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Measuring the Success of Agile HR Initiatives in Virtual Talent Acquisition

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Introduction

This study focuses on examining the effectiveness of Agile HR practices in relation to virtual recruitment. Agile HR revolves around three main principles: flexibility, collaboration, and continuous improvement. It shifts away from rigid, top-down management structures, instead fostering an environment where employees are encouraged to take initiative and collaborate with their peers. These core Agile principles aim to improve adaptability and team dynamics, which is especially important as companies seek innovative solutions to traditional hiring challenges.

Many organizations are turning to Agile project management approaches to create a more flexible and efficient hiring process. Agile recruiting is built around short, iterative cycles, typically lasting one to two weeks, which allow for continuous evaluation and refinement of key performance indicators. This method helps teams quickly identify potential roadblocks, make adjustments, and ensure that hiring goals are being met in a timely and effective manner. By breaking down the recruitment process into smaller, manageable tasks, companies can respond more swiftly to changing needs and market conditions. Incorporating Agile into recruitment has proven beneficial in several ways. It not only accelerates the hiring process but also improves communication within hiring teams and enhances collaboration with clients. By focusing on regular feedback and iterative improvements, Agile recruiting helps attract top candidates more effectively while addressing the limitations of traditional, linear recruitment methods. This framework creates a more dynamic and responsive hiring environment, resulting in better outcomes for both companies and candidates.

Literature Review

Agile HR practices have transformed how organizations approach recruitment, especially in virtual environments. Agile methodologies such as Scrum, Lean, and Kanban are based on principles of flexibility, continuous improvement, and collaboration (Rigby et al., 2016). They have proven to be particularly effective in addressing the challenges posed by traditional recruitment methods, which are often slow, rigid, and fail to adapt to changing organizational needs (Denning, 2018). Agile recruiting embraces iterative workflows and regular evaluations, promoting quick decision-making and real-time feedback, which is critical for virtual recruitment processes (Cooper et al., 2020). The traditional recruitment process has long been criticized for its inefficiencies. According to Bechet (2008), many traditional recruitment approaches are characterized by long cycle times and poor

adaptability to dynamic market conditions. Agile methodologies, on the other hand, allow organizations to iterate quickly and adapt their hiring strategies to evolving needs (Laloux, 2014). Agile recruiting divides the process into manageable sprints, typically one to two weeks long, during which performance metrics such as candidate engagement and time-to-hire are continuously monitored and adjusted (Spinks, 2019).

Virtual recruitment, which has become increasingly prevalent due to the rise of remote work, presents specific challenges that Agile HR practices are well-positioned to address. These challenges include maintaining communication between geographically dispersed teams and ensuring candidate engagement in a virtual setting (Henson & Gillett, 2020). Agile recruiting frameworks foster better communication through daily standups and retrospectives, enabling recruitment teams to remain aligned with their goals and provide continuous feedback on candidate progress (Briand et al., 2019). Agile practices also help overcome the complexities of managing virtual recruitment. For instance, research by Serrador and Pinto (2015) shows that Agile methodologies enhance adaptability, allowing teams to address challenges like time zone differences, technological limitations, and virtual candidate engagement. Agile recruiting frameworks enable real-time adjustments, ensuring that recruitment processes stay on track and are optimized for efficiency, even in virtual environments (Chambers, 2020). The ability of Agile HR to improve recruitment efficiency is one of its main benefits. According to Huisman et al. (2018), traditional recruitment processes often fail to deliver timely results, which can lead to missed opportunities in competitive talent markets. Agile recruiting frameworks, with their focus on short, iterative cycles and continuous improvement, are more effective at attracting top talent quickly. This is particularly important in virtual recruitment, where the hiring process needs to be highly responsive to ensure candidate engagement and retention (Sullivan, 2020).

In addition to improving process efficiency, Agile HR practices can enhance the overall candidate experience. Agile recruiting allows organizations to regularly review and refine their recruitment strategies based on feedback from both internal stakeholders and candidates themselves (Cooper et al., 2020). This iterative approach helps companies identify bottlenecks and improve the candidate journey, ultimately leading to higher satisfaction and better hiring outcomes (Bajic, 2020). In virtual recruitment settings, where candidates may feel disconnected from the organization, Agile HR practices can help keep candidates engaged through transparent communication and regular updates (Meyer, 2017). The Agile approach also promotes cross-functional collaboration between HR and other departments, which is critical in complex recruitment processes. For example, in the technology sector, Agile recruitment practices enable seamless collaboration between HR teams, hiring managers, and technical leads, ensuring that hiring decisions are aligned with business objectives (Rigby et al., 2016). By facilitating continuous feedback, Agile HR ensures that the recruitment process is highly responsive to the needs of various stakeholders (Mackenzie & Cassidy, 2020). Agile HR methodologies have been found to reduce time-to-hire significantly. Research by Denning (2018) suggests that organizations using Agile recruitment frameworks are able to adapt to shifting market demands more quickly than those relying on traditional methods. Agile recruitment emphasizes flexibility, allowing teams to make faster decisions and adjust their strategies as new challenges arise. This is especially important in virtual recruitment, where delays and inefficiencies can lead to losing top candidates (Sutherland & Schwaber, 2016).

Continuous learning and improvement are also key elements of Agile HR. By reflecting on each recruitment sprint, teams can identify areas for improvement, learn from past mistakes, and refine their processes over time (Hoda et al., 2018). This creates a culture of continuous improvement within HR departments, leading to more effective recruitment outcomes. Agile HR practices also contribute to higher job satisfaction among recruitment teams, as they provide a sense of ownership and control over the recruitment process (Briand et al., 2019).

The rise of remote work has amplified the need for Agile HR practices in virtual recruitment. As noted by Dulebohn and Hoch (2017), the shift towards virtual work environments has made it more challenging to maintain communication and collaboration during the hiring process. Agile HR frameworks, which emphasize regular communication and feedback loops, help to address these challenges by keeping all stakeholders informed and engaged throughout the recruitment process (Chambers, 2020). Moreover, Agile recruitment practices have been

linked to improved employer branding. Organizations that adopt Agile methodologies are often perceived as more innovative, flexible, and efficient, which can attract top talent (Bajic, 2020). In the virtual recruitment landscape, where candidates may be evaluating multiple offers simultaneously, a streamlined and responsive hiring process can make a significant difference in securing top candidates (Taylor & Gale, 2019). Agile HR's ability to adapt to changing circumstances is particularly important in virtual recruitment. Virtual environments often require recruiters to deal with technological challenges, such as video interview platform issues, time zone differences, and fluctuating candidate availability (Rigby et al., 2016). Agile recruiting frameworks provide the flexibility needed to pivot quickly and address these challenges, ensuring that the hiring process remains efficient and effective (Serrador & Pinto, 2015). In conclusion, Agile HR practices provide significant advantages for virtual recruitment by improving process efficiency, enhancing collaboration, and promoting continuous improvement. By adopting Agile methodologies, organizations can create a more adaptable and responsive recruitment process that is well-suited to the dynamic demands of virtual hiring. This approach not only improves time-to-hire and candidate engagement but also strengthens employer branding and ensures a better overall candidate experience.

Research Gap

There is a notable research gap in understanding the specific application of Agile HR practices to virtual recruitment. While Agile methodologies are praised for improving flexibility and efficiency in traditional settings, little research has explored how these principles can address the unique challenges of virtual hiring, such as maintaining candidate engagement and communication. Additionally, most studies focus on small to medium enterprises, leaving a gap in how Agile HR can be scaled for larger organizations. There is also limited analysis on the long-term sustainability of Agile practices in virtual recruitment, making this a crucial area for further exploration.

1. Methodology

This research aims to measure the effectiveness of Agile HR practices in virtual recruitment. A review of literature was conducted to provide foundational insights into Agile HR principles and virtual recruitment processes. The study used primary data, collected through a well-structured questionnaire designed to assess the impact of Agile HR practices. The questionnaire gathered demographic information, including age, gender, educational background, occupation, and experience with online education.

