

denotations: + = significant positive influence
 0 = no significant influence
 - = significant negative influence
 *= qualitative study, not possible to indicate
 MO = moderator, ME = mediator

Appendix 1 – Overview of HRM Innovation Studies

Study	1.Context: where and how was the study conducted and who were the respondents?	2.Measure of innovation used:	3.HRM practices Which HRM practices are used in the studies?	3. What are the direct effects of HRM on innovation?	Which moderators (MO) or mediators (ME) are used?	What are the effects of these moderators (MO) or mediators (ME)?
1.Hope Hailey (2001)	Longitudinal case study (including a combination of interviews and survey evidence) in UK-based head office of large multinational company	Organization's ability to innovate	HR practices including training, appraisal system and performance management	*		
2.Laursen (2002)	Sample of 726 Danish knowledge-intensive firms with more than 50 employees in manufacturing and private services	Estimated probability of innovation	Complementary HR practices	+	MO: Level of knowledge-intensiveness	+
3.Laursen & Foss (2003)	Danish survey of 1,900 business firms	Estimated probability of innovation	Complementary HR practices	+	MO: complementarities of HRM practices and sector	
4.Lau & Ngo (2004)	Survey of 332 firms in Hong Kong	Perceived firm performance in area of development of new products or services	Training-focused HR Performance-based rewards Team development	+ 0 0	ME: Organizational culture	+
5.Bondarouk & Kees Looise (2005)	Three case studies in Dutch organizations	IT innovation implementation	A number of HRM practices relating e.g. to job design, communication, participation and rewards	*		
6.Jiménez-Jiménez & Sanz-Valle (2005)	Survey (sent to a CEO of each firm) of firms with more than 25 employees from the most significant industries of the region of Murcia in Spain, a total of 376 firms (180 CEOs responded)	Perceived innovation strategy related to e.g. product and technological innovation, as well as to staff qualifications.	Recruitment	0		
			Hiring	0		
			Training	0		
			Performance appraisal	0		
			Internal career opportunities	+		
			Participation	+		
			Compensation	0		
7.Shipton et al. (2005)	Longitudinal study of managers from 111 UK	Estimations of activities in and amount of product innovation	Sophistication of HR system	+		
			HR for learning climate	+		

	manufacturing firms		Pay level determined by appraisal	0		
		Evaluation of innovation in production technology	Sophistication of HR system	+		
			HR for learning climate	+		
			Pay level determined by appraisal	0		
		Perceived process innovation	Sophistication of HR system	0		
			HR for learning climate	0		
Pay level determined by appraisal	-					
8.Dorenbosch et al. (2005)	Survey of 243 employees of large Dutch local government organization, working in administrative, knowledge-intensive professions.	Innovative work behaviours (Self-reported)	High-commitment HR bundle	+	ME: Production ownership (i.e. ownership for their job)	+
9.Wang & Zang (2005)	Survey of 209 managers from companies operating in China	Perceived innovative performance (both technical and process)	Strategic HRM practices	+		
			Functional HRM practices	0		
10. Collins & Smith	Survey of CEO, HR managers and workers of 136 knowledge intensive companies (high technology) in the US	Revenue from new products and services and one-year sales growth	16 individual commitment based HR practices were used to assess the use of HR, a low score indicates a low usage	+	ME: Trust	+
					ME: Cooperation	+
					ME: Shared language	+
					ME: Knowledge exchange & combination	+
11.Liao et al. (2006)	Survey of 209 CEOs in Taiwanese IT firms	Perceived product innovation	Behaviour control	0	MO: Task characteristics	+
			Output control	-		0
			Input control	+		-
			Behaviour control	0	MO: Expectations	0
			Output control	-		0
			Input control	+		+
12. Li et al. (2006)	Study of top managers from 194 Chinese high-tech firms	Perceived technological innovation	Training	+		
			Material incentives	-		
			Non-material incentives	+		
			Outcome appraisal and control	-		
			Process appraisal	+		
13.Shipton et al. (2006)	Longitudinal study of 22 UK manufacturing companies. Data gathered in managerial interviews in 22 companies	Evaluation of product innovation	Exploratory learning	+		
			Training	+		
			Appraisal	+		

	and data from innovation surveys of the same companies.		Induction	+		
			Contingent pay	0		
			Extent of team work	+		
			Complementary effects	partial		
		Perceived innovation in technical systems	Exploratory learning	+		
			Training	+		
			Appraisal	+		
			Induction	+		
			Contingent pay	0		
			Extent of team work	+		
		Complementary effects	partial			
14.Verburg et al. (2007)	Survey of 175 Dutch HR professionals	Perceived organizational innovation relating to external and internal aspects of technological and administrative innovations	Bureaucratic HR bundle	0		
			Flexibility and professionalism bundle	+		
15.Chen & Huang (2008)	Survey of 146 top managers in Taiwanese firms	Perceived technological innovation	Staffing	+	ME: Knowledge management	+
			Training	0		0
			Participation	+		+
			Performance appraisal	0		0
			Compensation	+		+
		Perceived administrative innovation	Staffing	+	ME: Knowledge management	+
			Training	0		0
			Participation	+		+
			Performance appraisal	+		-
			Compensation	0		0
16.Walworth & Verma (2007)	Survey of Canadian workplaces and employees, 2,553 workplaces	Product innovation	Variable pay	0/-	MO: internationalization	+
			Training	+		0
			Employee involvement	+		-
		Process innovation	Variable pay	0		0
			Training	+		0
			Employee involvement	+		-
17.Jiménez-Jiménez & Sanz-Valle (2008)	Interview survey of 173 executives of Spanish firms	Product innovation	HR system	+		
		Process innovation	HR system	+		
		Administrative innovation	HR system	+		
18.Zanko et al. (2008)	Case study in Australian subsidiary of European manufacturer of military	Innovative cross-functional approach to new product development	Various HR practices and issues	*		

