

How does Human Resource Management influence Organisational Performance?

An Integrative Approach Based Analysis

Abstract

Purpose - Drawing on the contingency perspective between business strategies and human resource (HR) practices, this study examines the effects of human resource management (HRM) system (which integrates both content and process of HR practices), on both proximal organisational outcomes (such as job satisfaction, motivation, and organisational commitment) and distal organisational outcomes (such as employee engagement, organisational citizen behaviour - OCB, co-operation among employees, intention to quit, and operational performance).

Design / Methodology / Approach - The analysis is based on a sample of 996 Greek employees working in 108 private organizations and the statistical method employed is structural equation modeling with bootstrapping estimation.

Findings - The results indicate that HRM content is more positively related to job satisfaction and motivation and less related to organisational commitment than HRM process. Moreover, HRM system is sequentially related to organisational outcomes (both directly and indirectly) and significantly influences employee job satisfaction and motivation, as well as OCB and co-operation among employees, and operational performance.

Research limitations / implications – The data was collected using a questionnaire at a single point in time, and thus, not allowing dynamic causal inferences. Considering that Greece is experiencing a severe financial crisis, the findings from this unique context may not generalize across other contexts.

Practical implications – The core messages to decision makers are that employee development and rewards are the major dimensions of the content of an HRM system and that consistency and distinctiveness are the principal features of the process of an HRM system, even in cases where the organization is operating under an economic crisis environment.

Originality / Value – Investigations into the relationship between HRM systems and organisational performance have become increasingly common. Nevertheless, empirical studies that measure the impact of HRM systems, which being contingent on business strategies integrate both content and process of HR practices, on organizational performance are still rare. This article partially fills this gap.

Key Words - HRM content and process, Business strategies, Employee attitudes, Employee behaviour, Operational performance

Paper type – Research paper

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1. Introduction

Over the last couple of decades or so, researchers have devoted considerable empirical effort toward understanding the relationship between human resource management (HRM) and organisational outcomes (e.g., Bondarouk *et al.*, 2016; Jiang *et al.*, 2012; Ogbonnaya and Valizade, 2016; Prowse and Prowse, 2010). Some scholars argue that these relationships are either not clear (e.g., Buller and McEvoy, 2012) or statistically weak (e.g., Paauwe 2009). In contrast, some other scholars support the view that these relationships are empirically rather robust (e.g., Combs *et al.*, 2006). This is because varying sample characteristics, research designs, practices examined, and outcome measures used have led findings to vary considerably, making the size of the whole effect difficult to estimate (Combs *et al.*, 2006; Guest, 2011; Paauwe, 2009). As a result, important issues regarding the relationship between HRM and organisational outcomes still remain unanswered (Chowhan, 2016; Hossam *et al.*, 2016; Jiang *et al.*, 2012).

In summarising these issues we emphasise the following. First, although it is accepted that employees are exposed to HRM systems, such as high performance work systems, high-involvement work systems, and high-commitment work systems (Armstrong, 2009), rather than to individual HR policies and practices, the use of HRM systems implicitly assume that the parts constituting them are equivalent in their impact on organisational outcomes. This is because in adopting an additive approach to develop the construct of an HRM system, each component of the system is treated equally (Jiang *et al.*, 2012). Therefore, it is suggested that it is important to explore the effects of the different components of HRM systems on organisational outcomes (Gardner *et al.*, 2011; Subramony, 2009).

Second, although prior research focuses on the content of HRM systems denoting the individual practices that make up the HRM system, work investigating the process of HRM systems

denoting the ‘detailed explanations of how the HRM practices are executed’ (Kepes and Delery 2007, p. 390–391), has been largely neglected in research to date (Monks *et al.*, 2013). Therefore, it is suggested that while investigating the shared meaning of the HRM system among employees (Nishii *et al.*, 2008), it will be important to take into consideration the content and the process of HR processes and practices in an HRM integrated system (Bowen and Ostroff, 2004).

Third, although it is generally acknowledged that HRM influences organisational outcomes, researchers have usually focused on the impact of HRM on various outcome variables studied independently, i.e., according to the scope and objectives of their studies. The use of short sets of HR policies and practices that make the dimensions of an HRM system and its impact on eclectic organisational outcomes is responsible for the so-called *omitted variables bias*. Huselid and Becker (2000) argue that omitted variables bias is likely the major statistical challenge in HRM and outcomes research. Therefore, it is recommended to simultaneously examine multiple outcome variables (e.g., Lengnick-Hall *et al.*, 2009), as this treatment provides a broader and more complete picture of the relationship between HRM and organisational outcomes (Gerhart, 2007).

Fourth, although a large number of prior studies have demonstrated the mediating mechanism between HRM and organisational outcomes, the integration of proximal outcomes (e.g., employee attitudes) and distal outcomes (e.g., employee behaviour, operational outcomes and financial outcomes) is still unclear (Jiang *et al.*, 2012). Therefore, exploring the serial influence of the mediating possible path between HRM and organisational outcomes may provide a more integrative model of how HRM systems influence important organisational outcomes (Guest 1997; Jiang *et al.*, 2012).

Given these issues, this study adds theoretical and empirical evidence to the extant literature in several ways. First, based on the contingency perspective (Schuler and Jackson, 1987), it proposes a model where business strategies influence both HRM content (i.e., HR actual practices) and HRM process (i.e., HR features). Previous research is usually concentrated on the examination of the

relationship between business strategies and HRM content. Second, this study investigates the relationship between the content and process integrated HRM systems and organizational climate, which is reflected in the shared perception of HRM (Nishii and Wright, 2008). According to Ostroff and Bowen (2016) only a few studies examined this relationship, and thus, this calls for studies to examine key mediation processes linking HRM systems and organizational performance through organizational climate (Heffernan *et al.*, 2016). Third, based on attribution theory (Kelley, 1967), this study investigates the relationship between organizational climate and organizational performance, through the serially mediating role of employee attitudes and behaviour, and differentiates among the effects of sub-dimensions of HRM systems on organisational outcomes. Accordingly, by employing a multidimensional and multipath integrative model we expect this study to contribute to strategic HRM by presenting a clearer understanding and robust evidence on how human resource management influences organisational performance.

The remainder of the paper is organized as follows. The next section presents the research framework, the hypotheses and an operational model to test the same. This is followed by methodology, analysis of results and findings. Finally, the discussion is presented, emphasizing the theoretical implications, the implications for practice, the limitations and further research, and the conclusions of the study.

2. The Research Framework and Hypotheses

2.1 The theory

Researchers in strategic HRM have categorised *organisational outcomes* into three primary groups (Dyer and Reeves, 1995; Huselid, 1995): *HR outcomes* such as employee skills, employee attitudes and employee behaviour; *operational outcomes* such as productivity, growth and creativity; and *financial outcomes* such as sales growth, return on equity, and return on assets. Further, in examining the relationship between HRM and organisational outcomes, it is commonly accepted that HRM first

influences HR outcomes, which in turn influence operational outcomes, which further influence financial outcomes. In other words, it is asserted that HRM sequentially influences the three types of organisational outcomes (Jiang *et al.*, 2012). This serial influence is accepted to exist even within each and the same category of outcomes. For example, it is argued that employee attitudes may have an impact on employee behaviour (Luna-Arocas and Camps, 2008; Park *et al.*, 2003), implying that employee behaviour mediates the relationship between employee attitudes and operational outcomes (Boxall and Macky, 2009; Paul and Anantharaman, 2003).

Several researchers, while investigating the influence of HRM on operational outcomes and then on financial outcomes have adopted two theoretical perspectives: the *behavioural perspective* of HRM, and the *competencies perspective* of HRM. According to the behavioural perspective, organisations use HR practices to support productive behaviours from employees and thus to achieve desirable operational and financial objectives (Becker and Huselid, 1998). The competencies perspective advocates that organisations use HR practices to create and maintain human capital (i.e., the combination of employee knowledge, skills and abilities), which by being a source of competitive advantage (i.e., by being rare, valuable, inimitable and non substitutable) will help the organisation to achieve its desirable operational and financial objectives (Barney, 1991; Lepak and Snell, 1999).