A sample of 131 respondents was selected using random sampling to ensure diverse perspectives. The analysis and interpretation of the data utilized two primary statistical tools:

1. **Descriptive Analysis** – to summarize the characteristics of the data, providing a clear overview of the respondents' demographics and responses.
2. **Mean Analysis** – to determine the central tendency and gauge the average effectiveness of Agile HR practices in virtual recruitment based on respondents' feedback.

Data Source and method of data collection: The study has been mainly by collecting the primary data. The questionnaire consisted of 17 statements. The questionnaire was distributed among the employees of various organizations. Sample Size and Sampling: 55 employees were approached for the study and only 25 employees were included as being complete in all aspects. The sample 25 respondents included in the study had a distribution of 3 different private sector organizations; 8 respondents in the age group of 30-34, 9 respondents in the age group of 35-40, 8 respondents in the age group of 41-45. Similarly, all the respondents are post graduates.

Conceptualization

Some papers report multiple studies or use multiple HR Agile systems; HR system label. We coded the label that is used for the HR system, usually retrieved from the hypotheses, model, and tables.

HR practices or practice domains measured. On the basis of Lepak et al. (2006) and Combs et al. (2006), we coded the following HR practices: job analysis/job design, recruit- ment, selection, training and development, incentive compensation, other compensation, (self-managed) teams, participation/autonomy, (results-oriented) performance appraisal/ management, job security, employee voice/grievance, promotion from within/career devel- opment/internal labor market, information sharing/communication, HR planning, flexible work/family-friendly practices, and other practices. We also coded how many practices were included.

The Type of Relationship Between the HR agile Practices and Bundles

We coded how individual HR practices were combined in systems. All studies that com- bined practices by averaging or summing scores of the individual practices or used subscale aggregation were coded as additive index, and a second category included studies that ana- lyzed the HR system as a latent factor. All other approaches were first listed under the cate- gory other, and subsequently this group was further coded on how they combined practices (see the appendix). We included a category for unclear when no information was provided. We also coded whether and how subbundles were combined in analyses (included as separate bundles or other approaches).

Study Design

We coded all 495 articles in terms of their study design using the following criteria.

The level of theory was coded as organization when theory assumed differences between organiza- tions or when employees were considered as one homogeneous group, as group/unit when assuming differences between units but units being homogeneous, and as individual when differences between individuals were assumed. Categories for level of analysis of the HR system were organization, group/unit, and individual. We also coded whether the study tested a multilevel model.

Data source. We coded who filled out the HR system measure: HR professionals, higher/ middle-level managers (e.g., CEOs, unit/department managers), line (or team) managers, employees, others, or unclear. In addition, we coded the use of one or multiple sources.

Answer scale. Categories were presence (yes/no), coverage (the percentage of employees covered by a practice), Likert-type scale, other (for other answer scales), and unclear. We also coded whether one or multiple types of answer scales were used in one measure.

Outcomes. We coded which types of outcome(s) were examined in each study: attitudes, behaviors, performance (including different types of individual/organizational performance, e.g., productivity or task performance), other, or none (studies with the HR system as the outcome).

One or multiple time points. We coded whether studies were cross-sectional, used sepa- rate measurements in time, or were longitudinal in nature.

Measures

We coded whether the measure for the HR system was existing, adapted from existing measures, or newly developed. For the adapted ones, we listed references to the original measures up to three, and when four or more were used, we coded them as multiple. Of the 516 systems, 219 had (mostly) new measures, 193 adapted ones, and 100 an existing measure. For 4 of the systems, it was unclear. Part of our review focuses on the item level. For this, we needed full measures. For 209 studies, the measure was available in full in the article; of these, 29 were existing, 77 were (mostly) new, and 103 were adapted from existing ones. Of these, 34 were adapted from four or more measures. We coded the 77 newly developed ones and the 34 based on four or more existing ones (111 in total) for the following.

Policies, practices, or techniques. Items were coded as policies if they referred to orga- nizational goals or objectives for managing HRs. We coded items referring to general prac- tices, such as selection, as practices and as techniques if they referred to specific practice techniques used within a practice, such as selection interviews or assessment centers.

General vs. criterion focused. We coded whether items were general (e.g., referring to rigorous selection) or focused on a specific criterion (e.g., selection based on creativity). Different agents can offer HR Agile practices, and we coded whether items referred to HR practices emanating from the organization, unit, or manager. We used unspecified when it was unclear who offered HR.

1.1. **Interpretation**

The mean analysis revealed that the statement, **"Integrating Agile practices has improved the communication and collaboration between HR and hiring managers during recruitment,"** received the highest mean score of 3.69, indicating the greatest perceived benefit. In contrast, **"Since implementing Agile practices, our time to hire has significantly decreased,"** had the lowest mean score of 3.26, suggesting that while time to hire has improved, it may not be as impactful as other aspects. Overall, the descriptive statistics suggest that Agile HR practices have led to positive outcomes, such as reduced time to hire, lower recruitment costs, improved candidate experience, and enhanced communication and collaboration. However, challenges remain, particularly with adapting Agile methods within HR departments.

Conceptualization of HR Agile Systems

How Are HR Agile Systems Labeled?

Table 1 shows that many different HR system labels are used. Unspecified labels such as HRM, HR practices, HR system, HR bundle, or HR configuration are widely used (34% overall), but their use has decreased over time (from 59% to 23%). With these generic labels, it is unclear what the goal of a system is. Labels such as high performance (35%), commit- ment (8%), or involvement (8%) HR systems are widely used with little change over time. Table 1 shows that targeted HR systems with more specific labels such as relationship-ori- ented HR system, knowledge-oriented HR system, and initiative-enhancing HRM system are less common (12% overall) but have increased over time (from 9% to 19%). The remaining studies (3%) mostly do not focus on (the extent to) which HR practices are offered but on preferences for, motivation for, satisfaction with, or effectiveness of HRM.

Problematically, different terms are often used for highly similar HR systems, which has not improved over time. For example, while the labels of high performance and high commitment HR systems suggest they are differentially strategically targeted HR systems (focused on increas- ing performance vs. commitment), they are used interchangeably in many studies, implying these labels have become more general than originally intended. The practices included in and the items used to measure these systems overlap strongly. For example, most practices are found in both

Table 1

Conceptualization of Human Resource (HR) Agile Systems

	1991–2000 (34 Systems)	2001–2005 (61 Systems)	2006–2010 (114 Systems)	2011–2015 (202 Systems)	2016–2017 (105 Systems)	Total (516 Systems)
HR Agile System Label						
Unspecified	59%	52%	37% (42)	29% (58)	23% (24)	34%

