

# **Human capital and performance: A literature review**

**Dr Philip Stiles and Somboon Kulvisaechana**

**Judge Institute of Management, University of Cambridge,  
Trumpington Street, Cambridge CB2 1AG**



**UNIVERSITY OF  
CAMBRIDGE**

**Judge Institute of Management**

*cambridge's business school*

# Human capital and performance: A literature review

SECTION	PAGE NUMBER
Human capital in context: the resource based view of the firm	3
Human capital and complementary capitals	5
Intellectual capital	6
Social capital	7
Organisational capital	7
Knowledge	8
Human capital and performance	9
Contingency or 'fit' approaches	13
Universal or 'best practice' approaches	14
Configurations	15
Indirect links; commitment and performance	16
Difficulties with the link between human capital and performance	17
Measuring human capital	18
Reporting human capital measures	20
Conclusions	21
Tables	23
References	24
Appendix: Selected studies on HR practices & performance link	34

## **Human capital and performance: A literature review**

There is a large and growing body of evidence that demonstrates a positive linkage between the development of human capital and organisational performance. The emphasis on human capital in organisations reflects the view that market value depends less on tangible resources, but rather on intangible ones, particularly human resources. Recruiting and retaining the best employees, however, is only part of the equation. The organisation also has to leverage the skills and capabilities of its employees by encouraging individual and organisational learning and creating a supportive environment in which knowledge can be created, shared and applied. In this review, we will assess the context in which human capital is being discussed and identify the key elements of the concept, and its linkage to other complementary forms of capital, notably intellectual, social, and organisational. We will then examine the case for human capital making an impact on performance, for which evidence is now growing, and explore mechanisms for measuring human capital. Our belief is that, on the evidence of this review, the link between human capital and organisational performance is convincing. Empirical work has become more sophisticated, moving from single measures of HR to embrace combinations or bundles of HR practices and in this tradition, the findings are powerful. Such results have led some scholars to support a 'best practices' approach, arguing that there is a set of identifiable practices that have a universal, positive effect on company performance. Other scholars argue that difficulties in specifying the constituents of a best practices set, and the sheer number of contingencies that organisations experience, make a best practice approach problematic. A general and growing trend in this debate is to see these approaches as complementary rather than in opposition, with best practice viewed as an architectural dimension that has generalisable effects, but within each organisation, the bundles of practices will be aligned differently to reflect the context and contingencies faced by the firm. Though there appears to be a growing convergence on this issue, the measurement of human capital remains rather ad hoc, and more needs to be done to develop robust methods of valuing the human contribution.

### **Human capital in context: the resource-based view of the firm**

The issue of what contributes to competitive advantage has seen, within the strategy literature, a shift in emphasis away from external positioning in the industry and the relative balance of competitive forces, towards an acknowledgement that internal resources be viewed as crucial to sustained effectiveness (Wright et al 2001). The work of Penrose (1959) represents the beginning of the resource-based view of the firm (RBV), later articulated by Rumelt (1984), Barney (1991, 1996) and Dierickx & Cool (1989). The RBV established the

importance for an organisation of building a valuable set of resources and bundling them together in unique and dynamic ways to develop firm success. Competitive advantage is dependent not, as traditionally assumed, on such bases as natural resources, technology, or economies of scale, since these are increasingly easy to imitate. Rather, competitive advantage is, according to the RBV, dependent on the valuable, rare, and hard-to-imitate resources that reside within an organisation. Human capital in a real sense is an 'invisible asset' (Itami 1987). The importance to the strategic aims of the organisation of the human capital pool (the collection of employee capabilities), and how it is managed through HR processes, then becomes apparent. In terms of rarity:

'If the types and levels of skills are not equally distributed, such that some firms can acquire the talent they need and others cannot, then (ceteris paribus) that form of human capital can be a source of sustained competitive advantage' (Snell et al 1996:65).

And in terms of inimitability, there are at least two reasons why human resources may be difficult to imitate: causal ambiguity and path dependency (Becker & Gerhart 1996, Barney 1991). 'First, it is difficult to grasp the precise mechanism by which the interplay of human resource practice and policies generates value...second, these HR systems are path dependent. They consist of policies that are developed over time and cannot be simply purchased in the market by competitors' (Becker & Gerhart 1996:782).

The interdependency between HR practices combined with the idiosyncratic context of particular companies creates high barriers to imitation. Of course, the human resources must be valuable; they must, as Boxall says, be 'latent with productive possibilities' (1996:67) and so human capital advantage depends on securing exceptional talent, or, in the familiar phrase, 'the best and the brightest'.

This emphasis on human capital also chimes with the emphasis in strategy research on 'core competencies', where economic rents are attributed to 'people-embodied skills' (Hamel & Prahalad 1994:232). The increasing importance of the RBV has done much to promote human resource management in general and human capital management in particular, and to bring about a convergence between the fields of strategy and HRM (Wright et al 2001).

The resource-based view of the firm strengthened the often-repeated statement from the field of strategic human resource management that people are highly important assets to the success of the organisation. Although Michael Hammer suggested that 'people are our greatest asset' is 'the biggest lie in contemporary American business', the rise of human

resource management, in terms of rhetoric at least, has been spectacular. This was sparked in the 1980s by the examination of the 'Japanese miracle', an analysis that showed success built on a distinctive form of people management, and by the eagerly received recommendations from the excellence movement (Peters & Waterman 1982, Collins & Porras 1994), which urged the development and nurture of employees within a supportive strong culture. A more recent, and equally important strand has emerged under the title 'the knowledge-based view of the firm' (Grant 1996), which emphasises the requirement of organisations to develop and increase the knowledge and learning capabilities of employees through knowledge acquisition and knowledge sharing and transfer, to achieve competitive advantage.

### **Human capital, and complementary capitals**

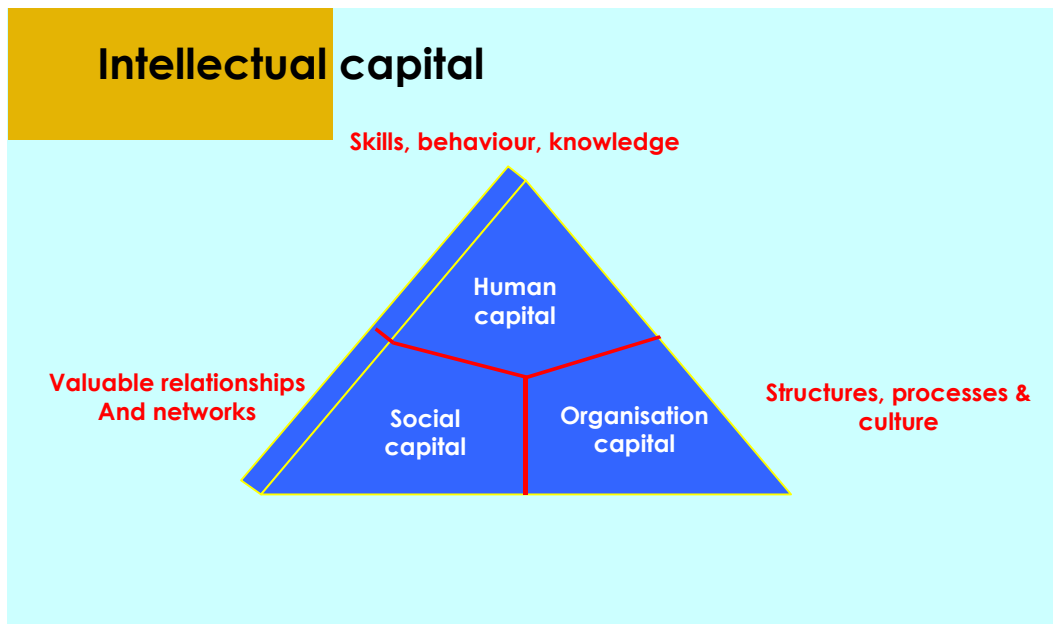
Human capital is 'generally understood to consist of the individual's capabilities, knowledge, skills and experience of the company's employees and managers, as they are relevant to the task at hand, as well as the capacity to add to this reservoir of knowledge, skills, and experience through individual learning' (Dess & Picken 2000:8).