Additionally, in understanding the relationship between HRM and organisational performance two fundamental approaches have been followed – the *best practices* (Pfeffer, 1994) and the *best fit* (Schuler and Jackson, 1987). The best practices approach, being associated with the so-called *universalistic models* advocate *independence*, supporting that context (e.g., business strategies or environment) and HR practices are mutually independent in improving organisational performance (Huselid and Becker, 1996). The best-fit approach is associated with the so-called *contingency models* that advocate *dependence*, supporting that HR practices should be consistent with a given context in maximizing business performance (Schuler and Jackson, 1987; Wright and

Snell, 1998). Although, the second approach is considered to be preferable, arguing that the HRM-performance relationship depends on contextual factors, such as business strategy or environment, there is relatively little empirical evidence to support this belief (Buller and McEvoy, 2012; Gerhart, 2005). “If studies of the HR-performance relationship continue to find no evidence that context matters, either the contingency theory central to strategic HR is flawed or the methodology” (Gerhart, 2005, p. 178).

However, in either approach, the leading trend in research on the HRM-performance relationship has moved from a focus on individual HR practices to a set, or HRM system of practices. The individual practices that make up the HRM system constitute the *content* of the HRM system. Thus, the content of the HRM system refers to a set of HR practices through which organisations can improve the acquisition, development, retention, and utilization of their human capital in order to achieve the strategic goals of the organisation such as organisational performance (Boselie *et al.*, 2005). Marchington and Wilkinson (2005, p. 91) argue that “lists of HR practices are developed on the basis of looking at what other researchers have used or by constructing groupings of practices on the basis of factor analysis, and then attempting to impose some theoretical justification for this *ex post facto*”. The underlying assumption in these approaches is that HRM systems may affect organisational performance through its impact on employee attitudes and behaviour (Combs *et al.*, 2006).

In terms of the HRM content, researchers have devoted considerable empirical effort toward determining the parts that make an HRM system. Although the number and type of HRM parts differs according to the aims and objectives of each individual work, two HRM parts are usually present in almost all works. The first part refers to the HR practices of resourcing and development, aiming at attracting and developing human resources, and the second refers to the HR practices of rewards and relations, aiming at retaining and motivating human resources (e.g., Katou and Budhwar, 2006). In contrast, other researchers argue that these two aggregated HRM parts may

clearly be divided into the four key HRM areas of resourcing, development, rewards, and relations in which human resource strategies may be developed (e.g., Posthuma *et al.*, 2013). This is because employee resourcing can have higher levels of human capital leading to higher overall performance (Takeuchi *et al.*, 2007); employee development is directly linked to the functional capacity of the organisation (Truss, 2001); employee rewards helps to focus employee energy on specific productive behaviours (Sheppeck and Militello, 2000); and employee relations influence the organisation's culture and climate, which in turn relates to organisational outcomes (Godard and Delaney, 2000).

Other scholars, considering that employee performance is a function of ability, motivation, and opportunity to perform (see Appelbaum *et al.*, 2000; Boxall and Purcell, 2008; Gerhart, 2007), or the so called AMO model of HRM, suggested that HR practices should accordingly fall into one of three areas of HRM systems: skill-enhancing HR practices, motivation-enhancing HR practices, and opportunity-enhancing HR practices (Lepak *et al.*, 2006; Gardner *et al.*, 2011).

Further to the HRM content, research into the HRM - performance linkage distinguishes between *actual HRM* and *perceived or experienced HRM* (Nishii and Wright, 2008). It is the shared perception of HRM, which occasionally is called *HRM climate* (Nishii and Wright, 2008; Gerhart, 2005) that determines employee attitudes and employee behaviour, which finally result in organisational performance. Actual HR practices are those which are applied, usually through and by line managers, who undertake on a daily basis a whole series of actions that have an impact on how employees' experience of HR practices that are applied to them (Purcell and Kinnie, 2007). Although, the process of successfully implementing HR practices depends on the skills of the line managers in communicating and dealing with problems, "there is the risk that line managers simply fail to implement practices or may implement them badly" (Guest, 2011, p. 9), affecting in turn employee's responses. Accordingly, it is assumed that "employees' perceptions of HR practices are likely to precede the employee attitudes and behaviour links in the causal chain" (Nishii *et al.*, 2008, p. 504). "This suggests that the effect of HR practices is not likely to be automatic and always as

expected; instead, their effect will reside in the meanings that employees attach to those practices” (Nishii *et al.*, 2008, p. 504).

Considering the last observation, over the last decade or so, the attention in the literature has been turned from HRM content to HRM *process* (see Bowen and Ostroff, 2004; Nishii *et al.*, 2008). *HRM process* refers to “the way HR policies and practices are communicated to employees” (Li *et al.*, 2011, p. 1826), or alternatively, “to the features of an HRM system that send signals to employees that allow them to understand the desired and appropriate responses and form a collective sense of what is expected” (Bowen and Ostroff, 2004, p. 204). This attention from HRM content to process is based on the assumption that employees may find it difficult to attach only one kind of meaning to an HRM system because individuals may not uniquely interpret the same HR practices. This means that, although the employers were intending to deliver HR practices in order to achieve a specific purpose (e.g., improved organisational performance), the employees perceived the meaning of these HR practices in their own individual basis. But, if the meaning of the HRM system is not shared among employees, their collective attitudes and behaviours needed for achieving the specific purpose will be weak and as a result, the purpose will not be properly achieved (Katou *et al.*, 2014; Nishii *et al.*, 2008; Nishii and Wright, 2008).

Bowen and Ostroff (2004) argue that the formation of desired reactions by employees can only be achieved if HRM systems are clearly perceived and interpreted as intended by the organisation. Based on Kelley’s (1967) *attribution theory*, they further argue that an HRM system that has the features of distinctiveness, consistency and consensus may jointly shape the perceptions of employees in an organisation. *Distinctiveness* refers to features that allow the event-effect relationship to stand out in the environment, thereby capturing attention and arousing interest. *Consistency* refers to features that allow the event-effect relationship to present itself the same over time, people, and contexts. *Consensus* refers to features that produce agreement among an employee’s views of the event-effect relationship. An HRM system may be considered to be a *strong*

one if it satisfies the features of distinctiveness, consistency, and consensus. A strong HRM system produces a shared meaning about HRM amongst the employees, thus shaping common attitudes and behaviour, which influence organisational goals.

2.2 *The operational model*

The issues above are summarised in the operational model presented in Figure 1. In particular, the theoretical framework that supports this operational model is twofold. First, it is based on the ‘contingent framework’, arguing that HRM influences performance in relation to contextual factors from the external HRM environment such as business strategies (Schuler and Jackson, 1987). Second, considering Mischel’s (1973) basic premise on ‘strong situations’, which accepts that if people perceive a situation in similar ways, they generate uniform expectancies about appropriate responses and behaviours, the theoretical framework is based on Kelley’s (1967) ‘attribution theory’ for developing the features of the HRM system process, and on ‘communication theory’ in order for the HR practices to communicate their intended effects and ultimately influence firm performance (Ostroff and Bowen, 2016).

INSERT FIGURE 1 ABOUT HERE

Accordingly, the hypotheses supporting this model are presented below. HRM content (e.g., resourcing, development, rewards, and relations) and HRM process (e.g., distinctiveness, consistency, and consensus) are two distinct elements of an HRM system (Monks *et al.*, 2013). According to the contingent theoretical framework presented above (Schuler and Jackson, 1987; Wright and Snell, 1998), it is business strategies (e.g., cost, innovation, and quality) that have a positive effect on HRM systems. Thus, the following general hypothesis is developed as follows.

H1. Business strategies positively influence HRM systems.

The common trend in explaining Hypothesis H1 is based on the assumption that HRM content (i.e., actual HR practices) is determined by the business strategies content (i.e., actual business strategy approaches). However, in our case HRM systems are comprised by two distinct elements; HRM content and HRM process (i.e., features of HR practices). Therefore, considering that both HRM content and HRM process are conceptualised as a continuum (Ostroff and Bowen, 2016) it is further assumed that business strategies influence both HRM content and HRM process. As a result, Hypothesis H1 is decomposed into the following two sub-hypotheses:

H1.1. Business strategies positively influence actual HR practices.

H1.2. Business strategies positively influence features of HR practices.

