Max Theilacker (Orcid ID: 0000-0003-3862-1569)

Joshua Healy (Orcid ID: 0000-0002-8901-6601)

BETWEEN FIT AND FLEXIBILITY?

THE BENEFITS OF HIGH-PERFORMANCE WORK PRACTICES AND LEADERSHIP CAPABILITY FOR INNOVATION OUTCOMES

PETER GAHAN

Department of Management and Marketing, The University of Melbourne, Australia

MAX THEILACKER

Melbourne Innovation District, RMIT, Melbourne, Australia

MLADEN ADAMOVIC

Department of Economics, Monash University, Melbourne, Australia

DAEJEONG CHOI

BILL HARLEY

JOSHUA HEALY

JESSE E. OLSEN

Department of Management and Marketing, The University of Melbourne, Australia

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ABSTRACT

The idea that human resource management (HRM) plays a strategic role in generating sustainable competitive advantage for organizations or intermediate outcomes such as innovation is a central tenet in HRM theory and research. Yet, the explanation for this relationship remains unclear. We contribute to understanding how HRM plays a role by integrating insights drawn from HRM and strategic management. We explore how configurations of high-performance work systems (HPWS) and leadership competence (LC) provide microfoundations for organizational capabilities associated with innovation. We also examine the moderating role of external environmental conditions. We find support for the proposition that HPWS and LC contribute to capabilities associated with innovation. Importantly, in stable environments, the formation of the capabilities required for innovation is more strongly associated with HPWS, while in more dynamic environments, LC plays a more pronounced role. These findings have implications for understanding the strategic role HRM plays and for management practice.

Keywords:

Strategic human resource management, strategic management, high performance work systems leadership, dynamic capabilities, organizational engagement, innovation

Practitioner Notes:

What is currently known about the subject matter:

- Well-designed HRM systems that invest in employee skills, provide motivation, and opportunities to participate have been shown to improve workplace performance and employee outcomes.
- Such systems – typically referred to as high-performance work systems (HPWS) – have also been suggested to improve organizational abilities to innovate in ways that sustain the underlying competitive advantage that leads to these performance outcomes.
- But, studies have not shown how and why this may happen.

What this paper adds:

- An extended theoretical empirical investigation into how HPWS and competent leadership enable innovation , by (1) forming organizational capabilities, namely "dynamic capabilities" (the ability to identify new opportunities for growth, seize them, and re-organize the firm’s resources to realize these opportunities) and (2) building collective employee engagement.
- An investigation of how the relative roles of these “microfoundations” in HPWS and leader competence vary in different (stable and dynamic) environmental conditions.

The implications for practitioners:

- In more unpredictable and dynamic environments, competent leadership plays a more important role in enabling innovation outcomes, whereas in more stable environments, HPWS will contribute more to generating innovation outcomes.
- Organizations should think more closely about how their leaders and their HR systems can play a differential role in supporting innovation and performance outcomes, given the competitive environment in which they operate.
- Findings, however, also suggest that having more of both things may not necessarily produce larger effects on innovation.

1. INTRODUCTION

A foundational proposition for the field of strategic human resource management (SHRM) is that complementary bundles of human resource practices (HRPs) can support the strategic goals of organizations (Delery & Roumpi, 2017; Jiang & Messersmith, 2018). These HRPs are expected to enhance performance and, ultimately, help achieve competitive advantage (Jiang, Lepak, Hu, & Baer, 2012). Such complementary bundles are known as high-performance work systems (HPWS), defined more specifically as bundles of HRPs that enable the organization to create and configure human capital, influence employee motivations and behaviors, and provide opportunities in ways that generate both vertical fit (i.e., support for strategic objectives) and horizontal fit (i.e., synergy among different practices) (Jiang, Lepak, Hu, et al., 2012). Research has consistently shown support for the proposition that HPWS enhance performance (e.g., Combs, Liu, Hall, & Ketchen, 2006; Han, Kang, Oh, Kehoe, & Lepak, 2019; Jiang & Messersmith, 2018), employee wellbeing, and other outcomes (Kehoe & Wright, 2013; Li, Chen, & Cao, 2017). Yet, HRM researchers have not sufficiently explored – theoretically or empirically – the important question of how and why HPWS might play a *strategic* role in driving competitive advantage (Chadwick & Dabu, 2009), or those outcomes that underpin it, such as innovation (Shipton, West, Dawson, Birdi, & Patterson, 2006).

Early work examining HPWS and their potential outcomes generally sought to identify generic HRPs that related to various measures of firm performance, including revenues, sales, and profitability (Pil & MacDuffie, 1996). The aim of this work was to identify 'best practice' HRPs and demonstrate the value in framing HRM systems as investments that yielded a positive economic return, rather than costs to be minimized (Combs et al., 2006). Although these studies were later criticized for being overly empirical and lacking theoretical explanation (Jiang, Lepak,

Han, et al., 2012), they nonetheless provided the foundation for a significant growth in the field of SHRM, and its focus on linking HRM to organizational strategy and performance (Kaufman, 2015). Subsequent progress has been marked by attempts to address this "black box" problem (Messersmith, Patel, Lepak, & Gould-Williams, 2011). Working within the Ability-Motivation-Opportunity (AMO) framework, researchers have explored a range of mechanisms through which intentionally designed HPWS improve performance (Boxall & Purcell, 2015).

Importantly, researchers in both SHRM (e.g., Chadwick & Dabu, 2009) and strategic management (SM) (e.g., Ployhart, 2015) have recognized that examining the "bottom-line effects" of HPWS does not, of itself, demonstrate that HRM plays a *strategic* role. Specifically, the scholarly advancements in understanding performance as an outcome do not explain how HPWS might drive and sustain an organization's competitive advantage. The mechanisms underlying how HPWS might influence a firm's competitive advantage remain ambiguous and subject to ongoing debate. Fortunately, scholars have shown a growing interest in how HRM contributes to innovation and competitive advantage (e.g., Nyberg, Moliterno, Hale Jr, & Lepak, 2014; Schilke, 2014; Sirmon, Hitt, & Ireland, 2007), leading to three important theoretical contributions toward understanding the strategic potential of HRM systems for generating innovation. The first has been in human capital theory (e.g., Campbell, Coff, & Kryscynski, 2012; Kang, Morris, & Snell, 2007). Drawing on the resource-based view (RBV), SM scholars have explored how organizations can leverage HRPs to yield the human capital necessary to achieve a competitive advantage (e.g., Campbell et al., 2012). The second relevant contribution, also founded in RBV, has been the recognition of the importance of managing people and other resources in generating dynamic capabilities (DCs) for innovation (e.g., Schilke, 2014). DCs are defined as an organization's unique capabilities "to integrate, build, and reconfigure internal and

external resources in creating the higher-order capabilities that are embedded in their social, structural, and cultural context" (Teece, Pisano, & Shuen, 1997, p. 516). DCs entail an organization's ability to sense changes and opportunities in its market, seize these, and continuously reconfigure assets to changing market conditions (Teece, 2007).

Finally, SM posits a distinctive role for leadership competence (LC), or "managerial cognitive capabilities" (Helfat & Peteraf, 2015), in selecting or developing routines and coordinating the configuration of resources in ways that underpin organizational capabilities. While some HRM scholars have highlighted the role of leadership as an important HR resource, leadership has not been well-integrated into our understanding of how HRPs translate into organizational outcomes (Jiang, Chuang, & Chiao, 2015), either in terms of how competent leaders work to motivate and develop human resources (Morgeson, DeRue, & Karam, 2010), or as a source of unique human capital (Nyberg et al., 2014). We therefore propose to investigate the extent to which LC may drive either the role of DCs or the engagement of employees (and associated human capital) in generating the innovation required to achieve and sustain a competitive advantage.