From a definition such as this, it becomes clear that human capital is rather broader in scope than human resources. The emphasis on knowledge is important, and though the HR literature has many things to say about knowledge, the debate is traditionally rooted in an individual level perspective, chiefly concerning job-related knowledge, whereas the human capital literature has moved beyond the individual to also embrace the idea that knowledge can be shared among groups and institutionalised within organisational processes and routines (Wright et al 2001).

'The concept and perspective of human capital stem from the fact that there is no substitute for knowledge and learning, creativity and innovation, competencies and capabilities; and that they need to be relentlessly pursued and focused on the firm's environmental context and competitive logic' (Rastogi, 2000:196).

Such a consideration leads to a crucial point: the accumulation of exceptionally talented individuals is not enough for the organisation. There must also be a desire on the part of individuals to invest their skills and expertise in the organisation and their position. In other words, individuals must commit or engage with the organisation if effective utilisation of human capital is to happen. In addition, therefore, to human capital, there must also be social capital and organisational (or structural) capital. These three forms of capital contribute to the overall concept of intellectual capital (see Figure 1).

**Figure 1: Intellectual capital**



### ***Intellectual capital***

The OECD (1999) defines intellectual capital as ‘the economic value of two categories of intangible assets of a company’ – organisational and human capital. Wright et al (2001) argue that intellectual capital is a factor that includes human capital, social capital and organisational capital. For Nahapiet & Ghoshal (1998), intellectual capital refers to the ‘knowledge and knowing capability of a social collectivity, such as an organisation, intellectual community, or professional practice.’ (1998:245). There is a lack of clarity surrounding these and related terms, with numerous definitions abounding. In one study, Gratton & Ghoshal (2003) argue that intellectual capital is part of human capital, that is, human capital subsumes intellectual capital, and also includes within it social capital and emotional capital. For most commentators, however (e.g. Kaplan & Norton 1993, Harvey & Lusch 1999, Stewart, 1997, Sveiby 1997) intellectual capital has a broad sweep and includes human capital as one of its key dimensions.

Central to these ideas is that intellectual capital is ‘embedded in both people and systems. The stock of human capital consists of human (the knowledge skills and abilities of people) social (the valuable relationships among people) and organisational (the processes and routines within the firm)’ (Wright et al 2001:716).

Developing human capital therefore requires attention to these other complementarities. If competitive advantage is to be achieved, integration between human, social and organisational capital is required.

### ***Social capital***

According to Nahapiet & Ghoshal (1998) 'the central proposition of social capital theory is that networks of relationships constitute a valuable resource for the conduct of social affairs...much of this capital is embedded within networks of mutual acquaintance' (1998:243). Social capital, it is argued, increases the efficiency of action, and aids co-operative behaviour (Nahapiet & Ghoshal 1998). Social relationships and the social capital therein, are an important influence on the development of both human and intellectual capital. At the individual level, individuals with better social capital - individuals with stronger contact networks - will 'earn higher rates of return on their human capital' (Garavan et al 2001:52). But it is at the organisation level that social capital is highly important. As Nahapiet and Ghoshal argue: 'social capital facilitates the development of intellectual capital by affecting the conditions necessary for exchange and combination to occur' (1998:250). In social capital, the authors argue for three major elements: a structural dimension (network ties, network configuration and appropriable organisation); a cognitive dimension (shared codes and languages, shared narratives), and a relational dimension (trust, norms, obligations and identification). All three influence the development of intellectual capital. This approach links well with the prevailing resource-based view, with its emphasis on bundles and combinations of resources. Social capital, with its stress on linkages between individuals, creates the conditions for connections which are non-imitable, tacit, rare and durable. Gratton & Ghoshal (2003) argue that social capital is based on the twin concepts of sociability and trustworthiness: 'the depth and richness of these connections and potential points of leverage build substantial pools of knowledge and opportunities for value creation and arbitrage' (2003:3).

### ***Organisational capital***

The principal role of organisational capital is to link the resources of the organisation together into process that create value for customers and sustainable competitive advantage for the firm (Dess & Picken 1999:11). This will include:

- Organisational and reporting structures
- Operating systems, processes, procedures and task designs

- Information and communication infrastructures
- Resource acquisition, development and allocation systems
- Decision processes and information flows
- Incentives, controls and performance measurement systems
- Organisational culture, values and leadership

The interactions between these dimensions are important if employees are to have the motivation to develop and use their skills and knowledge. Beginning with the last issue first, the culture of the organisation has a large impact on both recruitment and retention as well as in the area of generating commitment. In McKinsey's War for Talent survey (1999), 58% of employees, by far the highest response, said that what they valued the most in organisations was strong values and culture. A supportive culture with strong corporate purpose and compelling values has been seen as the underlining reason for major corporate success (Peters & Waterman 1982, Collins & Porras 1994). A second major influence on human capital is the incentive structure and how performance is measured and managed in general. We have mentioned earlier that studies have shown differentiated reward systems, and clear positive appraisal linked to incentives, can link directly to firm performance. In terms of organisational structure, 'the degree that skilled and motivated employees are directly involved in determining what work is performed and how this work gets accomplished' is crucial (Delaney & Huselid 1996: 950). To this end, employee participation (Wagner 1994), internal career ladders (Osterman 1987) and team based working (Levine 1995) have all been shown to positively link to organisational performance (Delaney & Huselid 1996). According to Rumelt (1984), the routines and processes that act as the glue for organisations can either enhance or disable co-operative working and the development of knowledge. This is ultimately the simple point that organisational structures and processes must support the purpose of the organisation and so have requisite variety (Jacques 1981) without creating boundaries between individuals and groups.

## ***Knowledge***

The connections between human capital, social capital and organisational capital will produce intellectual capital. This in turn will affect the management of knowledge within the organisation. Knowledge has long been recognised as a valuable resource by economists and has been a focus of significant attention in the human capital literature, in particular the issues of knowledge generation, leverage, transfer and integration (Wright et al 2001, Nonaka 1994, Sveiby 1997, Szulanski 1996). Knowledge has been conceptualised and characterised in

a number of ways in the literature (Maruping 2002) but a major point of commonality has been the distinction between tacit knowledge (or know-how) characterised by its incommunicability, and explicit knowledge, which is capable of codification (Nonaka 1994, Polanyi 1962, 1967). Given the importance of knowledge in the organisation (indeed, Grant (1996) posits a knowledge-based theory of the firm) it becomes crucial that the employees who are the source of knowledge are managed well. This requires that firms 'define knowledge, identify existing knowledge bases, and provide mechanisms to promote the creation, protection and transfer of knowledge (Wright et al 2001: 713). The fundamental issue with tacit knowledge is its intangibility and Pfeffer & Sutton (1999) argue that the knowledge-doing gap (translating knowledge into action) is at least as important as accumulating knowledge in the first place. In other words, attending to the conditions under which people are prepared to share and act upon their knowledge is a major component of human capital management. As Wright et al (2001) point out, in the HR literature there has been a focus on developing individual knowledge through training and providing incentives to apply knowledge. But the human capital literature is as much concerned with the organisational sharing of knowledge, making it accessible and transferable.

Leonard-Barton (1992) has identified four processes for supporting organisational learning and innovation.

1. owning/solving problems (egalitarianism)
2. integrating internal knowledge (shared knowledge)
3. continuous experimentation
4. integrating external knowledge (openness to outside)

The greater the sense of social community within the firm (social capital), the more likely it is that knowledge will be created and transferred (Coleman 1988). Similarly, if a combination of organisational processes and boundaries are in place, this may hinder efforts to turn knowledge into action.