HRM content and HRM process are the two guiding factors in the cause and effect relationship between HRM system and HR practices as experienced. These two guiding factors are not mutually exclusive or independent. On the contrary, Bowen and Ostroff (2004) suggest that it is logical that practices features to mediate between actual practices and experienced practices. Particularly, Bowen and Ostroff (2004) propose to join these two factors by producing an HRM content and process integrated framework. It is this combined HRM strategy that produces a shared meaning of the HRM system among employees. Therefore, the following hypothesis is developed.

H2. Features of HR practices mediate (fully or partially) the relationship between actual HR practices and HR practices as experienced.

However, considering hypothesis H2 in conjunction with hypothesis H1, the following three sub-hypotheses may be developed:

H2.1. HRM content mediates the relationship between business strategies and HRM as experienced.

H2.2. HRM process mediates the relationship between business strategies and HRM as experienced.

H2.3. HRM content mediates the relationship between business strategies and HRM process.

These three sub-hypotheses, through the business strategies contingency perspective, extend the Wright and Nishii (2004) elaborated model of HR causal chain, which by connecting actual HR practices to the HR perceived practices, followed by employee attitudes and behaviours, provides an excellent basis for understanding the links between HRM and performance.

As shared above, if the meaning of the HRM system is not shared among employees, then the HRM system as experienced may not have the desired effect on organisational performance (Nishii *et al.*, 2008). Specifically, considering that employee attitudes and behaviours constitute the heart of the employment relationship (Becker *et al.*, 1997; Guest, 1997), if the meaning of the HRM system is not shared among employees, their collective attitudes and behaviours needed for achieving the specific purpose will be weak and as a result, the purpose will not be properly achieved (Nishii *et al.*, 2008). Therefore, only when perceptions are shared across employees, or when a strong HRM climate exists, it is expected employees to develop desired collective attitudes (e.g., job satisfaction, motivation, and organisational commitment) and behaviour (e.g., work engagement, organisational citizen behaviour, co-operation among employees, and intention to quit) that will have a positive effect on operational performance (e.g., productivity, growth, and creativity). Thus, the following hypothesis is proposed.

H3. Employee attitudes and employee behaviour serially mediate (fully or partially) the relationship between HR practices as experienced and operational performance.

In detail, this hypothesis is decomposed into the following three sub-hypotheses:

H3.1. HR practices as experienced positively influence organisational performance.

H3.2. Employee attitudes mediate (fully or partially) the relationship between HR practices as experienced and employee behaviour.

H3.3. Employee behaviour mediates (fully or partially) the relationship between employee attitudes and operational performance.

3. Method

3.1 Sample

Data for this research was collected in October-December 2011 by help of a questionnaire survey, which was distributed to the employees of private organisations in the manufacturing, services and trade sectors covering the whole of Greece. The questionnaires were administered by 100 individuals (samplers) pursuing management degrees at a Greek business school, following the so-called convenience sampling technique. This non-probability convenience type sampling technique although facilitated data collection in short duration of time with no requirements whatsoever (Dudovskiy, 2016), may have produced sampling error and selection bias (Peterson and Merunka, 2014). However, the generalization of findings based on convenience sampling techniques is acceptable when the sample size is large enough (Saunders *et al.*, 2012). In our case the individuals who administered the questionnaires were coming from all over Greece, they helped to collect data from organisations where they were working and also from their contact organizations, ensuring heterogeneity and randomness of the sample, as well as external validity and generalisation of conclusions (Demerouti and Rispens, 2014; Hochwarter, 2014; Wheeler *et al.*, 2014). The survey instrument was distributed to 300 organisations with more than 20 employees. Following Gerhart *et al.* (2000) who suggest that the reliability of HR measures will be increased by using 5-10 respondents per firm, the samplers were asked to concentrate on approximately up to 8 respondents

from each organisation. Considering that Greek organisations are rather small, the individuals who administered the questionnaires were asked to concentrate on two respondents for each firm at senior management level (i.e., the heads of the Finance/HRM/Personnel Department, for answering questions with respect to business strategies, actual HR practices, and operational performance), two respondents at middle management level (i.e., line managers, for answering questions with respect to the HR practices features) and four respondents at other levels (i.e., administrative and other workers who were randomly selected, for answering questions with respect to HR practices as experienced, employee attitudes, and employee behaviour). According to this protocol, the samplers were asked to distribute a total of 2,400 questionnaires, ensuring thus low sampling error and selection bias due to the large sample size employed. Furthermore, to overcome self biased response error we assured respondents of anonymity, we designed a well structured and interesting questionnaire, we carefully ordered the questions in the survey, we avoided ambiguous phrases, and we avoided justifications in the questions used (Aaker *et al.*, 2007). 996 usable questionnaires were returned from the employees in 108 organisations, a response rate of 36 percent at the organisation level, and 41.5 percent at the employee level. The sample characteristics are presented in Table 1.

INSERT TABLE 1 ABOUT HERE

3.2 *Measures*

Most measures were directly taken from the cited research and very few were modified from prior research, as indicated below. The structure of the constructs developed and their properties are shown in Table A in Appendix. Specifically:

3.2.1 Business strategies. This construct comprised of 8 items grouped into three subscales – cost, innovation, and quality (Porter, 1985). The items of each subscale were directly taken from Sanz-Valee *et al.* (1999) and were measured on a scale ranging from 1 = not very important to 5 = totally essential. Example items included “Indicate the importance that your organisation attaches to the

innovation business strategy” and “Indicate the importance that your organisation attaches to the quality enhancement business strategy”.

3.2.2 *HR practices (HRM content)*. This construct comprised of 12 items grouped into four subscales – resourcing, development, reward and relations. Based on Armstrong (2009), the items for each sub-scale were measured on a scale ranging from 1 = low use to 5 = high use. Example items included “How would you rate the use of the training and development practices in your organisation?” and “How would you rate the use of performance appraisal practices in your organisation?”

3.2.3. *HR practices as experienced (HRM climate)*. This construct was measured via 15 items grouped into four subscales – resourcing, development, reward and relations. The items of each subscale were taken from Kinnie *et al.* (2005), and they were measured on a scale ranging from 1 = very little to 5 = very much. Example items included “How satisfied do you feel with the level of training you receive in your current job?” and “How satisfied do you feel with your pay?”

3.2.4 *HR features (HRM process)*. This construct comprised of 40 items grouped into three subscales – distinctiveness, consistency, and consensus (Bowen and Ostoff, 2004). Each subscale included a number of sub-subscales. For example, distinctiveness comprised the four sub-subscales of visibility, understandability, legitimacy and relevance. The items for each sub-subscale were taken from Delmotte *et al.* (2007) and Niehoff and Moorman (1993). However, two items were transformed from reverse coding into forward coding for being consistent with all other items. For example, the original item of “The HR practices implemented in this organisation sound good in theory but do not function in practice (R)” was transformed into the item of “The HR practices implemented in this organisation sound good in theory and function in practice”. The items for each sub-subscale were measured on a scale ranging from 1 = totally disagree to 5 = totally agree. Examples of the items included ‘I was attracted to this company because of its good HR policies and

practices' (visibility) and 'The HR department undertakes exactly those actions that meet our needs' (relevance).

3.2.5 Employee attitudes. This construct comprised of 32 items grouped into three subscales – job satisfaction (Kinnie *et al.*, 2005), motivation (Lockwood, 2010), and organisational commitment (Allen and Meyer, 1990). Each subscale included a number of sub-subscales. For example, organisational commitment comprised of three sub-subscales - affective commitment, continuance commitment, and normative commitment. The items for each sub-subscale were taken from the cited research and were measured on a scale ranging from 1 = totally disagree to 5 = totally agree. Examples of the items included 'I am satisfied with the amount of influence I have over my job' (Job autonomy) and 'I feel proud to tell people who I work for' (affective commitment).

3.2.6 Employee behaviour. This construct comprised of 51 items grouped into four subscales – work engagement (Schaufeli *et al.*, 2002), organisational citizen behaviour - OCB (Niehoff and Moorman, 1993), co-operation among employees (Lambooj *et al.*, 2007), and intention to quit (Firth *et al.*, 2004). Each subscale included a number of sub-subscales. For example, OCB comprised five sub-subscales - altruism, courtesy, sportsmanship, conscientiousness and civic virtue. The items for each sub-subscale were taken from the cited research and were measured on a scale ranging from 1 = totally disagree to 5 = totally agree. Examples of the items included 'I feel proud to tell people who I work for' (affective commitment) and 'I am helping others who have very heavy work loads' (altruism).

