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**Developing a Culture for Innovation: What
is the Role of the HR System?**

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DEVELOPING A CULTURE FOR INNOVATION : WHAT IS THE ROLE OF THE HR SYSTEM?

ABSTRACT

Research on Human Resource Management and innovation has to date relied on a theoretical assumption that there exists an identifiable set of HR practices which organisations seeking to be innovative should adopt. However, analysis of the various prescriptions of HR practices for innovation reveals a high level of internal inconsistency, leading to conflicting advice for practitioners. Furthermore, a review of empirical research on the topic indicates that HR practices within innovative organisations are remarkably similar to those found in the best practice literature. This raises questions about the link between strategy and HRM, and about the theoretical foundations of research on HRM and innovation. Drawing on recent research on HRM and firm performance, we suggest that research on HRM and innovation can benefit from incorporating elements from both contingency theory and best practice approaches into the existing configuration theory approach. A change in direction for both theoretical and empirical research on HRM and innovation is proposed.

What type of HR system is most appropriate for a firm wishing to pursue a strategy of innovation? This question has attracted attention from researchers since the early 1980s. In fact, it can be argued that this stream of research predated by as much as a decade a much wider interest in the links between HRM and organisational performance which Guest (1997, p. 263) argues is now “*the dominant research issue in the field (of HRM)*”. Interest in the topic of innovation is also growing rapidly. Global dissemination of information via technology has ensured that competitive advantage based on a particular product or process is no longer sustainable. In the information age, sustainable competitive advantage belongs to those firms who continually reinvent themselves at a pace which is consistent with the rapid pace of change in the environment. The result is that the pressure on firms to innovate in order to survive is greater than ever before (see, for example, Tushman & O’Reilly, 1997). These parallel developments in HRM research and the broader business environment ensure that both academic and practitioner interest in the topic of HR systems for innovation is likely to grow. The question of how research on this topic should proceed is therefore an important one, and is the subject of this paper.

SECTION I - THEORETICAL UNDERPINNINGS OF RESEARCH ON HRM AND INNOVATION

Firm-level research in HRM generally reflects three different theoretical perspectives - the Best Practice view, the Best Fit or configuration-based view, and contingency approaches. The Best Practice view posits the existence of clusters or bundles of High Performing Work Practices which can enhance the performance of all firms which adopt them (Arthur, 1994; Pfeffer, 1994; Huselid, 1995; MacDuffie, 1995). For example, Pfeffer (1994) recommends fourteen best HR practices for adoption by all firms, including selectivity in recruitment, high wages, incentive pay, employee ownership and promotion from within. The Best Fit or configuration theory approach proposes that firm strategy is the critical factor which should be considered in deciding which system of HR practices a firm should adopt (Miles & Snow, 1978, Mintzberg, 1978). For example, Miles and Snow (1984) identify three unique clusters of HR practices which they propose fit best with Prospector, Defender or Analyser strategies respectively. Finally, contingency theorists argue that a variety of internal and external environmental influences combine to determine the optimal mix of HR practices for any particular firm. Huselid and Rau, (1997) review a large number of the contingencies which have attracted research attention, including strategy, firm size, firm age, local labour markets and union coverage (internal) and industry complexity and munificence (external).

Theory and research on HRM and innovation has to date been firmly rooted in the configuration approach. This theoretical perspective suggests that there is an identifiable “strategy of innovation” which some firms adopt in pursuit of competitive advantage, an oft-cited example is the “prospector” type described by Miles and Snow (1984). Research on HRM and innovation is based on the idea that that there is a unique cluster of HR practices which is most appropriate for firms pursuing a strategy of innovation (e.g., Miles & Snow, 1984; Schuler & Jackson, 1987); the underlying premise is that the adoption of these HR practices will enable any “innovative” firm to outperform innovative rivals who do not adopt them. However, the latter notion remains untested in the empirical literature on HRM and innovation. Rather, empirical studies have focused on testing whether the sets of “HR practices for innovation” rooted in prescriptive research have generally been adopted by firms pursuing a strategy of innovation.

The logic of the theory underlying research on HRM and innovation provides us with two specific criteria against which we can assess the progress of research on this topic. First, the theory suggests there is a single set of HR practices which will elicit employee behaviours which are consistent with a strategy of innovation. Second, if the theory makes sense, this cluster of practices should be in some sense unique; in other words, they must be identifiably different from HR practices associated with alternative strategies. This paper undertakes an analysis of research on HRM and innovation and assesses the progress which has been made using the above criteria as a yardstick. In particular, we compare different prescriptions of HR systems for innovation to assess whether there is a consensus among researchers about the HR practices which innovative firms should adopt. Contrary to what the theory would lead one to expect, we find that that the prescriptions of HR practices for innovation are rife with internal inconsistencies and contradictions. Empirical research on the topic has identified HR practices which have been adopted by firms pursuing a strategy of innovation. We compare these practices with research from the “Best Practice” literature to assess progress against the second criterion which is, whether these “HR practices for innovation” are in some sense unique. Remarkably, we find that almost all of the HR practices for innovation have also been identified as generic “Best HR practices”, a finding which presents a further challenge to the theoretical underpinnings of research on HR systems for innovation.

This paper is laid out as follows. In the remainder of this section we ask what is a strategy of innovation, and consider what employee behaviours are believed to be consistent with such a strategy. The second section compares and contrasts different authors’ prescriptions of HR practices for innovation, and also compares the findings of research on HRM and innovation with the findings of the best practice approach. In the final section we consider the implications of our review for future research on this topic. We propose a broadening of the theoretical base on which research on HRM and innovation is founded, and discuss the particular challenges involved in conducting empirical research on HR systems for innovation.

What is a Strategy of Innovation?