## **Human capital and performance**

The link between human capital and performance is based on two theoretical strands. The first, as we have discussed, is the resource-based view of the firm. The second is the expectancy theory of motivation (Vroom 1968) which is composed of three elements: the valence or value attached to rewards; the instrumentality, or the belief that the employee will receive the reward upon reaching a certain level of performance; and the expectancy, the

belief that the employee can actually achieve the performance level required. HRM practices that encourage high skills and abilities - e.g. careful selection and high investment in training - can be specified to make the link between human capital management and performance. In this section, we shall outline a chronology of work in the area of HR practice and performance, before moving on to discuss some of the problems with researching the subject.

### ***1960s and 1970s***

Initial writing on human capital flowed from economists of education such as Shultz (1969), Mincer (1962), and Becker (1964, 1976) (who won a Nobel Prize for his work in this subject) focusing on the economic benefits from investments in both general and firm-specific training. This work, based on detailed empirical analysis, redressed the prevailing assumption that the growth of physical capital is paramount in economic success. In reality, physical capital 'explains only a relatively small part of the growth of income in most countries' (Becker 1964:1). The relationship between education and economic growth (Psacharopoulos 1973), productivity (Denison 1967, 1962) and earnings growth (Schultz 1971, Becker 1964) all have strong empirical support .

Human capital has been central in explaining individual earnings differences . Employees who invest in education and training will raise their skill level and be more productive than those less skilled, and so can justify higher earnings as a result of their investment in their human capital. With *general* training, 'the potential for asset creation exists, so do the conditions for employee turnover because trained employees can market their heightened human capital' (Steffy and Maurer 1988:277) Firms may reduce the wages of those on training to offset the costs of training, to increase it again, once employees have completed the training once productivity value increases (Becker 1975). With *firm specific* training, there is no incentive for the employee to leave the firm. The chief benefit of the training will be to the firm, and so there is no incentive for employees to accept reduced wages in order to offset the costs of training. The firm thus bears all costs of training and 'if asset creation is to occur, the marginal productiveness of employees during the post-training period must increase enough to offset the inequality between labour costs and productivity value during training' (Steffy and Maurer 1988:278). Efficient and effective training programmes are therefore necessary for value creation. There are, of course, cost interdependencies, and given the linkages between HR practices, investment and developing capability in one area may lead to reduced costs or need for investment in other areas, just as investing in recruitment and selection may highlight individuals who require little training on arrival into the firm (Steffy and Maurer 1988).

In addition to economists, human resource accountants wanted to explain how the contributions of employees added to the asset value of the firm, and set out to establish valid and reliable techniques for measurement of cost and value of employees to organisations (Flamholz 1974, Friedman and Lev 1974).

The chief issue within human resource accounting (HRA) is that human assets, unlike capital assets, have a largely uncertain future service life. Measuring the value of human resources has therefore been concerned with the nature of the uncertainty and providing estimates of this, with a number of measures used, including the discounted future compensation model (Lev and Schwartz 1974) – where the value of an employee is the present worth of their remaining earnings from employment, and the replacement cost method, where ‘costs incurred by recruiting, selecting, compensating, and training employees reflect the expected value of successful job performance’ (Steffy and Maurer 1998: 273). For Flamholtz (1974, 1985), the HRA issue of measuring an individual’s value to the firm is founded on the notion that it is not the individual per se who is valuable, but the individual in relation to the roles he/she plays that is crucial, and he and others (Friedman and Lev 1974, Lau and Lau 1978, Morse 1973) developed a stochastic valuation model to measure system dynamics and estimate expected service life with known estimated error (Steffy and Maurer 1988).

The development of human resource accounting as a field demonstrated the high interest in attempting to value the contribution of employees. However, a number of issues led to interest in the area waning in the 1970s. First, as Steffy and Maurer point out: ‘public accounting standards were too stringent to allow the direct reporting of human asset value in financial statements’ (1988:278). Second, no generally accepted accounting procedures emerged for human resources and the progress of human resource accounting has been, at best, mixed, with one major review concluding:

‘At the theoretical level, HRA is an interesting concept. If human resource value could be measured, the knowledge of that value could be used for internal management and external investor's decision making. However, until HRA advocates demonstrate a valid and generalisable means for measuring human resource value in monetary terms, we are compelled to recommend that researchers abandon further consideration of possible benefits from HRA’ (Scarpello & Theeke 1989:275 - cited in Cascio 1991).

## **1980s**

The rise of human resource management in the 1980s brought managerial scholars to the debate on the link between the management of people and performance. A number of

attempts were made to put empirical flesh on the theoretical bones of the resource-based view and the specific HRM prescriptions concerning vertical and horizontal alignment and how the systems of HR practice can increase organisational performance.

Early studies at this time examined investment in HR practices and business performance. Using cross sectional survey data, Nkomo (1986, 1987) examined the link between HR planning and business performance, and found no correlation. These results were supported by another survey-based study (Delaney, Lewin and Ichniowski 1988, 1989) into HR practices and financial performance, which also found no link.

Work by Ulrich and colleagues on the OASIS research programme (Organisation and Strategic information Service) used the PIMS database and found positive relationships between specific HR practices and business results (Ulrich, Geller and DeSouza 1984, Cowherd & Kaminski 1986). A later study (Yeung and Ulrich 1990) found that the manner of alignment between HR and business strategy had an impact on organisational performance. This work built on a previous study by Schuler and Jackson who, with cross sectional data, showed how HR practice varied depending on the business strategy profile (Jackson, Schuler and Rivero 1989, Schuler and Jackson 1987, Schuler 1987).

A number of scholars tried to link the effect of certain HR practices to specific organisational outcomes. The adoption of training programmes was positively associated with financial performance (Russell, Terborg & Powers 1985). Job security, presence of a union, compensation level, culture and demographics have an impact on turnover (Arnold and Feldman 1982, Baysinger and Mobley 1983), while transformational labour relations (involving partnership and involvement) were linked to increased productivity (Katz, Kochan & Keefe 1987).

Within the HR accounting field, utility analysis became a dominant theme (Bourdreau 1991, Schmidt et al 1979). Scholars in this field attempted to overcome some of the measurement problems that dogged early HRA formulations by examining alternative means of economic valuation. Utility analysts 'measure the economic contribution of personnel activities according to how effective they are in identifying and modifying individual behaviours, hence the future service contributions of employees' (Steffy and Maurer 1988:279). Dollar valuation - analysing the dollar value of certain HR programs, particularly selection and training, and comparing them with the expected dollar value return from other investments – lay at the heart of the method, but problems rest on the choice of the valuation base (ex ante concepts or ex post concepts or both) (Steffy and Maurer 1988), and the generally broad

confidence intervals for estimates (Alexander and Barrick 1987). As Becker and Gerhart (1996) state: 'there is some doubt regarding whether managers' decisions are particularly responsive to information about the estimated dollar value of alternative decisions, particularly as the estimation procedures become increasingly complex and difficult to understand' (1996:780).

### **1990s**

The research approach of focusing on individual HR practices and their link to performance continued into the early 1990s, some relying on single measures of HR practices. Bartel (1994) established a link between the adoption of training programs and productivity growth, while the link between training programmes and financial performance was supported by Gerhart & Milkovich (1992). Weitzman & Kruse (1990) identified links between incentive compensation schemes and productivity, and Terpstra & Rozell (1993) examined the extensiveness of recruiting, selection test validation and the use of formal selection procedures and found a link to organisational profits. In general, selectivity in staffing have been shown to be positively related to organisational performance (Becker & Huselid 1992, Schmidt, Hunter, McKenzie & Muldrow 1979). Performance evaluation and its linkage to compensation schemes have also been identified as contributing to increases in firm profitability (Borman 1991).