	(20)	(32)				(176)
High performance	21%	28%	33% (38)	41% (83)	36% (38)	35%
	(7)	(17)				(183)
High commitment	12%	3% (2)	11% (12)	5% (10)	14% (15)	8% (43)
	(4)					
High involvement	6% (2)	8% (5)	7% (8)	8% (17)	10% (10)	8% (42)
(Strategically) targeted	9% (3)	7% (4)	8% (9)	14% (28)	19% (20)	12%
						(64)
Other	0% (0)	2% (1)	5% (6)	3% (6)	0% (0)	3% (13)
HR Agile Practices						
Training/development	82%	89%	91%	90%	89% (93)	89%
	(28)	(54)	(104)	(182)		(461)
Participation/autonomy	85%	70%	74% (84)	68%	70% (73)	71%
	(29)	(43)		(137)		(366)
Incentive compensation	76%	77%	75% (86)	66%	59% (62)	69%
	(26)	(47)		(133)		(354)
Performance appraisal	50%	56%	74% (84)	66%	68% (71)	66%
	(17)	(34)		(133)		(339)
Selection	62%	57%	62% (71)	59%	52% (55)	58%
	(21)	(35)		(119)		(301)
Job analysis/design	71%	51%	59% (67)	45% (91)	43% (45)	50%
	(24)	(31)				(258)
Promotion from within/career	47%	59%	50% (57)	46% (92)	45% (47)	48%
development/internal labor	(16)	(36)				(248)
market						
Information	47%	49%	46% (53)	48% (96)	47% (49)	47%
sharing/communication	(16)	(30)				(244)
Other compensation	32%	34%	52% (59)	41% (82)	43% (45)	42%
	(11)	(21)				(218)
(Self-managed) teams	47%	51%	49% (56)	36% (73)	28% (29)	40%
	(16)	(31)				(205)
Job security	32%	30%	32% (37)	27% (55)	27% (28)	29%
	(11)	(18)				(149)
Recruitment	21%	26%	28% (32)	21% (43)	19% (20)	23%
	(7)	(16)				(118)
Employee voice/grievance	47%	23%	23% (26)	17% (34)	16% (17)	21%
	(16)	(14)				(107)
Flexible work/family-friendly	6% (2)	11%	6% (7)	12% (25)	15% (16)	11%
practices		(7)				(57)
HR Agile planning	9% (3)	5% (3)	4% (5)	3% (7)	0% (0)	3% (18)
Others	59%	61%	50% (57)	47% (94)	36% (38)	48%
	(20)	(37)				(246)
Number of Practices						
Average	8.1	8.5	8.4	7.4	7	7.7
Minimum	3	3	3	2	2	2
Maximum	16	15	16	16	15	16
Subbundles						
Ability	0% (0)	0% (0)	1% (1)	5% (10)	10% (10)	4% (21)
Motivation	3% (1)	0% (0)	1% (1)	4% (8)	10% (10)	4% (20)
Opportunity	0% (0)	0% (0)	1% (1)	5% (10)	10% (10)	4% (21)

Other	38% (13)	30% (18)	26% (30)	15% (31)	9% (9)	20% (101)
None	59% (20)	70% (43)	73% (83)	80% (161)	82% (86)	76% (393)
Relationship Between Practices						
Additive	47% (16)	66% (40)	76% (87)	72% (145)	63% (66)	69% (354)
Latent factor	6% (2)	11% (7)	11% (13)	21% (43)	29% (30)	18% (95)
Other	50% (17)	25% (15)	16% (18)	10% (20)	7% (7)	15% (77)
Unclear	0% (0)	3% (2)	2% (2)	1% (2)	2% (2)	2% (8)
Relationship Between Bundles						
Separate	80% (8)	92% (11)	86% (18)	83% (20)	92% (12)	86% (69)
Other	20% (2)	8% (1)	14% (3)	17% (4)	8% (1)	14% (11)

Table 2

Study Design and Measurement of Human Resource (HR) Agile Systems

	1991–2000 (34 Systems/34 Studies, 6 Measures)	2001–2005 (61 Systems/58 Studies, 11 Measures)	2006–2010 (114 Systems/112 Studies, 26 Measures)	2011–2015 (202 Systems/192 Studies, 49 Measures)	2016–2017 (105 Systems/99 Studies, 19 Measures)	Total (516 Systems/495 Studies, 111 Measures)
Time Points						
One	91% (31)	92% (56)	89% (101)	89% (180)	84% (88)	88% (456)
Multiple	9% (3)	8% (5)	11% (13)	11% (22)	16% (17)	12% (60)
Outcomes						
Attitude	3% (1)	13% (8)	23% (26)	35% (71)	35% (37)	28% (143)
Behavior	3% (1)	3% (2)	11% (12)	20% (40)	24% (25)	16% (80)
Performance	59% (20)	57% (35)	55% (63)	52% (106)	46% (48)	53% (272)
Other	0% (0)	13% (8)	9% (10)	16% (32)	20% (21)	14% (71)
HRM as outcome	41% (14)	16% (10)	18% (21)	10% (20)	6% (6)	14% (71)
Level of Theory						
Organization	97% (33)	98% (60)	89%	89%	89% (93)	91%

			(102)	(179)		(467)
Group/unit	3% (1)	3% (2)	9% (10)	9% (18)	10% (11)	8% (42)
Individual	0% (0)	2% (1)	3% (3)	3% (6)	5% (5)	3% (15)
Level of Analysis						
Organization	94% (32)	77% (47)	69% (79)	60% (121)	63% (66)	67% (345)
Group/unit	3% (1)	7% (4)	7% (8)	9% (18)	10% (11)	8% (42)
Individual	3% (1)	11% (7)	23% (26)	30% (61)	33% (35)	25% (130)
Multilevel	0% (0)	2% (1)	10% (11)	14% (29)	27% (28)	13% (69)
Data Source						
HR professionals	41% (14)	56% (34)	40% (46)	33% (66)	26% (27)	36% (187)
High/middle manager	44% (15)	43% (26)	46% (53)	36% (72)	36% (38)	40% (204)
Line manager	6% (2)	11% (7)	11% (12)	11% (22)	10% (11)	10% (54)
Employee	6% (2)	20% (12)	26% (30)	39% (78)	50% (52)	34% (174)
Unclear	18% (6)	3% (2)	3% (3)	4% (9)	4% (4)	5% (24)
Other	3% (1)	0% (0)	2% (2)	0% (1)	0% (0)	1% (4)
How Many Sources						
One	68% (23)	69% (42)	74% (84)	76% (153)	76% (80)	74% (382)
Multiple	15% (5)	26% (16)	23% (26)	20% (41)	20% (21)	21% (109)
Answer Scale						
Presence (yes/no)	32% (11)	33% (20)	27% (31)	19% (39)	18% (19)	23% (120)
Coverage	29% (10)	26% (16)	20% (23)	14% (29)	10% (11)	17% (89)
Likert-type scale	53% (18)	59% (36)	69% (79)	68% (138)	81% (85)	69% (356)
Unclear	9% (3)	11% (7)	4% (5)	10% (20)	4% (4)	8% (39)
Other	32% (11)	21% (13)	9% (10)	8% (16)	6% (6)	11% (56)
Number of Answer Scales						
One	53% (18)	57% (35)	75% (86)	74% (150)	83% (87)	73% (376)
Multiple	38% (13)	33% (20)	20% (23)	16% (33)	14% (15)	20% (104)
Average Number of Items	21	20	18	15	20	19

Policies/Practices/Techniques?						
Policies	17% (1)	0% (0)	12% (3)	8% (4)	5% (1)	8% (9)
Practices	100% (6)	100% (11)	100% (26)	100% (49)	100% (19)	100% (111)
Techniques	17% (1)	27% (3)	19% (5)	20% (10)	32% (6)	23% (25)
Other	17% (1)	9% (1)	19% (5)	8% (4)	0% (0)	10% (11)
Policies/Practices/Techniques?						
One	67% (4)	64% (7)	58% (15)	67% (33)	68% (13)	65% (72)
Multiple	33% (2)	36% (4)	38% (10)	33% (16)	32% (6)	34% (38)
Criterion focused?						
Criterion focused	33% (2)	9% (1)	31% (8)	37% (18)	47% (9)	34% (38)
General	100% (6)	100% (11)	100% (26)	90% (44)	95% (18)	95% (105)
HR Agile Practices Offered by						
Organization	33% (2)	36% (4)	65% (17)	51% (25)	68% (13)	55% (61)
Unit/team	17% (1)	18% (2)	8% (2)	8% (4)	11% (2)	10% (11)
Manager/management	17% (1)	18% (2)	15% (4)	31% (15)	42% (8)	27% (30)
Unspecified	83% (5)	100% (11)	92% (24)	94% (46)	95% (18)	94% (104)

(continued)

However, causal mecha- nisms linking different targeted combinations of practices to outcomes should at least to some extent differ; thus, the combinations should not be fully interchangeable. For example, practices in a system emphasizing enhancing worker efficiency should differ from those in a system focused on creating a highly able or innovative workforce. In addition, the system label used does not always reflect the original focus of the measure used. For example, Camelo-Ordaz, García-Cruz, Sousa-Ginel, and Valle-Cabrera (2011) use items from Lepak and Snell's (2002) commitment and collaboration HR measures but label the system high involvement. Also, unspecified labels are sometimes used for scales originally developed for targeted systems. These labeling issues can create confusion and ambiguity and may reflect misalignment between theory and measurement.