Accordingly, we focus on the intersection between HPWS, leadership, and the core capabilities that SM scholars have identified as critical "microfoundations" of innovation: DC and organizational engagement (OE), defined as "the shared perceptions of organizational members that members of the organization are, as a whole, physically, cognitively, and emotionally invested in their work" (Barrick, Thurgood, Smith, & Courtright, 2015: 113). Specifically, we articulate how and why HPWS and LC can enhance innovation through their impacts on DCs and OE. Furthermore, acknowledging scholarly progress in assessing the boundary conditions under which HPWS drive performance (e.g., Jiang & Messersmith, 2018) and the importance of macroenvironmental considerations as defined by DC research (Teece et

al., 1997), we examine the external environmental conditions when the impacts of HPWS and DC become stronger. We hypothesize that HPWS will have a more pronounced effect on the underlying capabilities associated with innovation in environments characterized by low levels of disruption or uncertainty. In contrast, we propose that leadership competence is likely to have a more pronounced effect in dynamic environments.

In sum, our work draws on insights from both SHRM and SM to address three important questions. First, are HPWS and LC in fact associated with innovation outcomes? Second, do these HR-related factors help build the underlying organizational capabilities associated with innovation? And third, are these effects magnified or "activated" under different external environmental conditions? In making these connections, the present study adds significantly to a growing recognition of the overlapping concerns of SM and SHRM and offers insight which elucidates the underlying mechanisms through which HRM plays a strategic role at the organizational level.

2. THEORETICAL BACKGROUND AND HYPOTHESES

A central motivation for this study is understanding why organizations' HRM characteristics, constituted as both HPWS and the role of competent leadership, are likely to influence innovation. Innovation is acknowledged as a critical driver of a firm's ability to establish and sustain competitive advantage (Chowhan, 2016). Drawing on the SM and SHRM literatures we posit that these HRM characteristics will influence two organizational capabilities critical for innovation activity: DCs and OE. Drawing on human capital theory, HPWS and LC are two capabilities that enable organizations to build and configure their human capital resources that

generate the knowledge, skills and abilities required in the process of sensing new opportunities, seizing them and reconfiguring existing resources and systems to remain competitive in changing market conditions (Kor & Mesko, 2013; Teece, 2007). The distinction we draw between HPWS and LC is analogous to the contrast made within the SM literature between capabilities that build on organizational routines and processes (Eisenhardt & Martin, 2000) and those that build on idiosyncratic actions of individual leaders (e.g., Helfat & Peteraf, 2015; Kor & Mesko, 2013). The former conceives of micro-foundations as embedded in routines and practices (Eisenhardt & Martin, 2000; Teece, 2007), while the latter questions the extent to which this is possible and emphasizes the cognitive and leadership capabilities of individual leaders (Helfat & Peteraf, 2015).

We integrate this insight from SM theory with SHRM perspectives that emphasize employee motivations and behaviors (Ployhart, 2015; Ployhart, Nyberg, Reilly, & Maltarich, 2014). In contrast to researchers approaching HRM from the perspective of human capital theory (e.g., Nyberg, Reilly, Essman, & Rodrigues, 2018), many SHRM scholars have emphasized the role of HRM in shaping employee attitudes, motivation, and behaviors to leverage human capital more effectively (Jackson, Schuler, & Jiang, 2014; Kehoe & Wright, 2013; Sun, Aryee, & Law, 2007). HRPs that make up a HPWS have been conceptualized as a critical means to signal to employees the values, attitudes and behaviors that are required for high performance (Bowen & Ostroff, 2004). Accordingly, we also suggest HPWS that increase OE is a critical organizational-level capability associated with innovation. Prior research examining the HPWS-climate relationship would also suggest, however, that focusing on HRPs alone is insufficient to understand how to build a strong effective level of OE (Bowen & Schneider, 2014; Colbert, 2004). In addition, leadership scholars have emphasized the role of leadership in cultivating

employee engagement and capabilities associated innovation (Carasco-Saul, Kim, & Kim, 2015; Van de Ven, 1986). We therefore propose two alternative pathways for "activating" capabilities for innovation under different environmental conditions: leadership becoming a more salient foundation for both DCs and OE in dynamic environments. We now present conceptual arguments and hypotheses connecting these two micro-foundations to DCs and OE, followed by arguments incorporating innovation. Figure 1 depicts our full model.

Figure 1 about here

HPWS as a foundation of innovation capabilities

The RBV has played a prominent role in informing the proposition that HRM provides organizations with a source of competitive advantage through effects which are rare or difficult to imitate (Wright, McMahan, & McWilliams, 1994). This approach reflects "causally ambiguous, socially complex, historically evolved processes" (Boxall, 1996, p. 67), and has particular resonance in the notion of HPWS (Messersmith et al., 2011); and emphasizes the role of complementary bundles of HRM policies, practices, and routines in generating inimitable sources of sustained competitive advantage (Chadwick, 2010).

In explaining how HPWS generate these effects, SHRM theory has typically relied on the AMO framework (Boxall & Purcell, 2015). There is no universal agreement on the specific practices that sit within each of these three domains (Posthuma, Campion, Masimova, & Campion, 2013), but HPWS generally encompass mutually supportive bundles of practices

designed to ensure that employees have the skills they need to do their jobs ("ability"), are motivated to use their skills ("motivation"), and have work organized in ways that allow them to effectively use those skills ("opportunity"). In considering their effects researchers have emphasized the role of 'fit' – defined as the extent to which these bundles of HRPs are complementary or mutually supportive, so that their effectiveness as a bundle is greater than that of each of the components interpedently (Jiang & Messersmith, 2018).

Prior research has also suggested that HPWS may generate the capacity for innovation (Do, Budhwar, & Patel, 2018; Fu, Flood, Bosak, Morris, & O'Regan, 2015; Sung & Choi, 2018). While HPWS do not themselves constitute a source of competitive advantage, they may serve to generate a unique set of HRM attributes to do so (Beugelsdijk, 2008; Colbert, 2004; Patel, Messersmith, & Lepak, 2013). We follow this line of argument to posit that HPWS enable a firm to nurture attributes that provide the micro-foundations for the development of DCs and OE, which are associated with innovation outcomes (Seijts & Latham, 2005).

HPWS and DCs

DCs drive the creation, evolution, and recombination of organizational resources into new sources of competitive advantage (Teece, 2007). Related activities can be categorized as: identification and assessment of opportunities and threats ("sensing"); mobilization of resources to address identified opportunities ("seizing"); and, when necessary, "reconfiguration" of the organization's intangible and tangible assets for maintaining competitiveness (Teece, 2007). Consequently, DCs should be conceived as enablers of intermediate (operational) outcomes—most prominently innovation—which lead to competitive advantage (Ployhart et al., 2014). Beyond appropriate resourcing of research and development to bolster innovation, the DCs

framework emphasizes that innovation processes require active orchestration of tangible and intangible resources through both routines and managerial action (Augier & Teece, 2009).