Due to the speed of changes occurring within certain organisational environments as a result of globalised competition and rapid technological developments, organisations are faced with challenges never encountered before. When pursuing a

strategy of innovation, organisations attempt to embrace these challenges through the adoption or development of new products, services, operations or practices.

Defining innovation.

Despite the fact that there are many descriptions of innovation within the literature, there is still a lack of consensus on a single definition of the concept. Nevertheless many useful definitions and typologies of innovation have been provided, adding to our understanding of the concept. West and Farr (1990) define innovation as:

the intentional introduction and application within a role, group or organisation of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organisation or wider society (p.9)

This would suggest that innovative organisations are problem finders, actively focusing on existing customer or market problems on the one hand, and existing practices and procedures on the other, and then generating ideas aimed at improving or solving these problems through the development or adoption of new products, services and procedures.

However, one threat to our understanding of the concept concerns the use of the terms creativity and entrepreneurship somewhat synonymously with innovation. Some studies have viewed entrepreneurship as a multi-dimensional construct used to describe organisations in terms of their innovativeness, proactiveness and their willingness to take risks (Miller, 1983; Miller & Friesen, 1983; Morris & Jones, 1993). This would suggest that innovation is only one attribute, although an essential one, of the entrepreneurial organisation. West and Farr (1990) suggest that the distinction between creativity and innovation may be one of emphasis rather than one of category, where creativity is concerned with bringing ideas into existence, while innovation is concerned with implementing these ideas. For the purposes of the present paper, strategies of innovation and entrepreneurship will be viewed synonymously, while creativity will be viewed as a desirable attribute of individuals within the innovative organisation.

Different Types of innovations.

Three of the most widely cited typologies distinguish between specific innovations in terms of whether they are technical or administrative, whether they are concerned with products or processes, or whether they can be described as radical or incremental. Damanpour (1991) provides useful descriptions of each of these types of innovations. Technical innovations refer to products and services, and also production processes and operations and relate to the technical core of the organisation, while administrative innovations are more directly related to management and concern changes in organisational structures or administrative activities, and therefore pertain to the administrative core of the organisation. Product innovations concern the introduction of new products or services to meet the customers needs, while process innovations are introduced to production or service operations and may include new materials, equipment or task specifications. Radical innovations are described as non-routine and represent a departure from existing practices, operations, processes and technologies, whereas incremental innovations are more routine, representing smaller departures from existing procedures.

Strategic typologies.

Configuration theory suggests that organisations can be described in terms of strategic types, where their degree of innovativeness depends on their positioning along a strategic continuum. Those who have viewed organisations in such terms include Mintzberg (1978) and Miles and Snow (1978). For instance, Miles and Snow identify strategic types of organisations, with differing configurations of structure, technology and process, consistent with their type of strategy. At one end of the continuum are defender organisations which operate in narrow product and market domains, where the focus is on continuity and reliability and where fundamental changes are rarely made. Such organisations tend to be characterised by both gradual and cautious growth, paying relatively little attention to other organisations, or events and trends occurring within the external environment. At the other extreme, prospector organisations operate in broad product and market domains, constantly seeking opportunities in an environment characterised by change and uncertainty. They constantly strive to identify emerging trends in their environment so that innovation can be sustained, compromising internal efficiency if necessary.

Porter (1980, 1985) argues that in order for organisations to achieve competitive advantage, they must adopt one of three generic strategies. He suggests that firms with a specific strategic orientation should outperform those who are “stuck in the

middle” and identifies strategies of cost leadership, differentiation or focus. Strategies of cost leadership aim to provide lower costs to customers relative to competitors, while focus strategies target a specific market segment or develop particular product lines. Firms pursuing differentiation strategies emphasise innovation and strive to offer something new or unique to customers in terms of their products and services. Adopting Porters typology, Schuler & Jackson (1987) describe the possible HR implications for organisations pursuing strategies of cost reduction, innovation and quality enhancement. However, they emphasise that although these strategies may be presented as distinct types some overlap can occur, and various parts of a firm may pursue one or more strategy simultaneously.

Cultural aspects of innovation.

Kanter (1983) suggests that innovative organisations need to adopt a “culture of pride and climate of success”. In addition, she suggests that the structures within such organisations must be compatible with the culture and argues that bureaucratic structures can stifle innovation. She terms non-innovative organisations as segmentalist, where the structure makes it difficult to solve problems through the development of innovative solutions since problems are broken up and assigned to various subunits, with each subunit having only one piece of the problem to solve. On the other hand, innovative organisations adopt an integrative approach where subproblems are aggregated into larger problems allowing greater insight into the appropriate action required. Therefore, reduced layers in the hierarchy, greater lateral communication, and greater empowerment to those at lower levels are favourable characteristics of the innovative organisation.

Tushman and O'Reilly (1997) view culture as one of the most important factors in the management of innovation and emphasise the need for flexibility, speed and responsiveness in adapting to changing circumstances on the one hand, while on the other they suggest that some degree of consistency, reliability and stability should be maintained. Therefore, within the innovative organisation a more participative management style is favoured, where communication and teamwork are of paramount importance. In addition new ideas and risk taking behaviours among employees should be encouraged where mistakes and possible failures are tolerated, particularly if employees are acting in the interests of the customer.

Therefore, drawing from the definition provided by West and Farr (1990) we suggest that a strategy of innovation requires an organisation to be revolutionary, assertive and proactive, where the primary focus is on implementing new ideas concerning products, services, practices or operations, whether initiated or adopted. Through constant monitoring of their environments they systematically seek opportunities to exploit, anticipating and responding to situations before they have to. In order to foster a culture for innovation, they have flexible structures, empowered employees, and encourage risk taking, while accepting mistakes and occasional failure.

