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AUTHORS

Rita Campos e Cunha
Miguel Pina e Cunha

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SECTION 2. Management in firms and organizations

Rita Campos e Cunha (Portugal), Miguel Pina e Cunha (Portugal)

Impact of strategy, strength of the HRM system and HRM bundles on organizational performance

Abstract

This study analyzes the impact of human resource management content and process on leading indicators of organizational performance – service quality, productivity, profitability, rate of innovation and product to market time, as well as perceived financial results, on a large sample of companies. The paper contributes with a new integration of several levels of analysis, from the corporate strategic level to the functional human resource management level, considering both content and process. Content refers to the specific practices adopted by a company, whereas process refers to the clarity and consistency of the messages sent to employees, regarding the HRM policies and practices, as well as performance expectations. The outcomes are also analyzed considering short-term organizational performance and financial results. The study uses a large sample of companies, from the Cranet-E survey, and employs structural equation modeling to test a general model. Strategic management orientation is found to contribute to stronger HR systems. Strength of the HRM system, a process variable that integrates the ‘meta-features’ of an HRM system and provides a common interpretation of organizational goals, has a strong positive impact on HRM content, specifically the functional flexibility and performance management bundles, and also a smaller but significant impact on short-term organizational performance. Finally, both the functional flexibility and the performance management bundles have a significant positive effect on perceived financial results.

Keywords: HR bundles, strength of HRM system, organizational performance.

JEL Classification: M12.

Introduction

Several studies have emphasized the contribution of Human Resource Management practices to firm performance (Gerhart and Trevor, 1996; McDonald and Smith, 1995; Bartel, 1994; Gomez-Mejia, 1992), but more recent studies report the positive impact of bundles of HRM practices (Cunha et al., 2003; Delaney and Huselid, 1996; Huselid, 1995). In this latter strand, there is a shared idea that HR practices are only effective when complementarities, or bundles, are considered, since these practices, in concert, contribute to the improvement of employee and company performance, namely by increasing the level of productivity (Ichniowski et al., 1997), financial performance or innovation (Laursen and Foss, 2003).

Although this line of research has demonstrated a significant impact of HR practices, the features of the process through which the HR system helps employees to make sense of what is expected of them, have not been well addressed, and Bowen and Ostroff (2004) propose that this shared meaning represents the ‘strength of the HRM system’, a process characteristic that sends an effective message about HRM content to all employees, and clarifies what strategic goals are important, and what employee behaviors are expected, and which ones will be rewarded.

In this study, we developed two models in which HRM practices and strength of the HRM system are integrated, in order to contribute to short-term organizational performance and perceived financial results. The first model is a simultaneous analysis of two groups, based on firm sector of activity, and the second is a general model, with the combined samples.

The contribution of this paper to the literature is twofold. First, the models tested are a new integration of several levels of analysis, i.e., the corporate strategic level, the functional HRM level (process and content) and the consequences in terms of short-term organizational performance and perceived financial results. The second contribution is to demonstrate the impact of the strength of the HRM system on firm performance.

Below, we will review the literature linking strategy to HRM process as well as the impact of both HRM content and process on organizational performance. The model will then be specified. In the subsequent sections the empirical results are presented and conclusions and limitations of the study are discussed.

1. HRM and organizational performance

In the last decade, research has shown that HRM practices contribute to organizational performance. The focus of this literature has been changing, however. Early studies emphasized the impact of several separate HRM practices, such as compensation (Gerhart and Trevor, 1996; Gomez-Mejia, 1992), training (Bartel, 1994) or performance management systems (McDonald and Smith, 1995).

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The paper benefited greatly from the insights of the anonymous reviewers. Any remaining errors are ours.

More recent studies have in common the idea that bundles of HR practices improve employee and company performance, due to the reinforcing and complementary relationships that exist among these practices; complementarities meaning that the effects of using some HR activities increase the benefits of using other HR practices (Ichniowski and Shaw, 2003). In this vein, some studies have reported the positive impact of 'progressive HRM practices' on organizational performance (Delaney & Huselid, 1996; Huselid, 1995), which are the practices aimed at developing employee skills and abilities, enhancing motivation, and improving the way work is organized. Other authors have also remarked on the virtuous impact of HR sophistication, measured by investments in HR planning, hiring and employee development on labor productivity, particularly in capital-intensive organizations (Koch and McGrath, 1996).

Several interpretations may account for this impact. First, the overall set of HRM practices contributes to the development of employee skills and ability, motivation and work organization (Delaney and Huselid, 1996). There is a shared view that High Performance Work Systems, which include training, incentive systems, high selectivity, flexible job assignments and performance management, in concert, contribute to the improvement of employee and company performance, having an impact on companies' financial performance (Cunha et al., 2003; Huselid, 1995; MacDuffie, 1995). They create the reinforcing conditions that support individual employees' motivation, by enhancing skills and knowledge, on one hand, and skill development, on the other, both of which contribute to discretionary efforts on behalf of organizational performance (MacDuffie, 1995).

A second interpretation is anchored in the strategy literature and stresses the complexity of HRM practices, leading to inimitability by competitors (Barney, 1991) as well as 'fit', through the link between strategy and skills and the link between strategy and behaviors (Wright and Snell, 1998).

Concerning the link between strategy and skills, firms may develop the breadth of employee skills and behavioral repertoires that "stems from the availability of a vast repertoire of behavioral scripts among employees" (Wright and Snell, 1998, p. 765). As employees are functionally flexible, i.e., possess a wider variety of skills and behavioral repertoires, firms can adapt to changing environments faster and easier (Wright and Snell, 1998), thereby performing better. Training clearly helps build this

functional flexibility, but so do internal mobility practices and career management practices, such as job rotation or temporary assignments (Laursen and Foss, 2003). In this study we consider a 'functional flexibility bundle', which, in addition to training, includes career plans, job rotation, succession plans, high flyer schemes and international appointments.