3.2.7 Organisational performance. This construct is a multifaceted concept, which is usually indicated by respondent's perceptions measured by the help of three subscales - productivity, growth, and creativity (see Delaney and Huselid 1996; Yang *et al.*, 2013). The productivity subscale includes the items of *effectiveness* (i.e., if the organisation meets its objectives), and *efficiency* (i.e., if the organisation uses the fewest possible resources to meet its objectives). The growth subscale includes the items of *development* (if the organisation is developing in its capacity to meet future

opportunities and challenges), and *satisfaction* of all participants (stakeholders, employees, customers). The creativity subscale includes the items of *innovation* (for products and processes), and *quality* (percentage of products of high quality). The items were measured on a scale ranging from 1 = very bad to 5 = very good. Example items included “How would you rate *effectiveness* (i.e., if the organisation meets its objectives) in your organisation?” and “How would you rate *development* (i.e., if the organisation is developing in its capacity to meet future opportunities and challenges) in your organisation?” For all questions referring to organisational performance dimensions a specific definition was assigned to produce a better focus in responses.

3.2.8 Controls. Some additional organisational variables were controlled in order to avoid empirical results of the analysis being erroneous (Boselie *et al.*, 2005). Specifically, the controls used are the *sector* of production where the organisations are activated, and the *size* of the organisation in terms of the number of people employed.

3.3 Consistency and reliability of the survey instrument and data aggregation

To avoid the disadvantages using one individual as the key informant for practices and outcomes, data was collected using multiple employees per organisation as respondents. This means that employee responses within an organisation should be aggregated at the organisational level to reflect collective perception of HRM system, employee attitudes, employee behaviour, and organisational performance (Takeuchi *et al.*, 2009; Takeuchi *et al.*, 2007). Assuming that the dataset refers to employees being at three different levels in the organisational hierarchy (i.e., senior managers, middle managers, and other employees), for aggregating the data at organisational level we followed a two-phase methodology.

In the first phase, composite scales at a respondent level were created following a three-step approach. First, low-level composite scales were developed as averages of all its items comprising the scale. For example, the composite scale of visibility was developed using the four relevant items of the questionnaire. Second, medium-level composite scales were developed as averages of all its

low-level composite scales already developed in step one. For example, the composite scale of distinctiveness was developed using the low-level scales of visibility, understandability, legitimacy, and relevance developed in step one. Finally, higher-level composite scales were developed as averages of all its medium-level composite scales already developed in step two. For example, the composite scale of HR features was developed using the medium-level scales of distinctiveness, consistency, and consensus developed in step two. According to the results presented in Table A in the Appendix, the development of these composite scales was possible considering that all Cronbach alphas are higher than 0.70 (Nunnally, 1978), establishing survey instrument construct internal consistency, and that the percentage of all total variance explained per dimension obtained by applying confirmatory factor analysis (CFA) with Varimax rotation and the eigenvalue greater than one criterion are higher than 50.0 percent, indicating acceptable survey instrument construct validity (Hair *et al.*, 2008). Furthermore, the Kaiser-Meyer-Olkin (KMO), measuring the sampling adequacy, and the Bartlett's test of sphericity, measuring the appropriateness of factor analysis, was used (Field, 2005). According to the results presented in Table A in the Appendix, it is seen that all KMO values are above 0.50 and all Bartlett's test significances are below 0.05, indicating that factor analysis is appropriate for these data (Kaiser, 1974).

In the second phase, aggregative scales at an organisational level were developed using the composite scales developed in the first phase (Landis *et al.*, 2000). To justify the aggregation of individual-level survey data to organisational-level constructs we used the intra-class correlation coefficients, i.e., ICC(1), ICC(2), and the inter-rater agreement measure RWG(J) (see Bliese, 2000; Klein *et al.*, 2000). Particularly, the values of RWG(J) are greater than 0.70, justifying strong aggregation, ICC(2) is above 0.70 in all cases, and the values of ICC(1) are all significant, justifying multilevel analysis (see Table A in Appendix). This means that the different scales intended for this study are acceptable, indicating that there is enough agreement within position levels to make our study feasible (Klein *et al.*, 2000).

The aggregated composite scales developed were the constructs used in estimation. According to the results presented in Table 2, and considering the acceptable values of KMO and Bartlett' tests in this table, the values of Cronbach alphas established survey instrument construct internal consistency and the percentages of total variance explained indicated acceptable survey instrument construct validity. Construct validity was further examined by evaluating the average variance extracted (AVE) per dimension obtained by applying CFA. The AVE values reported in Table 2 are higher than 0.50, indicating acceptable survey instrument construct validity (Hair *et al.*, 2008). Construct composite reliability was assessed by examining the calculated composite reliability scores (Pavlou and Gefen, 2005; Werts *et al.*, 1974). The figures in Table 2 indicate that the degree of construct composite reliability is acceptable, since all reliability scores exceed 0.90 (except the score for employee behaviour which is 0.875). Construct discriminant validity was assessed by examining whether the square root of each factor's AVE is larger than its correlations with other factors. Table 2 presents the correlation coefficients of all constructs used in the study. It is seen that the correlation coefficients are smaller than the square root of each factor's AVE, thus providing evidence for separate constructs.

INSERT TABLE 2 ABOUT HERE

To reduce the common method bias threat in the survey design, we asked multiple respondents at three levels in the organisation to answer the questions in the survey (Lindell and Whiney, 2001). However, taking into consideration that some correlation coefficients were rather high, Harman's (1967) single factor test was also used to examine the likelihood of common method bias threat. According to this test the simultaneous loading of all items in a factor analysis, revealed five factors, and not just one, with the first factor covering only 22.94 percent of total variance explained, indicating thus that the common method bias in the data was rather limited.

3.4 Statistical analysis

To test the hypotheses developed for the proposed framework, the methodology of structural

equation models (SEM) was used via LISREL, with bootstrapping estimation (see Jöreskog and Sörbom, 2004). SEM is effective when testing models that are path analytic with mediating variables, and include latent constructs that are being measured with multiple items. We used bootstrapping because this method is considered to be the most appropriate for testing mediation due to the fact that it does not require the normality assumption to be met (Shrout and Bolger, 2002).

We assessed the overall model fit following Bollen's (1989) recommendation to examine multiple indices, since it is possible for a model to be adequate on one fit index but inadequate on many others. We used the chi-square test (with critical significant level $p > 0.05$) and the normed-chi-square ratio (with critical level 1-3, 3-5, and 5-7 for very large samples and high correlations, to indicate excellent, good, or mediocre fit respectively), the root mean squared error of approximation - RMSEA (with critical level not more than 0.05, 0.08, or 0.10 to indicate excellent, good, or mediocre fit respectively), the goodness of fit index - GFI (with critical level not lower than 0.80, or 0.70 for complex models), the normed fit index - NFI (with critical level not lower than 0.90), the comparative fit index - CFI (with critical level not lower than 0.90), the incremental fit index - IFI (with critical level not lower than 0.90), and the root mean squared residual - RMR (with critical level not more than 0.08) (for details see Hair *et al.*, 2008).

4. Results

4.1 Measurement model

Our measurement model specified seven correlated latent factors and 24 second level measures obtained from 164 observed variables. Table 3 presents the results of fit values from the CFA of alternative models. In building these models we followed the principal factor (reflective) model where the direction of causality is from construct to the indicators (in our case refer to the 24 second level measures), where covariation among the measures is caused by, and therefore reflects, variation in the underlying latent factor. In these reflective measurement models measures are expected to be

correlated and to possess internal consistency reliability (as it is in our case according to the results presented in Table A in Appendix). Dropping an indicator from the measurement model does not alter the meaning of the construct, and measurement errors are considered at the item level (for more see Jarvis et al., 2003). As was expected based on the theory and previous research, the confirmatory factor analysis for the proposed measurement model indicated that the model fit the data well (although NFI is less than 0.90). We compared the fit of the proposed measurement model to an alternative, less restrictive, model with all items loading on a single factor, and found that the fit of this model was very poor. We further compared the proposed measurement model with alternative models with restrictions ranging between the proposed model and the single factor model as they are shown in Table 3. In all comparisons the goodness of fit statistics of NFI, CFI and IFI were used as baseline comparisons (Byrne, 2010). The fit values of these alternative models were ranging between the two extreme models, supporting the proposed factor structure of the constructs used in this study as well as their discriminant validity.

