

# Which Comes First e-HRM or SHRM?

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**Abstract.** There has been some discussion in the literature of the relationship between e-HRM and strategic HRM. One body of literature argued that the use of e-HRM leads to a more strategic role for the HR function by freeing time and providing accurate information for HR practitioners [1,2]. An alternative argument is that e-HRM is the result of a strategic HR orientation in that it is one means by which SHR can be practiced [3,4]. This study disentangled these two arguments by using data from a large international HR survey. The results showed that e-HRM does not appear to be the linking mechanism that results in companies with HR strategies becoming more involved in setting business strategy, but instead that e-HRM and strategic involvement are related indirectly based on its relationship to a company's HR strategy.

## 1 Introduction

Past literature has provided two explanations of the relationship between e-HRM and strategic HRM. A number of authors have suggested that e-HRM can act as a cause of strategic HRM (SHRM) through the freeing up of HR practitioners' time and the provision of high quality information that enables them to act more strategically. The alternative view, situated in the literature on contingent strategic HRM, suggests that this relationship is reversed, in that e-HRM is a result of the strategic orientation of the HR function. This view suggests that e-HRM is used as a part of SHRM to achieve the competitive goals of the organization. To date, scholars have not attempted to disentangle these two arguments by examining them simultaneously. This paper will address this gap by addressing the question – which comes first: e-HRM or SHRM? In laying the ground work for our discussion we distinguish between SHRM and HR strategy. We therefore do not use these constructs interchangeably but rather treat them as different and distinct.

Peruse the websites of various e-HRM software vendors and inevitably there will be a customer statement describing how implementing an e-HRM product enhances the HR function's ability to be more strategic. The implication is that by combining web-based information technology with human resource functionality, the HR function is transformed from a transaction-burdened paper processor to a valued strategic partner. The need for the HR function to transform to a function that is more strategic has received significant attention in the literature for many years. Legge [5] noted that the HR function should be more involved in senior management decision-making and both Ulrich [6] and Paauwe [7] suggested that HR needed to become

“more business oriented, more strategic and more oriented towards organizational change”. A series of academics have set out the theoretical and empirical background to the proposition that HR practitioners can have strategic impact [8, 9, 10]. The key notion here is that the HR function is included in formulating and implementing business strategy and hence is considered strategic.

Several scholars reinforce the claim that using e-HRM may help to transform the HR function into a strategic business partner. For instance, Bussler and Davis [11] concluded that “with the use of technological solutions, HR is no longer transactional and reactionary but strategic and proactive” (p.17). Snell *et al* [12] provided a detailed case study example of IT’s ability to provide “transformational impact” by leading to “fundamental changes in the scope and function of the HR department”. This supported the suggestion that this transformation of HR was perhaps the most dramatic impact of IT [2]. Shrivastava and Shaw [13] also suggested that e-HRM could have a transformational impact on the HR function by redefining its scope and allowing it to focus on more strategic activities.

Authors have suggested that e-HRM can facilitate this transformation in the role of HR to one that is more strategic in two main ways. Firstly, the use of automated or self-service systems to accomplish a great deal of HR’s transactional or administrative work means that the HR function has more time to manage human resources strategically and become a full partner in the business [14,15]. Secondly, the use of e-HRM means that detailed information about a company’s people can be produced quickly and easily. This data can be used for analytical decision support [16] and to drive strategic organizational decisions [17].

In one of few empirical studies, Parry and Tyson’s [1] qualitative study of ten UK organizations showed how the implementation of a web-based human resource information system could lead to a shift towards more strategic activities in the HR department. Parry and Tyson’s study found that the use of e-HRM could indeed provide HR practitioners with the time and information in order to act more strategically. Lawler and Mohrman [18] also supported this proposition through their longitudinal survey of HR leaders. They found that advanced IT based systems can both offload transactional tasks, freeing up HR professionals for more value-added roles and offer the potential for HR to collect and analyze data on the effectiveness of various approaches and decisions.