The link between strategy and employee behaviors, on the other hand, may be developed jointly through performance appraisal and feedback, and variable pay systems, because they clarify organizational goals, influence the individual effort exerted in goal achievement and reward goal achievement (Tolchinski and King, 1980). To the extent that feedback and incentive systems can motivate skilled employees to engage in the achievement of more difficult goals and increase their identification with the organization, the firm's performance is improved. We therefore consider a 'performance management bundle' that includes performance appraisal for the different categories of employees, the involvement of multiple feedback sources and a clarification of the uses of performance appraisal, as well as the existence of several types of incentives (variable compensation) for different categories of employees.

We expect these HR bundles to impact financial results, because capabilities and identification to the organization are built and developed over time.

Hence, our hypotheses are as follows:

H1: The functional flexibility bundle will lead to better perceived financial results.

H2: The performance management bundle will lead to better perceived financial results.

2. Strength of the HRM system

The literature presented above uses a macro approach to defend the links between HRM features and outcomes at the firm level, by influencing employee attributes (competencies and behaviors). However, according to Bowen and Ostroff (2004), it does not clarify how the HRM system can contribute to performance by motivating employees to adopt the desired behaviors and attitudes, i.e., the process. They differentiate two features of an HRM system that will jointly contribute to performance, e.g., content and process. Whereas content refers to the individual HRM practices, process deals with how the HRM system is designed and administered to send signals to employees that allow them to create a shared meaning about the "desired and appropriate responses and form a collective sense of what is expected" (Bowen and Ostroff, 2004, p. 204).

This shared meaning represents the strength of the HRM system and refers to the extent to which uniform (*versus* ambiguous) expectancies regarding the appropriate response patterns are induced. "The strength of the HR system will be associated with how effectively HR practices communicate the strategic focus of the organization" (Ostroff and Bowen, 2000. p. 236).

According to these authors, HR practices influence psychological climate, because they shape individual perceptions about organizational characteristics. However, they also influence psychological contracts, by clarifying expectations about the exchange relationships between employees and employers. When both psychological climate and contracts are largely shared within the organization, an organizational climate and normative contracts emerge. This is proposed to happen whenever the HR system is visible, clear and internally consistent, i.e., with a strong HR system (Ostroff and Bowen, 2000).

Whereas weak HR systems create ambiguous situations and little guidance about appropriate behaviors, strong HR systems increase the within-company homogeneity among employees, leading to shared perceptions and less-variable attitudes and behaviors.

Other determinants of organizational climate should certainly be considered, such as the organizational structural characteristics (centralization, specialization and formalization), and the selection, attraction and attrition practices, which produce homogeneous perceptions of the important aspects of the work environment (Ashforth, 1985). This author, however, argues that it is not structure, or process or individuals, but rather the sense-making and meaning that occur through social interaction, observation and action, that cause climate (Ashforth, 1985). Similarly, leadership styles have a significant effect on different aspects of the working environment, which constitute organizational climate (Goleman, 2000).

In fact, Bowen and Ostroff (2004) suggest that supervisors may act as interpretive filters, thereby contributing to the strength of organizational climates, whereas other more structural or socialization characteristics will predominantly affect the content of organizational climates. They (Bowen and Ostroff, 2004) propose that the HRM system will create a strong situation if it is perceived as high in distinctiveness, consistency and consensus, and they also claim that strong HR systems require clear support from top management, as well as a strategic integration (Ostroff and Bowen, 2000).

For these reasons we expect the strength of the HRM system to have a direct impact on leading indicators of organizational performance, since the strategically congruent and clearly visible array of functional flexibility and performance management practices provides clear statements of behavioral expectations and rewards, thus affecting organizational behavior (Schneider et al., 1996), thus leading to the attainment of organizational goals.

We therefore introduced a 'leading indicators of organizational performance' variable, which assesses firm performance in service quality, product to market time, productivity and rate of innovation. This variable is different from the 'perceived financial results' variable, which refers to results obtained in the medium term.

We also introduce 'strength of the HRM system' in this study, by considering that combining:

- ◆ written, formalized HR policies (pay, recruitment, training, communication, equal opportunities, flexibility and management development);
- ◆ an evaluation of the performance of the HR department;
- ◆ the involvement of the HR senior managers in strategy definition, creates the conditions for having a strong HRM system, with high distinctiveness, consistency and consensus.

Our next hypothesis is, therefore:

H3: A strong HRM system will lead to better leading indicators of organizational performance.

On the other hand, we also expect that strength of the HRM system will have a direct impact on the content of both the functional flexibility and the performance management bundles, because HR policy formalization and the evaluation of the HR function stress the relevance and visibility of HR practices.

Therefore:

H4: Strength of the HRM system is positively correlated with the functional flexibility bundle.

H5: Strength of the HRM system is positively correlated with the performance management bundle.

Indirectly, strength of the HRM system is also expected to impact the perceived financial results, through the HR bundles and the leading indicators of organizational performance. As Kaplan and Norton (1992) argue, these leading indicators such as innovation rate, product to market time, productivity and quality of service, increase customer satisfaction and will over time lead to financial results.

We therefore propose the following hypothesis:

H6: Leading indicators of organizational performance are positively related to perceived financial results.