INSERT TABLE 3 ABOUT HERE

4.2 Structural equation modelling

Results in Table 2 show positive and significant correlations between all structural constructs, thus, supporting the hypotheses of the study. However, results based on correlations, although interesting, may be misleading due to the interactions between several variables. Therefore, in order to isolate the possible links between the variables involved in the operational model presented in Figure 1, the estimated path diagram for this proposed framework is presented in Figure 2. The circles represent the related latent variables and the bold arrows indicate the structural relationships between the corresponding variables. The numbers that are assigned to each arrow show the estimated standardized coefficients, and the numbers in brackets indicate the squared multiple correlations of the structural equations. The goodness-of-fit indexes confirmed the validity of the operational model (Chi-Square = 477.136, df = 289, p-value = 0.000, Normed-Chi-Square = 1.65, RMSEA = 0.078,

NFI = 0.93, CFI = 0.94, GFI = 0.72, IFI = 0.90, RMR = 0.04). However, it must be noted that considering that chi-square statistics may be inflated by high correlations, the value of the normed-chi-square (i.e., value of chi-square / degrees of freedom) was used instead. In our case, this value is less than 3, confirming the validity of the model. Moreover, considering that our model is rather complex, we accepted the value of GFI, which is just above the lower critical level of 0.70. Additionally, the squared multiple correlations of the structural equations range between 0.30 and 0.86, which can be interpreted as indicating good fit (Chin, 1998). Finally, we must also note here that we treated controls as single constructs, and that although we tried all possibilities connecting them with all the other constructs (Paauwe and Richardson, 1997), we did not get any significant results.

INSERT FIGURE 2 ABOUT HERE

5. Discussion and Conclusion

5.1 Testing the hypotheses

The major findings of this study are now summarized. First, business strategies positively influence the content dimension of the HRM system, supporting sub-hypothesis H1.1, and the process dimension of the HRM system, supporting sub-hypothesis H1.2. Specifically, considering the levels of the standardized coefficients in Figure 2, it is seen that the strategies of quality and innovation influence HRM system the most. This supports the view of researchers (e.g., Schuler and Jackson, 1987; Sanz-Valee *et al.*, 1999) arguing that organizations with a quality and/or innovation strategy pay extensive attention on training and development in order to stimulate co-operation and obtain the continuous improvement that quality and/or innovation implies. Cost strategy is the least preferred by Greek organizations during the economic crisis period, indicating that it is difficult to compete with low cost imported goods. Additionally, quality and innovation are two strategies that are associated the most with the consistency features of HR practices of the Greek organisations. This is important because it indicates that the consistency features of HR practices will convey compatible

and stable messages across contexts and time about the quality and innovation culture of organisations (Bowen and Ostroff, 2004).

Second, strategic management orientation (i.e., the alignment of business strategies with HR practices) leads to a strong HRM system (i.e., having the features of distinctiveness, consistency and consensus), which eliminates the ambiguities regarding strategic and HRM goals (Campos e Cunha and Pina e Cunha, 2009). In turn, the strong HRM system develops shared perceptions of HR practices (Nishii and Wright, 2008). Specifically, it is shown in Figure 2, that HR practices features partially mediate the relationship between actual HR practices and employee perceptions of HR practices (Bowen and Ostroff, 2004), supporting hypothesis H2. Predominantly, it is the actual development practices that primarily affect perceived development through the feature of consistency. Moreover, the findings support Bowen and Ostroff (2004, p. 215) who argue that “it is likely that some features are more critical than others in creating a strong situation. For example, without consistent HRM messages, distinctiveness and consensus may lose impact”. In Figure 2 we see that the standardized coefficient of consistency is larger than the coefficients of distinctiveness and consensus, thus verifying this suggestion. Additionally, the influence of HRM content on HRM as experienced (and then on operational performance) is higher than the influence of HRM process. This finding is important because it indicates that the proper content of HRM systems may improve operational performance, specifically in periods of economic crisis, where organizations might benefit by putting in more efforts to communicate to employees the specific features of their HR practices. In other words, it may be more important to put effort in finding appropriate HR practices according to context, than the risk of failing to properly implement these HR practices (Guest, 2011). Additionally, both HRM content and HRM process fully mediate the relationship between business strategies and HRM as experienced, supporting hypotheses H2.1 and H2.2 respectively, and HRM content partially mediates the relationship between business strategies and HRM process, supporting hypothesis H2.3. However, the mediation effect of HRM content is much stronger than the mediation

effect of HRM process, in the relationship between business strategies and HRM as experienced, further verifying the results found above.

Third, employee attitudes and employee behaviour positively, serially and partially mediate the relationship between HRM as experienced and operational performance, supporting hypothesis H3. In particular, HR practices as experienced positively influence organisational performance, supporting sub-hypothesis H3.1, employee attitudes fully mediate the relationship between HR practices as experienced and employee behaviour, supporting sub-hypothesis H3.2, and employee behaviour fully mediates the relationship between employee attitudes and operational performance, supporting hypothesis H3.3. Considering the values of the standardised coefficients of this serially mediating relationship, we see that the direct effect (i.e., the unmediated effect) from HRM as experienced on operational performance is much stronger than its mediating effect, supporting the view that in cases of economic crisis it is the HRM climate that is the most important determinant of organisational performance. Moreover, it is shown in Figure 2 that employee development influences the most job satisfaction (Monks *et al.*, 2013), which in turn influences the most organisational citizen behaviour, which finally has a positive impact on organisational creativity. This finding is important, because although it indicates that training and development may help organizations to improve their performance, even in cases where employees may work under stress in an unstable and insecure business environment such as that of the Greek, on the contrary, in periods of economic crises the first action that businesses take is to press costs down by reducing training and development expenditures, which may further discourage employees.

In summary, we see from the results in Figure 2 that the business strategies of quality and innovation are associated mostly with training and development, rewards and relations, which by being explained and executed consistency and distinctively develop positive shared perceptions of employees mainly with respect to training and development and rewards. Consequently, it is job satisfaction (Wood *et al.*, 2012) and improved motivation (Jiang *et al.*, 2012) that develop OCB and

co-operation among employees, which in turn have an impact on the creativity and growth of the organisation. In addition, and contrary to the findings of Anitha (2014), the contribution of employee engagement in defining employee behaviour and then predicting performance is rather low, something that may be attributed to possible burnout of employees when they work hard for (Schaufeli *et al.*, 2002), as in cases of economic crisis. Additionally, the negative contribution of employee intention to quit seems also to be low. This may be attributed to the fact that employees in Greek organisations try to keep their current jobs because the unemployment rate in Greece is very high, meaning that if employees lose their job it will be very difficult to find another one. Finally, considering the mediating path of the HRM as experienced - operational performance relationship, it is seen in Figure 2 that the influence of HRM to proximal outcomes (e.g., employee attitudes) is higher than the influence of HRM to distal outcomes (e.g., operational performance).