However, such reliance on single HR practices may not reveal an accurate picture. The dominant view of human resource efficacy is that individual human resource practices 'have limited ability to generate competitive advantage in isolation' but 'in combination...they can enable a firm to realise its full competitive advantage' (Barney 1995:56). In other words, relying on single HR practices with which to predict performance is unlikely to be revealing. Moves had been made within the field, therefore, to examine the notion of clusters or bundles of HR practices and how they impact on organisational performance.

### **Contingency or 'fit' approaches**

A central tenet of strategic human resource management is that there should be vertical linkage between HR practices and processes and the organisational strategy of the firm. The strategic posture of the organisation will influence the style and approach of human resource activity. Strategies vary, and a number of researchers have investigated how HR practices vary with differences in strategic approach. Most work in this area uses traditional strategy typologies, such as cost, flexibility and quality strategies (e.g. Youndt et al 1996) or Miles & Snow's (1978) framework of prospector, analyser and defender (Delery & Doty 1996). The

emphasis here is on alignment, or fit, between the external environment, the strategy of the organisation, and HR. The notion of fit has been articulated by writers such as Venkatraman (1989) and the benefits of tight coupling to ensure efficiency and effectiveness in achieving organisational aims have been well attested, but some authors (Gerhart et al 1996, Orton & Weick 1990, Perrow 1984) have argued that such tight links may represent a barrier to adaptability and flexibility.

Huselid (1995) has found that those organisations that link HRM practices to strategy report higher performance outcomes. Delery & Doty (1996), in a sample of 1,050 banks, found modest support for a fit with the Miles & Snow typology. Youndt et al (1996) found support for this type of fit in a sample of 97 manufacturing plants. MacDuffie (1995) in contrast, explicitly rejects this hypothesis, claiming that in his study of car manufacturing plants, he found no evidence that a 'fit' of appropriate HRM practices to mass production was able to compete with flexible production.

### **Universal or 'best practice' approaches**

A second perspective on human resources and performance linkage is the idea of 'best practices', or 'high performance work practices'. This view emphasises the need for strong consistency among HR practices (internal fit) in order to achieve effective performance. This view has a high degree of empirical support (Huselid 1995, Delaney & Huselid 1996, Arthur 1994, Ichniowski, Shaw & Prensushi 1997, MacDuffie 1995). This view has been championed prominently by Pfeffer, who listed 15 HR practices in 1994 (see Table 1) which became seven in 1998: employment security; selective hiring, self-managed teams, high compensation contingent on performance, training, reduction of status differentials, and sharing information.

Arthur (1992, 1994) found that HR practices focused on enhancing employee commitment (e.g. decentralised decision-making, comprehensive training, salaried compensation, employee participation) were related to higher performance. Conversely, he found that HR practices that focused on control, efficiency and the reduction of employee skills and discretion were associated with increased turnover and poorer manufacturing performance. Similarly, in a study of high performance work practices, Huselid (1995) found that investments in HR activities such as incentive compensation, selective staffing techniques and employee participation resulted in lower turnover, greater productivity and increased organisational performance through their impact on employee skill development and motivation.

What the view shows is that the more of the high performance HRM practices that are used, the better the performance as indicated by productivity, turnover or financial indicators. Where different types of fit were compared, this was invariably the one that received the strongest support.

Although support for this view exists, there are notable differences across studies as to what constitutes a 'best' practice. Nonetheless, several themes emerge across the studies. At their heart, most of the studies focus on enhancing the skill base of employees through HR activities such as selective staffing, comprehensive training and broad developmental efforts like job rotation and cross utilisation. Further, the studies tend to promote empowerment, participative problem solving and teamwork with job redesign, and group based incentives.

## **Configurations**

A third strand of research has emphasised the patterns or configurations of HR practices that predict superior performance when used in association with each other, or the correct strategy, or both. In order to be effective, an organisation should develop an HR system that achieves both horizontal and vertical fit. As MacDuffie argues: 'Implicit in the notion of a 'bundle' (of human resources) is the idea that practices within it are interrelated and internally consistent, and that 'more is better' with respect to the impact on performance, because of the overlapping and mutually reinforcing effect of multiple practices' (1995: 201).

With the configurational approach 'the distinction between best practice and contingency models begins to blur' (Becker & Gerhart 1996:788). The configurational idea is that there will be effective combinations of HR practices that will be suited to different organisational strategies. Huselid & Becker (1995) and Delery & Doty (1996) found some support for the configurational approach in their respective studies.

In summary, while some authors argue for the idea of external and internal fit, others argue for an identifiable set of best practices for managing employees that have universal additive positive effects on organisational performance. Some (e.g. Youndt et al 1996) maintain that the two approaches are in fact complementary. The argument that these approaches are not in conflict has also been made by Becker & Gerhart (1996) and Guest & colleagues (2000). As Becker & Gerhart (1996) state, best practices have an architectural nature: for example, the idea of incentives for high performance has a generalisable quality. But within a particular firm, HR practices and their mix will be different, depending on context and strategy and so

forth. 'Two companies with dramatically different HR practices arguably have quite similar HR architectures. For example, although the specific design and implementation of their pay and selection policies are different, the similarity is that both link pay to desired behaviours and performance outcomes and both effectively select and retain people who fit their cultures (1996:786). Or, as Guest puts it: 'the idea of 'best practices' might be more appropriate for identifying the principles underlying the choice of practices, as opposed to the practices themselves' (Guest et al, 2000:3).

### **Indirect links: commitment and performance**

High performance management, or high performance work practices, has become an important field. The practices across a number of authors are listed in Table 1. High commitment management aims to go beyond high performance management to include an ideological component - the identification of the employee with the goals and values of the firm, so inducing commitment (Walton 1985). The work of Wood and colleagues has identified a number of common features of high commitment management:

- the development of career ladders and emphasis on trainability and commitment
- a high level of functional flexibility with the abandonment of potentially rigid job descriptions
- the reduction of hierarchies and the ending of status differentials
- a heavy reliance on team structure for structuring work and problem solving
- exemplary job design to promote intrinsic satisfaction
- a policy of no compulsory lay-offs or redundancies
- new forms of assessment and payment systems
- a high involvement of employees in the management of quality.

Guest and colleagues' work for the Institute of Personnel and Development (2000), surveying 610 organisations in the UK, endorsed that there is a strong link between HRM and performance, but that this link is indirect, through the apparent impact on employee commitment, quality and flexibility.

Patterson & colleagues (1997) in a major study from Sheffield, identified a positive relationship between employee attitudes, organisational culture, HRM and company performance, concluding that employee commitment and a satisfied workforce are essential to improving performance. Two highly significant areas of HR practice were seen as: the

acquisition and development of employee skills (recruitment, selection, induction and performance appraisals); and job design (skill flexibility, job responsibility, team-working).

### **Difficulties with the link between human capital and performance**

There are a number of problems with asserting a linkage between human capital and human resource initiatives and organisational performance.