3. Strategic management orientation

Organizational goals can be expected to derive from the exercise of strategic planning, through which relevant environmental and internal conditions are analyzed and opportunities and threats anticipated. Positive correlations have been reported between planning formality and firm performance (Lyles et al., 1993), because there will be a greater emphasis on the process of strategic decision-making, particularly in identifying distinctive competencies, resource deployment and monitoring. At the same time, as Tregaskis (1997) has reported, formalized HR strategies increase

the likelihood of the adoption of High Performance Work Systems. In addition, the alignment of strategy and HR practices has been shown to have a positive impact on the ability to achieve organizational goals (Miles and Snow, 1984) and we propose that these effects act through the creation of strong HR systems, by eliminating the ambiguities regarding strategic goals and appropriate behaviors to achieve them. In this study, the existence and formalization of a mission, corporate strategy and HRM strategy are used as indicators of ‘strategic management orientation’. So:

H7: Strategic management orientation leads to a stronger HRM system.

4. The model

The model presented in Figure 1 represents the hypotheses stated above.

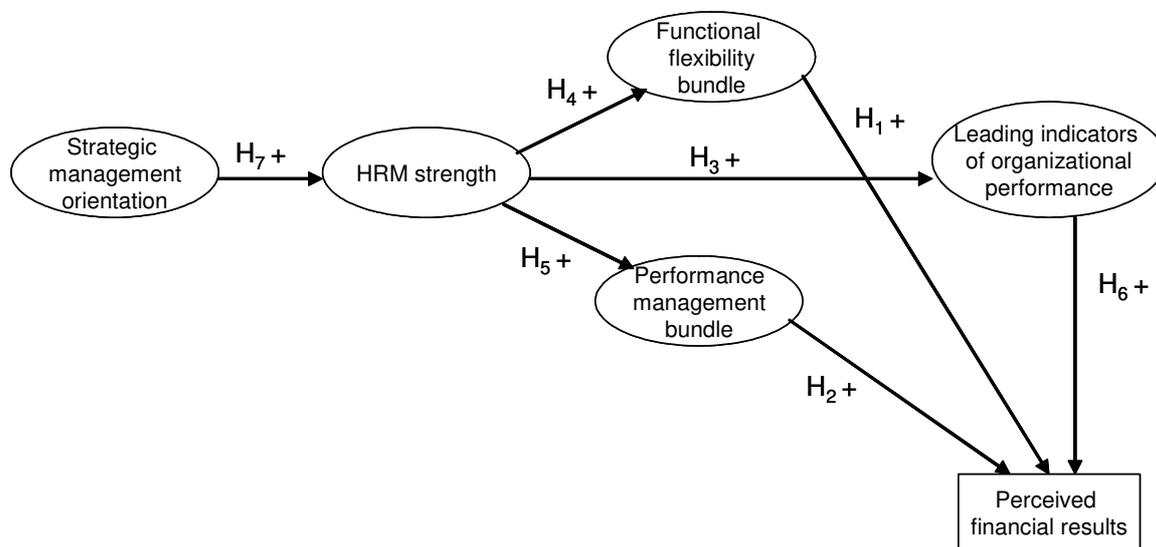


Fig. 1. Proposed model of impact of HRM bundles and strength of the HRM system on leading indicators of organizational performance and perceived financial results

According to this model, strategic management orientation is an exogenous variable that is expected to have an indirect effect on organizational performance through its impact on the development of a strong HRM system. The strength of the HRM system is expected to have a direct impact on leading indicators of organizational performance, and also on the functional flexibility and performance management bundles. The two HRM bundles and the leading indicators of organizational performance are expected to have a direct impact on perceived financial results. All of these impacts are expected to be positive.

In the following section we describe the sample, the measures and the analysis performed.

5. Method

5.1. Sample and data collection. The model introduced above was tested using the 1999/2000 survey on strategic HRM, developed by the CRANET-E

Network. This is an international survey that contains organizational information on the strategic human resource management of companies in 28 countries, mostly European. The same questionnaire was used in all countries, after translation and back translation by a local team in each of the participating countries. Questionnaires were addressed to the senior HR managers of each company.

The survey was divided into six sections covering the personnel/human resources function, staffing practices, employee development, compensation and benefits, employee relations and communication and organizational details (for further details see Brewster, Mayrhofer and Morley, 2004).

A total of 9119 completed questionnaires were received, with a 17% response rate. As in past editions of the survey, there was some variation in response rates across countries, ranging from over 90% in

Greece, where there was a previous telephone contact with companies, to 4% in Israel. Variations in data collection strategies as well as different attitudes toward surveys and disclosure of organizational details across countries may account for these differences.

To test the models in this study, the sample was restricted to private sector companies, with more than 100 employees, in the services and manufacturing sectors, with no missing data in any of the measures.

The final sample has 1404 organizations. The average size by number of employees is 2355 employees, ranging from 100 to 710,000, with a median of 520. Table 1 presents the distribution of companies by country and by industrial sector¹.

