collaborative HRM practices

Critical for OI success, collaborative HRM practices need to facilitate both internal and external knowledge flows. Collaborative HRM practices must therefore enable both commitment to the goals of the OI team with both internal and external partners to leverage KSS to support OI. For OI to be successful, enablers such as relational leadership and OI mindset need to be leveraged to facilitate internal and external KSS (Bogers et al., 2019; Lee, Fong, Barney, & Hawk, 2019). We argue that through the establishment of KSS among internal OI teams, KSS with external knowledge exchange partners can be facilitated. Hence, collaborative HRM practices that foster internal and external KSS are crucial to support OI (Zahra & Nielsen, 2002). Collaborative HRM practices promote internal specific knowledge flows that are critical for innovation largely through developing stronger social exchanges between team members. Positive social exchange creates the conditions for relational leadership and OI mindset among internal OI team members. Collaborative HRM practices facilitate both internal KSS (Zhou et al., 2013) and external knowledge (through stronger social exchange relationships) and may promote external knowledge sourcing which is critical to internal innovation (Lepak & Snell, 1999; Zhou et al., 2013).

To elucidate this process, we draw from contemporary HRM literature to propose seven collaborative HRM practices. The seven collaborative HRM practices include: (1) selective team-based hiring (Hong et al., 2019; Zacharatos, Barling, & Iverson, 2005); (2) team-based training (Hong et al., 2019); (3) team-based reward systems (Ederer & Manso, 2013; Hong et al., 2019); (4) self-managed teams (Evans & Davis, 2005); (5) decentralized decision-making (Salas, Rico, & Passmore, 2017; Zacharatos et al., 2005); (6) team-based performance management (Zhou et al., 2013); (7) job rotational and broad career job design (Zhou et al., 2013). These collaborative HRM practices provide HR practitioners and line managers with a roadmap to enhance OI performance. We now discuss the seven collaborative HRM practices in more detail.

First, we suggest that **team-based hiring (1)** can facilitate relational leadership in OI teams by the recruitment and selection of individuals with attitudes, skills and behaviors conducive to teamwork and collaboration. Selective hiring 'focuses on the fit between employees and their work environment' (Zacharatos et al., 2005, p. 78). Recruitment and selection is designed to find the 'best' employee who is ready for change, and able to contribute to the organization's strategic OI objectives (Hansen, Güttel, & Swart, 2019). Teamwork-based hiring is critical to building and maintaining internal and external relationships that support intra and inter-organizational collaboration for KSS (Hong et al., 2019; Lepak & Snell, 1999). To ensure employees perform KSS within the company, relational leadership skills and behaviors should be considered during recruitment and selection. Recruitment and selection should focus on industry knowledge, teamwork and collaboration capabilities. Hiring employees with the ability for collaboration

could promote shared relational behavior that is critical in building relational leadership and enhancing KSS. Hiring individuals with an OI mindset may be of critical importance to enhancing the capacity for OI in the organization.

After hiring employees with some relational leadership skills and a mindset ready for OI, the next step is to further develop soft skills around communication, negotiation and influencing, as well as strategic objectives and values of the business through **team-based training (2)**. Training is about formal and informal programs to improve knowledge, skills, and abilities and enculturate employees (Evans & Davis, 2005). Team-based training can also foster and enhance an individual's OI mindset by providing employees with the ability to deal with diversity of views and opinions resulting from cross-functional collaboration (Hansen et al., 2019). Training through external and on-the-job interventions that focus on developing relational leadership is critical to enhancing an OI mindset which underpins KSS (Cunliffe & Eriksen, 2011). Training also enables social exchange processes, effective change and relationship building that are crucial for OI mindset and subsequent KSS (Uhl-Bien, 2006). Moreover, training in teamwork skills may reduce employees' attitudinal biases and improve individuals' capabilities to engage in KSS (Hong et al., 2019). Team-based training can focus on the development of interpersonal relationships between internal team members and external OI partners (Lepak & Snell, 1999). Networking and collaborative skills and mindset training can enable KSS (Zhou et al., 2013). Moreover, training to mitigate employee anxiety, insecurity, and negatively biased attitudes are important to overcome NIH and NSH syndromes (Chesbrough et al., 2006; Hong et al., 2019).

Team-based reward systems (3) are important to incentivize commitment and collaboration (Foss, Laursen, & Pedersen, 2011) to support KSS and subsequent OI. This process can be enabled through relational leadership and OI mindset. Rewards, such as recognition of contributions and achievements, are likely to stimulate the logic of members to determine that such initiatives are not only highly beneficial to themselves as individuals but also towards the achievement of team goals (Ederer & Manso, 2013). Team members may engage in rationality and group gain (Meeker, 1971) by considering how they can maximize possible rewards, share knowledge and increase opportunities for OI (Gouldner, 1960). Moreover, this can extend to knowledge exchange partners if they ascertain they will receive more rewards than costs associated with a project. Therefore, rewarding KSS among OI team members and across knowledge exchange partners may lead to greater OI performance (Foss et al., 2011). Team-based rewards are highly salient ways to reduce uncertainty and increase innovation performance (Hong et al., 2019) by creating the need for interdependency, trust and collaboration (Inkpen & Tsang, 2005).