We expect HPWS to influence DCs through several potential pathways (Chadwick, 2010), as they allow the firm to generate complementary and difficult-to-replicate bundles of human capital at the team or organizational level (Ployhart & Cragun, 2017). First, HPWS will encompass HRPs intended to foster ability to generate new capabilities for sensing, seizing, and reconfiguring resources that enable adaptation and re-alignment associated with change and innovation. These ability-enhancing effects will include learning new knowledge and skills (Patel et al., 2013), as well as supporting employees' access to relevant knowledge for problem-solving and the development of new routines (Chang, Gong, Way, & Jia, 2013). Systematic recruitment and selection processes also create opportunities to introduce new skills and knowledge, and, consequently, diffuse learning throughout the organization (Kang et al., 2007). Specific bundles, for example, may be directed at either the external acquisition of human capital (e.g., selective staffing and compensation strategies to attract high quality talent) or toward development of talent internally (e.g., training, performance management, internal promotion, job rotation, etc.) (Soo, Tian, Teo, & Cordery, 2017; Sung & Choi, 2018). Similarly, appropriate reward and recognition policies and practices also provide a strong system effect through guiding and rewarding adaptive employee behaviors (Bhattacharya, Gibson, & Doty, 2005; Tzabbar, Tzafrir, & Baruch, 2017), or through reshaping the psychological contract between employees and the firm (Bowen & Ostroff, 2004). Opportunities for employees to participate in decision-making and problem-solving may create enhanced channels for information flow and coordination that enable sensing and seizing capabilities beyond that of the senior management team (Soo et al., 2017). This allows employees and managers to direct effort toward activities associated with

maintaining efficiencies in current processes and locating new sources of value through innovation (Patel et al., 2013). Overall, these practices enable what Nonaka, Hirose, and Takeda (2016) identify as the critical role of middle managers and non-supervisory employees in sensing and synthesizing accumulated knowledge required for reconfiguring internal systems and adapting to external environments. We therefore propose the following:

> ***Hypothesis 1.*** *HPWS will be positively associated with the formation of DCs, such that bundles of HRPs that (a) are ability-enhancing, (b) are motivation-enhancing, and (c) provide enhanced opportunities for employment involvement, will be associated with higher DCs.*

HPWS and OE

As an organization-level capability that captures the overall motivational environment within a work unit or establishment (Barrick et al., 2015), collective OE reflects whether individuals have a shared perception of the extent to which they and other co-workers are engaged at work. This concept has been operationalized as either an aggregation of individual-level perceptions of their own engagement to generate a direct consensus measure among organizational members (e.g., Harter, Schmidt, & Hayes, 2002; Schneider, Yost, Kropp, Kind, & Lam, 2018), or as individual perceptions of the engagement shared among members with the collective, rather than the individual, as the referent of the items (e.g., Barrick et al., 2015).

Prior work has generally hypothesized that HPWS may play an important role in the development of stronger OE within a work unit (Albrecht, Bakker, Gruman, Macey, & Saks, 2015; Barrick et al., 2015). Barrick et al. (2015), for example, posit that HRPs represent an organizational resource that may be deployed to generate a heightened sense of shared

engagement among employees. This effect reflects three complementary processes: the role of HRPs in shaping employee attitudes and behaviors; the strength of signals connecting employee engagement with rewards and recognition; and the likelihood that effective HRPs will bias selection of individuals that fit with the high collective engagement of the unit into which they are placed (Albrecht et al., 2015). As expected in the case of DC, HPWS are expected to offer mutually reinforcing effects that trigger these three processes, thereby generating a sense that higher levels of collective engagement at work are part of the exchange relationship between the firm and employees (Barrick et al., 2015; Li et al., 2017). Ability-enhancing work practices promoting employee development and enhanced opportunities to participate, in particular, can also work to reinforce a shared perception of psychological safety so that individuals and groups will be motivated to take considered risks and experiment (Guest & Conway, 2002), or to contribute to problem-solving associated with change and innovation (Collins & Smith, 2006) (Zhou, Fan, & Son, 2019). Motivation-enhancing practices, such as motivating work design and performance-related recognition and reward systems can also enrich individuals' work and lead to a sense of meaningfulness and shared purpose of the work undertaken by themselves and work colleagues (Bailey, Madden, Alfes, Shantz, & Soane, 2017). We therefore propose the following:

> ***Hypothesis 2.*** *The use of HPWS will be positively associated with OE, such that more extensive bundles of HRPs that (a) are ability-enhancing, (b) are motivation-enhancing, and (c) provide enhanced opportunities for employment involvement, will be associated with higher levels of OE.*

Leader competence and the organizational capabilities for innovation

Although early research on the micro-foundations of DCs equated them to processes that are embedded in organizational policies, practices and routines (Teece, 2007), later research has also considered the role of senior managers or strategic leadership as DC micro-foundations (Yukl, 2012). We therefore posit that, alongside HPWS, leadership can provide a foundation for DCs (Augier & Teece, 2009; Helfat & Peteraf, 2015) and OE (Barrick et al., 2015).

Leadership and DCs

Leadership has been recognized as important to organizations in both the SM (Helfat & Peteraf, 2015) and HRM literatures (e.g., Fugate, 2012). We propose that DCs build on stable routines and practices as well as individuals' managerial and leader competences (LCs)—or what Helfat and Peteraf (2015) call "managerial cognitive capabilities", reflected in leadership judgement, actions, and styles. In particular, the DCs framework posits a distinct role for leadership in selecting/developing routines, making investment choices, and orchestrating assets to achieve efficiencies and appropriate returns from innovation (Augier & Teece, 2009; Sirmon & Hitt, 2009). Indeed, studies have shown that leadership is positively associated with various forms of innovation (cf. Rosing, Frese, & Bausch, 2011).

Within the leadership literature, considerable importance has been attached to leadership style (Yukl, 2012), including discussions of how transactional, transformational, charismatic, servant, and positive leadership are related to organizational outcomes including innovation and innovative capability (e.g., Do et al., 2018). We therefore expect that LC, as a generalized construct, is positively associated with sensing, seizing, and reconfiguration DCs. We specifically build on Mayo and colleagues' (2012) work that conceptualizes LC as a function of self-

confidence and self-management (leading oneself), and flexibility and interpersonal understanding (leading others). Self-confident leaders show conviction in their ability to make decisions, develop and execute action plans, carry out new tasks, and give opinions (Mayo et al., 2012). Without confidence in their abilities and judgement, it is difficult for managers to differentiate between worthwhile and futile market developments, and to persistently plan and execute the necessary resource reconfiguration (cf. Mayo et al., 2012).

Self-management describes a person's control over their own behavior and the monitoring and managing of their own work (Manz & Sims, 1980). It requires leaders to effectively assess problems, establish goals, and monitor timing, progress, and environmental developments that may affect goal attainment (Allen, Renn, & Griffeth, 2003). Self-management is fundamental for DC formation; it allows leaders to define the scope and depth of sensing activities and recognize useful information. Leader self-confidence and self-management also inspire employees in that they direct behaviors and provide certainty about the necessity of tasks at hand (Graen & Uhl-Bien, 1995).

Behavioral flexibility refers to one's ability to adjust familiar behavioral strategies to new circumstances (Van Der Zee & Van Oudenhoven, 2000). It is inherently intertwined with sensing opportunities, as it allows leaders to learn from new experiences and mistakes (Spreitzer, McCall, & Mahoney, 1997). Flexible leaders show tolerance for ambiguity, incorporate others' viewpoints in their actions, and respond to changes in open and constructive ways (Mayo et al., 2012)—all of which support leading dynamic adaptation (cf. O'Reilly & Tushman, 2008).