Table 1. Distribution of sample by country and sector of activity

Country	N Manufacturing	N Services	Total
Australia	32	2	34
Austria	30	12	42
Belgium	39	18	57
Bulgaria	2	2	4
Cyprus	2	1	3
Czech Republic	30	4	34
Denmark	64	28	92
East Germany	19	4	23
Estonia	7	4	11
Finland	47	19	66
France	62	34	96
Germany	97	22	119
Greece	8	4	12
Ireland	32	9	41
Israel	9	3	12
Italy	10	2	12
Japan	97	49	146
Northern Ireland	9	6	15
Portugal	19	9	28
South Africa	4	3	7
Spain	35	21	56
Sweden	53	21	74
Switzerland	29	11	40
Taiwan	60	12	72
The Netherlands	19	12	31
Tunisia	1	1	2
Turkey	15	7	22
United Kingdom	155	98	253
Total	986	418	1404

5.2. Measures. The overall measurement model employs 39 indicators for the six constructs. One of

the constructs is exogenous – strategic management orientation (ξ_1). The other five are endogenous factors – strength of the HRM system (η_1), functional flexibility bundle (η_2), performance management bundle (η_3), leading indicators of organizational performance (η_4) and perceived financial results (η_5). There are two approaches to combine HR practices into bundles, the additive and the multiplicative. We followed MacDuffie's (1995) additive approach, which is a more flexible basis for grouping practices that are not theoretically defined. In addition, the multiplicative approach had the risk of creating a null score and effect, should one of the practices not be present.

Strategic management orientation was measured by three dummy variables on formalization of a mission statement, a corporate strategy and a personnel/HRM strategy, (unwritten = 0; written = 1). Cronbach's alpha for this construct is 0.66.

HRM strength was measured by ten indicators. The first seven are dummy variables on formalized HR policies: salary and benefits, recruitment and selection, training and development, communication with employees, equal opportunity/diversity, flexible work practices and management development (unwritten = 0; written = 1). The eighth question refers to systematic evaluation of the HR department's performance (1 = yes; 0 = no). The ninth indicator is the sum of the criteria used for the evaluation of the HR department's performance (1 = yes; 0 = no) – internal cost efficacy measures, cost benchmarking and performance versus objectives, ranging from 0 to 3. The tenth indicator concerns the involvement of the HR manager or director in strategic development, on a 0 to 3 scale (not involved = 0; involvement in implementation only = 1; involvement by consultation = 2; involvement from the outset = 3). Cronbach's alpha for this variable is 0.73.

The functional flexibility bundle was measured by fourteen indicators. The first five items are questions about existence (1 = yes; 0 = no) of formal career plans, succession planning, planned job rotation, "high flyer plans" for managers and international appointments for managers. The sixth item is a question on the systematic analysis of employee training needs (1 = yes; 0 = no). The seventh to eleventh indicators concern the sources used for training needs analysis: business plan, training audits, line management requests, performance appraisal and employee requests, on a 0 to 3 scale (never = 0; always = 3). The twelfth and thirteenth indicators focus on frequency of training evaluation, immediately after training and some months after training (never = 0; always = 3). The fourteenth item deals with the number of training

¹ Due to different levels of economic development, the results for Germany are separated from the East German ones, a procedure that has been done before (D'Art and Turner, 2004).

evaluation criteria used, ranging from 0 (no criteria used for evaluation) to 4. The four criteria proposed are learning, as assessed by a test, behavioral changes, results (changes in organizational performance) and employee reaction. Cronbach's alpha for this variable is 0.86.

The performance management bundle was assessed through seven items. The first indicator, ranging from 0 to 4, is a sum of four dummy variables on the existence of performance appraisal for managers, technical/professional, clerical and manual staff. The second indicator, termed multi-source feedback, represents the sum of participants in the performance appraisal procedure (immediate superior, next level superior, the employee, subordinates, peers, customers and others) ranging from 0 to 7. The third item refers to the number of performance appraisal uses (individual training needs, organizational training needs, promotion potential assessment, career development, pay-for-performance and work organization), ranging from 0 to 6. The fourth to seventh items indicate how many types of different incentives the company gave to managers, technical/professional, clerical and manual staff. Four types of incentives were mentioned in the questionnaire, for respondents to check all applicable: employee share options, profit sharing, bonus and merit pay. We have, as a consequence, four indicators, ranging from 0 to 4. Cronbach's alpha is 0.80.

Leading indicator of organizational performance was measured by four indicators, which rated perceived organizational performance against that of relevant competitors in terms of service quality, productivity, product to market time and rate of innovation. A 0 to 3 scale was used (not applicable = 0; lower half = 1; higher half = 2; top 10% = 3). Cronbach's alpha for this variable is .74.

The perceived financial results variable was measured by one question, on company's perceived gross revenue over the past three years, on a five-point

scale (so low as to produce large losses = 1; insufficient to cover costs = 2; enough to break even = 3; sufficient to make a small profit = 4; well in excess of costs = 5).

Two comments on the measures are needed. First, the reliability of strategic management orientation ($\alpha = .66$) is slightly below the normally used cutoff of .70, but still at an acceptable level (Nunnally, 1967). Second, the two last variables – leading indicators of organizational performance and perceived financial results are subjectively measured. In studies based on international surveys within a number of different countries, objective performance measures of organizational performance, such as financial indicators, may be impossible to compare, given the differences between long-term and short-term cultural orientations and differing tax and fiscal regimes, which may bias the financial statements (Lahteenmaki and Vanhala, 1998; Martell and Carroll, 1995). In addition, Pearce, Robbins and Robinson (1987) obtained highly significant correlations between subjective and objective organizational performance measures in a sample of over 600 manufacturing companies in a single USA state. This result supports the validity of subjective performance measures as substitutes for objective measures.

Table 2 reports the correlations and descriptive statistics for variables in the study. To examine the issue of multicollinearity, we calculated variance inflation factors (VIFs) for all variables. The maximum VIF within the model was 3.79, which is below the rule of thumb cut-off of 10 (Hair et al., 1995).

In Table 3 we present the descriptive statistics for all indicators in the study, organized by latent variable. To complement this information and better describe the data, some additional descriptive information is provided below.