We include **self-managed teams (4)** as a collaborative HRM practice because they allow team members the opportunity to make decisions, build committed social relationships and collaborations through relational leadership and subsequent OI mindset that enable KSS and subsequent OI. Self-managed teams are described as the 'redistribution of power downward by granting authority and responsibility to team structures' (Evans & Davis, 2005, p. 760). Such autonomous teams engage in decision-making which builds individual and team commitment (Zacharatos et al., 2005). Because self-managed teams are characterized by no formal lines of authority (within the team) the emergence of team roles occur through expertise, interaction and agreement (Evans & Davis, 2005). Moreover, the exchange of tacit knowledge within and across organizational boundaries may be most effective when the basis of relationships is non-competitive (Maurer & Ebers, 2006) and trustful (Uzzi, 1997). This is supported by Hart and Simanis (2009, p. 83) who argue that 'innovation isn't enabled by new relationships; it is the relationship'. Consequently, we argue that relational leadership may enable OI teams to establish an OI mindset and subsequent KSS. Within the organization, line managers can use self-managed teams to establish relational leadership among internal OI team members. For example, a job design that allows for the flexible deployment of staff (Dorenbosch, Engen, & Verhagen, 2005), as well as job enrichment (e.g. challenging job assignments) in self-managed teams (Lepak & Snell, 2002; Story, Barbuto Jr, Luthans, & Bovaird, 2014; Zhou et al., 2013) may support the emergence of relational leadership and facilitate KSS. Such teams that encourage employee involvement, collaboration and flexible job execution (Batt, 2002; Hong et al., 2019; Lepak & Snell, 1999) may also support the development and maintenance of high-quality relationships with both internal and external OI partners (Zhou et al., 2013).

We select **decentralized decision-making (5)** as a critical collaborative HRM practice to enable KSS within OI teams and subsequent OI. Team decision-making is about how members gather, process and communicate information to enact decisions (Salas et al., 2017). Zacharatos et al. (2005) suggest that facilitation of knowledge flows and an increase in decision-making authority may empower employees and increase productivity. We argue that common interests and shared goals form the basis of effective knowledge sharing (Inkpen & Tsang, 2005) and facilitate collaboration (Zhou et al., 2013) (i.e., through relational leadership to support OI mindset) within OI teams. Collective decision-making practices play a crucial role in creating a context that enables KSS within the organization (Cabrera & Cabrera, 2005) through shared goals, common dialogue and articulation of individual and team responsibilities. Moreover, decentralized decision-making practices in the OI team can facilitate KSS through the inclusion of external knowledge exchange partners by fostering greater collaboration through shared interests (Adler & Kwon, 2002). Such decision-making practices are important mechanisms to create shared responsibilities and commitment to common goals among OI team members, and collaboration with external knowledge exchange partners.

Team-based performance management (6) is important because it encourages commitment and collaboration necessary to support the generation and innovation of ideas (Zhou et al., 2013). Team-based performance management systems are critical to processes that enable and monitor the attitudes and behaviors towards relational leadership and OI mindset associated with KSS in OI teams. More specifically, team members' ability to and willingness to collaborate with external knowledge exchange partners can be both strategically and systematically encouraged through performance management practices such as developmental performance appraisals (Shipton et al., 2005; Zhou et al., 2013). To support internal and external KSS, we suggest that team-based performance management practices incorporate risk tolerance and failure tolerance in goal setting, development of team-based performance standards and team-based performance outcome ratings (Hansen et al., 2019). Organizations using OI may also apply team-based performance management systems to promote the importance and benefits for employees engaging in KSS with their internal and

external colleagues.