1. Reverse causation. Do human capital processes lead to increased performance, or is the alternative explanation equally as likely: that higher performing firms will have more resources to invest in better human capital management? If the causal link is to be established, there is a need to specify the intervening variables between human capital management and performance. 'The fact that profit sharing is associated with higher profits can be interpreted in at least two ways: profit sharing causes higher profits, or firms with higher profits are more likely to implement profit sharing. However, if it can be demonstrated that employees in firms with profit sharing have different attitudes and behaviours than those in forms without profit sharing and that these differences also translate into different levels of customer satisfaction, productivity, speed to market and so forth, then researchers can begin to have more confidence in the causal model' (Becker & Gerhart 1996:793).
2. A good deal of work has emphasised alignment of human resources to organisational strategy at a very high degree of abstraction (e.g. to a cost leadership strategy, or a differentiated strategy). But the firm-specific contexts and contingencies surrounding the organisation will make HR alignment much more complex and idiosyncratic, and render generalisations about HR and human capital problematic (Guest 1997, Becker and Gerhart 1996).
3. If human capital is, in a real sense, 'best practice', why is it that some organisations lack human capital processes and yet are successful in their purpose? Or, put another way, why doesn't everyone adopt human capital principles? A simple answer would be that such firms may be successful now, but the possibility of their sustaining their success is reduced by their failure to implement human capital concepts. This is an empirical question, however, and we agree with Becker & Gerhart (1996) who state that 'more effort should be devoted to finding out what managers are thinking when they make the

decisions they do. This suggests a need for deeper qualitative research to complement the large scale, multiple firm studies that are available' (1996:786)

4. The range of designs and research approaches in the studies raises problems in terms of developing a coherent body of knowledge. There are a number of problems here. The first is the low level of overlap between the HR measures included by researchers into studies, which makes the cumulation of research in the field difficult. Second, practices that are common across studies are often measured in different ways. For example, 'one study may look at whether a business has performance pay (i.e. yes or no) while another measures the proportion of employees covered by such practices, and another looks at how much is typically paid' (Richardson and Thompson 1999:17). Third, the problem of how to measure business performance varies widely, with financial and accounting based measures, time periods, subjective and objective measures, intermediate outcomes such as commitment and flexibility, among others, being used in varying ways. Fourth, the unit of analysis differs widely. In some cases the unit of analysis is organisational level, in others, business unit, and, less often, at the facility level. Fifth, the research method varies from cross sectional surveys, either in single industry or multi-industry, to case studies in multiple firms either in single or multi-industry settings, longitudinal surveys, and mixed methods incorporating elements of the above.

## **Measuring human capital**

From the foregoing discussion, we can agree with Delaney & Huselid (1996) who state that there is compelling evidence for a linkage between strong people management and performance. But how is human capital to be measured? Measurement is obviously important to gauge the impact of human capital interventions and address areas for improvement, but in this field, measurement is a problematic issue.

The process identified by some academics (e.g. Guest et al 2000, Patterson et al 1997) as well as a number of consulting firms, is to specify the key human capital dimensions and assess their characteristics. It is then essential to measure these practices in terms of outcomes. These outcomes differ along a number of, by now, familiar categories: either (i) financial measures; (ii) measures of output or goods and services - units produced, customers served, number of errors, customer satisfaction) or (iii) measures of time - lateness, absence etc. (Locke & Latham 1997, Guest et al 2000).

Guest et al's (2000) preference is to adopt a stakeholder perspective, which 'would give some emphasis to performance outcomes of concern to the range of stakeholders' (2000:4). These outcomes, Guest argues, 'should reflect employee attitudes and behaviour, internal performance, such as productivity and quality of goods and services; and external indicators, such as sales and financial performance. In other words, if the research is to guide policy and practice, we need to collect a number of potentially related outcomes that extend beyond a narrow definition of business performance based on just financial indicators' (2000:4).

In the literature, research has tended to focus, in terms of outputs, on employee turnover, productivity, and financial performance (Delaney & Huselid 1996). The difficulty in relying on just firm performance is that, apart from ignoring important other measures just outlined, it may be that within organisations, business units have different objectives. Some may be focused on market share, others on profit, for example, and the HR practices may not be the same in both. If research is at an organisational level, rather than at a business unit level, such differences may reflect in a poor linkage between human capital and unit performance (Becker & Gerhart 1996). Guest et al (2000) also point to the problems in variations of accounting practices between countries, which may render comparisons in financial performance problematic.

The adoption of a stakeholder perspective reflects the concern to have multiple measures of performance outcome. This perspective is supported by the popularity of the 'balanced scorecard' concept (Kaplan & Norton 1993), which is intended to weigh the interests of various stakeholders. According to Kaplan & Norton, attention should be given not just to traditional financial measures, but to people, processes and customers.

The measures for people are more difficult to specify than say the financial aspects, but Ulrich (1997) argues for three categories: productivity, people, and people and process. Huselid (2003) believes that the 'people' box in Kaplan and Norton's original formulations does not say enough about what is required for HR. He and colleagues propose further nested scorecards, including a workforce scorecard that is focused on workforce 'behaviours and deliverables' and then an HR scorecard, which addresses the issue of the infrastructure needed to deliver the deliverables.

Utility analysis remains a technique that continues to be advocated (Becker and Huselid 1992, Becker, Huselid and Ulrich 2000). The work of Fitz-Enz (1980, 1984) in creating a database of a wide range of HR practices at the Saratoga Institute provides a benchmark for

organisations in terms of industry averages and trends and allows managers to assess their own practices in terms of cost and utility.

The results of a Conference Board (2003) survey into human capital measurement showed that many HR professionals were developing human capital metrics (see Table 2) but this activity was often conducted in isolation, with organisations choosing not to collaborate with other firms or consultancies, or with their own organisation's finance or strategy colleagues. Where HR professionals did use external benchmarks, they were often inappropriate internally, and they did not tie up the metrics to the business goals.

### **Reporting human capital measures**

The reporting of intangibles such as human capital is difficult. According to Huselid, this is because of two major issues: first, there is no common framework for reporting that goes beyond historical measures (e.g. cost of selection, or training) to 'more detailed information on workforce quality' (2003). Second, many firms lack databases and audited information that can give strong and relevant information to investors. Developing a consistent and coherent internal HR architecture on human capital measurement is a necessary condition for effective external reporting.

Companies usually do have a wealth of human capital data in some shape or form, and some even have developed systems in place to measure its quality and impact. But, as the Conference Board concludes: 'most are reluctant to report it publicly. Although the primary motivation is to contribute to the bottom line, many companies do not wish to communicate the results of HC measurement to investors' (2003:7). Nevertheless, the report asserts that the measures which are most frequently reported are:

- the percentage of employees in stock plans
- revenue per employee
- average pay
- training expenditures
- compensation.

The three factors that explain why companies do not report more on human capital are (i) the fear of competitors – anxiety over whether human capital information is competitively sensitive; (ii) the fear of unions or employees, that is, concern that providing too much

information may restrict the organisation's flexibility (and worries over legal issues arising); and (iii) a concern for practical difficulties of collecting human capital information to present for reporting, and whether investors will understand it anyway.

## **Conclusions**

A growing number of studies have attempted to show the link between human resources and performance. We believe that though the case is not watertight, due to a number of methodological reasons, the weight of evidence is beginning to look compelling. An important finding of this research is that both contingency and best practice models can complement each other to create the conditions for effective human capital management. That is, the adoption of such high performance practices as incentive-based pay or selective staffing is part of building an HR architecture. The details of how these practices become effective within the organisation then becomes a matter of aligning these broad principles to the strategy and the context of the company. There is now a growing body of work (e.g. Becker & Gerhart 1996, Youndt et al 1996, Guest et al 2000) that argues for a convergence between the two views. We believe that greater understanding as to how these two approaches come together will enhance our knowledge of how human capital management can lead to improved competitiveness.

There are several lists for high performance work practices, or 'best practice' HR, each with varying content and with different ways of operationalising the individual HR activities. But at their heart, most studies emphasise enhancing the skill base of employees through selective staffing, comprehensive training and broad developmental activity, as well as encouraging employees through empowerment, participative problem solving and teamwork and group based incentives.

The measurement of human capital remains an area where little commonality can be found. Perhaps this reflects the sheer number of contingencies facing organisations and the idiosyncrasies inherent in specific firm contexts. There is agreement, however, on the point that just relying on financial measures of performance is likely to result in a highly partial evaluation. A stakeholder view or balanced scorecard approach is seen as most appropriate to capture the complexity of human capital activity.

Ulrich (1998) argues that human resources, both as labour and as a business function, have traditionally been viewed as a cost to be minimised. At best, human resources are viewed as

contributing to the efficiency of the organisation, but not explicitly as a source of value creation. The rise of human capital management, alongside its relatives the resource-based view and strategic human resource management, has seen this view change dramatically. However, the evidence, at least from the US, is that organisations are reluctant to report on their human capital activities. If human capital really is at the centre of competitive advantage, investors may wish to see rather more disclosure in the future.