5.2 *Implications for theory and research*

Using an integrative model we provided empirical support for the theoretical proposition that HRM, contingent on business strategies, strongly relates to proximal mediating outcomes than to distal outcomes (Jiang *et al.*, 2012). Particularly, using a multidimensional and multipath approach for both, business strategies and HR practices, the contribution of the study is as follows. First, applying a three dimensions business strategy system (cost, innovation, quality) we found that it has heterogeneous effects on the four dimensions of an HRM system (resourcing, training and development, rewards, relations). This means that if all three dimensions of business strategy system have unique effects on all four dimensions of HRM systems, failure to include any dimension of business strategy and / or HRM may lead to inaccurate results. Therefore, we encourage researchers to reconsider whether it is appropriate to utilize addition of business strategies and / or HR practices to represent business strategy and /or HRM systems, and encourage additional research to explore the influence of the components of business strategies on the components of HRM systems. Second,

business strategies and HR practices are not only distinct, but in shaping organisational climate also operate via the different pathways of content and process. Therefore, we advise researchers to reconsider whether it is appropriate to utilize HRM content or HRM process individually but to develop integrated models utilizing both these pathways (Bowen and Ostroff, 2016). This stream of research can further verify the findings of this study and offer implications for the significance of HRM systems in influencing performance. Third, drawing upon the behavioural perspective on HRM, this study demonstrates that HRM positively influences operational performance by encouraging desired employee attitudes and employee behaviour. Therefore, we encourage researchers to reconsider whether it is appropriate to utilize common constructs of employee reactions and address the mediating role of employee behaviour in the relationship between employee attitudes and operational performance. This will provide a clearer understanding of the mediating mechanism between HRM as experienced and operational performance (Nishii *et al.*, 2008; Purcell and Kinnie, 2007). Fourth, responding to calls for studies to simultaneously examine multiple outcome variables that have only been studied independently before (Lengnick-Hall *et al.*, 2009), the current study follows a multidimensional approach for both employee attitudes (job satisfaction, motivation, organisational commitment) and employee behaviour (work engagement, OCB, co-operation among employees, intention to quit). This treatment of employee attitudes and employee behaviour is consistent with the research suggesting the heterogeneous effects of the dimensions of HRM systems on organisational outcomes (Subramony, 2009). Overall, this study highlights the roles of integrated HRM systems that place a positive employment relationship at the centre of the link between HRM and performance. In so doing, it supports a causal chain from HR practices and their features to shared meanings among employees about HR practices, employee attitudes and behaviour, and organisational performance.

5.3 *Implications for practice*

A core message of the HRM content theorization is that employee development and rewards are two main dimensions of an HR practices system as they improve operational performance, even in cases where the organization is operating under an economic crisis environment. Additionally, a core message of the HRM process theorization is that consistency and distinctiveness are the principal features of a strong HR practices system as they also influence operational performance, even in an economic crisis environment. These two core messages indicate that the design and implementation of appropriate HR practices systems, in association with the business strategies of quality and innovation, may make individuals in the organization to share common goals. Consequently, this study contributes to the recognition that the content and process characteristics of an HRM system influence operational performance (Bowen and Ostroff, 2004; Ostroff and Bowen, 2016). Therefore, these core messages suggest that organizations can obtain substantial operational benefits from investing in these content and process HRM dimensions considered in the study. In particular, HR managers can have more confidence in focusing on skill-enhancing policies and practices, and the HRM process framework can assist managers to develop a comprehensive approach to properly communicate these HR policies and practices to employees (Obeidat *et al.*, 2016).

Moreover, the findings of the study indicate the ways through which practitioners can increase the benefits of investing in HRM. Particularly, the findings show that to improve operational performance, organizations need to apply HR practices for enhancing both job satisfaction and motivation. We suggest that practitioners focus more on practices such as employee development (including work design, performance appraisal, and training and development) aiming to improve job satisfaction, and rewards (including compensation, promotion, incentives) aiming to improve employee motivation. However, with these suggestions we do not deny the possible effects employee resourcing (including recruitment, selection, and flexible work arrangements) and employee relations (including participation, involvement, and communication) may have in developing job satisfaction, employee motivation and organisational commitment. On the contrary, we believe that by the proper

use of these practices organizations will have an opportunity to maximize the benefits from their investment in HRM (Vlachos, 2008; Jiang *et al.*, 2012).

Additionally, the findings of the study suggest that it is not only the content of the HRM system that develops shared meanings among employees about HR practices, but, it is the way this is delivered to employees. We suggest that practitioners focus more on the features of HR practices such as distinctiveness (e.g., visibility, understandability, legitimacy, and relevance), consistency (e.g., instrumentality, validity, consistency of HR messages), and consensus (e.g., agreement among message senders and fairness of the HR system) for making their HRM systems attractive to employees and communicate them consistently and frequently, so that employees appreciate their value (Burton *et al.*, 2004; Li *et al.*, 2011; Ngo *et al.*, 2008). It is the HRM system as experienced that has an impact on operational performance both directly and indirectly through the mediating process of employee attitudes and employee behaviour. Therefore, managers may consider how the direct effects of HRM can be complemented by the indirect mediating effects of HRM on operational performance. For example, in order to improve effectively employee behaviour (e.g., increase in organisational citizen behaviour, co-operation among employees, and employee engagement, and decrease in employee intention to quit), which has an impact on operational performance, managers should focus on the HR practices indicated previously that improve employee attitudes that in turn influence employee behaviour. Managers need, therefore, to examine and implement their HRM strategies and make certain that the right signal is communicated to employees in a consistent, distinctive and consensus manner. This will enhance employees' understanding of what the organization expects of them and bring out desirable employee responses (Ogbonnaya and Valizade, 2016).

5.4 *Limitations and further research*

This study has three main limitations. First, the data was collected using a questionnaire at a single point in time. As a result, we could not rule out the possibility of spurious correlations between the

dependent and independent variables and thus, the study does not allow for dynamic causal inferences (Cavanaugh and Noe, 1999). Future research would benefit by employing longitudinal data. Second, in aggregating the data of senior managers, middle managers and other employees, the sample sizes used were rather small. Future research should aim for larger sample sizes for this purpose. Third, considering that Greece is experiencing a severe financial crisis, the findings from this unique context may not generalize across other contexts (de Jong *et al.*, 2009). Future research should consider including other countries such as Cyprus, Portugal, Spain and Ireland that are experiencing similar financial crises.

5.5 Conclusion

Despite the limitations, this study provided a theoretical and empirical test of the underlying assumption in the HRM literature that HR practices can enhance operational performance, through their impact on employee attitudes and employee behaviour (Jiang *et al.*, 2012). Beyond extending and providing one of the first studies (Ostroff and Bowen, 2016) examining the validity of Bowen and Ostroff's (2004) theorization in integrating content and process of an HRM system, the present study has implications for future research, in contexts similar to Greece which are under severe economic and financial crisis.

Particularly, we found that the business strategies of quality and innovation were positively more related to the HR practices of employee development and employee rewards and to the HR practices features of consistency and distinctiveness. These business strategies, HR practices and HR features developed shared positive perceptions of employees focusing mainly on development and rewards. Consequently, these shared perceptions of employees had a positive impact on job satisfaction and employee motivation, which through improved OCB and co-operation among employees had a positive impact on the creativity and growth of the organisation. Further to this

mediating relationship, we also found a direct relationship between the HRM system as experienced and operational performance.

In summary, this multidimensional, multipath, and multilevel study concluded that the HRM system, being contingent on business strategies, that integrates both content and process presents a comprehensive picture of the HRM-performance relationship. Additionally, it concluded that the HRM content effect is stronger than HRM process effect on operational performance. Therefore, this study provided a useful starting point for future research that investigates the impact of both content and process of HRM systems on operational performance through employee attitudes and employee behaviour.

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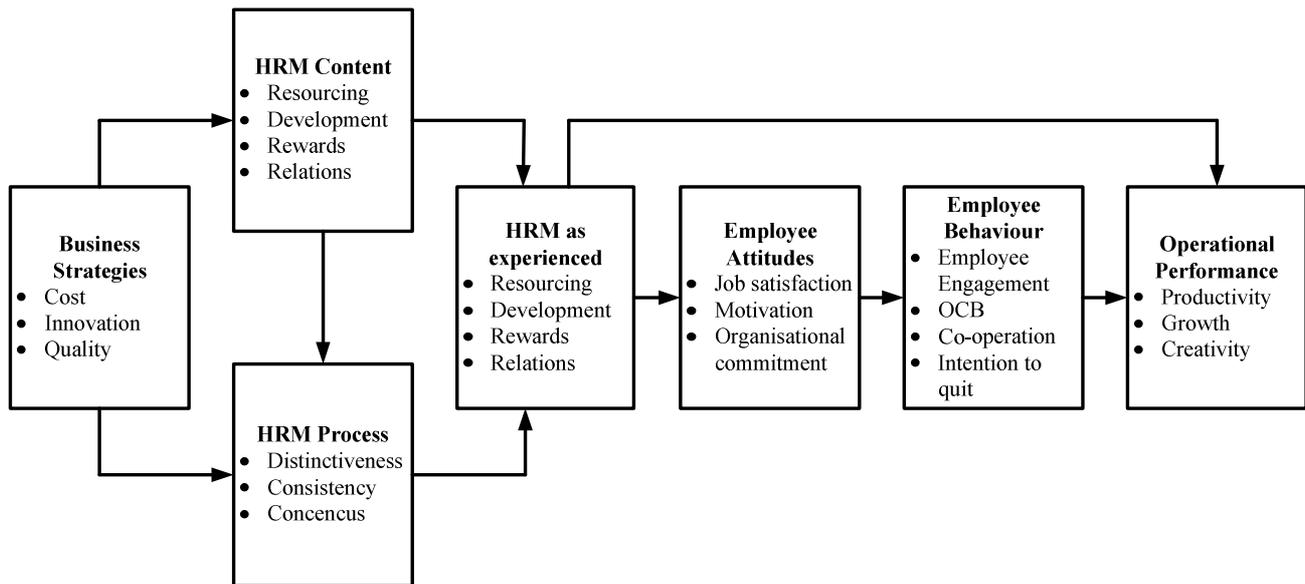