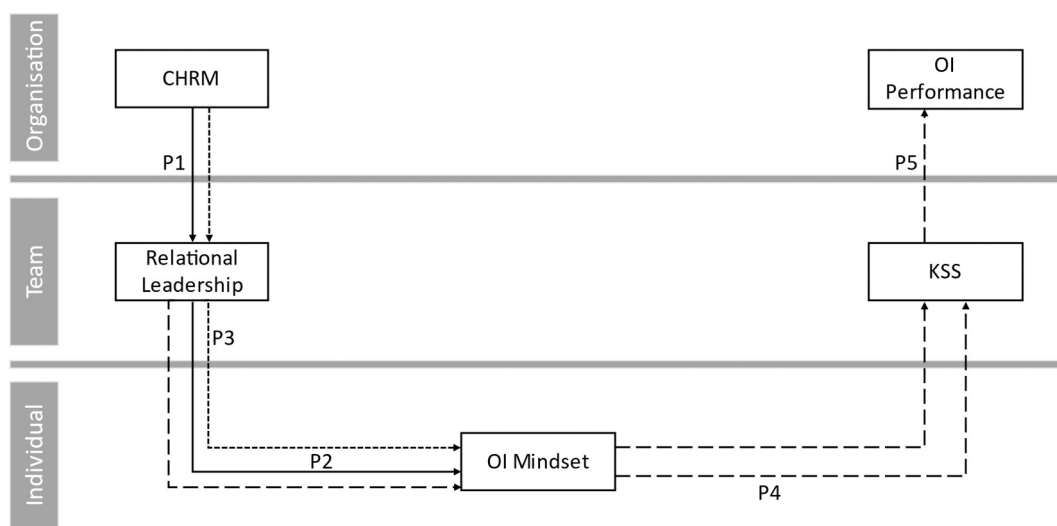
We suggest **job rotation and broad career paths (7)** are important to build capabilities for KSS. Job rotation incorporates learning new skills through different job assignments, and is important to empower employees to overcome cognitive, transactional, and organizational barriers to achieve KSS (Hong et al., 2019). Broad career paths provide employees with the opportunity to make informed decisions about where their skills fit and which direction they want to pursue for their own future, as well as support their retention (Guest & Rodrigues, 2012). Adherence to strong values and management/team processes can enable relational, cognitive and structural connectivity among internal employees and external partners (Evans & Davis, 2005; Nahapiet & Ghoshal, 1998) and therefore facilitate KSS (Reagans, Zuckerman, & McEvily, 2004). Such management practices may include the development of business alliances and joint ventures, learning programs with business partners, partnerships with external professionals, relationships with universities, and extensive social networking (Zhou et al., 2013). Moreover, employee job rotation both internally and externally to the business may promote greater employee flexibility, connectedness and skill building (Lopez-Cabrales, Pérez-Luño, & Cabrera, 2009) which may reduce biased attitudes towards external knowledge and insecurity towards external sources (Hong et al., 2019).

5. Towards a model of collaborative HRM and OI

Below, we will develop a multi-level model of collaborative HRM and OI. We propose that collaborative HRM practices are developed at the organizational level which influences relational leadership at the team level. Relational leadership in-turn activates OI mindset among individuals in the OI team. This process enables KSS and ultimately enhances OI performance (see Fig. 1).

5.1. Relational leadership

Previous research has investigated the relational nature of leadership using constructs such as shared leadership, distributed leadership, relational leadership or discursive leadership. In contrast with the traditional leadership theories which give primacy to individual actors such as leaders and followers (i.e. LMX), a relational leadership lens challenges the building blocks of classical leader-centered theories and supports the notion that ‘process’ best represents leadership (Crevani, Lindgren, & Packendorff, 2010; Fairhurst, 2016; Ospina, Foldy, Fairhurst, & Jackson, 2020). In this paper, we challenge the classical leader-centered approach and follow a relational leadership approach in which leadership is created through social interaction among OI team members and others. Relational leaders are informal leaders that emerge from the group based on their experience, skills, and confidence (Cunliffe & Eriksen, 2011; Ospina & Foldy, 2010; Uhl-Bien, 2006). In contrast to the designated leadership role in teams, informal leader emergence occurs when a member achieves influence over other team members in terms of direction, motivation, and task behavior (Lord, Foti, & De Vader, 1984; Schneier & Goktepe, 1983; Zhang, Waldman, & Wang, 2012). This perspective does not restrict leadership to hierarchical positions or roles. Instead, it views leadership as occurring in relational dynamics throughout the organization. This is particularly important for the context of OI as employees participate in KSS through relational dynamics within and across the organizational boundaries (Osborn, Hunt, & Jauch, 2002; Uhl-Bien, 2006). In the presence of virtual business settings (e.g. increasing remote work) and unpredictable business conditions, it is crucial for organizations to encourage an environment that fosters relational dynamics among employees (Akram, Lei, Hussain, Haider, & Akram, 2016; McCallum & O’Connell, 2009) as a means to build collaboration and achieve strategic goals (Komives, Lucas, & McMahon, 2009; Uhl-Bien, 2006). Our focus on relational leadership enables us to identify



Notes: Unbroken lines indicate direct relationship for P1 and P2
Broken lines indicate mediation relationship for P3, P4 and P5

Fig. 1. Conceptual model.

and understand the consequences of actual conversations, social interaction and relationship building among employees necessary for creative work in OI teams.