	electronics systems					
19. Amstrong et al. (2010)	A survey of Irish companies representing various industries, responses from the managing director and HR managers of each company	Percent of sales derived from recently introduced products and services	18 HR practices to form an index presenting a measure of HPWS	+		
20. De Saá-Pérez & Díaz-Díaz (2010)	Survey of 157 firms in Canary Islands representing various industries	The number of new products and processes over the previous five years	HRM system in terms of degree of commitment fostering practices (high or low commitment HRM system)	+		
21. Wei et al. (2011)	A questionnaire-survey of 223 executive managers in China, respondents include HRM managers and CEO/finance managers	An evaluated number of new products developed in comparison to industry average	An eight-item measure that was used to describe the extent to which the firms had adopted SHRM practices	+	MO: Developmental culture and firm structure	+ for developmental culture 0 for firm structure + for three-way interaction
22. Chang et al., (2012),	A survey of Chinese high technology firms, respondents include CEOs and directors as well knowledge workers	Perceived firm innovativeness as rated by the respondents	Coordination flexibility orientated HRM and resource flexibility orientated HR;	+	ME: Potential absorptive capacity and realized absorptive capacity	+ +
23. Jiang, Wang & Zhao (2012)	Survey of 106 firms in China (data collected separately from three different groups of respondents)	Administrative innovation Technological innovation	hiring and selection reward job design teamwork training performance appraisal	+ + + - -	ME: Employee creativity	+
24. Heffernan et al. (2009)	Secondary data based on People Management in Ireland Survey. 2,000 top companies. Respondents include HR managers	Proportion of total sales coming from products or services introduced within the previous 12 months as a part of a performance measure	High-performance work systems: employee resourcing; training and development; performance management and remuneration; communication and involvementfamily friendly/work life balance.		ME: Creativity climate	+, partial mediation for communication and involvement
25. Lopez-Cabrazal et al. (2009)	Survey of 86 managers responsible for R&D departments in innovative Spanish industries	Perceived product innovation activity	Knowledge-based HRM practices	0	ME: Unique knowledge ME: Valuable knowledge	0
			Collaborative HRM practices	0		+
26. Beugelsdijk (2008)	Survey questionnaire of 998 Dutch firms, applied in person	Share of improved products in total sales	Training and schooling	+		
			Task rotation	0		
			Job autonomy	+		
			Flexible working hours	0		
			Short-term contracts	-		
			Performance-based pay	+		
		Share of radically new products in	Training and schooling	0		

		total sales	Task rotation	0			
			Job autonomy	+			
			Flexible working hours	+			
			Short-term contracts	0			
			Performance-based pay	0			
27.Perdomo-Ortiz et al. (2009)	Survey of 106 respondents from medium and large Spanish industrial firms	Perceived technological innovation	Training	+	MO: orientation towards innovation	Strategic towards	
			Teamwork	+			0
			Controlled extrinsic motivation	+			0
			Autonomous extrinsic motivation	+			0
		Perceived non-technological innovation	Training	+	MO: orientation towards innovation	Strategic towards	0
28.Cooke & Saini (2010)	Qualitative email survey of 54 Indian managers	Perceived adoption of production, business process and customer service innovation	Learning and development employee involvement quality initiatives performance management schemas employee welfare engagement schemas	+			
				+			
				+			
				+			
29.Sanders et al. (2010)	Survey of 272 employees in four Dutch and German technical organizations	Innovative behaviour	Practices relating to influence Practices relating to flow Practices relating to primary rewards Practices relating to secondary rewards Content	+ 0 - 0 +			
30. Lin (2011)	Survey of 86 information and electronics companies in Taiwan.	Employee creativity and organizational innovation	IT and Virtual Organization (relating to HRM)	+ + + +			
31. De Winne & Sels (2010)	A survey study 294 Belgian start-ups (1-2 years old, 1-49 employees)	Innovation output (consisting of innovation in production process, improvement of existing products/services, development of new products and services and innovation in supporting processes (e.g. administration)	A number of knowledge-management related HRM practices implemented				
				+			
32. Alfes et al. (2013)	A survey of 1,153 workers in recycling and waste management in the UK	Self-rated innovative work behaviors	Perceptions of HR based on practices identified by the high-performance literature: selection, training, reward systems, career management, development opportunities and feedback mechanisms	+	ME: work engagement		+

33. Zhou et al. (2013)	Survey of 179 organizations in China (multiple sources)	Firm innovation and performance	Commitment-oriented HRM system (consisting of 15 items) Collaboration-oriented HRM system (using 6 items)	+	MO: Complementary effect between commitment and collaboration-orientated HRM systems	
34. Ling & Mohd (2010)	Survey of 674 large manufacturing companies in Malaysia	Organizational innovation Product and administrative innovation	performance appraisal career management training reward system recruitment	+ (only for administrative innovation) - + (for all product, process and administrative innovation) - -		
35. Fu et al. (2015)	Survey of Irish accounting firms, in total 195 HR managers/partners/directors represented 120 firms	Annual revenue per professional staff from new services and clients	HPWS index created to measure the presence and use of HRM practices	+	ME: employee innovative work behaviors	+