**Table 1. Best practices in Human Resources**

Epstein & Freund (1984)	Arthur (1992)	Pfeffer (1994)	Delany, Lewin & Ichiowski (1989) Huselid (1995)	MacDuffie (1995)
Job enlargement Job rotation Job design Formal training Personalised work hours Suggestion systems Quality circles Salary for blue collar workers Attitude surveys Production teams Labour/management committees Group productivity incentives Profit sharing Stock purchase plan	Broadly defined jobs Employee participation Formal dispute resolution Information sharing Highly skilled workers Self-managed teams Extensive skills training Extensive benefits High wages Salaried workers Stock ownership	Employment security Selective recruiting High wages Incentive compensation Employee ownership Information sharing Participation Empowerment Job redesign/teams Training and skill development Cross-utilisation Cross-training Symbolic egalitarianism Wage compression Promotion from within	Personnel selection Performance appraisal Incentive compensation Job design Grievance procedures Information sharing Attitude assessment Labour/management participation Recruiting intensity Training intensity Training hours Promotion criteria (seniority v merit)	Work teams Problem – solving groups Employee suggestions Job rotation Decentralisation Recruitment and hiring Contingent compensation Status differentiation Training of new employees Training of experienced employees

(source: Youndt et al 1996)

**Table 2. Human capital measures**

Human capital activities	Possible measurements
Recruitment	Time, cost, quantity, quality, meeting strategic criteria
Retention/turnover	Reasons why employees leave.
Employee attitude/engagement	Attitude, engagement and commitment surveys
Compensation	Pay level, and differentials, and equity assessment, customer satisfaction, employee satisfaction, diversity
Competencies/training	Measuring competency levels, skills inventory, tracking competencies and training investments
Workforce profile	age, diversity, promotion rate, participation in knowledge management activities
Productivity measures	revenue per employee, operating cost per employee, real added value per employee

(Adapted from Conference Board 2003)

## References

Alexander, R.A. & Barrick, M.R. 1987. Estimating the standard error of projected dollar gains in utility analysis. *Journal of Applied Psychology*, 72: 475-479.

Arnold, H.J. & Feldman, D.C. 1982. A multivariate analysis of the determinates of turnover. *Journal of Applied Psychology*, 67: 350-360.

Arthur, J.B. 1992. The link between business strategy and industrial relations systems in American steel minimills. *Industrial and Labor Relations Review*, 45:488-506.

Arthur, J.B. 1994. Effects of human resource systems in manufacturing performance and turnover. *Academy of Management Journal*, 37:670-687.

Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17:99-120.

Barney, J. 1995. Looking inside for competitive advantage. *Academy of Management Executive*, 9(4): 49-61.

Bartel, A.P. 1994. Productivity gains from the implementation of employee training programs. *Industrial Relations*, 33: 411-425.

Baysinger, B.D. & Mobley, W.H. 1983. Employee turnover: Individual and organisational analysis. In Rowland, K.W. & Ferris, G.R. (Eds.) *Research in personel and human resource management*. Greenwich, CT: JAI Press, Vol 1: 269-319.

Becker, B., & Gerhart, B. 1996. The impact of human resource management on organisational performance: Progress and prospects. *Academy of Management Journal*, 39:779-801.

Becker, B.E. & Huselid, M.A. 1992. Direct estimates of SDy and the implications for utility analysis. *Journal of Applied Psychology*, 77: 227-233.

Becker, B.E., Huselid, M.A., Ulrich, D. 2001. *The HR scorecard: Linking people, strategy and performance*. Boston, MA: Harvard Business School Press.

Becker, G.S. 1964. *Human capital*. New York: National Bureau of Economic Research

Becker, G.S. 1976. *The economic approach to human behaviour*. Chicago: University of Chicago Press.

Boxall, P.F. 1996. The strategic HRM debate and the resource-based view of the firm. *Human Resource Management Journal*, 6(3):59-75.

Boudreau, J.W. 1991. Utility analysis in human resource management decisions. In M.D. Dunnette & L.M. Hough (Eds.) *Handbook of industrial and organisational psychology*, vol 2, 621-745. Palo Alto, CA: Consulting Psychologists Press.

Boudreau, J.W. & Ramstad, P.M. 1997. Measuring intellectual capital: Learning from financial history. *Human Resource Management*, 36: 343-356.

Cascio, W.F. 1991. *Costing human resources: The financial impact of behaviour in organisations*. Boston: PWS-Kent.

Coleman, J.S. 1988. Social capital in the creation of human capital. *American Journal of Sociology*, 94: s95-s120.

Collins, J., & Porras, J. 1994. *Built to last: Successful habits of visionary companies*. New York: Harper Business.

Conference Board 2002. *Valuing human capital: The risks and opportunities of human capital measurement and reporting*. Research Report #1316-02-RR.

Cutcher-Gershenfeld, J.C. 1991. The impact on economic performance of a transformation in workplace relations. *Industrial and Labor Relations Review*, 44:241-260.

Delaney, J.E. & Huselid, M.A. 1996. The impact of human resource management practices on perceptions of organisational performance. *Academy of Management Journal*, 39:949-969.

Delaney, Lewin, and Ichniowski, C. 1988. *Human resource management policies and practices in American firms*. New York: Industrial Relations Research Centre, Graduate School of Columbia University.

Delaney, Lewin, and Ichniowski, C. 1989. HR policies and practices in American firms. US Department of Labor Management Relations and Co-operative programs, BLMR 173, Washington DC: US Government Printing Office.

Delery, J., & Doty, D.H. 1996. Modes of theorising in strategic human resource management: tests of universalistic, contingency and configurational performance predictors. *Academy of Management Journal*, 39:802-835.

Denison, E.F. 1962. The sources of economic growth in the United States and the alternative before us. Committee for Economic Development, New York.

Denison, E.F. 1967. Why growth rates differ. The Brookings Institute, New York.

Dess, G.D. & Picken, J.C. 1999. Beyond productivity: How leading companies achieve superior performance by leveraging their human capital. New York: American Management Association.

Dierickx, I., & Cool, K. 1989. Asset stock accumulation and sustainability of competitive advantage. *Management Science*, 35:1504-1511.

Epstein, E.& Freund, W.C. 1984. People and productivity: The New York Stock Exchange guide to financial incentives and the quality of work life. New York: Irwin.

Ferguson, D.H. & Berger, F. 1985. Employees as assets: A fresh approach to human resource accounting. *The Cornell HRA Quarterly*. 25(4): 24-29.

Fitz-Enz, J. 1984. How to measure human resources management. New York: McGraw-Hill.

Fitz-Enz, J. 1990. Human value management: The value adding human resource management strategy for the 1990s. San Francisco, CA: Jossey-Bass.

Flamholtz, E.G. 1974. Human resource accounting. Encino, CA: Dickinson.

Flamholtz, E.G. 1985. Human resource accounting. San Francisco: Jossey-Bass.

Friedman, A. & Lev, B. 1974. A surrogate measure of the firm's investment in human resources. *Journal of Accounting Research*, 12: 235-250.

Garavan, T.N., Morley, M., Gunnigle, P. & Collins, E. 2001. Human capital accumulation: the role of human resource development. *Journal of European Industrial Training*, 25:48-68.

Gerhart, B. & Milkovich, G.T. 1990. Organisational differences in managerial compensation and firm performance. *Academy of Management Journal*, 33:663-691.

Grant, R.M. 1996. Towards a knowledge-based theory of the firm. *Strategic Management Journal*, 17 (Winter Special Issue), 108-122.

Gratton, L. & Ghoshal, S. 2003. Managing personal human capital: New ethos for the 'volunteer' employee. *European Management Journal*, 21:1-10.

Guest, D.E. 1997. Human resource management and performance: A review and research agenda. *International Journal of Human Resource Management*, 8: 265-276.