Relational leadership theory suggests that leadership can occur in any direction and in some circumstances may confound formal leader-subordinate relationships to reflect a didactic process of influence (Graen & Uhl-Bien, 1995). Describing leadership as ‘engaging with change dynamics’ (Kennedy, Carroll, & Francoeur, 2013, p. 13) and ‘making sense of patterns in small changes’ (Plowman & Duchon, 2008, p. 144), underlines the understanding of relational leadership as an emergent outcome of fluid, uncertain and complex relational situations (Hosking & Bouwen, 2000; Pfeffer, 1977; Uhl-Bien, 2006). The OI environment is characterized by increasing technological uncertainty and complexity (Chesbrough & Teece, 2009) and requires ‘a particular adeptness with uncertainty, ambiguity and collaboration’ within teams (Kennedy et al., 2013, p. 11). For organizations operating in global business markets, KSS across organizational, cultural, and functional boundaries are the norm, which explains the necessity of relational leadership which we argue is crucial for OI.

The emergence of relational leadership is dependent on positive social exchanges between OI team members (Gould-Williams & Davies, 2005; Wu et al., 2014). Drawing from SET (Birtch et al., 2016; Blau, 1964; Cropanzano & Mitchell, 2005), reciprocity may encourage interdependence, enhance trust and cooperation (Cropanzano & Mitchell, 2005; Molm, 1994). According to Lioukas and Reuer (2015) trust is more likely to emerge as a result of trust-building behaviors in social exchange relationships (e.g., reciprocation of benefits). In this context, a group is more likely to share similar beliefs and practices which can generate direction, alignment and commitment (Drath et al., 2008) to produce positive outcomes (McCauley, Braddy, & Cullen-Lester, 2019).

We now turn to examining the process through which collaborative HRM practices can promote relational leadership among employees. Through fostering positive social exchange in OI teams, collaborative HRM plays a critical role in building relational situations that may enhance employees’ collaboration needed for KSS (Oparaocha, 2016). Collaborative HRM can support the emergence of relational leadership among OI team members to generate direction, alignment and commitment (Drath et al., 2008) and enable OI in a complex and rapidly changing business environment (Carroll, Levy, & Richmond, 2008). Uhl-Bien (2006) argues that emergent coordination (i.e., evolving social order) and change (i.e., new values, attitudes, behaviors) are constructed through everyday work practices and activities among team members with strong interpersonal relationships (Cunliffe & Eriksen, 2011).

We argue that collaborative HRM practices can support the emergence of relational leadership through fostering social exchange relationships, especially reciprocity and group gain (Bock, Zmud, Kim, & Lee, 2005). Collaborative HRM practices such as self-managed teams, team-based training, team-based performance management and team-based rewards can promote greater opportunities and possibly even norms for beneficial reciprocal exchanges (e.g. sharing expertise and knowledge between team members to solve complex problems) and group gain (e.g. expertise and knowledge is provided by members to achieve group outcomes) in part due to greater interdependency and agreed goals (Birtch et al., 2016; Cropanzano & Mitchell, 2005; Meeker, 1971). This may promote greater coordination and desired attitudes, approaches and behaviors among team members (Uhl-Bien, 2006). More specifically, decentralized decision-making processes coupled with self-managed teams may foster relational leadership based on individual members’ expertise, experience, and high frequency of interaction (Graen & Uhl-Bien, 1995). Moreover, job rotation and broad career paths including complex job assignments (Story et al., 2014), team-based training (Podmetina, Volchek, Dąbrowska, & Fiegenbaum, 2013) and providing feedback tools to improve employee’s self-efficacy (Bock et al., 2005) may also enhance employees’ knowledge, skills and abilities to engage in positive social exchange and subsequent relational leadership.

Thus, we propose:

P1. Collaborative HRM practices are positively associated with relational leadership.

5.2. OI mindset

OI mindset is an individual level construct rooted in the employee’s mind. Innovation management scholars have argued that openness to new ideas is a major requisite for innovation among employees (Herzog, 2011; Kleinschmidt, De Brentani, & Salomo, 2007; Ospina et al., 2020). Importantly, OI mindset can be used to overcome an employee’s negative attitudes towards KSS (e.g. NIH and NSH syndromes) (Burcharth et al., 2014; Katz & Allen, 1982).

OI mindset has its theoretical origin in the mindset literature as a cognitive process (Gollwitzer, 1990). The general characterization and conceptualization of mindsets are founded upon the classic Würzburg definition of mindset, which suggests that ‘the mechanisms mediating mindset effects are located in the cognitive process advancing the solution of the task that simulated the mindset’ (Gollwitzer, 1990, p. 83). In cognitive psychology, mindsets are conceptualized as ‘the sum total of the activated cognitive procedures’ (Gollwitzer & Bayer, 1999, p. 405) in response to a given task. Mindset research suggests the purpose of mindset is to achieve goals (e.g. organizational outcomes) and the key to this is the individual using the most effective cognitive process(es) to complete a specific task or series of tasks (French II, 2016). Underpinned by Gollwitzer’s (1990) work, we develop the construct of OI mindset to understand the cognitive process to achieve OI goals (e.g. OI performance).