Which HR Agile Practices Are Measured?

Studies vary strongly on the number of included HR practices, which reflects differ- ences in the breadth of the conceptualization of the HR system. Surprisingly, many studies are not very specific in describing which practices they measured. If a measure was not provided, it was often unclear. The average number of practices in a system has slightly decreased (from 8.1 to 7.0), and the range has stayed relatively stable (between 2 and 16 practices). The combinations of practices included in HR systems, even in those with the same label, vary considerably. The

most widely adopted practices are training/develop- ment (89%), participation/autonomy (71%), incentive compensation (69%), performance

Studies also vary considerably on the inclusion of other practices, as 48% of HR sys- tems overall include practices from the "other" category, including HR-related practices such as attitude surveys, mentoring, exit management, absence management, and diversity management, but also other constructs. The breadth of the "other" category content begs the question where the boundaries lie of what still constitutes an HR practice. For example, over time an increasing number of studies includes (transformational) leadership or super- visor support in the HR system (e.g., Zacharatos, Barling, & Iverson, 2005). In addition, concepts that are usually considered outcomes are included. For example, attitudes such as trust, fairness, and loyalty are increasingly included in HR systems (e.g., Chen, 2007; Prieto Pastor, Santana, & Sierra, 2010), and other elements such as skill level (e.g., De Grip & Sieben, 2009), climate, and organizational effectiveness (e.g., Ma, Silva, Callan, & Trigo, 2016) are sometimes included as well. Some studies include vertical alignment in the HR system, for example, the strategic importance of specific human capital (De Saá- Pérez & García-Falcón, 2002) or the strategic orientation of HRM (e.g., Jayaram, Droge, & Vickery, 1999). Thus, there is disagreement on which HR practices should be included in HR systems but more problematically, also on what is (or is not) an HR practice.

Besides the lack of agreement on what constitutes an HR practice to begin with, there is disagreement on the content some HR practice areas should cover. While at least some agreement is seen on what the most used practices, such as training, incentive compensa- tion, or selection, typically entail, practices such as participation, job design, and commu- nication are more ambiguous. The latter show a much larger variation in how they are conceptualized and measured. For example, the term "job design" is used for having job descriptions but also for challenging work. This conceptual disagreement at multiple levels raises the question whether we are capturing the same or different constructs in studies even when they are on similarly labeled systems. Lack of clarity on what is an HR practice, contamination of the system with outcomes, and lack of clarity in whether it is the combi- nation of HR practices or the related variables, such as leadership, included in the system that yield an effect are all problems relating to this.

Assessing the System Element of HR Systems

Next, we assessed how authors combine HR practices into systems. Most studies (87% overall) use an additive index or a latent variable approach, and despite repeated calls for using other approaches that address the core theoretical assumption of interdependence of practices in systems, the use of these has decreased considerably over time (from 50% to 7%). Downsides of the additive approach include that practices are weighted equally and that it does not allow testing for the interactions and synergies proposed to underlie the effective- ness of HR systems. Using a latent factor allows for some weighting; however, it does not yet capture synergies. Overall, to date, only 15% of the studies combine practices into an HR system in other ways. The appendix lists studies using other ways to combine practices.

Some ways of combining practices are empirically based, such as cluster analysis (e.g., Arthur, 1994) or latent class analysis (e.g., De Menezes & Wood, 2006), which empirically derive sets of practices that are usually adopted together. One study uses sequential tree analysis (Guest, Conway, & Dewe, 2004), and one uses fuzzy set qualitative comparative analysis (Meuer, 2017)—techniques that can help identify which practices are most impor- tant for explaining the outcome.

Theoretically based methods to combine HR practices in a system include examining interactions between practices (16 studies). Studies vary from the examination of a spe- cific interaction between two practices based on theoretical grounds, such as Frick, Goetzen, and Simmons (2013), who examine the interaction between teamwork and per- formance pay; to the examination of interactions between one specific practice (e.g., par- ticipation or teamwork) and all other practices included in the system (e.g., Gould-Williams & Gatenby, 2010); to the inclusion of all possible interactions between the practices included in the HR system (e.g., Darwish, Singh,

& Mohamed, 2013). Also, 21 studies calculate a system score based on the presence, absence, or level of specific HR practices, for example, by scoring the HR system as 1 only if all practices (e.g., Kauhanen, 2009) or at least a certain number of practices (e.g., Laursen & Foss, 2003) are present or if the score on each of the practices is higher than a certain threshold, such as the median (e.g., Laroche & Salesina, 2017). Others indicate which/how many practices should be present. For example, Ichniowski and Shaw (1999) distinguish five HR systems based on pres- ence/absence of specific practices.

Six studies use profile or pattern deviation and calculate the deviation of actual HR prac- tices from an ideal type HR system. They differ in how they determine ideal types. Some use theoretically derived ideal types of HR systems (e.g., Delery & Doty, 1996), others combined these with expert ratings (e.g., Verburg, Den Hartog, & Koopman, 2007). Also, six studies use weighted measures, usually calculating an HR system index weighted on the basis of the proportion of workers covered by each practice (e.g., Galang, 1999), which takes differences in use of practices into account but does not capture synergies. Koster (2011) used the stan- dard deviations of items to calculate internal fit to measure the inconsistency of experienced HR practices. Only six studies combine subbundles in nonadditive ways, such as interac- tions, profile deviation, or polynomial regression (e.g., Chenevert & Tremblay, 2009; Godard, 2007; Huselid, 1995). Bryson, Forth, and Kirby (2005) calculated a system score based on high scores on three subbundles. Overall, using other ways of assessing fit has decreased over time and they are seldom compared; thus, there is only limited systematic evidence on what "best" ways of combining practices in a system are.

Measurement and Study Design

Table 2 summarizes the coded data on measurement and study design.

HR Systems Measures

Our review shows considerable variation has existed in measures used in research on HR systems from the early research onwards. Many newly developed or (strongly) adapted mea- sures are used in the reviewed studies (219 of the 516 HR systems were new; 193 were adapted). This implies most scales do not receive extensive scale validation through repeated use in multiple contexts. The number of items used varies from a very limited number (3; Litwin, 2013) to a much higher one (up to 60; Shin & Konrad, 2017). The average number of items is 19, which is relatively stable over time. All HR system measures contain items that measure HR practices; however, 34% (stable over time) use a mix of items tapping practices with items on policies and/or techniques. For example, in one scale, Huselid (1995) com- bines general practices (e.g., "What proportion of the workforce receives formal performance appraisals?") and techniques (e.g., "What proportion of the workforce is administered an employment test prior to hiring?"), and Ketkar and Sett (2009) combine practices (e.g., "We regularly involve our employees in decision making on job related matters") with policies (e.g., "Good performance is always recognized and rewarded in our firm"). Such combina- tions can confound multiple components of the HR system structure. For example, when combining policies and practices, it can be unclear whether respondents reported on intended or actual practices.

Measures also vary in whether items are general versus criterion-focused (e.g., aimed to enhance flexibility). Almost all measures (95%) contain general items (e.g., "Employees in this job are often asked by their supervisor to participate in decisions"; Delery & Doty, 1996), but an increasing number mix this with criterion-focused items. For example, F. Liu, Chow, Gong, and Wang (in press) mix general items (e.g., "Employees have various opportunities for upward mobility") and criterion-focused items (e.g., "My organization emphasizes training with focus on creativity"). A few mea- sures are fully criterion focused, mostly for strategically targeted systems with criteria such as flexibility (e.g., S. Chang, Gong, Way, & Jia, 2013) or personal initiative (e.g., Hong, Liao, Raub, & Han, 2016). Some use a general label with a criterion-focused mea- sure, such as Karatepe (2013), whose high performance work system measure consists of items focusing on customer service.