Table 2. Means, standard deviations and correlations

Variables		Mean	S.d.	1	2	3	4	5	6
1	Strategic management orientation	2.18	.988	1.000					
2	HRM strength	8.35	3.074	.477***	1.000				
3	Functional flexibility bundle	14.37	7.860	.333***	.462***	1.000			
4	Performance management bundle	13.95	5.865	.247***	.381***	.397***	1.000		
5	Leading indicators of organizational performance	9.01	1.980	.098***	.171***	.123***	.088***	1.000	
6	Perceived financial results	4.18	.976	.133***	.109***	.159***	.157***	.333***	1.000

Note: *** p < .001.

Table 3. Means and standard deviations

Indicators	Mean	S.d.
<i>Strategic management orientation</i>		
Mission formalization	0.79	0.41
Strategy formalization	0.82	0.38
HR strategy formalization	0.57	0.49
<i>HRM strength</i>		
Pay policy formalization	0.73	0.44
Recruit. select. policy formalization	0.60	0.49
Training policy formalization	0.75	0.43
Communic. policy formalization	0.42	0.49
Equal opp. policy formalization	0.48	0.50
Flex. policy formalization	0.46	0.48
Manag. dev. policy formalization	0.46	0.49
Evaluat. HR function performance	0.45	0.50
HR dept. evaluation criteria	0.67	0.90
Strategic involvement of HR	3.35	0.90
<i>Functional flexibility bundle</i>		
Career plans	0.34	0.47
Job rotation	0.41	0.49
Succession plans	0.50	0.50
High flyer schemes	0.49	0.50
International appointments	0.33	0.47
Training needs analysis	0.77	0.42
TNA: business plan	1.29	1.16
TNA: training audits	1.23	1.17
TNA: line manag. requests	1.68	1.16
TNA: performance appraisal	1.61	1.23
TNA: employee requests	1.68	1.16
Training immediate evaluation	1.69	1.31
Train. evaluat. some months after	0.86	0.97
Criteria for training evaluation	1.79	1.50
<i>Perform. management bundle</i>		
Perf. appraisal for employee cat.	2.95	1.35
Multisource feedback	2.31	1.32
Objectives of perf. appraisal	3.30	1.73
Incentives for managers	1.66	1.06
Incentives for professionals	1.38	1.04
Incentives for clerical staff	1.16	0.98
Incentives for manual workers	1.19	0.96
<i>Leading indicators of organizational performance</i>		
Service quality	2.49	0.58
Productivity	2.27	0.64
Product to market time	2.10	0.69
Rate of innovation	2.15	0.73
<i>Perceived financial results</i>	4.18	0.97

The indicators of strength of the HRM system show some differences in the formalization of HR policies: just under 75% of companies report having written policies for salary and benefits and training and development, whereas for recruitment and selection formalization, only 60% do so and around 45% for the other policies: communication with employees, equal opportunity, flexible work practices and management development. We tested for country differences, with MANOVA,

because different legal and institutional contexts might account for these disparities, and assessed the significance of differences, at the .05 level, by deviation contrasts (difference from the mean, UK being the reference country).

In this analysis, Germany presented significant differences in all policies but one (management development policy), and except for the flexibility policy, it has less formalization than the observed mean. Not surprisingly, we also found that the equal opportunities policy is the one where a higher number of countries deviate from the mean: Sweden, Switzerland, Ireland, Japan, Australia, South Africa and Northern Ireland are significantly above the mean, whereas France, Germany, East Germany, Spain, Denmark, Portugal, Austria, Taiwan and Estonia are significantly below the mean. Although we cannot make any definite conclusions, there seems to be a trend for the Anglo-Saxon countries to have formalized equal opportunities policies.

Only 45% of the companies reported having a systematic evaluation of the HR department, while 59% indicated having no criteria for this evaluation. Only 6% of the respondents use the three stated criteria – internal cost efficacy measures, cost benchmarking and performance versus objectives. Finally, 58% of the companies have the involvement of the HR manager in corporate strategy from the outset, while 25% have a consultative role, 11% are involved in implementation and 6% not consulted.

Regarding indicators of the functional flexibility bundle, we tested for country differences, with MANOVA, using deviation contrasts, at the .05 level (difference from the mean, UK being the reference country). Differences among countries are much less significant than in the case of formalization of HR policies. There are two exceptions, though. The first concerns the existence of high flyer schemes, where Ireland, Northern Ireland, Portugal and Finland negatively depart from the mean and France, Spain, Switzerland, Turkey, Belgium, Japan and Taiwan positively depart from the mean. The second is the existence of international appointments, where Northern Ireland, Japan, Austria, Czech Republic, East Germany, Sweden and Germany are significantly below the mean, while France, Switzerland, Belgium, Bulgaria and South Africa are significantly above. Systematic training needs analysis is undertaken by 77% of the companies, and the most frequently used sources for these analyses are performance appraisal, employee requests and management requests. Training is evaluated, particularly immediately after training. Evaluation some months after is never made by 47% of the companies, and approximately 33% of the respondents use no evaluation criteria at all.

As to the performance management bundle, performance appraisal is widely used for managers, technical/professional and clerical staff (81%, 81% and 75%, respectively), but less used for manual workers (58%). Only 50% of the companies have performance evaluation for the four categories of employees. This appraisal most frequently has the involvement of two or three participants (67%) and only 3% include six different participants. The results of the performance appraisal system are used especially for identification of training needs (74%) and promotion decisions (62%), but less for work organization (36%).

In the leading indicators of organizational performance variable, service quality was considered to be in the top 10% by 53% of the companies, compared to 29% and 35% in product to market time and rate of innovation, respectively, and to about 37% in productivity.