Last, interpersonal understanding describes the ability to show empathy and see things from others' points of view (Salovey & Mayer, 1990). Leaders with strong interpersonal understanding

are tolerant and respectful of others' ideas (Mayo et al., 2012), which is particularly relevant for driving reconfiguration. Empathy (Ruben, 1976) allows leaders to assess market developments not only from their viewpoint, but also from those of customers and potential competitors—an essential foundation for effective sensing. This is likely to benefit leaders in adapting existing, and implementing new, routines with employees. As before, both leader flexibility and understanding are also expected to positively impact employees' behaviors, because employees are expected to emulate leaders' mental flexibility and understanding of situations. In sum, we hypothesize that:

> ***Hypothesis 3.*** *LC will be positively associated with the formation of DCs, such that establishments with leaders who have higher levels of self-confidence, self-management, flexibility, and understanding of others will be positively associated with higher levels of DCs.*

Leadership and OE

Leaders are also likely to influence OE (Barrick et al., 2015; Choi, Tran, & Park, 2015). Competent leaders, engaged effectively in sensing and identifying emergent opportunities and threats, are also likely to coherently and consistently communicate these developments to subordinates across the organization, clarify the purpose, and articulate how these relate to individual and team objectives (Schneider et al., 2018). In doing so, competent leaders may shape OE (Nishii & Paluch, 2018). Competent leaders who demonstrate flexibility and understanding of others can offer subordinates an additional source of the physical, affective, and cognitive resources associated with higher levels of engagement (Zhong, Wayne, & Liden, 2016). Skilled leaders generate a coherent sense of organizational direction and the role that employee efforts

and contributions are likely to play in achieving desired outcomes (Nishii & Paluch, 2018). At the same time, confident leaders who display a high degree of personal effectiveness also act as a signal to others in ways that challenge and encourage others to contribute to their work group in ways that are viewed as meaningful (Saks, 2006). They also have capacity to influence individuals highly committed to those outcomes (Yukl, 2012), enhance the group's collective efficacy to achieve them (Barrick et al., 2015), and promote a shared sense of the meaningfulness of the organizational success and the tasks that contribute to it (Salanova, Agut, & Peiró, 2005).

> ***Hypothesis 4.*** *LC will be positively associated with OE, such that establishments with leaders who have higher levels of self-confidence, self-management, flexibility, and understanding of others will be positively associated with higher levels of OE.*

The mediating roles of DCs and OE

According to Teece (2007), managerial action and routines for sensing market opportunities and threats shape innovation through the recognition of future potential technologies, or changes in demand or competition. If deemed relevant, this then triggers investments in addressing these opportunities or threats. Sensing therefore involves investment in research activity and probing customer needs, understanding latent demand, and recognizing the structural evolution of industries and markets. Seizing refers to adopting new technologies and orchestrating their integration with existing processes and structures to improve technological competences and obtain complementary assets. Seizing abilities—that is, investment choices to seize the 'right' technologies at the right time—naturally drive innovation success. Finally, organizations evolve in a path-dependent way along which assets and organizational structures will have to be reconfigured (i.e., integrated or broken out of) to maintain a superior market position (Teece,

2007). Organizations that lack reconfiguration ability run the risk of developing rules and procedures that, over time, create inertia that constrains the interactions and behaviors necessary for innovation. Building on this line of argument we propose that:

> ***Hypothesis 5.*** *Dynamic capabilities will partially mediate the association of HPWS and LC with innovation outcomes, such that DCs will transmit the positive effect of HPWS and LC, exhibiting a positive association with innovation.*

We hypothesize partial rather than full mediation, because we acknowledge that other mechanisms likely play a role between the independent variables and innovation. For example, explicit reward systems may exist within HPWS to motivate the individual-level creativity that feeds into innovation. Similarly, in industries and organizations with a more deliberate focus on innovation and learning, LC may incorporate explicit capabilities around leading knowledge workers.

Research on the HRM foundations of organizational success has invoked multiple perspectives to conceptualize the contributions of HRPs and employees for innovation (e.g., Shipton et al., 2006), including resource-based frameworks such as human capital theory (Lepak & Snell, 1999) and the more behavioral perspective of HRM (e.g., Messersmith et al., 2011; Sun et al., 2007). Both perspectives provide valuable insights into the mechanisms connecting HRM and organizational outcomes (cf. Jiang, Lepak, Hu, et al., 2012).

OE has been suggested as a key mechanism linking individual characteristics and organizational outcomes (Rich, Lepine, & Crawford, 2010). Higher OE may contribute to innovation through the aggregate consequences of more engaged employees making higher-level contributions to innovation processes. More engaged employees focus their physical and

cognitive efforts on the pursuit of organizational goals with cognitive vigilance and emotional connection. These engaged employees are then likely to meet the emotional demands of their roles, resulting in more complete and authentic performance (Rich et al., 2010), including performance that benefits innovation outcomes. As noted previously, engagement may manifest as a collective attribute (e.g., Choi et al., 2015). This likely occurs through the transfer of affective states among organizational members, as well as the reflection of group dynamics and the reinforcement generated through signals implicit in policies and practices (Barrick et al., 2015). Expecting relationships at the organization level that are at least functionally similar to those observed in prior research at the individual level, we therefore hypothesize the following:

> ***Hypothesis 6.*** *OE will partially mediate the relationship between (a) HPWS and (b) LC and innovation outcomes, such that OE will transmit the positive effect of HPWS and LC, exhibiting a positive association with innovation.*

The moderating role of environmental dynamism

Environmental dynamism describes the rate of change and unpredictability in an organization's market environment (e.g., Garg, Walters, & Priem, 2003). Dynamic markets are characterized by rapid changes in technologies and customer preferences, and instability of product demand or supply of materials (Jansen, Van Den Bosch, & Volberda, 2006). In this study, we are interested in how the pattern of effective DC and OE formation depends upon market dynamism.

HPWS and environmental dynamism

According to Eisenhardt and Martin (2000), the formation of DCs is influenced by environmental conditions. In more stable (i.e., dynamic but more predictable) operating environments, change may occur frequently, but tends to follow predictable paths. Under such conditions, situations can

be analyzed using existing knowledge, which can be embedded in predictable and relatively stable processes. We expect broadly equivalent processes within the context of HPWS—including, for instance, routines of employee participation in decision making, processes for regularly updating job specifications, and processes that define employee training requirements. In these conditions, employees are less likely to perceive goal ambiguity, rendering defined routines and processes an appropriate means to build sensing, seizing, and reconfiguration capabilities. HPWS give clear guidelines for employees to contribute to firm activities in pursuit of the common goal, and enable organizations to assimilate emerging technical and market knowledge required to orchestrate change and innovation (Han et al., 2019). In such contexts, HPWS provide a framework for employees to internally leverage the capabilities required for the acquisition, creation, and exchange of the knowledge required for new product development (Chang et al., 2013) . In more predictable environments, leaders are likely to rely upon established routines and practices to maximize DCs and absorptive capacities they provide to generate appropriate levels of innovation activity (Han et al., 2019). The strength of the HR system (Bowen & Ostroff, 2004) becomes more compelling than the direct interventions or perceived LC.

In contrast, rapidly evolving markets imply a level of uncertainty that is difficult to respond to via standardized practices (cf. Sirmon et al., 2007). These conditions may require rapid shifts in job specifications, recruitment rationales, training requirements, and performance assessments. All of these may to some extent be integrated into existing routines, but are likely to play a less pronounced role than is the case in stable conditions where they can be planned with higher levels of confidence (Williamson, 1975). Dynamic environments call for looser specification and/or constant adaptation of HR processes (Lengnick-Hall & Lengnick-Hall, 1990). While

HPWS offer flexibility beyond traditional HR systems (Ordiz-Fuertes & Fernández-Sánchez, 2003), there are limits. HPWS may also prove of more limited value in providing the capabilities that enable employees to resolve novel problems associated with adjustments and where decision-makers may in fact need to source knowledge and expertise that is external to the organization to solve problems (Han et al., 2019). We therefore expect the impact of HPWS on DC formation to be decreased in highly dynamic environments, whereas the impact of LCs is increased.