Figure 1. The HRM – Performance Model

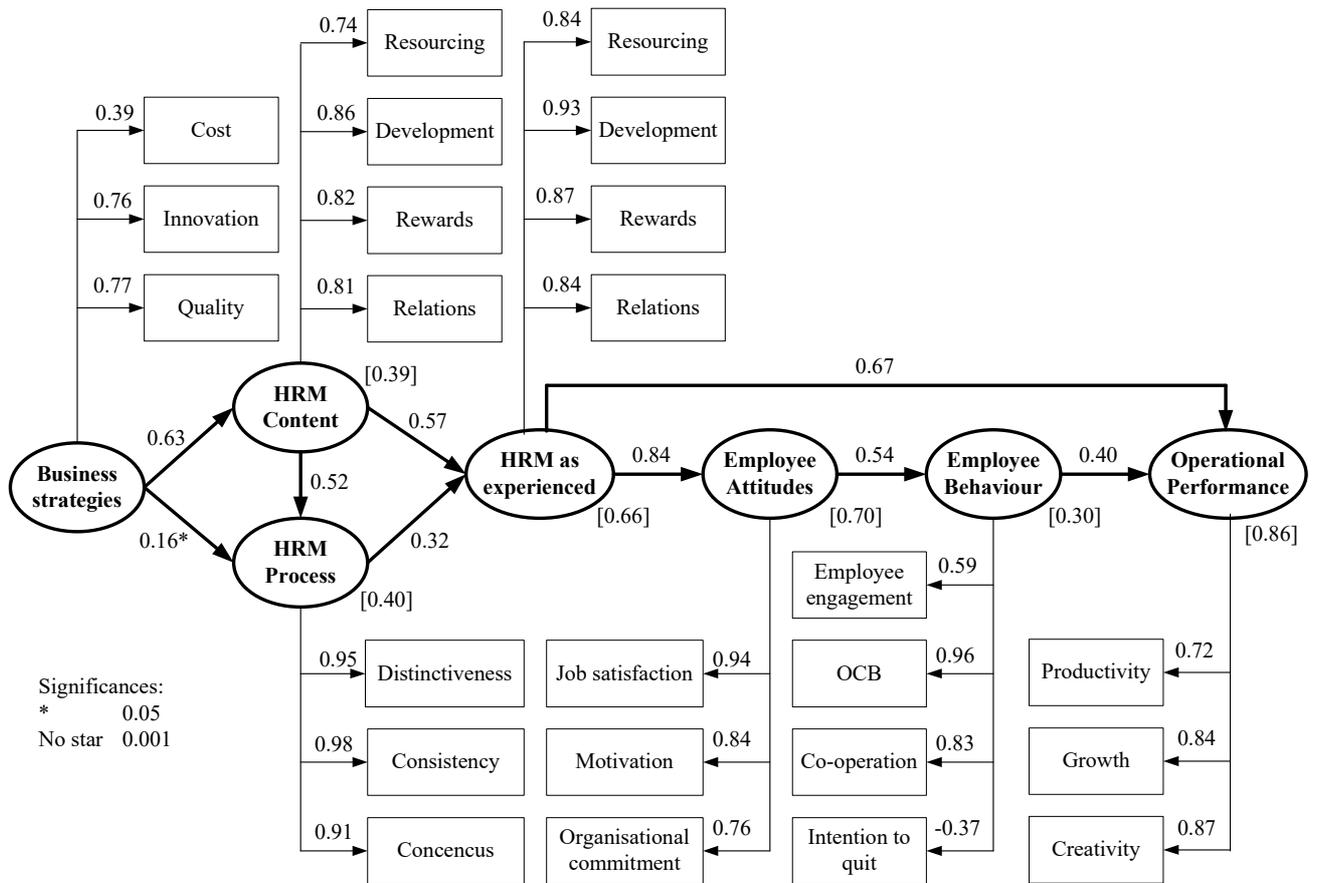


Figure 2. The estimated HRM – Performance Model

Table 1. Sample characteristics

| | Number | Percent |
|--|---------------------|----------------|
| Demographic characteristics of sample organisations (N = 108) | | |
| Employees | | |
| 20 – 100 | 60 | 55.6 |
| 101 - 200 | 30 | 27.8 |
| 201 + | 18 | 16.7 |
| Sector | | |
| Manufacturing | 30 | 27.8 |
| Services | 34 | 31.5 |
| Trade | 44 | 40.7 |
| Demographic characteristics of sample respondents (N = 996) | | |
| Gender | | |
| Male | 603 | 60.5 |
| Female | 393 | 39.5 |
| Position | | |
| Senior managers | 222 | 22.3 |
| Middle managers | 235 | 23.6 |
| Other | 539 | 54.1 |
| Average age of employees (in years) | 38.03 (\pm 9.77) | |
| Average seniority of employees (in years) | 10.35 (\pm 8.06) | |

Table 2. Means, Standard deviations, Consistency indices, and Correlation coefficients of the constructs used in estimation

| | Means (Standard deviations) | Consistency and reliability indices | | | | | Correlation coefficients | | | | | | |
|--------------------------------|--------------------------------|-------------------------------------|-------------------------------|------------------|----------------------------|--|--------------------------|-------------|--------------------|-------------|--------------------|--------------------|-------------------------|
| | | Cronbach Alpha | % of total variance explained | KMO ^a | Average variance extracted | Construct composite reliability ^b | Business strategy | HRM content | HRM as experienced | HRM process | Employee attitudes | Employee behaviour | Operational performance |
| Business strategy | 3.750 (0.722) | 0.843 | 76.346 | 0.666 | 0.766 | 0.906 | 1 | | | | | | |
| HRM content | 3.482 (0.687) | 0.882 | 74.136 | 0.796 | 0.741 | 0.919 | 0.692** | 1 | | | | | |
| HRM as experienced | 3.168 (0.631) | 0.935 | 83.762 | 0.852 | 0.837 | 0.953 | 0.283** | 0.356** | 1 | | | | |
| HRM process | 3.304 (0.734) | 0.954 | 91.679 | 0.753 | 0.917 | 0.971 | 0.543** | 0.652** | 0.462** | 1 | | | |
| Employee attitudes | 3.404 (0.512) | 0.889 | 81.925 | 0.727 | 0.819 | 0.931 | 0.255** | 0.298** | 0.716** | 0.375** | 1 | | |
| Employee behaviour | 3.329 (0.316) | 0.855 | 65.626 | 0.733 | 0.636 | 0.875 | 0.169* | 0.126* | 0.417** | 0.197* | 0.594** | 1 | |
| Operational performance | 3.862 (0.736) | 0.927 | 87.239 | 0.724 | 0.872 | 0.953 | 0.532** | 0.722** | 0.413** | 0.567** | 0.371** | 0.165* | 1 |
| Sector | | | | | | | | | | | | | |
| Size | | | | | | | 0.055 | -0.052 | 0.006 | -0.016 | -0.143 | -0.096 | 0.029 |
| | | | | | | | -0.080 | -0.138 | -0.093 | -0.046 | -0.086 | 0.045 | -0.083 |