Innovative Behaviours and Skills

Research linking competitive strategies and HR practices adopts a behavioural perspective (e.g., Miles & Snow, 1984; Schuler & Jackson, 1987). The logic is that since different firm strategies require different behaviours from employees, the HR system must not only ensure that employees have the necessary skills but must also motivate the appropriate behaviours. This requires some consensus about what key employee behaviours are considered consistent with a strategy of innovation (Cappelli & Singh, 1992). Table 1 below summarises descriptions from a number of sources of employee behaviours which are believed to be consistent with an organisational strategy of innovation.

Table 1: 'Innovative' Employee Behaviours

Source	"Innovative" Employees
Kanter (1983)	<ul style="list-style-type: none"> • operate at the edge of their competence, focus their resources and attention on what they do not yet know, measure themselves by visions of the future rather than past standards, do not allow the past to serve as a constraint in the future
Schuler (1987)	<ul style="list-style-type: none"> • are creative, co-operative, longer-term oriented, risk-taking, willing to assume responsibility, are highly committed to the organisation
Schuler & Jackson (1987)	<ul style="list-style-type: none"> • are characterised by : creative behaviour, a longer-term focus, a relatively high level of co-operative interdependent behaviour, a moderate degree of concern for quality, a moderate concern for quantity, an equal degree of concern for process and results, a greater degree of risk-taking behaviour, a high tolerance for ambiguity and unpredictability
Amabile (1988)	<ul style="list-style-type: none"> • are persistent, curious, energetic, self-motivated, have special cognitive abilities (e.g. talents in the particular field, abilities for creative thinking), are risk-oriented (e.g. attracted to challenge and to doing things differently), have expertise in the area, have social skills, and have diverse experience
Dyer & Holder (1988)	<ul style="list-style-type: none"> • have very high levels of initiative and creativity, have high performance expectations, are flexible, have a high skill mix, and have a high identification with their job and with the company
Sonnenfeld & Peiperl (1988)	<ul style="list-style-type: none"> • are risk takers, are motivated to take professional risks for individual rewards, have innovative talent, have a higher and more "cosmopolitan" commitment to their profession rather than to the organisation
Arthur (1994)	<ul style="list-style-type: none"> • can be trusted to use their discretion and to work in ways which are consistent with the organisation's goals, they are more likely to engage in organisational citizenship behaviours, and non-role, un-rewarded behaviours, thought to be critical to organisational success

Table 1 indicates a good degree of consensus across different authors concerning the core employee behaviours deemed appropriate for a firm pursuing a strategy of innovation. Those behaviours which are believed to be associated with innovation include co-operation, flexibility, risk taking and ready adaptation to ambiguous and unpredictable circumstances.

Employee skills which have been associated with innovative behaviour include problem solving and communication skills. Amabile's (1983, 1988) componential model of creativity identifies "domain-relevant skills" and "creativity-relevant skills" as two necessary attributes for individual creativity on any given task. Attributes within these domains include an awareness of the feasibility of implementing innovations, familiarity with the relevant markets and a cognitive style which favours taking a new perspective to problems.

Since there is a high level of consensus about the types of employee skills and behaviours appropriate for a strategy of innovation, it might be reasonable to expect a similar degree of consensus about the type of HR system which firms seeking to pursue a strategy of innovation should adopt. However, as we shall see in the next section, this is far from being the case.

SECTION II - REVIEW AND ANALYSIS OF RESEARCH ON HRM AND INNOVATION

Comparing Prescriptions for HR systems for Innovation

A number of authors have offered prescriptions for HR practices which they believe are consistent with a strategy of competing through innovation. Among the best known are those of Miles and Snow (1984) and Schuler and Jackson (1987). Others reviewed here include: Sonnenfeld and Peiperl's (1988) system for their "baseball team", Arthur's (1994) "commitment" system, Delery and Doty's (1996) market-type system, Dyer and Holder's (1988) system for an involvement strategy, and Youndt, Snell, Dean and Lepak's (1996) system for a flexibility strategy. Most recently, Tushman and O'Reilly (1997) identify some HR practices which they suggest are appropriate for firms seeking to thrive on innovation. Table 2 provides a summary of the HR practices for innovation prescribed by these authors.

Table 2: Theoretical prescriptions for HRM and Innovation

Source	Recruitment/ Selection/ job security	Socialisation	Training	Development	Performance Appraisal	Compensation
Miles & Snow (1984)	Sophisticated recruiting at all levels; emphasis on “external” but also “internal” recruitment		Limited training programmes	Skill identification and acquisition	Results-oriented , identifying staffing needs, based on division/corporate performance, cross-sectional comparisons	External competitiveness, performance oriented and towards incentives, driven by recruitment needs
Schuler (1987)	Selection of highly skilled individuals, general, implicit selection criteria	Extensive socialisation	Broad applications , informal, unsystematic, high participation encouraged	Broad paths, multiple ladders, implicit criteria, open procedures	Loosely integrated, results and future oriented , recognises group-based accomplishments, high participation encouraged	Emphasis on external equity, flexible, many perks and long term incentives , high participation encouraged
Schuler & Jackson (1987)	Selection of highly skilled individuals displaying appropriate behaviours, high job security		Multi-skilling, cross-functional	Broad paths to reinforce the development of a broad range of skills	Long-term and group-focused	Emphasis on internal equity, low pay rates - but employees have greater say in deciding the make up of their pay package
Dyer & Holder (1988)	Careful selection to ensure appropriate skills, aptitudes and attitudes		Extensive, continuous learning	Some development, skill growth and cross-functional movement , little upward mobility,		More sophisticated programmes, flexible rewards; variable and skill-based with gainsharing and flexible benefits

Sonnenfeld & Peiperl (1988)	Recruiting for innovative talent/specialists, external recruitment at all levels, low job security		Very little training, but usually on-the-job	Limited development, little succession planning, promotion on the basis of individual merit	Performance always at peak, based on individual achievements	
Arthur (1994)	Higher percentage of maintenance/skilled employees,	Socialising activities	More training needed, also training in group problem solving		Strong relationship between organisational tenure and performance	Average wage rates
Delery & Doty (1996)	External recruitment	Little socialisation (if any)	Little training, informal	Very little use of internal career ladders	Results-oriented, evaluative feedback provided	Individual-based, based on output measures, profit sharing used extensively

There follows a review of prescriptions for the general structure of the employment relationship, as well as HR practices individually in relation to : recruitment, selection, socialisation, training, development, performance appraisal, and compensation. (Note that practices for which empirical support has been found are in bold type in Table 2.)