In highly dynamic environments, HPWS practices might not align with what employees feel is needed for changing goals or circumstances, undermining the alignment or fit between the signals generated by stable HRPs and routines, and changing job and work requirements to respond effectively to external turbulence. While defined processes might be followed, they may not be as relevant or effective, due to changing conditions. Lack of observability of individual contribution may be demotivating and detrimental for employee morale, leading employees to see their efforts as meaningless or wasted (Shipton et al., 2006). Dynamic environments may considerably shift job specifications, recruitment rationales, training requirements, and performance assessments, all of which creates uncertainty over employees' contributions, thus negatively impacting their engagement with the organization (Pil & MacDuffie, 1996). On this basis we therefore expect the following:

> ***Hypothesis 7.*** *Environmental dynamism moderates the relationship between HPWS and organizational capabilities associated with innovation, such that in more dynamic environments, HPWS have a relatively weaker association with both DCs and OE.*

Leadership and environmental dynamism

Environmental stability may render LCs less important for DC formation, relying instead on more prescriptive formal systems and policies to guide subordinate behavior (e.g., De Hoogh et al., 2005, p. 435). Yukl (2012), for instance, notes that strong individual leadership implies a need for change in organizational strategy and culture, or, as Ensley, Pearce, and Hmieleski (2006, p. 259) put it: "the same unconventional brilliance that saves the day during a crisis is likely to be interpreted as 'simply wacky' in a stable environment." We do not expect LC to negatively relate to DC formation in stable conditions, but we do expect it to be less pronounced.

In intensely dynamic markets, by contrast, change is often nonlinear and less predictable, market boundaries are blurred, and market participants are ambiguous and shifting. Rather than relying on existing knowledge, DCs here build on the ability to rapidly create new, situation-specific knowledge, real-time information, cross-functional relationships, and intensive communication among those involved with the external market (Eisenhardt & Martin, 2000). In fast-changing environments, it is up to individual leaders to quickly grasp new situations, create situation-specific understanding, and adapt their and employees' behavior accordingly (De Hoogh et al., 2005). In this vein, it has long been understood by leadership scholars that crisis fosters the emergence of influential leaders (Pillai, 1996). Competent leaders encourage others to view changing market conditions as opportunities, allowing greater latitude for decision-making and enabling employees to anticipate changes and bring forward suggestions for organizational adaptation (Jansen, Vera, & Crossan, 2009).

Hypothesis 8. *Environmental dynamism moderates the relationship between LC and organizational capabilities associated with innovation, such that in more dynamic environments, LC has a relatively stronger association with DCs and OE.*

3. DATA AND METHODS

Sampling and data

We rely on data collected as part of a nationally representative survey (through stratified random sampling based on industry and region) of management practices in Australia conducted in 2016 across organizations that employed more than five employees and in all industries except agriculture, forestry, and fishing. After an initial screening, the data were collected through telephone surveys with organizational leaders (usually CEOs, general managers, or directors) and workplace leaders (usually the general manager of a single workplace operated by multi-establishment organizations). In exchange for participation, organizations were offered feedback about the survey results and individualized reports. These data were matched with responses from a performance questionnaire (including items capturing innovation) for which data were collected from a third informant nominated by the workplace leader (usually a category or group leader in a position to assess performance outcomes), although 66% of workplace leaders elected to nominate themselves. Workplace leaders were also asked to distribute an employee survey instrument. The full sample included 2,703 responses from organizational leaders (response rate 72%), 2,554 responses from workplace leaders (response rate 72%), 1,227 responses to the performance questionnaire (response rate 48%), and 4,419 employee responses (estimated response rate 5%), all of which were aggregated to the workplace level. Given the full information maximum likelihood estimation procedures employed (Muthén & Muthén, 2005) and minor adjustments due to missing cases, our final analyses use a sample of 2,554 responses for

the links between micro-foundations and DCs, and 1,189 for the link between DCs and innovation. Because employee-level responses to the OE measure were aggregated and only used when three or more employee responses per workplace were present, the links between OE and its antecedents rely on 3,770 responses aggregated to 510 workplaces from just under 500 different organizations (average 7 employees per workplace). The final sample of workplaces provided a representative spread across industries in Australia withworkplace sizes averaging 20 employees, an average workplace age of 5.4 years, and largely private sector organizations.

To minimize the potential for common method variance, we followed survey design guidelines outlined in Podsakoff, MacKenzie, Lee, and Podsakoff (2003), by guaranteeing confidentiality and providing clear response guidelines. We screened the data using Harman's single-factor test, which resulted in a five-factor solution (eigenvalue > 1) explaining 53% of the total variance. With 25%, the first and largest factor did not account for most of the variance. We also specified a measurement model for the three variables that were assessed by the same source (HPWS, LC, and DCs) that included a common latent method factor to separate relative variance explained (Podsakoff et al., 2003). Although the standardized loadings for our core constructs are slightly reduced when comparing the results without and with the common factor, the respective reductions are below 0.2, indicating no systematic bias in our data.

Measures

Our key measures, including HPWS, LC, and DCs, were assessed by the workplace leader, while environmental dynamism was assessed by the organizational leader and matched at the workplace level. The OE measure is constructed from aggregated employee responses. The innovation measure was included in the performance questionnaire, which 66% of workplace leaders elected to complete themselves (the other 34% were completed by a nominated third

respondent in the same workplace). We compared workplace managers' and third respondents' scores on the innovation scale using an independent sample *t*-test and found no significant differences between them ($t[1201] = .78$; $p > .05$).

All reflective items were assessed using five-point Likert scales anchored at "1 = I strongly disagree and "5 = I strongly agree." A table including all constructs, measurement items, their standardized factor loadings, and their discriminant validity is provided in the Appendix.

HPWS. HPWS are measured using an index initially developed by Sun et al. (2007) and refined by Patel et al. (2013). The index measures eight areas that reflect the Ability (recruitment and selection, training, and career paths), Motivation (job specification, performance appraisal, job security, and incentive rewards), and Opportunity (employee participation) framework. The coefficient α for the overall scale is .85.

Leader competence. We used the four-factor measure developed by Mayo et al. (2012), measuring LC in four areas: (1) self-confidence, (2) self-management, (3) behavioral flexibility, and (4) interpersonal understanding, measures through three items each. The coefficient α for the full measure is .80.

Dynamic capabilities. Core DCs revolve around (1) sensing new opportunities, (2) seizing them, and (3) reconfiguring organizational resources as the new situation requires and allows (Teece, 2007). We used the three-factor measure developed by Pavlou and El Sawy (2011) which employs three to four items per factor. The coefficient α for the full measure is .82.

Organizational engagement. Engagement was measured with a one-factor, nine-item measure adapted from Barrick et al. (2015) and Rich et al. (2010).The coefficient α for the full measure is .90. To test whether sufficient agreement existed among employees to infer group-level

engagement existed (James, 1982), we aggregated employee responses from workplaces with three or more respondents. We calculated $r_{WG(J)}$ and r^*_{WG} for employee engagement, finding a mean $r_{WG(J)}$ value of 0.94 (SD=.11) and a mean r^*_{WG} value of 0.80 (SD=.27). We also examined the intraclass coefficients: ICC(1) = .02; ICC(2) = .60 ($F_{509, 3261} = 2.47$, $p < .0001$). Overall, these values indicate sufficient internal consistency for aggregation (Bliese, Halverson, & Schriesheim, 2002).

Environmental dynamism. We followed Jaworski and Kohli's (1993) approach to conceptualizing dynamism as a composite of customer, competitor, and technological turbulence, using a measure by Joshi and Sharma (2004). The coefficient α for the full measure is .73.

Innovation. Innovation was measured using seven items each for radical and incremental innovation outcomes developed by Jansen et al. (2006). Since we do not hypothesize differential effects for radical and incremental innovation, we used an aggregated measure (α = .89).

Control variables. In our statistical analysis, we controlled for organization size (measured by the number of employees, 13 categories from five to 20,000 or more employees), age (years since founding), industry affiliation (dummy-coded based on the Australian standard industrial classification, ANZSIC), and sector (measured as a binary variable: public versus private sectors).

We validated the full model through a confirmatory factor analysis that included six latent variables: HPWS, LC, DCs, OE, environmental dynamism, and innovation. We omitted from further analyses individual items with low item-to-scale correlations and non-significant loadings on their assigned factors. This procedure led to more internally consistent measures but resulted in omitting the rewards factor from the HPWS scale. The model provided good fit with the data:

$\chi^2(2596) = 8041.16$; root mean square error of approximation (RMSEA) = .029; standardized-root-mean-square residual (SRMR) = .044; comparative fit index (CFI) = .90.