OI literature offers divergent definitions of mindset (Krohn, Hattenberg, Krueger, & Herstatt, 2021). For example, Gomezel and Rangus (2018) define OI mindset as ‘related to collaboration with different partners in different phases of the innovation process, being attentive to the resource available inside and outside the firm’s boundaries and realizing their importance for a firm’s performance’ (p. 1872). Alternatively, Engelsberger et al. (2022) provide a narrower conceptualization and define OI mindset as ‘an individual’s values, attitudes, and beliefs that capture an individual’s openness towards KSS inside and outside the organizational boundaries that are used as knowledge structures to make decisions regarding KSS which are critical to OI performance’ (p. 2). We adopt Engelsberger et al. (2022) conceptualization of OI mindset for the purposes of this paper.

Mindset can also be viewed as a collective endeavour (Gupta & Govindarajan, 2002). Organizations can reshape collective mindsets of individuals through interactions or new experiences usually underpinned by organizational goals and cultural values (Gupta & Govindarajan, 2002). Given the necessity for collaboration and synergy of action an individual's OI mindset alone would not be sufficient to drive OI. In the context of OI, teams work together to achieve complex goals by participating in KSS. Social exchange relationships support collaboration between people which is critical for successful OI (Cropanzano & Mitchell, 2005). This can be realized by establishing effective cognitive processes to achieve OI tasks (e.g. KSS) and thus create a shared mindset within and across OI teams. To leverage external knowledge successfully, companies must design an appropriate internal organization, and specifically use collaborative HRM practices for employee acquisition and sharing of knowledge (Jones & de Zubieta, 2017). To do this, relational leadership can act as an enabler to strengthen the OI mindset in the collective.

5.3. OI mindset and relational leadership

Following our theoretical model, we now examine the relationship between relational leadership and OI mindset. We suggest that OI mindset is rooted at the individual level and unfolds in the collective through relational leadership. Through shared beliefs and practices, team members are more likely to collaborate and seek consensus about key decisions within their teams (McCauley et al., 2019). Drath et al. (2008) argues that relational leadership outcomes such as direction, alignment and commitment influence the development of shared beliefs and practices among team members. This relationship can be explained using SET (Birtch et al., 2016; Blau, 1964; Cropanzano & Mitchell, 2005). Relational leadership via social exchange namely reciprocity and group gain may generate a shared OI mindset inclusive of common values, attitudes and behaviors among OI team members (Foss et al., 2011; Kang, Morris, & Snell, 2007; Oparaocha, 2016). As relational leadership emerges, team members actively support one another with their knowledge and expertise. They take on greater responsibilities and work towards group gain (e.g. agreed and valued goals) which may increase an individual's openness towards new ideas and information, and generate positive attitudes towards KSS (Nadkarni, David Pérez, & Morganstein, 2006; Salampasis et al., 2015). Relational leadership can create reciprocal obligations and promote group gain among OI team members, and this process may promote congruent attitudes, values and goals to support openness towards KSS among OI team members (Cropanzano & Mitchell, 2005; Oparaocha, 2016). This is supported by Van Dyne et al. (2009, p. 110) who suggest that strong interpersonal relationships among team members are associated with enhanced involvement and closeness of members and thus a shared OI mindset.

Thus, we propose:

P2. Relational leadership is positively associated with OI mindset.

5.4. Collaborative HRM practices, relational leadership and OI mindset

We propose that relational leadership will mediate the relationship between collaborative HRM practices and OI mindset. Relational leadership as discussed above may support OI mindset to unfold in the collective (i.e. OI team) through promoting common values, norms, beliefs and practices among team members (Cavanagh, McNeil, & Bartram, 2013; Gouldner, 1960). Relational leadership may shape the direction, alignment and commitment of team members (Drath et al., 2008). Moreover, relational leadership can be developed and enhanced by implementing collaborative HRM practices to provide employees with opportunities for beneficial social exchanges to support collaboration and agency to take risks and be creative (Amabile & Pratt, 2016). This may in-turn support the emergence of a shared OI mindset among team members (Ospina et al., 2020; Ospina & Uhl-Bien, 2012; Uhl-Bien, 2006). We demonstrate that collaborative HRM and its affects, through relational leadership on individual OI mindset, is a multi-level process.