Structure of the employment relationship.

The decision on whether to hire from the market at all levels of the organisation or limit points of entry and promote from within is one of the most basic HR issues faced by organisations¹. To a large extent, a firm’s approach to this question significantly determines the nature of the employment relationship and the psychological contract which underpins it. Even more importantly for the argument presented here, the structure of the employment relationship influences firms’ choice of HR practices by imposing constraints on the choices available to them (see, for

¹ We recognise that the choice faced by firms concerning the structure of the employment relationship is not dichotomous. Practices vary within and between firms on a continuum from “hire only at entry level/promote from within” at one extreme to “hire from the market for all levels” at the other. Particularly in the modern context, the question is one of degree of emphasis rather than absolute choice. Our discussion treats this as a dichotomous choice in order to simplify the issue.

example, Doeringer and Piore 1971). Reflecting its fundamental importance, researchers on HRM and innovation have directly addressed the question of what employment relationship structure should be adopted by firms wishing to pursue a strategy of innovation. Unfortunately, the level of internal inconsistency in the prescriptive literature on HRM and innovation is nowhere more evident than in the treatment of this most basic HR question.

On the one hand, a number of authors (Miles & Snow, 1984; Sonnenfeld & Peiperl, 1988; Delery & Doty, 1996) propose that innovating organisations need to do much of their recruitment externally, to try to retain a fit between their human resource pool and the changing needs of the organisation. Innovative organisations are characterised as operating in environments which are both unstable and ambiguous, thereby making work role and behaviour requirements more difficult to define. For example, Miles and Snow (1984) suggest that prospector organisations are more concerned with sophisticated external recruitment practices at all levels of the organisation than either defender or analyser organisations. On the other hand, Schuler and Jackson (1987) and Mills (1985) present a case which is almost diametrically the opposite of the above. They argue that because innovative organisations require risk taking behaviour and tolerance of inevitable failures, job security should be provided and a long-term orientation encouraged. They therefore prescribe the use of entry level recruitment combined with extensive training and job security.

The implications of these two different approaches to structuring the employment relationship are significant. Configuration theory, on which research on HRM and innovation, posits a single, internally consistent system of HR practices consistent with a strategy of innovation. As we illustrate below, the HR practices which flow from these two approaches are very different, and for the most part are mutually exclusive. We will revisit the important issue of the relationship between the structure of the employment relationship and a strategy of innovation when we review empirical research later in this section, and again when we discuss future research directions in Section III.

Recruitment and selection.

A surprisingly small amount of prescriptive attention has been devoted to specifying the methods of recruitment and selection of employees which should be adopted by

organisations pursuing a strategy of innovation. The advice which is offered is fairly general in nature. For instance, more general, implicit and less formalised selection criteria are proposed by some authors (Olian & Rynes, 1984; Schuler, 1987). It is also argued that recruitment systems which are more open will allow employees to select themselves into innovative positions, allowing a better match between the requirements of the organisation and the individual needs of the employee (Schuler & Jackson, 1987; Morris & Jones, 1993). Miles and Snow (1984) while advocating the acquisition of human resources rather than internal development, offer little specific advice on how this should be done, apart from suggesting the use of some psychological testing. While Schuler and Jackson (1987) specify desirable employee behaviours associated with a strategy of innovation, they offer little advice on how this should be incorporated into the recruitment and selection process.

Socialisation.

Socialisation involves immersing the individual in the culture and practices of the organisations, where they become aware of the norms, values and attitudes which are consistent with the organisation and its strategy. It is suggested that such practices help to forge a psychological commitment by the individual to the organisation and perhaps encourage employee behaviours which are less predictable (Schuler & Jackson, 1987). A number of authors emphasise the particular importance of extensive socialisation and orientation programmes for new employees in innovative organisations (Schuler, 1987; Arthur, 1994; Tushman & O'Reilly, 1997).

In fact, this is one of the few HR practices for innovation concerning which there would appear to be a high level of consensus in the literature.

Training.

Tidd, Bessant and Pavitt (1997) suggest that the encouragement of creative and experimental behaviour not only requires the necessary skills and confidence on the part of the individual, but also a long term training and development strategy by the organisation. Schuler (1987) points out that training activities in innovative organisations should be spontaneous, informal, and unsystematic and should encourage high employee participation. Similarly, Schafer (1990) argues that in order to fit with the constantly changing environment and variable job requirements, the training provided should be continuous, less structured and should focus on

individualised knowledge requirements. This should enable employees to adapt to these changing conditions, to respond in unique ways to new challenges, and to become more comfortable with ambiguity.

Peck (1994) argues that HR practices which are believed to facilitate innovative behaviours such as co-operation and interdependence take a long term approach and include the use of extensive training and development activities, and inter-departmental transfers. Schuler and Jackson (1987) argue that in innovative organisations, intensive training should be provided where employees develop a broad range of skills which can then be used in other parts of the organisation. However, an entirely different view is offered by Delery and Doty (1996) who suggest that innovative organisations provide only a small amount of informal training, and Sonnenfeld and Peiperl (1988) who argue that due to the portability of skills, very little training, usually on-the-job, should be provided by such organisations. In general, these conflicting prescriptions for training are consistent with the fundamentally different approaches to structuring the employment relationship reviewed above.