Insert Table 1 about here

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4. RESULTS

Descriptive statistics and correlations are provided in Table 1. Hypotheses 1 through 6 were assessed using a simultaneous path model using mean scores for all variables. Table 2 includes the results of our analyses for hypotheses 1 through 4. Hypothesis 1 stated that HPWS relate positively to DCs. HPWS were found to be positively associated with higher levels of our DC measure (HPWS → DCs: $\beta = .44$, $p < .01$). Hypothesis 2 predicted a positive relationship between HPWS and OE, which was also supported (HPWS → OE: $\beta = .11$, $p < .01$). Hypotheses 3 and 4 predicted that LC would be positively related to both DC and OE, respectively. The relationship between LC and DC was significant and positive (LC → DCs: $\beta = .31$, $p < .01$); however, the hypothesized relationship between competence and OE, while positive, was not significant (LC → OE: $\beta = .03$, *n.s.*).

Insert Table 2 about here

Hypotheses 5 and 6 related to the effects of DC and OE on innovation, and the partial mediating role of these two variables in our model. The relevant results for the main effects are

included in Table 2, while those for the mediation analyses are provided in Table 3, including bootstrapped confidence intervals (2,000 draws). As expected, DC mediated the effects of both HPWS (indirect effect: β = .15, p < .01) and LC (indirect effect: β = .10, p < .01) on innovation. While OE mediated the relationship between HPWS and innovation (indirect effect: β = .03, p < .05), it did not mediate the relationship between LC and innovation (indirect effect: β = .01, *n.s.*).

Insert Table 3 about here

Our last two hypotheses related to the moderating effects of environmental dynamism on the main effects reported for hypotheses 1 to 4 above. We assessed these through a series of moderated regression models, the results of which are reported in Table 4. Again, the findings were mixed. The moderating effect of environmental dynamism was significant in the HPWS-DC relationship (HPWS × environmental dynamism → DCs: β = -.10, p < .01), and the LC-DC relationship (LC × environmental dynamism → DCs: β = .08, p < .01). The moderating effects of environmental dynamism on the relationships between these two antecedences and DCs follows the expected direction, such that the positive effect of HPWS on DC formation diminishes in more dynamic environments, while the positive effect of LC becomes more pronounced. In contrast, the moderating effect of environmental dynamism on the relationship between HPWS and LC on the one hand, and OE, on the other hand, were not significant.

In order to facilitate interpretation of these results for Hypothesis 6 and 7, we plotted the simple plots for the effects of HPWS and LC on DC (i.e., the two statistically significant interactions), holding the other variable constant at their means and with the exclusion of control

variables. As Figure 2 shows, higher levels of HPWS were positively associated with DC formation in both stable and dynamic environments, but the magnitude of the positive relationship is much stronger when conditions are stable. Under conditions of low environmental dynamism, high levels of HPWS generated higher levels of DC than when the external environmental dynamism measure was high. Although higher levels of HPWS are also positively associated with DC formation in more dynamic environments, DC formation due to HPWS is, in absolute terms, more pronounced when environmental conditions are stable. Figure 3 graphs the relationship between LC and DC given different environmental conditions. As expected, LC contributes more positively to DC formation in more dynamic environments. As before, there is a positive association between LC and DCs irrespective of environmental conditions. However, LC has a stronger positive association with DCs in dynamic environments than in stable ones. Overall, while HPWS and LC both contribute positively to DC formation, our moderation results support our expectations that in dynamic environments the importance of HPWS for DC formation decreases while that of LC increases.

Insert Table 4 and Figures 2 and 3 about here

In setting out our model we emphasized the core proposition of complementarity among sub-components (A, M and O) that constitute a comprehensive and coherent HPWS. This proposition implies that, on their own, each of the subcomponents on their own – or an unbalanced bundle that does not encompass all three components (Han et al., 2019) are not expected to have strong effects on outcomes. However, as a supplementary analysis we tested whether each of the three

subcomponents independently were associated with each of our two mediators, DC and LC. However, testing this more disaggregated specification of our model would require us to test multiple interactions simultaneously. Given insufficient power associated with this more complex analysis, estimating the model proved intractable. As an alternative we estimated a partial model in which the sub-components of a HPWS (A, M and O) were related to each of the two mediators separately, and including environmental dynamism as the moderator, along with the control variables. Details of these results are reported in the Appendix. All three subcomponents were significantly related to DCs; however, the relationship between our A, M and O measures and OE were all insignificant. The weaker effects of these subcomponents on DCs and the nonsignificant results for OE provide further support for the importance of horizontal fit.

5. DISCUSSION

Our core contribution is that we provide a theoretically informed model specifying how both HPWS and leadership generate capabilities that drive innovation. Our results support the proposition that HPWS and leadership are important antecedents of the formation of DCs and OE—both of which were associated with innovation. Results also support the proposition that the effectiveness of HPWS and LC are dependent upon external environmental conditions.

Specifically, our results indicate HPWS and leadership serve as foundations for DCs under different environmental conditions. As environments become increasingly dynamic, the association between HPWS and DCs becomes less pronounced, while the association between LC and DCs increases. Both HPWS and LC are shown to relate to innovation through DCs. These results suggest that organizations operating in more stable environments are well-advised to build DCs through defined organizational processes. Turbulent environments, by contrast, appear to call for individual leaders who can orchestrate sensing, seizing, and reconfiguration in a

more *ad hoc* fashion. The role of HPWS and LC as a micro-foundation for OE was not strongly moderated by these environmental conditions.

Implications for theory

We contribute to an ongoing debate within HRM around the conditions under which HRM plays a strategic role in driving innovation and competitive advantage, and the pathways through which they do so (Jiang & Messersmith, 2018). To do so, we built on both the SHRM theory and the SM literature to elucidate the micro-foundations for organizational capabilities associated with innovation and competitive advantage (Helfat & Peteraf, 2015). Accordingly, we developed theoretical explanations and empirical evidence for the relationship between strategic capacity, people, and leadership in a more robust way (cf. Wright, Gardner, Moynihan, & Allen, 2005).

An ongoing concern with the HPWS literature has been whether prior studies adequately specify the context or boundary conditions within which HPWS are expected to have their effects (Chadwick, 2017). Our study responds to such calls to consider context and complementarities. HPWS have diminished importance in dynamic conditions, but are significantly related to innovation, supporting prior research which has shown HPWS to simultaneously promote exploratory and exploitative innovation (Patel et al., 2013). Similarly, we provide support for research that indicates the impact of leadership as a critical HR resource on innovation is contingent on environmental conditions (Jansen et al., 2009). By extension, our research also strengthens theoretical links tying HRM and leadership streams to DC and innovation research (e.g., Crossan & Apaydin, 2010). Although these links have implicitly been assumed by both SM and HRM scholars(Teece, 2007), our results provide explicit empirical support for their theoretical and practical relevance.

We also extend prior SHRM literature by providing evidence supporting a contingent view that DC formation is associated with both routine processes and leadership actions (Nishii & Paluch, 2018). These encompass both direct effects in the form of leadership as a source of human capital that may be deployed to complement the role of organizational systems that underpin DCs, such as HPWS. In considering the implications of these findings we are drawn to consider earlier developments within the leadership literature that suggested management systems may in fact operate as a substitute rather than a complement for competent leadership (e.g., Kerr and Jermier, 1978), which has also resonated with recent findings reported the interaction between HPWS and leadership in customer service environments (Jiang, et al., 2014; Chuang et al., 2016). In this context, we would suggest that exploring the different forms that this interaction between the role of leadership and HPWS offers a promising prospect for future research exploring how and under what conditions HPWS can generate better performance and drive sustainable competitive advantage.