Collaborative HRM practices can play a direct role in promoting an OI mindset (Lee & Kelley, 2008). OI mindset can be established through the recruitment of like-minded people with shared values, attitudes and beliefs (Drath et al., 2008; Uhl-Bien, 2006) towards OI and collaboration (i.e. selective hiring). An individual's openness to new ideas and information may enhance an OI mindset (Salampasis et al., 2015; van Oostrom & Fernandez-Esquinas, 2017). Hence, we recommend line managers use OI mindset as a selection criterion to hire their staff. Moreover, an OI mindset can be developed through team-based training on communication and relationship building (Wahyuni, Kurniawati, & Shafira, 2019). For the collective activation of OI mindset, role complexity plays a relatively large part (Engelsberger et al., 2022). This can be managed by collaborative HRM providing challenging job assignments, teamwork and regular job rotation (Hansen et al., 2019; Zhou et al., 2013). An OI mindset developed and enabled through collaborative HRM practices and supported by relational leaders can be used to manage uncertainty, ambiguity and collaboration in teams. Collaborative HRM practices such as team-based performance management, team-based rewards and decentralized decision-making may promote trust building activities such as reciprocity and group gain within an OI team, and thereby encourage greater openness to new ideas, knowledge sharing and internalization of the importance of OI goals. Through creating greater interdependencies and promoting relational behaviors between OI team members, collaborative HRM may also enable greater employee creativity and tolerance to risk. Creativity can be facilitated through collaborative HRM practices that promote safe relational environments in which OI team members have autonomy to share their knowledge and expertise, take risks and be creative which is important for KSS (Amabile & Pratt, 2016). Although literature sheds some light on the human side of OI (Bogers et al., 2018), the role of OI mindset in implementing OI successfully (Nakagaki, Aber, & Fetterhoff, 2012), remains scarcely investigated (Salter, Wal, Criscuolo, & Alexy, 2015).

We present the following proposition:

P3. Relational leadership mediates the relationship between collaborative HRM practices and OI mindset.

5.5. Relational leadership, OI mindset and KSS

While we expect that relational leadership positively affects KSS, we propose that OI mindset mediates this relationship. Underpinned by SET, relational leadership can be used to encourage interdependence between OI team members to strengthen beliefs, values, norms, and practices that promote a shared OI mindset (Cropanzano & Mitchell, 2005). Through promoting reciprocity (Foss et al., 2011; Kang et al., 2007), relational leadership can create a climate of trust (Monteiro et al., 2017) and strong bonds among team members and external partners (Bock et al., 2005) that can facilitate KSS (Oparaocha, 2016). Through flat hierarchies and common direction, alignment, and commitment (Drath et al., 2008; Hosking, 2007; McCauley et al., 2019), relational leadership can promote congruent attitudes, values and goals (Cropanzano & Mitchell, 2005; Oparaocha, 2016). As such, a shared OI mindset can be facilitated under conditions of strong relational leadership, as supported by increased inclusion, collaboration, and shared values (Kinder, Stenvall, Six, & Memon, 2021).

We now examine the relationship between OI mindset and KSS. Shared OI mindset among employees may encourage individuals to engage in KSS. Recent research has established that openness to new ideas, communication and information (Gassmann et al., 2010; Herzog, 2011) among OI team members is critical to KSS given that OI 'focuses on the mindset of how to generate the most out of the internal resources, and how to benefit from resources available outside' the organization (Gomez & Rangus, 2018, pp. 1869–1870). Sharing similar tolerance for risk and failure (Dąbrowska & Fiegenbaum, 2017; Engelsberger et al., 2022; Mortara, Slacik, Napp, & Minshall, 2010), the need for creativity (Amabile & Pratt, 2016; Engelsberger et al., 2022), and viewing collaboration as important are critical to encourage KSS among OI teams. This common understanding creates a 'like-minded' approach among team members and a sense of belonging and trust (Bock et al., 2005; Meeker, 1971) that may motivate employees to engage in KSS. Thus, a shared OI mindset may facilitate KSS and explain the emergence of how relational leadership supports employees to engage in KSS.

Hence, we suggest:

P4. OI mindset mediates the relationship between relational leadership and KSS.

5.6. KSS, OI mindset and OI performance

There is some theoretical and empirical reasoning that elements of KSS such as knowledge sourcing (Chen & Huang, 2009; Kang & Kang, 2014) and knowledge sharing (Chen & Huang, 2009; Del Giudice & Straub, 2011; Lopez-Nicolas & Soto-Acosta, 2010) can predict OI performance. For example, Singh, Gupta, Busso, and Kamboj (2021) found that senior management knowledge creating practices influence OI, which, in turn, influences organizational performance. Stephan, Andries, and Daou (2019) revealed that knowledge sourcing practices as strategic goals foster the implementation of OI and help to reap their full benefits. Organizations that adopt an OI approach to exploit opportunities through collaborating with external partners can contribute to innovation performance through KSS (Vanhaverbeke, Van de Vrande, & Chesbrough, 2008). Chesbrough (2003a, 2003b) argues that for OI to take place, porosity of an organization's boundary is critical to absorbing external knowledge (e.g. develop networks/partnerships with various external knowledge sources). Moreover, for external knowledge to improve OI, it must be communicated or shared with the appropriate organizational actors (e.g. among team members) (Chen & Huang, 2009; Scuotto, Santoro, Bresciani, & Del Giudice, 2017). Access to knowledge gained by collaborating with external partners can increase opportunities to combine external and internal knowledge and contribute to greater innovation performance (Chesbrough et al., 2006). This can be achieved through increasing the level of novelty of new products and services (new-to-market), matching products and services to the market (fit-to-market) and reducing development time (time-to-market) and cost-to-market (Salge, Farchi, Barrett, & Dopson, 2013). The necessity for organizations to source knowledge externally and utilize (share) such knowledge to improve OI performance can be explained by the resource-based view (Barney, 1991) in which collaborations can be used to exploit resource complementarities (Bogers, 2011).