Finally, positive or very positive perceived financial results over the last three years were reported by 84% of the companies.

6. Analysis

The measurement and structural models proposed were tested using AMOS 7.0 (Arbuckle, 2006), to generate maximum likelihood parameter estimates through the analysis of the matrix of covariance among variable scores.

Measurement and validation of constructs

An integrated confirmatory factor analysis was conducted, which yielded a model that fitted the data moderately well ($\chi^2/df = 2.90$, GFI=.92, AGFI = .90, RMSEA = .04). As shown in Table 4, all non-fixed indicator loadings were as proposed and significant ($p < .001$).

Table 4. Indicator loadings

Item	Variable	Parameter	Estimate	S.e.	t
Mission formalization	Strat. man. orientation	1			
Strategy formalization	Strat. man. orientation	λ_1	1.15	0.07	15.15***
HR strategy formalization	Strat. man. orientation	λ_2	2.16	0.16	13.13***
Pay policy formalization	Strength of HRM system	1			
Rec/selec. policy formalization	Strength of HRM system	λ_3	1.47	0.16	13.95***
Train. policy formalization	Strength of HRM system	λ_4	1.27	0.09	13.86***
Comm. policy formalization	Strength of HRM system	λ_5	1.23	0.10	12.77***
Equal opp. policy formalization	Strength of HRM system	λ_6	0.94	0.09	10.62***
Flex. policy formalization	Strength of HRM system	λ_7	0.83	0.84	9.91***
Manag. dev. policy formalization	Strength of HRM system	λ_8	1.54	0.11	14.20***
HR evaluation	Strength of HRM system	λ_9	1.09	0.09	11.87***
HR evaluation criteria	Strength of HRM system	λ_{10}	2.02	0.17	11.79***
HR strategic involvement	Strength of HRM system	λ_{11}	1.57	0.16	10.08***
Career plans	F. flexibility bundle	1			
Succession plans	F. flexibility bundle	λ_{12}	1.13	0.11	9.85***
Job rotation	F. flexibility bundle	λ_{13}	0.60	0.10	5.95***
High flyer schemes	F. flexibility bundle	λ_{14}	0.73	0.10	7.41***
Intern. appointments	F. flexibility bundle	λ_{15}	0.73	0.09	7.87***
Training needs analysis	F. flexibility bundle	λ_{16}	2.83	0.24	11.99***
TNA: busin. plan	F. flexibility bundle	λ_{17}	5.78	0.50	11.55***
TNA: audit	F. flexibility bundle	λ_{18}	5.23	0.46	11.33***
TNA: line manag. request	F. flexibility bundle	λ_{19}	7.56	0.64	11.83***
TNA: p. apprais.	F. flexibility bundle	λ_{20}	6.35	0.54	11.72***
TNA: employee request	F. flexibility bundle	λ_{21}	5.90	0.50	11.79***
Immed. eval.	F. flexibility bundle	λ_{22}	4.48	0.43	10.55***
Eval. months later	F. flexibility bundle	λ_{23}	2.68	0.28	9.73***
Training eval. criteria	F. flexibility bundle	λ_{24}	4.89	0.47	10.40***
Categ. w/ perf. appr.	Perf. manag. bundle	1			
Multisource feedback	Perf. manag. bundle	λ_{25}	0.92	0.12	7.46***
Obj. perf. appraisal	Perf. manag. bundle	λ_{26}	0.94	0.14	6.91***
Incentives for managers	Perf. manag. bundle	λ_{27}	3.31	0.43	7.67***
Incentives for tech/prof.	Perf. manag. bundle	λ_{28}	3.92	0.50	7.79***
Incentives for manual workers	Perf. manag. bundle	λ_{29}	2.54	0.34	5.57***
Incentives for clerical staff	Perf. manag. bundle	λ_{30}	3.34	0.43	7.77***

Table 4 (cont.). Indicator loadings

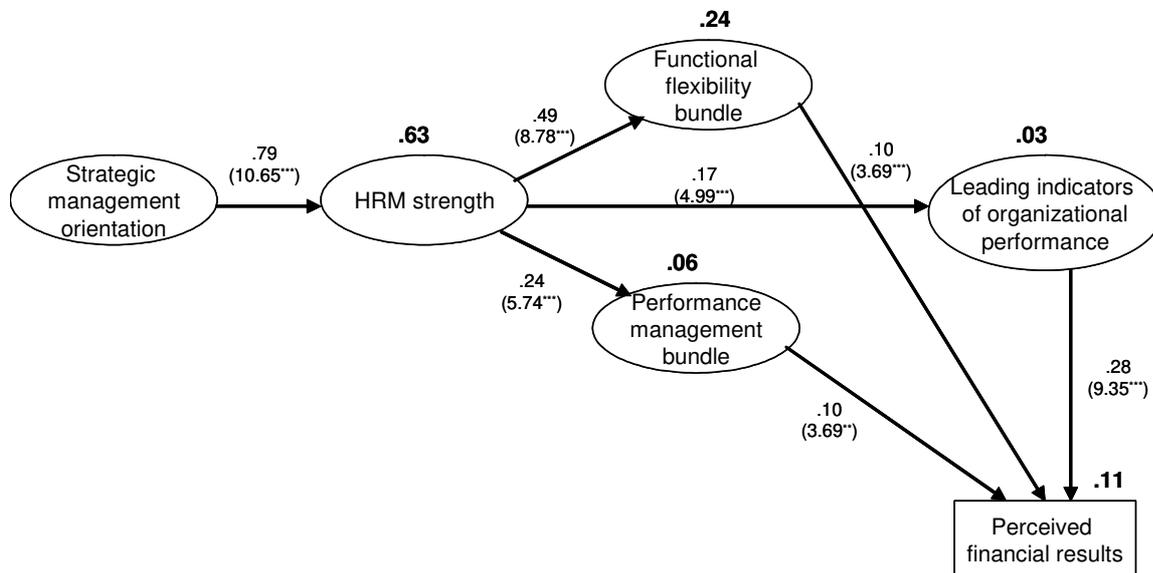
Item	Variable	Parameter	Estimate	S.e.	t
Perf. quality of service	S.t. organiz. performance	1			
Perf. productivity	S.t. organiz. performance	λ_{31}	1.21	0.07	17.22***
Perf. time to market	S.t. organiz. performance	λ_{32}	1.15	0.07	16.65***
Perf. rate of innovation	S.t. organiz. performance	λ_{33}	0.99	0.07	14.35***