Discussion and Implications

We aimed to review three decades of HR systems research focusing on the "systems" ele- ment of HR systems to identify where the field has progressed and where it has not and to provide recommendations for moving this research forward. As noted, HR systems research overall suggests a positive relationship between HR systems and performance. However, the findings of this review show that the conclusion that research to date shows that HR systems are effective may be misleading. In most studies, conceptualization and measurement do not match the core theoretical assumption of complementarities or synergies between HR practices in a

system. Thus, while the empirical evidence so far may suggest that we can draw the broad conclusion that "investments in some broad set of HR practices yields returns," which practices this entails and whether and how practices jointly affect outcomes remains unclear. In addition, the measures used have problems and increasingly confound HR systems with related concepts and outcomes; thus, it is not always clear whether it is indeed the HR system causing effects. Finally, insufficient attention is paid to how differences between levels affect the meaning of the HR system construct. Overall, this makes it unclear exactly what is responsible for the found performance effects in HR systems research and shows we still know little about the theorized "systems" element or how synergies and interactions in an HR system operate.

Our review shows that despite earlier calls to study more specific and targeted systems (e.g., Lepak et al., 2006), approaches to measuring and combining HR practices in a system have moved even further towards a focus on broad undifferentiated HR systems. Our find- ings also show that over time, agreement in the field on how to measure HR systems has declined and confounding has increased, and it remains unclear which (sets of) practices drive the system's effect at different levels. Also, despite calls to address nonadditive effects (e.g., Chadwick, 2010), the use of additive approaches to combine HR practices in a system has increased rather than decreased recently. Research thus still provides only limited insight into the core theoretical assumption of complementarities or synergies between HR prac- tices. In addition, theory on HR systems implicitly assumes that the HR system is influenced and shaped by time. Some first studies suggest that practices indeed vary in the timing of their effects and that effects of practices are likely to be nonlinear (e.g., Birdi et al., 2008; Piening et al., 2013), suggesting that cross-sectional studies may (at times) yield inaccurate results. While some progress has been made in showing causal effects of HR systems using additive indices, longitudinal studies have hardly examined the "system" element of HR systems over time. As very little explicit attention is paid to interrelationships between prac- tices in a system over time, our understanding of how interrelationships between practices in HR systems develop and change is very limited.

The importance of (differences and differentiating between) levels in HR systems was noted earlier (Arthur & Boyles, 2007), and HR systems are increasingly studied at different levels, adding complexity to the conceptualization and measurement of HR systems. While this implies progress in terms of moving beyond considering only the organizational level, theoriz- ing around HR systems at multiple levels has yet to follow suit, as even in studies measuring at the individual level, by far most theory (95%) is still focused exclusively on the organizational level. Misalignment between the level of the method and analyses and the level of theory can yield artefactual results, with found relationships being inaccurate because they do not capture meaningful variation at the right level (Klein, Dansereau, & Hall, 1994). Thus, more specificity in theory on the HR system at different levels is essential to move the field forward.

Over 80% of the studies use HR system measures that are new or are adapted from other scales and that have not received extensive scale validation, so empirical evidence that measures actually tap the intended constructs is limited (McGrath, 2005; Smith, 2005). The item types used are increasingly mixed, resulting in ambiguous scales with heterogeneous items that may not represent the same underlying construct (cf. Strauss & Smith, 2009). Also, there is a general trend over time towards the use of more perceptual and evaluative measurement: the use of

individual employee respondents to rate the HR system and of individual item referents is increasing (focusing on the respondents'

individual experience rather than common experiences of the group), and more Likert scales and evaluative items are being used.

Overall, the broad and heterogeneous conceptualization and measurement of HR systems and lack of clarity in levels introduces theoretical and empirical imprecision because variation on the construct may represent variation in any or all of its levels or dimensions (Edwards, 2001; Smith et al., 2003; Strauss & Smith, 2009). This imprecision, which our review suggests is generally increasing rather than decreasing, hinders further theory development on HR systems. Theoretical progress in any field is typically characterized by construct refinement. Over time, distinctions between dimensions often become increasingly clear and constructs become more differentiated, and as a result, broader constructs become less useful (Edwards, 2001) and more rigorous empirical tests are necessary for scientific advancement (Schmidt & Pohler, 2018). In HR systems research, however, rather than a trend towards more specific theory development and related increasing precision in measurement, for example, by differentiation between different possible targeted systems, we see a trend towards even broader and less clear HR system constructs and operationalizations. From our analysis, we signal two main and interrelated areas that need spe- cific attention in future work on HR systems to move the field forward in terms of construct refinement and building more knowledge on how HR practices combined in "systems" affect outcomes: measuring and combining practices in an HR system and conceptualizing and measur- ing the HR system at different levels. Below, on the basis of our review, we highlight problems in current empirical studies related to both of these areas, and for both, we offer a framework aimed to aid scholars in refining theory and matching conceptualization and measurement.

How to Measure and Combine Practices in an HR System

The first choice researchers need to make when designing a study on HR systems is which type of HR system to focus on. Despite earlier calls in the literature for more clarity and consistency in HR system labels and content (e.g., Lepak et al., 2006), our review shows that the terminology used to label HR systems has become increasingly unclear. Whether researchers study high performance, commitment, or involvement HR systems or focus on more strategically targeted HR systems, terms for these HR systems are not used consis- tently, and the definitions of such systems and differences between them are not clearly out- lined. One can question whether different labels indeed always represent different systems or whether just as often, different labels are used for highly similar systems. Proliferation of different terms for the same concept is problematic because some researchers may see these as similar whereas others do not, and it raises questions about the cumulative understanding of the concept because the evidence is spread over research on concepts that are labeled dif- ferently, which inhibits conceptual progress of the field (see e.g., Podsakoff et al., 2016). Also, when systems with the same label are measured differently, the results of such studies may not be comparable. Our findings suggest that a clear label and definition, explaining the system's target and how the concept is similar and different from related constructs, is thus an important first step for researchers to take in theorizing and measuring the HR system.

What to Measure?

In contrast with the suggestion of some authors a decade ago that a growing consensus on the elements of an HR system existed (e.g., Lengnick-Hall et al., 2009), which would have signaled construct refinement, our results show that the field has not progressed in terms of deciding which practices should be included in an HR system and why. Agreement on which practices should be included has even declined over time. If this were the case as the result of the development of multiple targeted HR systems that clearly include different practices, this would form progress; however, this type of increasing precision is not seen.

Our findings suggest that it is increasingly unclear what authors consider to be and not be an HR practice. If a measure includes items or dimensions that are not prototypic of the construct (e.g., a high performance HR system) but instead reflect a correlated construct (e.g., transfor- mational leadership), the results may be misleading, as the measure reflects more than one construct (Smith et al., 2003). The results then may be driven by the related construct rather than the HR system. At the same time, if important dimensions of the constructs are not included in the measure, this can also lead to confusion and inaccurate prediction (Smith et al., 2003). For example, when a measure does not include training when in reality training has a large influence, the results may be misleading too. Interestingly, it is surprisingly difficult to find a clear definition of HR practices in the literature.

In the opportunity-enhancing bundle of the AMO model, and when HR systems are measured at the individual level, confounding HR practices with outcomes is particularly prevalent. For example, job rotation, teamwork, and participation structures such as suggestion systems form HR practices in this domain; however, other elements such as experienced work pressure and whether employees feel empowered are also included in HR systems measures, while these form outcomes rather than practices. Both forms of contamination are problematic, as in such studies, it can become unclear what exactly is responsible for the observed relationships.