Guest, D.E., Michie, J, Sheehan, M, Conway, N. & Metochi, M. 2000. *Effective people management: Initial findings of the Future of Work study*. London: Chartered Institute of Personnel and Development.

Guest, D.E., Michie, J, Conway, N & Sheehan, M. 2003. Human resource management and corporate performance in the UK. *British Journal of Industrial Relations*, 41:291-314.

Hamel, G. & Prahalad, C.K. 1994. *Competing for the future*. Boston: HBS Press.

Hanuschek, E.A.& Kimko, D.D. 2000. Schooling, labor force quality and the growth of nations. *American Economic Review*, 90: 1184-2009

Harvey, M.G. & Lusch, R.F. 1999. Balancing the intellectual capital books: intangible liabilities. *European Management Journal*, 17:29-41.

Hewlett, R. 2002. Integrating human capital concepts in productivity and growth topics. *Journal of Management Research*, 2: 22-37.

Huselid, M.A. 1995. The impact of human resource management practices on turnover, productivity and corporate financial performance. *Academy of Management Journal*, 38:635-670.

Huselid, M.A. 2003. Presentation to DTI Accounting for People seminar, London, July 18<sup>th</sup>.

Huselid, M.A. & Becker, B.E. 1995. High performance work systems and organisational performance. Paper presented at the annual meeting of the Academy of Management, Vancouver.

Huselid, M.A., Jackson, S.E. & Schuler, R.S. 1997. Technical and strategic human resource management effectiveness as determinants of firm performance. *Academy of Management Journal*, 39, 949-969.

Ichniowski, C., Shaw, K., & Prennushi, G. 1997. The effects of human resource management practices on productivity; a study of steel finishing lines. *The American Economic Review*, 87, 291-313.

Itami, H. 1987. *Mobilising invisible assets*. Boston: HBS Press.

Jackson, S.E. & Schuler, R.S. & Rivero, G. 1989. Organisational characteristics as predictors of personnel practices. *Personnel Psychology*, 42: 727-786.

Kaplan, R.S. & Norton, D.P. 1992. The balanced scorecard: Measures that drive performance. *Harvard Business Review*, 70(1): 71-79.

Kandel, E. & Lazear, E.P. 1992. Peer pressure and partnerships. *Journal of Political Economy*, 100: 801-817.

Katz, H.C., Kochan, T.A., & Weber, M.R. 1985. Assessing the effects of industrial relations systems and efforts to improve the quality of working life on organisational effectiveness. *Academy of Management Journal*, 28:509-526.

Katz, H.C., Kochan, T.A., & Keefe, J. 1987. *Industrial relations and productivity in the US automobile industry*. Washington, DC: Brookings Institute.

Lau, A.H. & Lau, H. 1978. Some proposed approaches for writing off capitalised human resource assets. *Journal of Accounting Research*, 16: 80-102.

Leonard-Barton, D. 1995. *Wellsprings of knowledge*. Boston: HBS Press.

Lepak, D.P. & Snell, S.A. 1999. The human resource architecture: Towards a theory of human capital allocation and development. *Academy of Management Review*, 24:31-48.

Lev, B. & Schwartz, A. 1974. On the use of economic concepts of human capital in financial statements. *Accounting Review*, 71: 103-112.

Levine, D.I. 1995. *Reinventing the workplace: How businesses and employees can both win*. Washington DC: Brookings Institution.

Locke, E.A. & Latham, G.P. 1990. Work motivation: The high performance cycle. In Kleinbeck, U., Quast, H., Thierry, H. & Hacker, H. (Eds.) *Work motivation*. Hillsdale: Lawrence Erlbaum.

MacDuffie, J.P. 1995. Human resource bundles and manufacturing performance: Flexible production systems in the world auto industry. *Industrial Relations and Labor Review*, 48: 197-221.

Maurping, L.M. 2002. Human capital and firm performance: Understanding the impact of employee turnover on competitive advantage. *Proceedings of the Academy of Management Conference*, Denver.

Miles, R.E. & Snow, C.C. 1978. *Organisational strategy, structure, and process*. New York: McGraw-Hill.

Mincer, J. 1974. *Schooling, experience and earnings*. NBER, New York: Columbia University Press.

Morse, W. 1973. Toward a model for human resource valuation: A comment. *Accounting Review*, 50:131-140.

Nahapiet, J. & Ghoshal, S. 1998. Social capital, intellectual capital and the organisational advantage. *Academy of Management Review*, 23:242-266.

Nerdrum, L. & Erikson, T. 2001. Intellectual capital: A human capital perspective. *Journal of Intellectual Capital*, 2: 127-135.

- Nkomo, S.M. 1987. Human resource planning and organisational performance: An exploratory analysis. *Strategic Management Journal*, 8: 387-392.
- Nonaka, I. 1994. A dynamic theory of organisational knowledge creation. *Organisation Science*, 5: 14-38.
- Organisation for Economic Co-operation and Development (OECD) (1999). Measuring and reporting intellectual capital: Experience, issues, and prospects – an International symposium.
- Orton, J.D. & Weick, K.E. 1990. Loosely coupled systems. A reconceptualisation. *Academy of Management Review*, 15:203-223.
- Osterman, P. 1987. Choice of employment systems in internal labour markets. *Industrial Relations*, 26 (1): 48-63.
- Patterson, M., West, M., Lawthom, R., & Nickell, S. 1997. The impact of people management practices on business performance. *Issues in People Management*. London: Institute of Personnel and Development.
- Penrose, E.T. 1959. *The theory of the growth of the firm*. New York: Wiley.
- Perrow, C. 1984. *Normal accidents: Living with high-risk technologies*. New York: Basic Books.
- Peters, T. & Waterman, R. 1982. *In search of excellence*. New York: Harper & Row.
- Pfeffer, J. 1994. *Competitive advantage through people*. Boston: HBS Press.
- Pfeffer, J. 1998. *The human equation*. Boston: HBS Press.
- Pfeffer, J & Sutton, R.I.1999. *The knowing-doing gap: How smart companies turn knowledge into action*. Boston: Harvard Business School Press.
- Polanyi, M. 1962. *Personal knowledge: Towards a post-critical philosophy*. New York: Harper Torchbooks.

- Polanyi, M. 1967. *The tacit dimension*. London: Routledge Books.
- Psacharopoulos, G. 1973. *Returns to education: An international comparison*. Jossey-Bass, Elsevier: New York.
- Rastogi, P.N. 2000. Sustaining enterprise competitiveness – is human capital the answer? *Human Systems Management*, 19: 193-203.
- Richardson, R. & Thompson, M. 1999. *The impact of people management practices on business performance: A literature review*. London: Institute of Personnel and Development.
- Rumelt, R. 1984. Towards a strategic theory of the firm. In R.Lamb (Ed.) *Competitive strategic management* (556-570). Englewood Cliffs: Prentice-Hall.
- Russell, J.S., Terborg, J.R. & Powers, M.L. 1985. Organisational performance and organisational level training and support. *Personnel Psychology*, 38: 849-863.
- Scarpello, V & Theeke, H.A. 1989. Human resource accounting: A measured critique. *Journal of Accounting Literature*. 8:265-280.
- Schmidt, F.L., Hunter, J.E., McKenzie, R.C. & Muldrow, T.W. 1979. Impact of valid selection procedures on work-force productivity. *Journal of Applied Psychology*, 64: 609-626.
- Schuler, R.S. & Jackson, S.E. 1987. Linking competitive advantage with human resource management practices. *Academy of Management Executive*, 1: 207-219.
- Schultz, T.W. 1971. *Investments in human capital*. New York: Macmillan.
- Sheridan, J.E. 1992. Organisational culture and employee retention. *Academy of Management Journal*, 35: 1036-1056.
- Snell, S.A., Youndt, M.A., & Wright, P.M. 1996. Establishing a framework for research in strategic human resource management. Merging resource theory and organisational learning. In G.Ferris (Ed.) *Research in personnel and human resource management* (V.14. pp 61-90).
- Stewart, T.A. 1996. Human resources bites back. *Fortune*, May, 175.