Development/Careers.

While the structure of the employment relationship at least partially predetermines how organisations approach employee development and careers issues, there are a number of interesting issues raised in the treatment of these issues in the literature. Schuler (1987) argues that broad career paths which develop employees based on implicit rather than specific criteria are more adaptable to changing circumstances, and therefore allow employees to be moved around the organisation and be developed more broadly. Furthermore, Schuler and Jackson (1987) suggest that since it is more difficult to promote individuals through traditional methods in innovative organisations, establishing several ladders enlarges the opportunities for employees to advance. Careers can thus be redefined in terms of skill growth and cross-functional movement in order to overcome reduced opportunities for upward mobility.

Delery and Doty (1996) suggest that highly skilled employees may be attracted to innovative organisations since they provide greater opportunities for advancement into a variety of different positions. Schuler (1987) suggests that although recruiting internally or “promoting from within” can serve as an effective reward for good

performance, it generally commits the organisation to providing training and career development to high performers.

Performance appraisal.

Performance appraisals which communicate a tolerance for failure and which provide employment security are believed to influence employee motivation in innovating organisations. Appraisals which reflect the long term, emphasise results, and assess group rather than individual achievements are most likely to have these effects (Schuler, 1987; Schuler & Jackson, 1987). However, other authors suggest that performance appraisals should be based on individual achievements (Sonnenfeld & Peiperl, 1988; Delery & Doty, 1996), should focus on behaviours rather than results (Youndt et al., 1996), and should be used for developmental purposes (Miles & Snow, 1984; Youndt et al., 1996), rather than evaluative purposes (Delery & Doty, 1996).

Compensation systems.

Some authors suggest that compensation systems should emphasise individual skills (Dyer & Holder, 1988; Delery & Doty, 1996; Youndt et al., 1996), while Youndt et al. (1996) suggest that group-based incentives should also be provided. Jackson, Schuler & Rivero (1989) argue that organisations pursuing a strategy of innovation should place less emphasis on results-based bonuses or incentives, which would penalise employees for engaging in risk-taking behaviours.

While some authors also argue that innovating organisations should adopt compensation systems which emphasise external or market based equity (Miles & Snow, 1984; Schuler, 1987; Arthur, 1994; Youndt et al., 1996), others (Schuler & Jackson, 1987; Jackson et al., 1989) argue that internal equity should be emphasised. These emphases reflect the general approach to the employment relationship adopted by these authors. They suggest that basic pay rates can be low but employees should have the opportunity to become stockholders and have a greater say over the mix of components in their pay. Dyer and Holder (1988) lend further support for this argument for greater flexibility in pay systems.

Contradictions and Deadly Combinations

In order to provide support for the underlying theory, the prescriptive and empirical research reviewed on HRM and innovation should ideally yield a single set of “best

HR practices for innovative organisations”. Indeed, some interpretations seem to suggest that this is the case (see, for instance, Morris & Jones 1993, p. 881). However, a close review of the research reveals that different authors directly contradict each other on many of the most basic HR practice choices faced by employers seeking to pursue a strategy of innovation. In summary form, these include:

Recruitment

- Internal (Schuler & Jackson, 1987) or external (Miles & Snow, 1984)

Training

- Limited (Miles & Snow, 1984) or extensive (Dyer & Holder, 1988)
- Informal (Schuler, 1987) or formal (Morris & Jones, 1993)

Performance Appraisals

- Results (Schuler & Jackson, 1987) or behaviour-focused (Youndt et al., 1996)
- For evaluative (Delery & Doty, 1996) or developmental purposes (Youndt et al., 1996)
- Emphasising group (Schuler & Jackson, 1987) or individual achievements (Sonnenfeld & Peiperl, 1988)

Compensation Systems

- Emphasising internal (Schuler & Jackson, 1987) or external equity (Miles & Snow, 1984)
- Providing group (Youndt et al., 1996) or individual incentives (Delery & Doty, 1996)

Employment Security

- High (Schuler & Jackson, 1987) or low employment security (Sonnenfeld & Peiperl, 1988)

Furthermore, the prevalence of such conflicting views concerning individual practices makes it inevitable that any organisation adopting some of these practices is likely to create some “deadly combinations” - bundles of HR practices which neutralise rather than reinforce one another (Becker, Huselid, Pickus & Spratt, 1997).

For instance:

- Combining the “buy” approach to hiring proposed by Miles and Snow (1984) with the extensive multi-skilling, cross functional training proposed by Schuler and

Jackson (1987) and others may prove economically disastrous, as the organisation's well trained employees leave to join organisations which offer employment security and clear career paths. While an emphasis on external competitiveness in pay might help retain employees, the costs of doing so combined with extensive training is likely to provide a cost advantage to competitors who have avoided these combinations.

- Long-term, group focused appraisals as proposed by Schuler and Jackson (1987) are likely to be neutralised if combined with the individual based compensation suggested by Delery and Doty (1996). This type of combination has many of the characteristics of the type of "folly" described in Kerr's classic analysis (1975).
- A focus on internal equity in compensation and low pay rates (Schuler & Jackson, 1987) is likely to neutralise the effects of sophisticated selection (Miles & Snow, 1984) whether at entry level or above, as firms struggle to attract and retain the high quality employees they identify through the hiring process.

Measured against our first criterion -- the identification of a single, internally consistent set of HR practices -- research on HRM and innovation does not support the theory on which it has been based to date. Moreover, the examples cited above raise concerns about the implications for practitioners of this research. It appears at least possible that selective interpretation of this research could yield advice for practitioners which not only is not helpful but is actually dysfunctional.