Implications for practice

Our results have important managerial implications for leverage HRM and leadership as critical capabilities for innovation and competitive advantage. They are important given their applicability to organizations of various sizes and industries. One would expect, for example, that individual competence assumes greater importance over routinized processes in smaller organizations. Larger organizations tend to diversify tasks across dedicated sub-units, while smaller organizations integrate them in individual positions (Raisch, Birkinshaw, Probst, & Tushman, 2009). However, this does not appear to be the case in our sample. Likewise, scholars have stated that DCs are most relevant for multinational enterprises (Teece, 2007), or larger and

more diversified firms (Zollo & Winter, 2002). Our findings suggest that routinization benefits large and small organizations, especially in more stable organizational environments, while individual competences provide flexibility benefits for all types of organizations in more dynamic environments. This conclusion is supported by other studies, which have suggested DCs are relevant in large (Kale & Singh, 2007), medium (Salvato, 2003), and small firms (Døving & Gooderham, 2008).

Given that the implementation of HPWS and leadership development is costly, our results provide guidance for investment decisions to most effectively drive adaptation and reconfiguration capabilities in different market conditions. Although routine processes for sensing, seizing, and reconfiguration are certainly important for innovation, the findings of this study highlight the importance of individual manager capabilities in shaping organizations. Assuming a limited resource base, our results imply prioritization rules for investments based on environmental conditions, such that firms operating in more dynamic and unpredictable may seek to develop leadership capable and confident in their ability to draw in both internal and external sources of knowledge and expertise to drive innovation, and activating the role of HPWS as more certainty emerges. It may also suggest, as other researchers have now begun to explore, that HPWS may themselves need to be configured in ways that reflect the ongoing task of balancing vertical and horizontal fit (Han, et al. 2019)

Finally, our conceptualization of micro-foundations of DCs is analogous to formal and informal aspects of corporate entrepreneurship in the HRM literature (e.g., Hayton, 2005). While both are necessary and interdependent, our findings suggest that formalized (HPWS) and informal, *ad hoc* activities (LCs) are more relevant under different conditions. This implies that

in order to be successful, HRM needs to find a balance between stringently defining jobs and routines, and maintaining flexibility for individual contributions.

Limitations and avenues for future research

In this study, we draw on a large representative sample of firms of different sizes operating across diverse industry settings, which enables us to control for these as important contextual factors likely to shape the relationship between HRPs and organizational outcomes.As with any study, however, our study has its limitations, which we recognize as important for assessing both the contribution we make and the inferences that can be reasonably drawn from our analysis. One limitation is that, for many cases, most variables (except for OE) were measured by workplace leaders' self-reports, and thus, common method bias (e.g., social desirability) may have affected the results (Podsakoff et al., 2003). In order to reduce the effect of social desirability, it was made clear and explicit that the responses would remain confidential and anonymous. We also conducted post-hoc tests to check for CMV, which did not indicate serious bias. Nevertheless, future research should attempt to reduce this bias by including different sources of ratings (e.g., leaders, board members, HR managers) as well as using financial performance data.

The present study considers the simultaneous contribution of LC and HPWS for DC formation, and follow-on effects for innovation and organizational performance. Although the questionnaires asked respondents to assess these constructs for the past year, our cross-sectional approach may not capture potential longitudinal effects among the variables over time. Future research should therefore explore these relationships more fully using longitudinal designs. Specifically, the organizational capabilities for innovation (DCs and OE) may require time to develop, and the effects of HPWS and competent leadership may play out over a longer period of time (Pavlou & El Sawy, 2011). Similarly, the very nature of environmental dynamism implies

that the qualities of organizational environments and consequences are difficult to capture, as SM and HR scholars have noted (e.g., De Hoogh et al., 2005). The interplay between environmental dynamism and the processes of concern in this study warrants attention in the future.

Our analysis concentrated on SHRM as micro-foundations of DCs. Future research could investigate the interplay between organization-level routines (such as HPWS) and individual manager capabilities in other functional areas (e.g., new product development teams) (Li et al., 2017; Patel et al., 2013). As one of the first studies to directly compare the individual- and organization-level influences for DCs and OE, we have only considered effects as they relate to the overarching concepts of HPWS, LC, DCs, and innovation. A more fine-grained investigation that considers the relationships between individual sub-dimensions of these concepts would be a logical next step. Helfat and Peteraf's (2015) study on the managerial cognitive underpinnings of DCs provides a useful example. As we note above, SHRM is yet to develop a clear theoretical understanding of the various ways in which leadership and HPWS themselves may work to interact, such that under different conditions, may operate as either a complement or substitute for each other.

There may also be other contingencies beyond those studied here that are worth considering as moderating the relationship between HPWS and organizational outcomes (Chadwick, 2007). Most prominently, research should consider the role of strategic stance for the applicability of the DC view. Organizations that are predominantly imitators rather than first movers in terms of new products or services, for instance, may have less need for DCs in general. There may also be other contingencies at play, including the institutional and cultural context within which leadership and HPWS are deployed to drive organizational outcomes.

Finally, For HRM scholars interested in understanding how HPWS influence organizational processes and outcomes, focus has almost exclusively been placed on understanding consequences for employee attitudes and behaviors. Little attention has been given to how these practices influence leaders. Yet, such practices are likely to guide leaders in undertaking their roles and implementing HR policies and practices, as well as influence leader abilities, motivations, and opportunities for involvement,[1] albeit in potentially different ways than for employees. We know of no study that has explored this aspect of HPWS. We therefore suggest that for HRM scholars, this is likely to represent a promising extension to the existing HPWS literature.

Conclusion

Capabilities to develop and market innovative products and services remain at the heart of successful organizations. Innovation is underpinned by organizational capabilities to sense new developments and changing conditions, seize relevant opportunities, and reconfigure organizational assets, in light of the situation. Significantly, we show how these organizational capabilities are underpinned by organization-level routines, as well as competent leadership. The results of this study suggest HPWS also provide important foundations for DCs in more predictable environments. In high-velocity markets, however, organizations appear to be well-advised to complement the development of routines with investments in LCs to maximize innovation and performance. Put another way, our study provides unique evidence that HPWS may, beyond their immediate effects on performance, enable organizations to develop the

1 We thank an anonymous reviewer for drawing our attention to this important point.

capabilities required for competitive advantage, but that this strategic value may require more than investments in complementary bundles of HRPs for them to be sustainable.

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Table 1
Descriptive statistics and correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
1 HPWS	3.91	.42	(.85)								
2 Leader competence	4.05	.40	.42	(.80)							
3 Dynamic capabilities	4.02	.45	.54	.45	(.80)						
4 Organizational engagement	4.19	.29	.16	.09	.06	(.90)					
5 Environmental dynamism	3.58	.64	.13	.07	.17	.01†	(.73)				
6 Innovation	3.76	.54	.25	.21	.35	.19	.12	(.89)			
7 Number of employees (categ.)	2.99	1.77	.10	.08	.01†	.07	.06	.02†	--		
8 Firm age (years)	5.37	1.75	.03†	-.05	-.10	.03	.02†	.00†	.15	--	
9 Sector (1=private, 2=public)	1.11	.32	.08	.05	.02†	.04†	.12	.08	.16	.16	--

Notes. All correlations except those marked † are significant at $p < .05$ (two-tailed); values on the diagonal are α coefficients for the measures; HPWS = high performance work systems; categories for number of employees: 1 = 5-9; 2 = 10-19; 3 = 20-29; 4 = 30-49; 5 = 50-99; 6 = 100-199; 7 = 300-499; 8 = 500-999; 9 = 1,000-1,999; 10 = 2,000-4,999; 11 = 5,000-9,999; 12 = 10,000-19,999; 13 = 20,000 or more.