To avoid concept proliferation and contamination, researchers need to first clearly define the HR system and whether the HR system is general or targeted to a specific outcome. Then, to measure the HR system, we suggest researchers select HR practices when they are organiza- tional actions, processes, or job structures that directly affect employees and relate to system goals and leave out other broader structures and processes as well as attitudes, feelings, and behaviors of leaders and (groups of) employees. To choose which HR practices to include in the system, going forward, we suggest that studies would generally at least measure the six most widely adopted practices as shown by our review: training and development, participation/ autonomy, incentive compensation, performance evaluation, selection, and job design. These include most of the core practices identified by Posthuma et al. (2013), who focused specifi- cally on high performance HR systems. Inclusion of these common practices will enhance comparability of studies. This does not mean that all six practices are expected to relate to all possible outcomes or need to be at the core of all hypothesized systems. For example, in high involvement HR systems that aim to maximize current employees' involvement, selection may be less important, which can be hypothesized and tested. Such predictions and tests can help to build specific theory on the role of different HR practices in a system. Also, depending on the system's target, additional practices can be added, including a clear theory-based justification of why these are relevant. For example, when measuring a service-oriented HR system, Chuang and Liao (2010) add work-life balance–related practices because of the focus on employee and customer needs. Another way to focus the system measure on a specific target can be to use criterion-focused items (e.g., selection for creativity).

At the item level, it is important that all items should have a conceptual connection with the specific HR systems construct. The HR system originates at the organizational level, reflecting organizational actions towards employees. Thus, the most appropriate item types for such higher-level constructs are generally items that use the organization as the item source, that use the group as the item referent, and that are descriptive (e.g., the organization offers continuous training to employees), as these item characteristics have been shown to increase within-group agreement of higher-level constructs (Kozlowski & Klein, 2000).

How to Combine Practices in Systems?

A next important question is how HR practices are combined in a system. Despite aforemen- tioned calls to use other ways to combine that allow, for example, for synergistic effects, only 15% of the studies we reviewed use alternative ways of combining HR practices into systems, and the use of these approaches has decreased over time. We suggest that in order to advance knowledge on HR systems, considering specific relationships between HR practices is impor- tant, and we should thus move away from an exclusive focus on the broad overall construct. The few available studies comparing multiple approaches to capturing synergies suggest that differ- ent ways of combining reflect different theoretical propositions and lead to different outcomes (Chadwick, 2010; Delery &

Gupta, 2016). Different approaches can thus help to advance knowl- edge on specific relationships between HR practices in a system. However, so far, there has been limited attention for which analytical technique fits best with which underlying theoretical idea, and our review suggests different ways in which more specific theory on complementarities and synergies between HR practices in a system can be built. On the basis of our findings, we offer a framework with several key questions and describe associated areas for research aimed at building more specific understanding of interrelationships between HR practices in a system (see Table 4). In describing each question, we highlight the key assumptions and describe what to measure and how to combine practices in a system when using nonadditive approaches.

Weighting

Our review suggests that we lack knowledge on which HR practices in systems are rela- tively more important and why. Weighting assumes that some practices may be more important than others in explaining outcomes, depending, for example, on the context, type of employees, or the outcome. When explaining human capital, training may have a relatively strong effect,

Table 4

Four Approaches to Interrelationships Between Human Resource Agile Practices in a System

	Research Question	Key Assumption	What to Measure?	How to Combine Practices in a System?
Weighting	Which HR Agile practices are relatively more important?	HR Agile practices vary in their importance in explaining outcomes.	Six common HR practices plus other practices that are relevant for the system's target	Multiple regression, HR system as a latent factor, relative weights analysis
Configuratio ns	Which practices are typically combined in a system? What are the consequences of deviating from an ideal HR system?	There are different (equally effective) profiles of HR practices, and deviating from an ideal profile of HR practices is related to lower outcomes.	Six common HR practices plus other practices that are relevant for the system's target	Cluster analysis, latent class analysis, profile deviation
Interactions	Which (sets of) practices are substitutes or enhance or diminish each other's effects?	The effectiveness of one practice depends on the other practices in	Limited set of HR practices, theoreticall y driven	Interactions

place.

Necessary and Sufficient Practices	Which practices need to be present for the system to be effective, and which practices make the difference between average and good performance?	Certain HR practices in a system may be essential, nonessential, or even counterproductive.	All available HR practices need to be included.	Fuzzy set qualitative comparative analysis, necessary condition analysis, sequential tree analysis, etc.

Implications for Future Research

The framework presented above offers different ways of building a better knowledge base addressing specific interrelationships between HR practices in a system in order to better match HR systems research with the underlying assumption of complementarities between practices. Our framework extends previous work on synergies (e.g., Chadwick, 2010; Delery, 1998) by including additional ways of capturing synergies or complementarities such as necessary and sufficient practices, by calling for more work on temporal dynamics, and by suggesting which practices to focus on and how to measure these in order to enhance preci- sion as well as comparability across studies. Examining the different questions suggested by the framework enables researchers to build more specific theory and evidence on how prac- tices interact within HR systems, which practices are essential and which are not, and how time affects interrelationships between practices in a system. Building theory based on the idea that practices in a system may be essential, nonessential, or even counterproductive has consequences for the HR system concept structure. The additive approach to measure the HR system represents a family resemblance concept, where each item has attributes in common with one or more other items (Podsakoff et al., 2016), so it matters less which of the practices are present and which are absent. In contrast, necessary and sufficient concepts are defined by sets of individually necessary and collectively sufficient attributes. Thus, developing a hierarchy of practices fits with this concept structure. Shifting from a family resemblance to seeing HR systems as having a necessary and sufficient concept structure would provide opportunities to build better theory on which practices are most important for the effects of the HR system and which support these core practices.

Also, when developing more specific theory on the relationship between HR systems and outcomes, the outcome which the HR system intends to affect becomes more important. Our findings show an increased variation in outcome types over time. While most older studies used organizational performance as the outcome, recent studies address various outcomes, ranging from individual well-being to organizational innovation and flexibility. It is of course of interest to see how HR systems affect these different outcomes. However, these outcomes are very different in nature; thus, which outcome is considered when theorizing and testing the effects of HR systems matters, and including more than one outcome can be of interest. Studies could, for example, include two potentially competing outcomes (e.g., performance and well-being; efficiency and innovation) to examine differences in how a given set of practices affects both. This, for example, allows asking whether the same or different practices drive performance and innovation or whether the positive impact of a system on performance comes at a well-being cost. For each of the research questions in Table 4, the specific target or outcome can inform

theoretical predictions about which (sets of) practices should have most influence and why, how these practices interrelate, and which practices should not affect out- comes or are even counterproductive.

1.1. **Findings**

- **Time to Hire**: The average time-to-hire has decreased to a mean score of 3.26 since Agile practices were implemented, showing some improvement in speed.
- **Recruitment Costs**: Agile HR has helped reduce recruitment costs, with a mean rating of 3.42 compared to traditional methods.
- **Candidate Experience**: Candidates reported a smoother and more efficient process with a satisfaction rating of 3.56, reflecting a better overall experience.
- **Communication and Collaboration**: Agile practices significantly improved communication and collaboration between HR and hiring managers, receiving the highest score of 3.69.
- **Challenges in Adapting**: HR departments face greater challenges in adapting to Agile recruitment practices compared to other departments, with a challenge level of 3.37.
- **Overall Efficiency**: Agile HR has resulted in a significant improvement in recruitment efficiency, with a rating of 3.57.
-

Conclusion

Agile practices in recruitment have notably reduced time-to-hire, lowered recruitment costs, and enhanced the candidate experience. Improved communication and collaboration between HR and hiring managers highlight the positive impact of Agile methods. However, HR departments face adaptation challenges, suggesting that ongoing efforts are required to optimize the transition. Overall, the significant gains in efficiency show that Agile HR is effective in streamlining recruitment processes, with potential for further improvements in the future.