Empirical Evidence Concerning HR Practices and Innovation

Our analysis to this point has focused on the prescriptive literature on HRM and innovation. While many of these prescriptions were based on "empirical" case study research, the approach was one of theory building rather than theory testing. In this section we briefly review empirical studies which have attempted to test these prescriptions by comparing them with practices adopted by innovative organisations. We consider the issues in the same general order as the treatment of prescriptive research above.

Support for a link between innovative strategies and the use of HR practices which offer job security has been reported by Peck (1994), Morris and Jones (1993), Jackson et al., (1989), and Milkowich, Gerhart and Hannon (1991). Peck (1994)

found that prospector organisations were more rather than less likely to use the internal labour market to develop skills. Similarly, Delery and Doty (1996) found that prospector banks who made greater use of internal career opportunities had higher returns than did defender banks.

Morris and Jones (1993) found that innovative organisations tended to place greater emphasis on extensive socialisation of new employees. They also found that while training and development programmes in innovative organisations were continuous or ongoing, they were also systematic and planned. Innovative firms also used programmes which encouraged high employee participation, which were group-focused and which assumed a longer term perspective. Jackson et al., (1989) found that innovative organisations tended to provide more training overall, focusing on skills for both present and for possible future roles.

With regard to careers, Morris and Jones (1993) found that innovating organisations were more likely to have selection and staffing procedures designed around multiple career paths. The findings by Peck (1994) and Delery and Doty (1996) in relation to the greater use of internal recruitment would suggest that innovating organisations tend to emphasise promotion from within.

On performance appraisal, empirical research suggests that innovative organisations are more likely to use results-oriented performance appraisals (Jackson et al., 1989; Morris & Jones, 1993; Peck, 1994). Delery and Doty (1996) found that banks pursuing a strategy of innovation benefited more from results-oriented appraisals than did banks pursuing a defender strategy. Research also suggests that innovative organisations are more likely to use results from performance appraisals for evaluative purposes rather than for longer term development (Olian & Rynes, 1984; Slocum, Cron, Hansen & Rawlings, 1985; Jackson et al., 1989). Morris and Jones (1993) found that innovative organisations tended to use performance appraisals with a longer term focus, with greater employee participation and explicit encouragement of risk-taking behaviours.

Finally, on compensation Jackson et al., (1989) found that innovative organisations were less likely to use incentive compensation systems (for hourly employees) but contrary to what was predicted, they were more likely to use bonus systems for productivity. Morris and Jones (1993) found that compensation practices in

innovating organisations were more likely to include bonuses and incentives which were based on long term performance and which emphasised individual rather than group-based achievements. In addition they found that compensation practices tended to place greater emphasis on job security rather than higher pay. Peck (1994) found no significant association between compensation systems and a strategy of innovation.

HR Practices for Innovation or Just Best Practices?

Our second criterion for assessing whether research on HRM and innovation offers support for its theoretical foundations is that HR practices for a strategy of innovation should be different from HR practices for other strategies. One way to assess this is to compare the findings of empirical research on HRM and innovation with the empirical findings of the “best practice” approach to firm-level HRM research. Directly challenging the notion that the “fit” between strategy and HR practices is critical, the best practice approach to HRM takes the view that the adoption of a specific set of Best HR Practices enhances firm performance regardless of strategic orientation (Pfeffer, 1994). Several authors have provided empirical studies of best practices in Human Resource Management (e.g., Arthur, 1994; Huselid, 1995; MacDuffie, 1995). Table 3 shows some of those HR practices which have been identified as best practices, alongside those which have been prescribed in the innovation literature, and provides examples of where empirical support for each has been found.

Table 3: Summary of Human Resources ‘Best Practices’

Best HR Practices	In General (*Empirically supported)	For Innovation (*Empirically supported)
Extensive skills training	* Arthur (1994)	* Jackson et al (1989)
Promotion from within	Pfeffer (1994)	* Morris & Jones (1993)
Results-oriented appraisals	* Delery & Doty (1996)	* Peck (1994)
Incentive compensation	* Delaney & Huselid (1996)	* Jackson et al (1989)
Employee participation	* Arthur (1994)	* Morris & Jones (1989)
Employment security	* Delery & Doty (1996)	* Peck (1994)

The research summarised in Table 3 suggests that all of the HR practices for innovation which have received empirical support are also proposed as elements of High Performing Work Systems, also known as Best HR Practices. This suggests that the Best HR practices for innovation may not, in fact, be strategy specific but are simply good HR practices for any organisation whatever their strategy. Against this second criterion, then, the research on HRM and innovation does not appear to offer support for the theoretical foundations on which it is based.

SECTION III - NEW DIRECTIONS FOR RESEARCH ON HR SYSTEMS FOR INNOVATION

The analysis in the foregoing section illustrates that the configuration theory approach to research on HRM and innovation has yielded ambiguous research findings as well as advice for practitioners which is at best confusing and at worst dysfunctional. In this section we consider the direction that both theoretical and empirical research on this topic should now take. On theory, we propose integrating elements of the two other theoretical approaches found in firm level research in HRM -- contingency theory and best practice -- into the theoretical base for research in this domain. We argue that this broader approach can resolve many of the internal inconsistencies found in our literature review and provide the foundation for further productive research on this topic. For empirical research, we review major measurement issues faced by researchers on HR systems for innovation, and consider some ways of tackling them.