7. Results

We began by assessing the structural model, with a simultaneous analysis of two sample groups – manufacturing (including only the manufacturing companies) and service (including only the service companies), restricting the regression weights across groups. If the group-invariant regression weights are confirmed by the data, the same regression weights can be used for all groups and can be estimated more efficiently. The overall fit of the model was acceptable

($\chi^2/df = 2.36$, GFI = .91, AGFI = .89, RMSEA = .03).

We then integrated the two samples to estimate a general model, where we obtained a better overall fit: $\chi^2/df = 3.45$, GFI = .93, AGFI = .92, RMSEA = .03. Although the χ^2/df is slightly above the < 3 cutoff, the larger sample size may account for this effect (Bentler and Bonet, 1980). The model may, therefore, be considered valid in general terms. All hypotheses were confirmed by the estimated parameters, as shown in Figure 2 and Table 5.



Note: t** – p < 0.01; t*** – p < 0.001.

Fig. 2. Path coefficients between latent variables (t-values) and R² (above latent variables)

Table 5. Results by maximum likelihood – path coefficients and t-values

Latent variables	Strategic management orientation, ξ_1	Strength of HRM system, η_1	Functional flexibility bundle, η_2	Performance management bundle, η_3	Short-term organizational performance, η_5
Strength of HRM system, η_1	0.79 (10.65***)				
Functional flexibility bundle, η_2		0.49 (8.78***)			
Performance management bundle, η_3		0.25 (5.82***)			
Short-term organizational performance, η_5		0.17 (4.99**)			
Perceived financial results			0.12 (4.64***)	0.10 (3.69**)	0.28 (9.35***)

Note: t** – p < 0.01; t*** – p < 0.001.

Analysis of results confirms that strength of the HRM system does significantly and positively affect both the functional flexibility and the performance

management bundles. Statistically significant parameter estimates were found for the paths between strength of the HRM system and the functional

flexibility bundle ($b = .49$, $p < .001$), explaining 24% of variance in this variable, and for the path to the performance management bundle ($b = .25$, $p < .001$), but in this case only 6% of the variance is explained. On the other hand, despite a positive significant impact ($b = .17$, $p < .001$), strength of the HRM system explains only 3% of the variance of leading indicators of organizational performance.

Results show that leading indicators of organizational performance – service quality, productivity, product to market time and rate of innovation – have the strongest direct effect on perceived financial results, with a significant estimated parameter ($b = .28$, $p < .001$). Perceived financial results were measured by a question on perceived gross revenue over the past three years. It is intuitively appealing that, being lagging indicators, financial results can be predicted by the leading indicators. On the other hand, statistically significant parameter estimates were found for the paths between functional flexibility bundle and performance management bundle and perceived financial results, although the functional flexibility one is higher ($b = .12$, $p < 0.001$ vs $b = .10$, $p < .001$, respectively). These three variables explain 11% of the variance in perceived financial results.

Finally, a significant impact was estimated for the path between strategic management orientation and strength of the HRM system ($b = .79$, $p < .001$) and 63% of the variance of this endogenous variable is explained by the exogenous one.

In summary, the results suggest that strength of the HRM system has a significant direct impact on leading indicators of organizational performance and an indirect effect on perceived financial results. Strategic management orientation, on the other hand, is an important predictor of HRM strength.

Discussion, contributions and implications

The purpose of this study is to demonstrate the impact of HRM practices on organizational performance. In particular, and using a balanced scorecard rationale (Kaplan and Norton, 1992), we sought to evaluate how the strength of the HRM system (Bowen and Ostroff, 2004) may leverage leading indicators of organizational performance that will affect organizational perceived financial results. Literature on strategy emphasizes variables such as innovation and quality management as major differentiators for organizations and critical factors for organizational growth and competitive advantage (Bossink, 2000; Han et al., 1998; Kanji, 1996). Since these occur over time, through people engaged in transactions with other people, in an institutional context (Van de Ven, 1986), a ‘common stock of knowledge’ (Kogut and Zander, 1992), needed to facilitate the

transfer process and knowledge, therefore depends on a process of interrelating and sense making (Weick, 1993). It has been argued that the strength of the HRM system accounts for this sense-making, by sending strong signals about organizational goals and strategic orientation, as well as providing employees with behavioral expectations and instrumentalities. The results obtained suggest that the strength of the HRM system does have a positive significant impact on leading indicators of organizational performance, although this impact is relatively small. Many factors are expected to determine organizational performance. We did not evaluate the impact of such factors as technology, networking, leadership or problem-solving styles, work group relations or structure design, which may have a more significant impact on productivity, innovation rate, product to market time and service quality, because they were not assessed by the survey instrument. Similarly, and for the same reason, we did not evaluate economic variables, such as level of competition, concentration or relative market share, which also affect organizational performance, although we did test for the impact of industry sector.