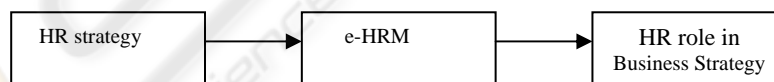
As a contrast to the above claims, however, strategic HRM scholars depict e-HRM as the end result of strategic HRM. SHRM has been defined as “the pattern of planned human resource deployments and activities intended to enable the firm to achieve its goals” [10]. Wright and McMahan go on to state that the two most important dimensions of SHRM are “the linking of HRM practices with the strategic management process of the organization” and the “coordination among the various HRM practices through a pattern of planned action” (p. 298). HR strategy represents the “linking” mechanism between strategic formulation and implementation. Martin-Alcazar *et al* [19] define HR strategy as an integrated set of human resource management policies and practices developed to support execution of the company’s implicit or explicit business strategy through managing the firm’s human capital. Boxall and Purcell [9] explain that SHRM as a field of study is concerned with the strategic choices associated with the use of labour in firms and with “explaining why some firms manage them more effectively than others” (p. 49). By these definitions, the use of e-HRM may be seen as a strategic choice, in itself as a way of enabling an

organization to achieve its goals and can, therefore, be an outcome of SHRM rather than the driver of a strategic HR role.

Broderick and Boudreau [4] supported this idea with their use of Schuler and Jackson's [20] contingent SHRM model to explain how information technology may be used in different ways as a result of the firm's competitive strategy. Schuler and Jackson [20] created a framework for external fit in SHRM based on Porter's [21] suggestion that firms should specialize in one of cost leadership, differentiation or focus. Schuler and Jackson [20] argued that business performance will improve when a firm's HR practices mutually reinforce the firm's choice of the competitive strategy of cost leadership, quality and customer satisfaction and innovation. Different strategies require different kinds of employee behaviour, and therefore different HR practices to encourage these behaviours. Broderick and Boudreau [4] explained how transaction processing systems, expert systems and decision support systems could be used to achieve the objectives of Schuler and Jackson's three competitive strategies. For example, transaction processing systems could be used to support customer satisfaction/quality strategies by increasing the time for quality initiatives, enabling custom reports and increasing the awareness of HR information. This suggestion supports the assertion that e-HRM is an outcome of SHRM rather than a cause.

Reddington and Martin [3] also suggested a model by which the goals of e-HRM systems are driven by HR strategy and HR policies. These goals can be classified in terms of transactional goals such as reducing costs and HR headcount and transformational goals such as freeing up the time of HR staff to address more strategic issues, and by transforming the contributions that HR can provide to the organization. This model therefore supports the idea that the use of e-HRM is a result (rather than a cause) of the strategic nature of the HR function. Hannon *et al* [22] suggested that human resource information systems have the potential to be the mechanism by which transnational organizations monitor and deploy their personnel in order to attain and sustain a competitive advantage. Ruel *et al* [23] have found that e-HRM can be used to promote the effectiveness of HRM therefore laying more weight to this argument.

We can see from the above discussion therefore that there are opposing views of the relationship between SHRM and e-HRM. In one view e-HRM precedes the HR function becoming more strategic, either as the process by which HR strategies becomes strategic as illustrated in Figure 1 or the catalyst as illustrated in Figure 2.

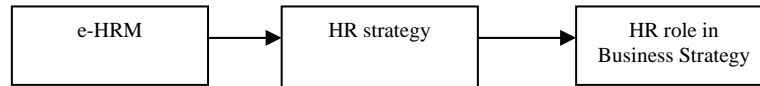


**Fig. 1.** e-HRM is the process by which HR Strategy makes HR more strategic.

In Figure 1, e-HRM is the result of HR strategy but is also the linking mechanism between HR strategy and Strategic HRM. As an the integrated set of human resource management policies and practices developed to support execution of the company's implicit or explicit business strategy through managing the firm's human capital [19], e-HRM then represents a strategic choice regarding how to best implement or deliver these practices. By enabling the successful delivery of relevant human resource practices, e-HRM then facilitates elevating the role of HR from administrative transaction processor to strategic business partner. Thus our first set of hypotheses

articulate the direction of these relationships in which e-HRM represents the process by which HR strategy realizes its strategic role within an organization.