Table 2
Regression results for the path model

	Dependent variable	**SE**
Main effects	*Dynamic capability (N = 2,529)*	
HPWS	.44**	(.02)
Leader competence	.31**	(.02)
Environmental dynamism	.07**	(.01)
Main effects	*Organizational engagement (N = 510)*	
HPWS	.11**	(.04)
Leader competence	.02	(.04)
Environmental Dynamism	-.02	(.02)
Main effects	*Innovation (N = 1,195)*	
Dynamic capability	.34**	(.05)
Organizational engagement	.25**	(.09)
HPWS	.07	(.05)
Leader competence	.05	(.05)
Environmental Dynamism	.03	(.03)

Notes. Values are standardized regression coefficients; SE = standard error; the full regression results with control variables are available upon request.
**$p < 0.01$; *$p < 0.05$ (two-tailed)

Table 3
Indirect effects of HPWS and LC on innovation

Relationship	Mediators	Indirect effect	SE	95% CI
HPWS → innovation	Dynamic capability	.15**	(.02)	[.103, .193]
Leader competence → innovation	Dynamic capability	.10**	(.02)	[.071, .138]
HPWS → innovation	Organizational engagement	.03*	(.01)	[.001, .056]
Leader competence → innovation	Organizational engagement	.01	(.01)	[-.016, .025]

Notes: Values are standardized regression coefficients; SE = standard error; CI = confidence interval (bootstrapped, 2000 draws)
**$p < 0.01$; *$p < 0.05$ (two-tailed)

Table 4
Moderation results

	Dependent variable	**SE**
Main effects	*Dynamic capability (N = 2,528)*	
HPWS	.79**	(.10)
Leader competence	.02	(.11)
Environmental dynamism	.12	(.13)
Interactions		
HPWS × Environmental dynamism	-.10**	(.03)
Leader competence × Environmental dynamism	.08**	(.03)
Controls		
Organization size	-.01*	(.00)
Organization age	-.02**	(.00)
Sector (public/private)	.04	(.02)
Main effects	*Organizational engagement (N = 510)*	
HPWS	.11	(.20)
Leader competence	-.09	(.22)
Environmental Dynamism	-.14	(.25)
Interactions		
HPWS × Environmental dynamism	.00	(.06)
Leader competence × Environmental dynamism	.03	(.06)
Controls		
Organization size	.01	(.01)
Organization age	.00	(.01)
Sector (public/private)	.00	(.03)

Notes. Values are standardized regression coefficients; SE = standard error; interaction terms are mean-centered (regression coefficients denominate the interaction at the average of the main effect)
**$p < 0.01$;*$p < 0.05$;.

HRMJ Submission

Practitioner Notes/Key point/Highlights

What is currently known about the subject matter:

- Well-designed HRM systems that invest in employee skills, cultivate motivation, and present opportunities to participate have been shown to improve organizational performance and employee outcomes.
- Such systems – referred to as high-performance work systems (HPWS) – have also been predicted to drive organizational innovation and sustain the underlying competitive advantage that leads to these performance outcomes.
- However, previous studies have not shown how and why this may happen.

What this paper adds:

- This study proposes a theoretical explanation of how HPWS and competent leadership enable innovation outcomes through the formation of organizational capabilities. It is predicted that "dynamic capabilities" – the ability to identify new opportunities for growth, seize them, and re-organize the firm's resources to realize these opportunities – and collective employee engagement serve to link HPWS and leadership with innovation.
- Using evidence from Australia, this study supports our predictions that the influence of HPWS and leader competence will vary in different (stable and dynamic) environmental conditions.

The implications for practitioners:

- In more unpredictable and dynamic environments, competent leadership plays a more important role in enabling innovation outcomes, whereas in more stable environments, HPWS will contribute more to generating innovation outcomes.

- Organizational leaders and HR professionals should think more about how leadership and HR systems play differential roles in supporting innovation and performance outcomes, given the level of predictability of the competitive environment in which they operate.
- However, having more of both HR systems and leadership may not necessarily produce larger effects on innovation.

List of abbreviations

AMO - ability, motivation, opportunity

DCs - dynamic capabilities

HPWS - high performance work systems

HRM - human resource management

HRPs - human resource practices

LC - leader competence

OE - organizational engagement

RBV - resource based view

SHRM - strategic human resource management

SM - strategic management

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Figure 1
Theoretical Model

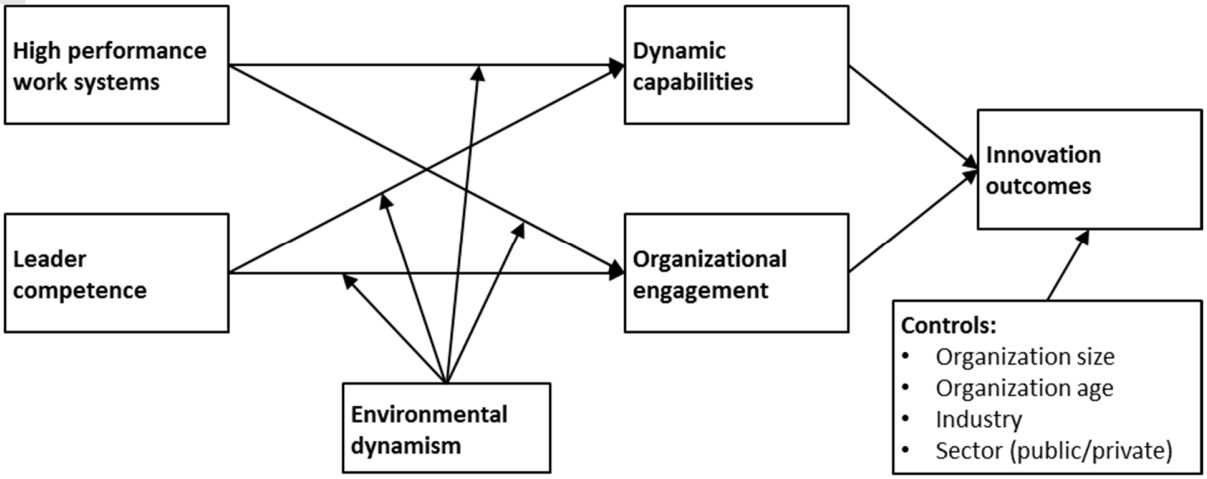

Figure 2
The joint effects of HPWS and environmental dynamism on DCs (leader competence held constant)

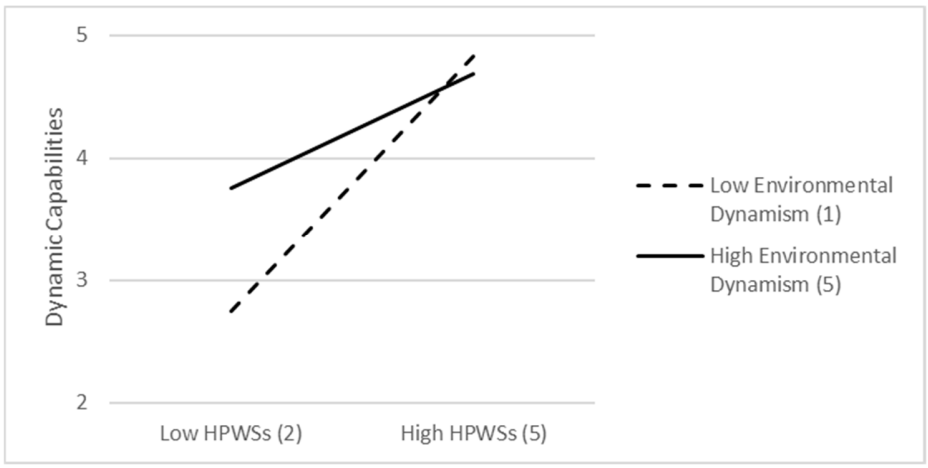

Figure 3
The joint effect of leader competence and environmental dynamism on DCs (HPWS held constant)