Theory Issues

The literature on HRM and innovation reflects a strongly voluntaristic view of the role of management. That is, it relies on the assumption that management are not only able to choose the strategy they wish to pursue, but they are then able to change all aspects of the employment relationship to align the HR system with that strategy. For example, Delery and Doty (1996) suggest that prospector organisations should in general adopt a "Market type system", while defender organisations are best suited by an "Internal system". However, both organisational research and common sense suggest that the employment system to be found in any organisation at any point in time is primarily a function of the history and culture of the organisation as well as the institutional environment in which it operates (see, for example, Cappelli & Crocker -Hefter, 1996). The degree to which management can change the employment system is thus severely constrained not just by these factors, but also by more tangible factors such as union agreements or the need to provide particular

incentives to attract and retain employees in particular labour markets. We therefore suggest that research on HRM and innovation has relied on assumptions about managerial discretion which may only apply in startup operations and greenfield sites, if they apply at all. This research would, we argue, benefit from a more deterministic approach which recognises the reality that at least some aspects of the employment system in established organisations are characteristics of the organisations rather than HR tools at the discretion of management. For example, we suggested earlier in this paper that the emphasis on provision of employment security is not for the most part a discretionary HR practice. If this fundamental aspect of the employment system is predetermined, then the choices faced by management with respect to other aspects of the employment system are severely constrained.

- A move to a more deterministic ontology will change the basic research question to be tackled by researchers on HRM and innovation. Rather than asking “what type of HR system is most appropriate for a firm wishing to pursue a strategy of innovation?”, we suggest a more fruitful agenda can be identified by asking the following:
- What discretionary HR practices are consistent with a strategy of innovation?

This approach if adopted could retain much of the parsimony of the configuration approach while taking realistic account of the constraints within which firms must operate. Thus, we could avoid the patently inappropriate prescriptions of organic organisational structures for organisations for whom this is clearly not an option.

In basic theory terms, we are suggesting that elements of contingency theory be integrated with the configuration “model” which has been driving research on HRM and innovation. The challenge in moving toward a contingency approach is to optimise the tradeoff between the contingency variables we add to the model (each of which reduces parsimony) and the gains in validity which result. In practical terms, this requires us to suggest how many “types” of employment system should be considered.

Damanpour (1991) in a meta-analysis of research on the determinants of innovation, proposes that a dichotomous classification of organisations should be adopted in research on this topic. A number of authors in HRM have also proposed the

existence of two types of employment system which Delery and Doty (1996) label the “Internal type system” and the “Market type system”. Internal type systems hire mainly from within the organisation and offer employees a great deal of employment security, well-defined career ladders, and extensive formal training. By contrast, Market type systems hire almost exclusively from outside the organisation, make very little use of internal career ladders, use extensive profit sharing and offer very little employment security (for a more complete analysis, see Delery & Doty, 1996, pp. 809-810).

To illustrate the value of the approach we are suggesting, we considered the implications of a dichotomous classification of organisations into Internal and Market types for the literature reviewed earlier. The following table provides summary descriptions of two proposed systems of HR practices for innovation-- a Market System and an Internal System-- derived from the current literature. A comparison with Table 2 reveals a much higher level of internal consistency among the practices within these systems than that described in our literature review.

Table 4: Characteristics of HR practices for innovation in Internal and Market Types of Organisation

	Recruitment, Selection, Socialisation	Training	Development	Performance Appraisal	Compensation
Internal Type System (e.g. Schuler, 1987; Schuler & Jackson, 1987; Dyer & Holder, 1988; Arthur, 1994)	<ul style="list-style-type: none"> • Internal Recruitment • General, implicit selection criteria • Extensive socialisation • Limited ports of entry 	<ul style="list-style-type: none"> • Extensive, continuous, informal, unsystematic 	<ul style="list-style-type: none"> • Broad paths • Multiple ladders 	<ul style="list-style-type: none"> • Results • Long-term • Group based 	<ul style="list-style-type: none"> • Internally based • Incentives provided • Greater differentials between high and low performers
Market Type System (e.g. Miles & Snow 1984; Sonnenfeld & Peiperl, 1988; Delery & Doty, 1996; Youndt et al , 1996)	<ul style="list-style-type: none"> • External Recruitment • Little socialisation 	<ul style="list-style-type: none"> • Limited • Very little training 	<ul style="list-style-type: none"> • Little use of internal career ladders • Little succession planning • Experience and skill acquisition provided for opportunities in the external marketplace 	<ul style="list-style-type: none"> • Based on quantifiable outputs • Results and behaviour oriented • Based on immediate results 	<ul style="list-style-type: none"> • Externally based • Closely linked to performance • Individual based

Learning from the Best Practice Approach

Our review also indicates that researchers in HRM and innovation need to be more theoretically rigorous when prescribing HR practices for innovation. In particular, the link between proposed HR practices and the desired employee behaviours must be

clearly articulated. The Best Practice literature can both inform and complement continued study on the topic of HRM and innovation in this regard. For instance, on a practical level the simple comparison in Table 3 above could be undertaken for all proposed HR practices for innovation. Discovering that a proposed practice is also being researched as a Best Practice may indicate a need for greater specificity about the link to particular innovative behaviours. More efficient use of scarce research resources and greater conceptual clarity in research on HRM and innovation should result.

Measurement Issues

Two major measurement dilemmas emerge from our review of empirical research on HR systems for innovation. The first concerns whether innovation should be measured in terms of outcomes or as a continual process, where discrete outcomes are assumed to result from the implementation of an overall process or strategy. The second dilemma concerns whether we should study particular HR practices in isolation, or should support for innovation also be measured if HR is assumed to play a role in developing an appropriate culture for innovation? The way in which each of these dilemmas is resolved has significant implications for research on this topic; we therefore address each of these issues separately here.

Measuring innovation / Strategies of innovation.