H1: The relationship between HR strategy and HR involvement in business strategy is mediated by stage of e-HRM such that the stage of e-HRM implementation is the process through which HR strategy is related to HR involvement in business strategy.



**Fig. 2.** HR Strategy is the process by which e-HRM makes HR more strategic.

The alternate relationships in Figure 2 illustrates a slightly different view in which investments in e-HRM free up time for HR to focus on more strategic activities. Through spending more time on strategic value added activities HR builds an HR strategy and through these strategic activities, HR also develops credibility to take on a more active role in the creation of business strategy. The following hypotheses reflect this possible relationship:

H2: The relationship between stage of e-HRM and HR involvement in business strategy is mediated by HR strategy such that creating an HR strategy is the process through which e-HRM is related to HR involvement in business strategy development.



**Fig. 3.** HR Strategy is the process by which e-HRM is strategic.

Finally, in Figure 3, e-HRM is the consequence of a rational set of decisions emanating from the top of the organization. This represents the more traditional/contingent view of strategic human resources in which involvement in business strategy precedes the development of an HR strategy and that e-HRM evolves out of best implementing the HR strategy. Thus the last hypothesis proposes the third alternative set of relationships:

H3: The relationship between HR involvement in business strategy and the stage of e-HRM in a firm is mediated by HR Strategy.

Which view is more accurate? In this paper we, empirically examine this question using an international data set comprising over 3,500 companies located in 29 different countries.

## 2 Methods

### 2.1 Sample and Procedures

The data used in this study were taken from the 2003 Cranet survey, by far the most comprehensive international survey of HR policies and practices at the organisational

level. Cranet is a regular comparative survey of organisational policies and practices across the world conducted by a network of business schools operating in 40 countries. The unit of analysis is the organisation and the respondent is the highest-ranking corporate officer in charge of HRM. The 2003 questionnaire was developed using an iterative process between network members and based on previous experience of running survey rounds since 1990.

Respondents in each country were identified via the use of a database of senior HR managers in public and private sector organisations. The data was approximately representative for the population of each country in terms of industry sector and organisation size. Representing 7,914 companies, these data cover a wide range of countries and HR policies and practices. The data were collected over an eighteen-month period from late 2003 until mid 2005. The response rate across countries ranged from 5% to 86%.

In this study only companies with self-reported human resource information systems were analyzed. Thus out of a total sample of 7,914 companies, the final useable sample consisted of 3,747 companies from 29 countries. These companies represented those companies for which there were no missing data or reasonably imputable data for the variables measured in this study. Most of the missing data arose either because company headquarter information was not completed or where the company indicated they had no human resource information system. In the later case, respondents were then directed to skip questions related to e-HRM. To determine whether such missing data were a concern we reran our analyses assuming a zero value for stage of e-HRM for all missing data responses. Our results were similar to the results we report here.

## 2.2 Measures

The three dependent and independent variables for this study were whether the organization had an HR strategy, at what stage the organization was in its e-HRM capability, and the HR function's involvement in the organization's business strategy. These variables were measured using responses from the Cranet questionnaire.

*HR Strategy* was measured as a one-item scale representing a self-reported response to the following question, "Does your organization have a personnel/HRM strategy?" Response choices were: 1= yes, written; 2 = yes, unwritten; 4 = no, and 3= don't know. The variable was treated as ordinal and reversed-coded.

*e-HRM Stage* represented a one-item scale in which the respondent indicated at which stage they believed their level of HR web deployment was. Response choices described 5 levels in which the lowest level was described as one-way communication (e.g. information publishing for general scrutiny). The middle level was two-way communication: employee is able to update simple personal information such as bank details. The highest level represented a system that allowed more complex transactions than two communications which included selection, calculation and confirmation by and for employees.