Earlier research (Cunha et al., 2003) has focused on the impact of market forces, such as competitive intensity and industry attractiveness on the firm’s strategic management orientation and organizational performance, and found a significant positive impact on both. Similarly, Hansen and Wernerfelt (1989) compared the impact of internal, organizational variables and economic variables on firm performance and found that the first ones were twice as strong as predictors of firm outcomes. The results of this study are consistent with, although less significant than, those obtained by Hansen and Wernerfelt (1989).

This study also provides support for the argument that HR bundles are important determinants of perceived financial results. A previous model (not reported here) was tested where HR practices were not organized into coherent bundles. This model did not have an adequate fit and most path coefficients were non-significant. This finding reinforces the arguments that coherently organized sets of HRM practices create the reinforcing conditions that support employee motivation and organizational synergies (McDuffie, 1995) and that, in addition, when HR practices are organized in bundles, effects on organizational performance are greater than when they are isolated (Ichnioswski and Shaw, 2003).

Due to the small sample size per country, we did not make country comparisons whose differences in HRM practices stem from national factors, such as cultural values or economic and social structure. However, we assessed the differences based on

company sector of activity, as well as a general model. Because increased competition is a major consequence of globalization and technological development, common challenges are raised regarding the needs for HR practices to control costs while simultaneously promoting innovation and human capital development. This study stresses the impact of HRM on organizational performance, through their impact on the development of employee skills, motivation and work organization, as well as the signaling sent to employees, by the status of the HR function in organizations. While our purpose was to develop a holistic model based on a configurational framework, there may be different configurations within single organizations, for different types of groups of employees, based on the value and uniqueness of employee skills (Lepak and Snell, 1999), which could be explored in future studies.

A major contribution of this study lies in the demonstration of an impact (albeit small) of the strength of the HRM system on organizational performance and on its dependency upon strategic management orientation. This concept not only includes the reliability and consistency of HR practices, by translating organizational strategy into individual goals, it also assumes a higher level of involvement of the HRM function in strategy development. It highlights the strategic role of HRM and its contribution to competitive advantage. It also emphasizes several process characteristics that help employees and managers create strong beliefs regarding organizational goals. The paper thus contributes to opening the “black box” of how HRM contributes to the development of competitive advantage (Becker and Huselid, 2006).

According to Bowen and Ostroff (2004), features such as distinctiveness, consistency and consensus may have a positive role in the creation of advantage through people. To foster distinctiveness, HRM practices must be salient, unambiguous, invested with status, and allow for cause-effect attributions. Consistency, on the other hand, is encouraged by instrumentalities and substantive results, while consensus stems from equity of the system and top management support. These meta-features are present in some new methods for measuring and managing organizational performance, such as the balanced scorecard methodology (Kaplan and Norton, 1992).

The strength of the HRM system may be expected to guarantee the different types of fit that have been emphasized in the literature – vertical and horizontal fit (Wright and Snell, 1998), in order to meet the needs of changing environments by building flexible organizational competencies. Strategic HRM seems to be related to the strength of the HRM system,

providing an architecture where the different levels are integrated – external environment, competitive strategy, HRM practices and HRM support (Shepeck and Militello, 2000). The alignment of the external and internal business environments is proposed to create a synergistic effect in the organizational bottom line.

Our findings raise a few implications for practice. The first one is the need for a clear strategic integration of the HR function, at the top management team level. This integration, however, must not be the result of ‘belief’, but rather of the consistent proof that HR management practices significantly contribute to the bottom line. The second implication derives from the first, by challenging HR managers to clearly demonstrate how the management of human capital supports strategic goals, such as enhancing innovativeness, quality and customer satisfaction. This implies creating indicators on HR practices focused on how these practices guarantee the fit with strategic goals. The third concerns the need for consistently measuring the impact of this contribution at the firm level, not only in terms of HRM effectiveness as a strategic partner and transformation agent, but also of HRM efficiency, in terms of deliverables and support to line managers (Ulrich, 1996). Balanced scorecards for the HRM function may not only provide these measures, but also help HR managers to define the strategic goals and operational objectives for their departments. HR managers should, therefore, learn to master both their operational and strategic roles, i.e., be sensible not only to tactical HR practices, but also to the relationships among these different components and the system in which they are embedded. These forces interact and change over time, and only the holistic picture can help HR managers contribute to organizational effectiveness, through effective and efficient HR deliveries.

Limitations of the study

Several limitations must be reported in this study, starting with the use of survey data with single respondents (Gerhart et al., 2000). Furthermore, the data are cross-sectional, which raises problems in the determination of causality.

This study also suffers from a relatively low reliability in one of the constructs – strategic management orientation ($\alpha = .66$), although it did not seem to negatively affect its impact on the endogenous variable HRM strength.

Another limitation derives from the fact that we use an international sample, but this is not a comparative study; the sample includes companies from 28 different countries, on different continents, and it is likely that cultural and institutional differences decrease the

significance of the results obtained due to inconsistent practices. However, the number of companies by country did not allow us to test the proposed structural model with country as a grouping factor. This issue can be explored in future research, starting with the identification of groups of culturally similar countries and assessing whether this 'American' model is supported across groups or, instead, for some groups only.

Finally, it would have been interesting to introduce variables such as numerical and contractual flexibility, which theoretically have a negative impact on some of the indicators of short-term organizational performance, namely time to market, rate of innovation and service quality, but a positive impact on productivity and profitability. Future research may also assess this question.

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