We argue that the need to externally source and internally share knowledge is central to exploiting resource complementarities. Bogers (2011) argues that companies are motivated to engage in collaboration to exploit resource complementarities and economies of scale, gain low-cost new market entry, cost and risk management, tacit collusion, capability building and learning. Recent literature has demonstrated that aspects of KSS may predict innovation performance (Kang & Kang, 2014). For example, a recent study by Singh et al. (2021) based on multisource data from 404 small and medium sized enterprises (SMEs) in India, reported that knowledge sharing increases the innovativeness of the organization. Singh et al. (2021) demonstrated that knowledge sharing is critical for effective innovation at individual, team, and organizational levels. Moreover, a survey of 360 individuals from around the world conducted by Dietsch and Khemiri (2018), found that knowledge sharing, presentation and transfer positively predicted perceived performance of innovation projects.

Ultimately, an OI mindset at the individual and team level may have aggregate effects on the organizational level (Bogers et al., 2017; Bogers et al., 2018; Felin, Foss, & Ployhart, 2015). The various mechanisms explained above will contribute to the extent to which an OI mindset will indeed enable employees to share and source knowledge across the organizational boundary. This entails a micro-foundations process through which individual and team level capabilities improve the organization's OI performance. Absorptive capacity is central in OI (West & Bogers, 2014) in which OI mindset is likely to enable a better KSS process to impact innovation performance (Lewin, Massini, & Peeters, 2011). This is also in line with studies that have shown a relationship between openness and performance (Faems, De Visser, Andries, & Van Looy, 2010; Laursen & Salter, 2006), to which we add OI mindset as a prerequisite for KSS to have an impact on OI performance (Boer, Berends, & Van Baalen, 2011; Engelsberger et al., 2022; Wang, Tseng, & Yen, 2014).

Based on previous literature, we propose that KSS with internal actors and external partners is positively associated with OI

performance. We present the following propositions:

P5. KSS mediates the relationship between OI mindset and OI performance.

6. Discussion and conclusion

This paper integrates the field of HRM and OI. We conducted a literature review and found that the majority of OI research was focused on the organizational level and to date there has been only scattered research on the relationship between collaborative HRM and OI at individual and team levels. We systematically examine how collaborative HRM can enable OI and propose seven collaborative HRM practices for OI used across organizational, team and individual levels (Bowen & Ostroff, 2004). We present a multi-level model of collaborative HRM practices (Bowen & Ostroff, 2004; Hong et al., 2019) to enable OI through relational leadership and OI mindset and KSS. The key argument of this paper is that investment in collaborative HRM practices reduces resistance to KSS and supports the successful implementation of OI.

This conceptual paper makes four main contributions to the HRM and OI literature. First, we contribute to the intersection between OI and HRM literature (Corral de Zubielqui, Fryges, & Jones, 2019; Hong et al., 2019) by developing a multi-level model of the process through which collaborative HRM practices reduce resistance to KSS (e.g. NIH and NSH syndrome) and facilitate OI performance. We contribute to the dearth of research on OI across various levels of the organizational hierarchy such as organizational, team, and individual levels (Bogers et al., 2017; Chesbrough & Bogers, 2014; West & Bogers, 2014). We present a multi-level framework that integrates collaborative HRM practices that support an OI mindset and relational leadership across organizational, team, and individual levels (Bowen & Ostroff, 2004). By doing this, we contribute to a more complete understanding of how collaborative HRM practices support the emergence of relational leadership and subsequent OI mindset and encourage work team members' KSS internal and external to the organization and subsequent OI performance. By building on previous literature that integrates HRM and OI (Corral de Zubielqui et al., 2019; Hong et al., 2019; Papa et al., 2020), our paper is the first to develop specific collaborative HRM practices that promote collaboration among employees for OI. We develop new concepts such as OI mindset and KSS to systematically map the process through which collaborative HRM practices lead to increased OI performance. The model and propositions presented in this paper offer new avenues for management scholars to better understand and develop empirical studies on the social and relational processes through which HRM practices increase OI performance. This is a novel contribution to the HRM and OI literatures.