*HR Involvement in Strategy* was measured as one-item scale in which the respondent chose at which stage the person responsible for personnel/HR was involved in the development of the organization's business strategy. The four response options were: 1= from the outset, 2=through subsequent consultation, 3= on

implementation and 4 = not consulted. This scale was treated as ordinal and was reversed-coded.

In addition to the dependent and independent variables of interest, we also included several control variables that might also be associated with the use of e-HRM, the existence of an HR Strategy or HR involvement in an organization's strategy to reduce omitted variable bias. These control variables consisted of measures of whether the company outsourced its human resource information system, outsourced other HR functions, the location of the company's headquarters, whether the company's main product market was local, proportion of employees that were members of a trade union, size, and industry.

Measures of *HRIS Outsourcing* and *HR Outsourcing* were created from responses to a question on how had the company's use of external providers for payroll, pensions, benefits, training and development, workforce outplacement, and HR information systems had changed. Response choices comprised an ordinal measure beginning with external providers not used, decreased, same, and ending with increased. The measure for *HRIS outsourcing* represented a dichotomous measure where one indicated use of an external provider, whether decreased, increased or remained the same, and zero indicated the company did not use an external provider. The measure of *HR Outsourcing* was derived by adding the responses for whether external providers were used for payroll, pensions, benefits, training and development, and workforce outplacement. The highest score was obtained if a company indicated that they had increased external provider use for all five HR services. The lowest score would represent those companies that did not use external providers for any of the five HR services.

*Percent union* represented the proportion of the total number of employees in the company that were members of a trade union. Size was measured as the natural logarithm of the total number of people employed in the company

Indicator variables were created for the location of each company's *corporate headquarters, product market and industry*. Five dummies indicated if the headquarters were in the European Union, Europe outside of the EU, North America, South-East Asia, or Africa. The indicator for product market indicated if the company's main products or markets were local or else zero if mainly national, European or world-wide. Finally dummy variables for 14 self-reported industry sectors were also created. Where necessary, the omitted or reference industry category were the banking, finance and insurance industry.

### 2.3 Analysis

The key variables in this study are company-level variables nested in countries, which makes these data hierarchical. Consequently we adopted hierarchical linear modeling to test our hypotheses. In mean centering the company level data and using hierarchical linear modeling, we were able to estimate the company-level relationships net of any country-level effects [24]. Thus all the coefficients represented an efficient estimate of company relationships using the full sample of companies.

We performed our analyses in three steps following similar procedures outlined by Bryk and Rudenbush [24], (200 First we estimated a null model in which there

were no predictors at either level 1 (company level) or level 2 (country level) to partition the dependent variables (HR Strategy, e-HRM and HR Strategic Involvement) into within- and between-country components. From this information we computed the proportion of the total variance around the grand mean of each dependent variable related to company-level variance and variance related to country-level effects. Second, in the level 1 analyses, the dependent variables were regressed on country-mean-centered company-level predictors and control variables. A regression line was estimated for each of the 29 countries in this step. In the third step, which represented the level 2 analyses, the intercepts and beta coefficients estimated in the step 2 regressions were tested to see if they varied significantly across countries.

### 3 Results

The average company in our sample had approximately 2,400 employees with about 26-50% being members of a trade union. On average, our sample companies had an HR strategy but it was unwritten, therefore, more informal. Further the person responsible for HR was, on average, was not a strategic business partner and was only involved in developing the business strategy through subsequent consultation. Outsourcing payroll related functions was also the norm. On average a company outsourced at least 3 other HR functions such as payroll, pensions, and benefits. Furthermore, 80% of sample outsourced HRIS. Not surprisingly, therefore, as of 2003, the companies were on average at stage 1 of e-HRM deployment with only about 15% at more sophisticated stages of deployment (Stage 4 and Stage 5).