When we defined innovation in an earlier section, we identified both specific types of innovation (e.g., technical and administrative), and specific types of strategies (e.g., low-cost, quality enhancement and innovation). Accordingly, there are two general approaches to measuring innovation, either in terms of its outcomes (e.g., number of new products introduced to the market), or in terms of the strategic positioning of a firm (e.g., innovators Vs. low cost providers). Researchers focusing on a particular industry have tended to measure outcomes (e.g., Goes & Park, 1997; Bantel & Jackson, 1989). In these studies panels of “experts” are used to identify products or services within an industry, and inventories are developed describing both types of innovations. Items are then rated in terms of their innovativeness, and overall innovation is measured in terms of the rate of adoption of these “innovative” products or services within a given period.

The second approach has been applied to studies examining a variety of industries using measurements to assess strategic orientation (e.g., Dess & Davis, 1984;

Shortell & Zajac, 1990; and Segev, 1989). These are largely based on strategic typologies, such as Miles and Snow's (1984) prospector and defender types, and place organisations along a continuum depending on their degree of innovativeness. Dess and Davis (1984) using their own instrument, found support for Porter's (1980) generic strategies where for instance, organisations pursuing a strategy of differentiation emphasised variables such as new product development and forecasting of market growth.

Although both approaches are no doubt useful, an interesting question arises concerning the degree to which innovation is actually being measured. For instance, with regard to the first approach, can we assume that the most innovative organisations are those with the highest rate of product innovation, regardless of how successful these innovations have been? Similarly, but in relation to the second approach, are we to assume that organisations are highly innovative because that is how managers within them perceive them to be? Insight on this question might be gained from adopting both approaches sequentially in a single study; i.e., obtaining a measure of strategic orientation initially, and then examining how it is achieved by measuring the specific outcomes of innovation (such as rate of product innovation). For instance, Morris and Jones (1993) in their study included open-ended questions regarding the number of new products or services planned for the following year, and the amount of time devoted to innovation by senior management. It can also be argued that studies which have assumed organisations to be innovative based on one of the two measures described above, have disregarded important issues such as whether new ideas and risk taking behaviours are encouraged and whether mistakes are tolerated. One useful instrument, the entrepreneurship scale developed by Miller and Friesen (1983) but subsequently adopted by others (e.g. Morris & Jones, 1993) measures innovativeness, risk taking and pro-activeness.

HR Practices.

Studies examining HR practices in innovative organisations have relied almost exclusively on the prescriptions of HR practices for innovation provided within the literature. For instance, Peck (1994) adopted Miles and Snow's (1984) typology of HR practices for both defender and prospector organisations and asked HR managers to rate the extent to which their organisation emphasised a "make" or "buy" orientation in their use of HR practices. This method is useful in the sense that it allows for the fact that different HR practices may be used within different units or

at various levels of the same organisation, but that an overall 'make' or 'buy' policy may prevail. However, on the other hand, it may result in 'central' tendencies in responses, where no definite emphasis on either orientation can be properly established. With regard to this issue, perhaps a more favourable measure was that employed by Morris and Jones (1993) based on both Schuler's (1987) menu of HR practice choices, and Schuler and Jackson's (1987) typology of HR practices for innovative organisations. Similar to Peck, they asked managers to rate the extent to which particular HR practices were emphasised within their organisation but they used a bi-polar scale as opposed to obtaining ratings.

A further concern is that measuring HR practices in isolation disregards the fundamental issue of whether or not organisations foster an appropriate climate for innovation. Many studies have failed to identify the source of new ideas and do not consider other factors such as organisational goals, structure, flexibility and decision making styles. One measure which addresses issues such as these is provided by Siegel and Kaemmerer (1978) and assesses support for innovation. Clearly, if it is assumed that the use of particular HR practices have a significant role in developing an appropriate culture for innovation, then studies which illuminate the relationship between HR practices, culture and strategy would be most welcome.

Where to from Here? --HR Systems for Innovation and Firm Performance.

We suggest that the single most important research issue in this domain concerns the nature of the link between HR practices and organisational performance. Despite the growing body of research on HR systems for innovation, the specific relationships between HR systems, strategies of innovation and firm performance have not been addressed. Instead, research has examined whether HR practices in innovative organisations are those prescribed by for instance, Miles and Snow (1984) or Schuler and Jackson (1987). Although this type of research undoubtedly adds value in terms of whether these prescriptions are actually applied in organisational settings, a more fundamental issue concerns whether these practice choices enhance the performance of the organisations which adopt them.

Establishing this HR-performance link has proved to be a major challenge for other firm-level research within SHRM and several studies have addressed this relationship with varying degrees of success. Within the best practice literature for instance, studies have found that use of specific practices, or what are now widely

referred to as “High Performance Work Practices” enhances organisational performance (e.g., Huselid, 1995; Osterman, 1994). For instance, Huselid (1995) found that extensive recruitment and training procedures, incentive compensation and increased employee involvement were associated with lower levels of turnover, higher productivity and better financial performance. By contrast, the issue of performance has been notable by its absence from the literature reviewed here. Thus, after fifteen years of research on the topic, we have no light to shed on whether the choice of HR system has any bearing on the performance of a firm pursuing a strategy of innovation.

The notion of internal and external “fit” suggests that certain combinations of HR practices - which are internally coherent with each other, and externally aligned with organisational strategy - can lead to superior performance. However, in relation to internal fit, Delaney and Huselid (1996) found no support for the existence of complementarities or synergies of HR practices and firm performance. However, their use of crude measures of complementarities, and the fact that they did not examine HR systems in relation to specific strategies would suggest that perhaps such complementarities are possible. If this were the case then perhaps aligning these practices with strategy would yield greater effects. Therefore, research is needed to identify whether configurations of HR practices with particular strategies lead to synergistic effects.

With regard to identifying the ideal HR system for innovation, it may be that such a definitive HR system would be too rigid for the innovative organisation and its constantly changing needs, but that a flexible combination of both practices recommended in the best practice literature, and those found to be contingent on a strategy of innovation, may be what such organisations need in order to compete successfully.

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