Second, after an extensive examination of the OI literature, we introduce two new constructs: KSS and OI mindset that mediate the process through which collaborative HRM practices impact OI performance. KSS represents the synchronous sourcing (Chen & Huang, 2009; Kang & Kang, 2014) and sharing (Chen & Huang, 2009; Del Giudice & Straub, 2011; Lopez-Nicolas & Soto-Acosta, 2010) of knowledge among individuals which translates into the inflow and outflow of new knowledge within OI teams. KSS represents mutual knowledge exchange that is critical for OI performance (Rangus & Černe, 2019; Vanhaverbeke et al., 2014). In the current paper, based on the existing management and OI literatures, we proposed another new construct: OI mindset. OI mindset (individual's openness towards KSS) is rooted in an employee's mind. Given the necessity for collaboration and synergy of action, an individual's OI mindset alone would not be sufficient to drive OI. Hence, we suggest using relational leadership to transform an individual's OI mindset into a shared OI mindset to generate congruent values and beliefs within the team. A shared OI mindset can be used to reduce uncertainty, ambiguity, and increase collaboration among team members and thereby contribute positively to KSS and ultimately OI performance.

Third, we examine the relational perspective of leadership for the first time in the context of collaborative HRM and OI, and shed light on relational leadership linking collaborative HRM, OI mindset and KSS. We have demonstrated the efficacy of developing relational leadership within work teams, underpinned by formal/traditional leadership structures (that oversee their operation and performance), to ensure that an individual's expertise, knowledge and experience is maximized to enhance KSS and OI performance through OI mindset. The paper contributes to greater understanding of KSS and OI as a social and relational process (Cunliffe & Eriksen, 2011; Ospina et al., 2020; Uhl-Bien, 2006) underpinned by SET (Birtch et al., 2016; Blau, 1964; Cropanzano & Mitchell, 2005) that contributes to emergent coordination and desired change of attitudes and behaviors among OI team members (Uhl-Bien, 2006).

Fourth, by shedding new light on the relational process of OI across organizational levels and extending Hong et al.'s (2019) four collaborative-based HRM practices to seven collaborative HRM practices, we provide important insights for HR practitioners and line managers. We have demonstrated for practitioners the importance of collaborative HRM practices to develop relational leadership and OI mindset to enhance KSS. We recommend that HR practitioners and line managers examine our seven collaborative HRM practices to determine whether they enhance the development of relational leadership and shared OI mindset in OI teams. A valuable insight for HR practitioners from our paper is the centrality of strong social exchange relationships underpinned by trust between OI teams, line managers and external partners as a basis for enhancing KSS and OI.

This paper is not without limitations. One limitation of this paper is the lack of distinction between KSS intention and KSS behavior. For parsimony, KSS in our paper refers to behavior, but future research could consider the complex relationship between KSS intention and KSS behavior. Another limitation may include the reality that OI performance is a complex concept and could be examined in a more nuanced way. The literature has already indicated the role of some other factors, such as absorptive capacity and organizational structure. Moreover, in the current paper, we have not developed measurable constructs that are important to empirically test our model.

We offer a number of opportunities for future research. Future research could consider the interaction effects of absorptive capacity and organizational structure on the relationship between collaborative HRM practices and OI performance. Furthermore, we would like to highlight the importance of dynamic capabilities for OI and encourage researchers to consider the relationship between collaborative HRM, OI and dynamic capabilities. We encourage researchers to further examine the efficacy of additional enablers of OI

performance. This is important to better understand the process through which OI performance can be improved. We invite researchers to develop a scale based on our seven collaborative HRM practices to empirically test its efficacy on enhancing OI performance. Researchers should also develop and operationalize constructs such as KSS and OI mindset.

Researchers need to empirically test the model and examine the relationships between these important constructs. We encourage management scholars to operationalize and empirically validate our OI mindset construct. The development of an OI mindset measure will improve our understandings of the motives and processes, individuals use to share and source knowledge in their teams and contribute to OI performance. In this regard, the model should be tested in different settings such as a variety of industry sectors, cohorts of workers and countries.

In this conceptual paper, we provide a more complete and systematic understanding of the human aspects of OI (Bogers et al., 2018; Gassmann et al., 2010; Randhawa, Wilden, & Gudergan, 2019) through the development of a multi-level model of collaborative HRM to support KSS and OI performance of employees through the development of relational leadership and OI mindset. The seven collaborative HRM practices integrated into our theoretical model, establish a road map for scholars and management practitioners to gain competitive advantage by overcoming the barriers to KSS inside and outside the organization, and promote the effective management of people for OI. It is our intention that this paper will stimulate greater research and improved management practice regarding the human aspects of OI.

CRedit authorship contribution statement

Aurelia Engelsberger: Conceptualization, Methodology, Investigation, Writing – original draft, Writing – review & editing, Visualization, Project administration. **Timothy Bartram:** Conceptualization, Methodology, Validation, Writing – original draft, Writing – review & editing, Supervision, Project administration. **Jillian Cavanagh:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Visualization, Supervision. **Beni Halvorsen:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Supervision. **Marcel Bogers:** Conceptualization, Methodology, Writing – review & editing, Visualization, Supervision.

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