Our data analyses reveal that across the three dependent variables, E-HRM stage, HR involvement in business strategy, and HR strategy, between country variations was quite limited. For e-HRM it represented 7.5% of the total variance in e-HRM shown on Table 2 column 1; for HR involvement and HR strategy it only represented 9% of the variance on Table 3 column 1 and Table 4 column 1, respectively. Thus most of the variance in these variables occurred between companies not between countries.

**Table 1.** Variable Means and Correlations.

Variable	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12
1 e-HRM Stage	1.34	1.12												
2 HR Involvement	3.23	0.96	0.06 *											
3 HR Strategy	4.43	1.87	0.13 *	0.26 *										
4 HRIS Outsourcing	0.80	0.40	0.05 *	0.05 *	0.04 *									
5 HR Outsourcing	12.77	3.76	0.07 *	0.09 *	0.08 *	0.46 *								
6 Euro Union Hdqtrs	0.56	0.50	-0.06 *	0.03	-0.08 *	0.01	0.01							
7 Other Euro Hdqtrs	0.15	0.35	0.03	-0.06 *	-0.04 *	0.01	-0.08 *	-0.46 *						
8 North Amer. Hdqtrs	0.17	0.37	0.05 *	0.07 *	0.12 *	0.01	0.12 *	-0.50 *	-0.19 *					
9 Asian Headquarters	0.02	0.13	-0.01	0.02	0.03 *	0.02	0.02	-0.15 *	-0.06 *	-0.06 *				
10 African Headquarters	0.00	0.04	-0.02	0.01	-0.02	0.02	0.03	-0.05 *	-0.02	-0.02	-0.01			
11 Local Product Market	0.51	0.50	0.00	0.02	-0.01	-0.02	-0.08 *	-0.02	-0.01	-0.04 *	0.01	-0.01		
12 Percent Union	4.00	2.03	0.03	0.05 *	0.01	0.00	-0.01	0.11 *	0.03	-0.14 *	-0.06 *	0.00	0.03	
13 Size	6.38	1.33	0.13 *	0.10 *	0.14 *	0.04 *	0.05 *	0.05 *	-0.06 *	0.06 *	-0.02	0.00	0.00	0.09 *

Note: N = 3747 \* = p < .05

**Table 2.** Hierarchical Linear Modeling Results for e-HRM Stage.

Variable	e-HRM				τ
	Null Model 1	Company-Level 2	Company-Level 3	Country-Level 4	
<b>Level 1</b>					
Intercept	1,39 (0,06) ***	1,70 (0,11) ***	1,57 (0,09) ***	1,56 (0,11) ***	
HRIS Outsourcing		-0,11 (0,06) *	0,07 (0,06)	0,08 (0,06)	
HR Outsourcing		0,02 (0,01) **	0,02 (0,01) **	0,02 (0,01) ***	
Euro Headquarters		-0,05 (0,06)	-0,06 (0,06)	-0,06 (0,06)	
Asian Headquarters		-0,07 (0,12)	-0,09 (0,12)	-0,09 (0,11)	
African Headquarters		-0,29 (0,09) ***	-0,35 (0,07) ***	-0,30 (0,10) **	
Local Product Market		-0,03 (0,04)	-0,03 (0,04)	-0,02 (0,04)	
Percent Union		-0,01 (0,01)	-0,01 (0,01)	-0,01 (0,01)	
Size		0,10 (0,02) ***	0,10 (0,02) ***	0,09 (0,02) ***	
e-HRM Stage					
HR Involvement			0,04 (0,02) *	0,02 (0,02)	
HR Strategy		0,10 (0,02) ***		0,06 (0,01) ***	
<b>Level 2</b>					
Intercept					1,56 (0,1) *** 0,1 ***
e-HRM Stage					
HR Involvement					0,00 (0,0) 0,0 *
HR Strategy					0,06 (0,0) *** 0,0
Between-Country residual	0,093				
Within-Country residual variance	1,156	1,11	1,11	1,10	1,10
Between-country variance	0,075				
R2 within-country		0,04	0,04	0,05	0,05
<b>Model deviance</b>					
ni	3753				
nj	29				