* p < 0.05

** p < 0.01

a All Bartlett's significances are equal to 0.000

b Construct composite reliability = $(\sum \lambda_i)^2 / [(\sum \lambda_i)^2 + \sum (1 - \lambda_i^2)]$ where λ_i = standardised loading

Table 3. Model comparison between proposed and alternative models

| | Proposed model (7 constructs) | Model combining HRM content and HRM process (6 constructs) | Model combining HRM content and HRM process and HRM as experienced (5 constructs) | Model combining HRM content and HRM process, and attitudes and behaviour (5 constructs) | Model combining HRM content and HRM process and HRM as experienced, and attitudes and behaviour (4 constructs) | Single factor model (1 construct) |
|-------------------------|-------------------------------|--|---|---|--|-----------------------------------|
| Model statistics | | | | | | |
| χ^2 | 418.140 | 666.143 | 1055.843 | 667.948 | 1040.813 | 1568.716 |
| df | 231 | 239 | 244 | 242 | 246 | 252 |
| p | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| χ^2/df | 1.810 | 2.787 | 4.327 | 2.801 | 4.231 | 6.225 |
| RMSEA | 0.087 | 0.129 | 0.176 | 0.130 | 0.174 | 0.221 |
| NFI | 0.84 | 0.75 | 0.60 | 0.74 | 0.60 | 0.40 |
| CFI | 0.92 | 0.82 | 0.65 | 0.81 | 0.66 | 0.33 |
| GFI | 0.77 | 0.65 | 0.50 | 0.63 | 0.51 | 0.44 |
| IFI | 0.92 | 0.82 | 0.66 | 0.82 | 0.67 | 0.44 |
| RMR | 0.04 | 0.09 | 0.09 | 0.06 | 0.08 | 0.08 |
| Model Comparison | | | | | | |
| $\Delta\chi^2$ | - | 248.003 | 637.703 | 249.808 | 622.673 | 1150.576 |
| Δdf | - | 8 | 13 | 11 | 15 | 21 |
| p | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

Notes: $\Delta\chi^2$ is the difference in χ^2 between the proposed model and the alternative model; Δdf is the difference in degrees of freedom between the proposed and the alternative model

Table A. Constructs and their properties

| Constructs | Subscales • Sub-subscales | Number of items | Consistency indices | | | Aggregation indices | | |
|----------------------------|-----------------------------------|-----------------|---------------------|-------------------------------|--------------|---------------------|--------------|--------------|
| | | | Cronbach α | % of total variance explained | KMO* | ICC(1) | ICC(2) | RWG(J) |
| Business strategies | | 3 | 0.761 | 68.112 | 0.651 | 0.309 | 0.777 | 0.878 |
| | • Cost | 2 | 0.712 | 77.676 | 0.500 | | | |
| | • Innovation | 3 | 0.774 | 69.101 | 0.679 | | | |
| | • Quality | 3 | 0.798 | 71.625 | 0.708 | | | |
| HR Content | | 4 | 0.865 | 71.270 | 0.806 | 0.289 | 0.751 | 0.891 |
| | • Resourcing | 3 | 0.772 | 68.882 | 0.689 | | | |
| | • Development | 3 | 0.838 | 75.533 | 0.724 | | | |
| | • Rewards | 3 | 0.871 | 79.687 | 0.739 | | | |
| | • Relations | 3 | 0.791 | 70.554 | 0.702 | | | |
| HR process | | 3 | 0.939 | 89.146 | 0.760 | 0.273 | 0.875 | 0.854 |
| | Distinctiveness | 4 | 0.928 | 82.279 | 0.855 | | | |
| | • Visibility | 4 | 0.881 | 73.754 | 0.833 | | | |
| | • Understandability | 3 | 0.890 | 82.030 | 0.747 | | | |
| | • Legitimacy | 3 | 0.871 | 79.605 | 0.730 | | | |
| | • Relevance | 3 | 0.889 | 81.856 | 0.749 | | | |
| | Consistency | 3 | 0.892 | 82.364 | 0.747 | | | |
| | • Instrumentality | 4 | 0.862 | 71.393 | 0.811 | | | |
| | • Validity | 3 | 0.868 | 79.239 | 0.737 | | | |
| | • Consistency of HR messages | 4 | 0.866 | 71.760 | 0.786 | | | |
| | Consensus | 4 | 0.888 | 75.026 | 0.800 | | | |
| | • Agreement among message senders | 4 | 0.895 | 76.108 | 0.831 | | | |
| | • Distributive justice | 4 | 0.892 | 75.576 | 0.826 | | | |
| | • Procedural justice | 4 | 0.847 | 69.077 | 0.805 | | | |
| | • Interactional justice | 4 | 0.897 | 76.417 | 0.826 | | | |

| | | | | | | | |
|----------------------------------|----------|--------------|---------------|--------------|--------------|--------------|--------------|
| HR as experienced | 4 | 0.927 | 82.161 | 0.849 | 0.325 | 0.908 | 0.853 |
| • Resourcing | 3 | 0.882 | 80.948 | 0.722 | | | |
| • Training | 4 | 0.907 | 78.280 | 0.847 | | | |
| • Rewards | 4 | 0.911 | 79.152 | 0.834 | | | |
| • Relations | 4 | 0.883 | 74.081 | 0.826 | | | |
| Employee attitudes | 3 | 0.854 | 77.604 | 0.724 | 0.286 | 0.935 | 0.885 |
| <i>Job satisfaction</i> | 3 | 0.907 | 84.343 | 0.753 | | | |
| • Job autonomy | 2 | 0.927 | 93.310 | 0.500 | | | |
| • Job achievement | 2 | 0.926 | 93.123 | 0.500 | | | |
| • Job challenge | 2 | 0.931 | 85.890 | 0.500 | | | |
| <i>Motivation</i> | 3 | 0.925 | 86.992 | 0.765 | | | |
| • Recognition | 3 | 0.930 | 87.708 | 0.761 | | | |
| • Incentives | 4 | 0.906 | 78.104 | 0.839 | | | |
| • Relations | 4 | 0.911 | 78.984 | 0.840 | | | |
| <i>Organisational commitment</i> | 3 | 0.797 | 71.153 | 0.693 | | | |
| • Affective commitment | 7 | 0.935 | 72.367 | 0.900 | | | |
| • Continuance commitment | 4 | 0.827 | 66.045 | 0.694 | | | |
| • Normative commitment | 4 | 0.740 | 58.161 | 0.687 | | | |
| Employee behaviour | 4 | 0.760 | 63.702 | 0.727 | 0.213 | 0.870 | 0.972 |
| <i>Employee engagement</i> | 3 | 0.892 | 82.801 | 0.739 | | | |
| • Vigour | 6 | 0.903 | 67.370 | 0.893 | | | |
| • Dedication | 5 | 0.923 | 76.481 | 0.895 | | | |
| • Absorption | 6 | 0.917 | 70.740 | 0.896 | | | |
| <i>OCB</i> | 5 | 0.851 | 63.472 | 0.855 | | | |
| • Altruism | 4 | 0.867 | 71.623 | 0.788 | | | |
| • Courtesy | 4 | 0.789 | 61.474 | 0.725 | | | |
| • Sportsmanship | 4 | 0.829 | 66.632 | 0.791 | | | |
| • Conscientiousness | 4 | 0.820 | 65.315 | 0.778 | | | |

| | | | | | | | |
|---|----------|--------------|---------------|--------------|--------------|--------------|--------------|
| • Civic virtue | 4 | 0.896 | 76.514 | 0.831 | | | |
| <i>Co-operation</i> | 2 | 0.848 | 86.952 | 0.500 | | | |
| • Employee co-operation with co-workers | 5 | 0.908 | 73.215 | 0.873 | | | |
| • Employee co-operation with superiors | 5 | 0.906 | 72.835 | 0.872 | | | |
| <i>Intention to quit</i> | 4 | 0.927 | 82.133 | 0.851 | | | |
| Organisational performance | 3 | 0.883 | 81.104 | 0.726 | 0.269 | 0.707 | 0.864 |
| • Productivity | 2 | 0.819 | 84.719 | 0.500 | | | |
| • Growth | 2 | 0.800 | 83.368 | 0.500 | | | |
| • Creativity | 2 | 0.772 | 81.742 | 0.500 | | | |

* All Bartlett's significances are equal to 0.000