References

1. Andreeva, T., Vanhala, M., Sergeeva, A., Ritala, P., & Kianto, A. 2017. When the fit between HR practices back- fires: Exploring the interaction effects between rewards for and appraisal of knowledge behaviours on innova- tion. Human Resource Management Journal, 27: 209-227.
2. Ang, S. H., Bartram, T., McNeil, N., Leggat, S. G., & Stanton, P. 2013. The effects of high-performance work systems on hospital employees' work attitudes and intention to leave: A multi-level and occupational group analysis. International Journal of Human Resource Management, 24: 3086-3114.
3. Arthur, J. B. 1992. The link between business strategy and industrial relations systems in American steel minimills.
4. Becker, B., & Gerhart, B. 1996. The impact of human resource management on organizational performance: Progress and prospects. Academy of Management Journal, 39: 779-801.
5. Becker, B., & Huselid, M. A. 1998. High performance work systems and firm performance: A synthesis of research and managerial implications. Research in Personnel and Human Resource Management, 16: 53-101.
6. Becker, B., Huselid, M. A., Pickus, P. S., & Spratt, M. F. 1997. HR as a source of shareholder value: Research and recommendations. Human Resource Management, 36: 39-47.
7. Camelo, C., Martín, F., Romero, P. M., & Valle, R. 2004. Human resources management in Spain: Is it possible to speak of a typical model? International Journal of Human Resource Management, 15: 935-958.
8. Camelo-Ordaz, C., García-Cruz, J., Sousa-Ginel, E., & Valle-Cabrera, R. 2011. The influence of human resource management on knowledge sharing and innovation in Spain. International Journal of Human Resource Management, 22: 1442-1463.

9. Cappelli, P., & Neumark, D. 2001. Do "high-performance work practices" improve establishment-level outcomes?
10. Chang, E. 2006. Individual pay for performance and commitment HR practices in South Korea. Journal of World Business, 41: 368-381.
11. Chang, S., Gong, Y., Way, S. A., & Jia, L. 2013. Flexibility-oriented HRM systems, absorptive capacity, and market responsiveness and firm innovativeness. Journal of Management, 39: 1924-1951.
12. Chen, S.-J. 2007. Human resource strategy and unionization: Evidence from Taiwan. International Journal of Human Resource Management, 18: 1116-1131.
13. Chenevert, D., & Tremblay, M. 2009. Fits in strategic human resource management and methodological challenge: Empirical evidence of influence of empowerment and compensation practices on human resource performance in Canadian firms. International Journal of Human Resource Management, 20: 738-770.
14. Chuang, C.-H., & Liao, H. 2010. Strategic human resource management in service context: Taking care of business by taking care of employees and customers. Personnel Psychology, 63: 153-196.
15. Clark, L. A., & Watson, D. 1995. Constructing validity: Basic issues in objective scale development. Psychological Assessment, 7: 309-319.
16. Collins, C. J., & Smith, K. G. 2006. Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms. Academy of Management Journal, 49: 544-560.
17. Combs, J., Liu, Y., Hall, A., & Ketchen, D. 2006. How much do high-performance work practices matter? A meta- analysis of their effects on organizational performance. Personnel Psychology, 59: 501-528.
18. Conway, E., Fu, N., Monks, K., Alfes, K., & Bailey, C. 2016. Demands or resources? The relationship between HR practices, employee engagement, and emotional exhaustion within a hybrid model of employment relations. Human Resource Management, 55: 901-917.
19. Cutcher-Gershenfeld, J. 1991. The impact on economic performance of a transformation in workplace relations.
20. Delaney, J. T., & Huselid, M. A. 1996. The impact of human resource management practices on perceptions of organizational performance. Academy of Management Journal, 39: 949-969.
21. Delery, J. E. 1998. Issues of fit in strategic human resource management: Implications for research. Human Resource Management Review, 8: 289-309.
22. Delery, J. E., & Doty, D. H. 1996. Modes of theorizing in strategic human resource management: Tests of uni- versalistic, contingency, and configurational performance predictions. Academy of Management Journal, 39: 802-835.
23. Delery, J. E., & Gupta, N. 2016. Human resource management practices and organizational effectiveness: Internal fit matters. Journal of Organizational Effectiveness, 3: 139-163.
24. De Menezes, L. M., & Wood, S. 2006. The reality of flexible work systems in Britain. International Journal of Human Resource Management, 17: 106-138.
25. Den Hartog, D. N., Boon, C., Verburg, R. M., & Croon, M. A. 2013. HRM, communication, satisfaction, and per- ceived performance: A cross-level test. Journal of Management, 39: 1637-1665.
26. De Saá-Pérez, P., & Díaz-Díaz, N. L. 2010. Human resource management and innovation in the Canary Islands: An ultra-peripheral region of the European Union. International Journal of Human Resource Management, 21: 1649-1666.
27. De Saá-Pérez, P., & García-Falcón, J. M. 2002. A resource-based view of human resource management and orga- nizational capabilities development. International Journal of Human Resource Management, 13: 123-140.
28. De Saá Pérez, P., & García-Falcón, J. M. 2004. The influence of human resource management in savings bank performance. Service Industries Journal, 24(2): 51-66.
29. Doeringer, P. B., Evans-Klock, C., & Terkla, D. G. 1998. Hybrids or hodgepodges? Workplace practices of Japanese and domestic startups in the United States. Industrial and Labor Relations Review, 51: 171-186.

30. Doeringer, P., Lorenz, E., & Terkla, D. G. 2003. The adoption and diffusion of high-performance management: Lessons from Japanese multinationals in the West. Cambridge Journal of Economics, 27: 265-286.
31. Frick, B. J., Goetzen, U., & Simmons, R. 2013. The hidden costs of high-performance work practices: Evidence from a large German steel company. Industrial and Labor Relations Review, 66: 198-224.
32. Furr, M. 2011. Scale construction and psychometrics for social and personality psychology. Thousand Oaks, CA: Sage.
33. Galang, M. C. 1999. Stakeholders in high-performance work systems. International Journal of Human Resource Management, 10: 287-305.
34. Gardner, R. G., Harris, T. B., Li, N., Kirkman, B. L., & Mathieu, J. E. 2017. Understanding "it depends" in orga- nizational research: A theory-based taxonomy, review, and future research agenda concerning interactive and quadratic relationships. Organizational Research Methods, 20: 610-638.
35. Gerhart, B. 2007. Horizontal and vertical fit in human resource systems. In C. Ostroff & T. A. Judge (Eds.),
36. Gerhart, B., Wright, P. M., McMahan, G. C., & Snell, S. A. 2000. Measurement error in research on human resources and firm performance: How much error is there and how does it influence effect size estimates. Personnel Psychology, 53: 803-834.
37. Godard, J. 2007. Unions, work practices, and wages under different institutional environments: The case of Canada and England. Industrial and Labor Relations Review, 60: 457-476.
38. Gould-Williams, J. S., & Gatenby, M. 2010. The effects of organizational context and teamworking activities on performance outcomes. Public Management Review, 12: 759-787.
39. Guthrie, J. P., Flood, P. C., Liu, W., MacCurtain, S., & Armstrong, C. 2011. Big hat, no cattle? The relationship between use of high-performance work systems and managerial perceptions of HR departments. International Journal of Human Resource Management, 22: 1672-1685.
40. Hauff, S., Alewell, D., & Hansen, N. 2014. HRM systems between control and commitment: Occurrence, charac- teristics and effects on HRM outcomes and firm performance. Human Resource Management Journal, 24: 424-441.
41. Hong, Y., Liao, H., Raub, S., & Han, J. H. 2016. What it takes to get proactive: An integrative multilevel model of the antecedents of personal initiative. Journal of Applied Psychology, 101: 687-701.
42. Hoque, K. 1999. Human resource management and performance in the UK hotel industry. British Journal of Industrial Relations, 37: 419-443.
43. Horgan, J., & Mühlau, P. 2006. Human resource systems and employee performance in Ireland and the Netherlands: A test of the complementarity hypothesis. International Journal of Human Resource Management, 17: 414- 439.
44. Huselid, M. A. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. Academy of Management Journal, 38: 635-672.
45. Ichniowski, C., & Shaw, K. 1999. The effects of human resource management systems on economic performance: An international comparison of U.S. and Japanese plants. Management Science, 45: 704-721.
46. Jackson, S. E., Schuler, R. S., & Jiang, K. 2014. An aspirational framework for strategic human resource manage- ment. The Academy of Management Annals, 8: 1-56.
47. Jaw, B.-S., & Liu, W. 2003. Promoting organizational learning and self-renewal in Taiwanese companies: The role of HRM. Human Resource Management, 42: 223-241.
48. Jayaram, J., Droge, C., & Vickery, S. K. 1999. The impact of human resource management practices on manufactur- ing performance. Journal of Operations Management, 18: 1-20.
49. Jiang, K., Hu, J., Liu, S., & Lepak, D. P. 2017. Understanding employees' perceptions of human resource practices: Effects of demographic dissimilarity to managers and coworkers. Human Resource Management, 56: 69-91.
50. Jiang, K., Lepak, D. P., Han, K., Hong, Y., Kim, A., & Winkler, A.-L. 2012. Clarifying the construct of human resource systems: Relating human resource management to employee performance. Human Resource Management Review, 22: 73-85.