**Table 3.** Hierarchical Linear Modeling Results for HR Involvement in Business Strategy.

Variable	HR Involvement in Business Strategy			τ
	Null Model 1	Company Level 2	Country Level 3	
<b>Level 1</b>				
Intercept	4.50 -0.11 ***	3.09 (0.07) ***	3.08 (0.07) ***	
HRIS Outsourcing		-0.01 (0.04)	0.00 (0.04)	
HR Outsourcing		0.02 (0.00) ***	0.01 (0.00) ***	
Euro Headquarters		-0.13 (0.08) +	-0.11 (0.07)	
Asian Headquarters		0.19 (0.07) *	0.18 (0.08) *	
African Headquarters		0.17 (0.21)	0.26 (0.14) +	
Local Product Market		0.03 (0.04)	0.04 (0.04)	
Percent Union		0.01 (0.01)	0.01 (0.01)	
Size		0.05 0.01 ***	0.02 (0.01) +	
e-HRM Stage		0.03 (0.02) *	0.01 (0.02)	
HR Strategy			0.13 (0.01) ***	
<b>Level 2</b>				
Intercept				3.07 (0.07) *** 0.06 ***
e-HRM Stage				0.01 (0.02) 0.00 *
HR Strategy				0.13 (0.01) *** 0.00 ***
Between-Country residual	0.32 ***	0.05		
Within-Country residual variance	3.19	0.86	0.81	0.805
R2 within-country		0.7	0.74	0.75
Between variance	0.09			
Model deviance	15053			
ni	3753			
nj	29			

Includes but not shown 14 industry fixed effects. The comparison/excluded industry is banking and financial services.

In testing Hypothesis 1 in which we proposed that e-HRM mediated the relationship between HR strategy and HR involvement in business strategy, we followed the standard tests for mediation. We first regressed HR strategy on HR involvement shown on Table 2 column 3 and then regressed HR strategy on e-HRM shown on Table 4 column 3. We then regressed both HR strategy and e-HRM on HR involvement. Our results shown on Table 2 column 6 and indicate that there is no support for Hypothesis 1. The parameter estimate for e-HRM is not significantly related to HR involvement.

We followed the same steps for testing Hypothesis 2 and Hypothesis 3. Our results shown on Table 3 columns 2 and 4 provide support of Hypothesis 2. When e-HRM



stage is regressed on HR involvement without controlling for HR strategy there is a significant relationship ( $b=.03$   $p<.05$ ). However, when HR strategy is added to the model, e-HRM loses significance but HR strategy remains significant ( $b = .13$   $p<.001$ ).

Our results also support Hypothesis 3 in which we propose the more traditional strategic human resource causal specification. Here the relationship runs in the opposite to the one posited in Hypothesis 2. Our results indicate that HR involvement's in business strategy significantly predicts stage of e-HRM shown on Table 2 column 4 ( $b = .04$   $p<.05$ ) and so does HR strategy shown on Table 2 column 2 ( $b = .10$   $p<.001$ ). When both variables are entered together, however, HR involvement is no longer a significant predictor of e-HRM but HR strategy remains significant ( $b=.06$   $p<.001$ ).

**Table 4.** Hierarchical Linear Modeling Results for HR Strategy.

Variable	HR Strategy			$\tau$
	Null Model 1	Company-Level 2	Country-Level	
<b>Level 1</b>				
Intercept	4.49 (0.1) ***	4.71 (0.14) ***		
HRIS Outsourcing		-0.07 (0.06) ***		
HR Outsourcing		0.01 (0.01)		
Euro Headquarters		-0.01 (0.01)		
Asian Headquarters		0.08 (0.19) ***		
African Headquarters		-0.77 (0.51)		
Local Product Market		-0.11 (0.08)		
Percent Union		-0.03 (0.02)		
Size		0.18 (0.03) ***		
e-HRM Stage		0.16 (0.02) ***		
HR Involvement		0.45 (0.03) ***		
HR Strategy				
<b>Level 2</b>				
Intercept			4.70 (0.15) ***	0.33 ***
e-HRM Stage			0.16 (0.03) ***	0.00
HR Involvement			0.43 (0.03) ***	0.01
HR Strategy				
Between-Country residual	0.32			
Within-Country residual		2.88	2.88	
variance	3.19			
Between-country variance	0.09			
R2 within-country		0.10	0.10	
Model deviance	11697	14718	14712	
ni	3753			

## 4 Discussion

We add to the literature on the role e-HRM plays in the strategic HR landscape through the use of data from a large scale quantitative survey. We use this quantitative data to examine the relationship between stage of e-HRM investment and its relationship with making HR “more strategic”. We distinguish between two concepts in the literature on HR and strategy. First, we identify the concept of an HR strategy, which we defined as representing HR policies and practices aimed at supporting the business strategy. Second we considered to what extent HR was involved in setting the company's business strategy. We have used the latter variable to reflect the existence of strategic HRM, where the HR function is viewed as a strategic business partner in overall strategy development. Our results provide a number of insights into the relationship between e-HRM, HR strategy, and strategic HRM.

Firstly, our results show that stage of e-HRM is not the “process” through which a company's HR strategy transforms the HR function into becoming a business partner

(hypothesis 1). Thus, e-HRM does not appear to be the linking mechanism between HR strategy and elevating the HR function into a strategic business partner.

Our results, however, suggest the relationship between e-HRM and strategic HRM operates indirectly through the company's HR strategy. Thus our results provide support for the second and third hypotheses. With cross sectional data, however, we cannot say whether e-HRM precedes having an HR strategy or it follows having an HR strategy. Does a firm invest in e-HRM and this makes HR strategic which in turn is related to greater HR involvement in setting business strategy? Or do companies in which HR is involved in business strategy create HR strategies which facilitate investing in e-HRM? In the former, e-HRM precedes transformation to SHRM through its relationship with HR strategy. In this specification e-HRM precedes both HR strategy and SHRM. In the latter, e-HRM is the result of HR being a SHRM function first.

The endogenous relationship between e-HRM and HR strategy can arise for two reasons. First, the reciprocal relationship may be spurious in that it is really the result of both being related to a common third factor. We tried to rule out this possibility by including other variables, such as HR outsourcing, size, and location in our model specification. A second reason for reciprocity might arise from causal ordering. One variable precedes the other but the relationship is also circular. To address this possibility involves conducting research with longitudinal data. In this way we can examine the order in which the relationships unfold.

Qualitative case studies can also shed light on this sequencing puzzle. The evidence provided by Parry and Tyson [1] suggests that the causal order is best represented in Figure 2 rather than Figure 3. That is initially, e-HRM precedes the development of a HR strategy which in turn leads to HR's greater involvement in business strategy development. Parry and Tyson's case studies also suggest however, that in some cases, the implementation of e-HRM may be the result of an HR strategy that reflects increased involvement of HR in business strategy, thus also lending support to Figure 3. It is clear therefore that future research, both qualitative and quantitative in nature, is needed to confirm whether these initial findings are true and also the contextual contingencies that may better predict the causal ordering (e.g. e-HRM may precede HR strategy in younger firms, in less developed countries, in certain industries, but not mature companies, or in more developed countries, or certain industries).

Our examination makes an incremental contribution towards better understanding the relationship between the use of e-HRM within organizations and the strategic nature of the HR function. We establish the nature of this relationship, ruling out one set of possible relationships but still leaving open the viability of two other sets of relationships. Both qualitative and quantitative longitudinal research and more comprehensive measures of key constructs are needed to build our knowledge of where and when e-HRM contributes to strategic HRM.

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