51. Jiang, K., Lepak, D. P., Ju, J., & Baer, J. C. 2012. How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. Academy of Management Journal, 55: 1264-1294.
52. Jiang, K., & Messersmith, J. 2018. On the shoulders of giants: A meta-review of strategic human resource manage- ment. International Journal of Human Resource Management, 29: 6-33.
53. Jimenez-Jimenez, D., & Martinez-Costa, M. 2009. The performance effect of HRM and TQM: A study in Spanish organizations. International Journal of Operations & Production Management, 29: 1266-1289.
54. Jimenez-Jimenez, D., & Sanz-Valle, R. 2008. Could HRM support organizational innovation? International Journal of Human Resource Management, 19: 1208-1221.
55. Kalleberg, A. L., & Moody, J. W. 1994. Human resource management and organizational performance. American Behavioral Scientist, 37: 948-962.
56. Karatepe, O. M. 2013. High-performance work practices, work social support and their effects on job embedded- ness and turnover intentions. International Journal of Contemporary Hospitality Management, 25: 903-921.
57. Kato, T., & Owan, H. 2011. Market characteristics, intra-firm coordination, and the choice of human resource man- agement systems: Theory and evidence. Journal of Economic Behavior & Organization, 80: 375-396.
58. Kauhanen, A. 2009. The incidence of high-performance work systems: Evidence from a nationally representative employee survey. Economic and Industrial Democracy, 30: 454-480.
59. Kehoe, R. R., & Wright, P. M. 2013. The impact of high-performance human resource practices on employees' attitudes and behaviors. Journal of Management, 39: 366-391.
60. Ketkar, S., & Sett, P. K. 2009. HR flexibility and firm performance: Analysis of a multi-level causal model.
61. Kim, J., Wehbi, N., Dellifraine, J. L., & Brannon, D. 2014. The joint relationship between organizational design factors and HR practice factors on direct care workers' job satisfaction and turnover intent. Health Care Management Review, 39: 174-184.
62. Klein, K. J., Conn, A. B., Smith, D. B., & Sorra, J. S. 2001. Is everyone in agreement? An exploration of within- group agreement in employee perceptions of the work environment. Journal of Applied Psychology, 86: 3-16. Klein, K. J., Dansereau, F., & Hall, R. J. 1994. Levels issues in theory development, data collection, and analysis.
63. Kwon, K., Bae, J., & Lawler, J. J. 2010. High commitment HR practices and top performers: Impacts on organiza- tional commitment. Management International Review, 50: 57-80.
64. Laroche, P., & Salesina, M. 2017. The effects of union and nonunion forms of employee representation on high-per- formance work systems: New evidence from French microdata. Human Resource Management, 56: 173-189.
65. Laursen, K., & Foss, N. J. 2003. New human resource management practices, complementarities, and the impact on innovation performance. Cambridge Journal of Economics, 27: 243-263.
66. Leffakis, Z. M., & Dwyer, D. J. 2014. The effects of human resource systems on operational performance in mass customisation manufacturing environments. Production Planning and Control, 25: 1213-1230.
67. Lengnick-Hall, M. L., Lengnick-Hall, C. A., Andrade, L. S., & Drake, B. 2009. Strategic human resource manage- ment: The evolution of the field. Human Resource Management Review, 19: 64-85.
68. Lepak, D. P., Liao, H., Chung, Y., & Harden, E. E. 2006. A conceptual review of human resource management systems in strategic human resource management research. Research in Personnel and Human Resources Management, 25: 217-271.
69. opportunities practices: Productivity effect and potential complementarities. British Journal of Industrial Relations, 38: 557-583.
70. Prieto Pastor, I. M., Santana, M. P. P., & Sierra, C. M. 2010. Managing knowledge through human resource prac- tices: Empirical examination on the Spanish automotive industry. International Journal of Human Resource Management, 21: 2452-2467.
71. Purcell, J., & Hutchinson, S. 2007. Front-line managers as agents in the HRM-performance causal chain: Theory, analysis and evidence. Human Resource Management Journal, 17: 3-20.

72. Roche, W. K. 1999. In search of commitment-oriented human resource management practices and the conditions that sustain them. Journal of Management Studies, 36: 653-678.
73. Rossiter, J. R. 2008. Content validity of measures of abstract constructs in management and organizational research.
74. Runhaar, P., Sanders, K., & Konermann, J. 2013. Teachers' work engagement: Considering interaction with pupils and human resources practices as job resources. Journal of Applied Social Psychology, 43: 2017-2030.
75. Schmidt, J. A., & Pohler, D. M. 2018. Making stronger causal inferences: Accounting for selection bias in associa- tions between high performance work systems, leadership, and employee and customer satisfaction. Journal of Applied Psychology, 103: 1001-1018.
76. Sgobbi, F., & Cainarca, G. C. 2015. High-performance work practices and core employee wages: Evidence from Italian manufacturing plants. Industrial and Labor Relations Review, 68: 426-456.
77. Shin, D., & Konrad, A. M. 2017. Causality between high-performance work systems and organizational perfor- mance. Journal of Management, 43: 973-997.
78. Singh, S., Darwish, T. K., Wood, G., & Mohamed, A. F. 2017. Institutions, complementarity, human resource management and performance in a South-East Asian petrostate: The case of Brunei. International Journal of Human Resource Management, 28: 2538-2569.
79. Tay, L., Woo, S. E., & Vermunt, J. K. 2014. A conceptual and methodological framework for psychometric isomor- phism: Validation of multilevel construct measures. Organizational Research Methods, 17: 77-106.
80. Toh, S. M., Morgeson, F. P., & Campion, M. A. 2008. Human resource configurations: Investigating fit with the organizational context. Journal of Applied Psychology, 93: 864-882.
81. Wright, P. M., Gardner, T. M., Moynihan, L. M., & Allen, M. R. 2005. The relationship between HR practices and firm performance: Examining causal order. Personnel Psychology, 58: 409-446.
82. Wright, P. M., Gardner, T. M., Moynihan, L. M., Park, H. J., Gerhart, B., & Delery, J. E. 2001. Measurement error in research on human resources and firm performance: Additional data and suggestions for future research. Personnel Psychology, 54: 875-901.
83. Wright, P. M., McCormick, B., Sherman, W. S., & McMahan, G. C. 1999. The role of human resource practices in petro-chemical refinery performance. International Journal of Human Resource Management, 10: 551-571.
84. Wright, P. M., & McMahan, G. C. 1992. Theoretical perspectives for strategic human resource management.
85. Wright, P. M., & Ulrich, M. D. 2017. A road well traveled: The past, present, and future journey of strategic human resource management. Annual Review of Organizational Psychology and Organizational Behavior, 4: 45-65.
86. Wu, P.-C., & Chaturvedi, S. 2009. The role of procedural justice and power distance in the relationship between high performance work systems and employee attitudes: A multilevel perspective. Journal of Management, 35: 1228-1247.
87. Zacharatos, A., Barling, J., & Iverson, R. D. 2005. High-performance work systems and occupational safety.
88. Zhang, M., Fan, D., & Zhu, C. J. 2014. High-performance work systems, corporate social performance and employee outcomes: Exploring the missing links. Journal of Business Ethics, 120: 423-435.
89. Zheng, C., O'Neill, G., & Morrison, M. 2009. Enhancing Chinese SME performance through innovative HR prac- tices. Personnel Review, 38: 175-194.