Steffy, B.D. & Maurer, S.D. 1988. Conceptualising and measuring the economic effectiveness of human resource activities. *Academy of Management Review*, 13: 271-286.

Sveiby, K.E. 1997. *The new organisational wealth: Managing and measuring knowledge-based assets*. San Francisco: Berrett-Koehler.

Szulanski, G. 1996. Exploring internal stickiness: impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17 (Winter Special Issue) 27-43.

Terpstra, D.E. & Rozell, E.J. 1993. The relationship of staffing practices to organisational level measures of performance. *Personnel Psychology*, 46: 27-48.

Ulrich, D. 1997. Measuring human resources: An overview of practice and a prescription for results. *Human Resource Management*, 36: 303-320.

Ulrich, D. 1996. A new mandate for human resources. *Harvard Business Review*, Jan-Feb.

Ulrich, D. & Lake, D. 1990. *Organisational capability: Competing from the inside/out*. New York: Wiley.

Ulrich, D., Geller, A. & DeSouza, G. 1984. A strategy, structure, human resource database: OASIS. *Human Resource Management*, 23: 77-90.

Venkatraman, N. 1989. The concept of fit in strategy research. Toward a verbal and statistical correspondence. *Academy of Management Review*, 14:423-444.

Wagner, J.A. 1994. Participation's effect on performance and satisfaction: A reconsideration of research evidence. *Academy of Management Review*, 19: 312-330.

Walton, R.E. 1985. From control to commitment in the workplace *Harvard Business Review*, 63: 77-84.

Weitzman, M.L. & Kruse, D.L. 1990. Profit sharing and productivity. In A.S. Blinder (Ed.) *Paying for productivity: 95-141*. Washington: Brookings Institution.

Wood, S. 1996. High commitment management and organisation in the UK. *The International Journal of Human Resource Management*, 6: 41-58.

Wood, S. & Albanese, M. 1995. Can we speak of a high commitment management on the shop floor? *Journal of Management Studies*, 30:215-247.

Wright, P.M., Dunford, B.B., & Snell, S.A. 2001. Human resources and the resource-based view of the firm. *Journal of Management*, 27: 701-721.

Wright, P.M. & McMahan, G.C. 1992. Theoretical perspectives for human resource management. *Journal of Management*, 18:295-320.

Yeung, A. & Ulrich, D. 1990. Effective human resource practices for competitive advantage: An empirical assessment of organisations in transition. In Niehaus, R.J. & Price, K.F. (eds.) *Human resource strategies for organisations in transition*, New York: Plenum, 311-326.

Youndt, M.A., Snell, S.A., Dean, J.W., Lepak, D.P. 1996. Human resource management, manufacturing strategy and firm performance. *Academy of Management Journal*, 39:836-866.

## **Appendix: Selected studies on HR practices and organisational performance**

### **Arthur, J.B. (1994)**

Type of study: cross sectional

Single industry: 30 US steel minimills

HR measures: 10 variables – decentralisation, participation, general training, skilled workers, level of supervision, social events, due process, wages, benefits, bonus,, percentage unionised. Clustered into two systems: control and commitment.

Outcome measures: manufacturing performance (labour efficiency, scrap rate) and employee turnover.

Controls: firm age, firm size, union status, business strategy.

Method: Regression

Findings: Commitment based HR systems associated with lower scrap rates and higher labour efficiency than control-based systems.

### **MacDuffie, J. (1995)**

Type of study: cross sectional

Single industry 62 automotive assembly plants in 16 countries (volume plants)

HR measures: HR policies (index of four items - hiring criteria, incentive pay, presence of status barriers and level of training)

Production organisation measures: use of buffers (3 items) (e.g. incoming and work in progress inventory), work systems (6 items – including employment involvement (production-related suggestions, job rotation and quality tasks), total automation, production scale, model mix complexity, parts complexity, production design age.

Outcome measures: labour productivity (hours of actual effort to build a vehicle), quality (consumer perceived, defined as defects per 100 vehicles)

Controls: total automation, plant scale, model mix complexity

Method: hierarchical regression

Findings: Innovative HR practices affect performance not individually but as interrelated elements in an internally consistent HR system and these systems contribute most to plant productivity and quality when they are integrated with manufacturing policies of a flexible production system.

## **Huselid, M.A. (1995)**

Type of study: cross sectional

Multi-industry 968 US-owned firms with over 100 employees.

HR measures: High performance work system scale. 13 items elicited two factors (i) employee skills and organisational structures – items: formal job design, enhanced selectivity, formal training, quality of work program, quality circles, labour-management teams, information sharing programmes, formal grievance procedures, profit and gain-sharing plans, enhanced communications, (ii) Employee motivation – items: formal appraisal, linked to compensation, merit in promotion decision rules.

Outcome measures: turnover, productivity (log of sales per employee), corporate financial performance – market based measure Tobins' q, and accounting based measure – gross rate of return on capital employed (GRATE).

Controls: firm size, capital intensity, firm and industry levels of union coverage, industry concentration, growth in sales, R&D intensity, firm-specific risk, industry levels of profitability, net sales and total assets.

Method: Regression analysis

Findings: High performance work systems have an economically and statistically significant impact on both turnover, productivity and corporate performance. One standard deviation increase in HPWS is associated with a relative decrease of 7.05% in turnover, and on a per employee basis, a \$27,044 more in sales and \$18,641 and \$3,814 more in market value and profits respectively.

## **Delaney, J.T. and Huselid, M.A. (1996)**

Type of study: cross sectional

Multi-industry: 727 organisations

HR measures: Staffing selectivity index (3 items), training index (3 items), incentive compensation (3 items), grievance procedure, decentralised decision-making, internal labour market index (5 items), vertical hierarchy

Outcome measures: Perceptual measures of organisational performance assessing organisational performance over the last three years relative to similar organisations (on product quality, customer satisfaction, new product development) and on perceived product market performance (profitability, market share) over three years relative to product market competitors.

Controls: profit/not-for-profit, subsidiary, number of employees, firm age, market competition, union pressure, percentage of managers.

Method: Regression analysis

Findings: Progressive HRM practices are positively related to perceptual measures of organisational performance, but does not support the assertion that complementarities among HR measures enhance performance.

## **Youndt, M.A., Snell, S.A., Dean, J.W. and Lepak, D.P. (1996)**

Type of study: Cross sectional

Single industry: 97 manufacturing plants

HR measures: Administrative HR systems index (selection for manual and physical skills, training, results based appraisal, individual equity, individual incentives and hourly pay). Human capital enhancing HR system index (selective staffing, selection for problem-solving and technical skills, development and behaviour base appraisal, external equity, group incentives, skill-based pay and salaried compensation), a range of manufacturing strategies (cost, quality, flexibility on delivery and scope)

Outcome measures: Self-report measures of machine efficiency (e.g. equipment utilisation, scrap minimisation); customer alignment (e.g. product quality, on-time delivery); and employee productivity (e.g. employee morale)

Controls: Organisational size, industry environment.

Method: Regression analysis

Findings: HR system focused on human capital enhancement directly related to multiple dimensions of operational performance. This was predominately so for links to a quality manufacturing strategy, giving broad support for contingency perspective.

## **Delery, J.E. and Doty, D.H. (1996)**

Type of study: cross sectional

Single industry – banking – 114 banks

HR measures: 7 HR practices. Internal career opportunities (4 items), formal and informal training (4 items), appraisal (2 items), profit sharing (1 item), employment security (4 items), employee participation (4 items), job description (4 items), strategy (scale of six items measuring product/market innovation)

Outcome measures: two financial measures: return on average assets, return on equity.

Controls: bank size, bank age, part of a holding company, bank district.

Method: Hierarchical regression analysis

Findings: Three individual HR practices – profit sharing, results-oriented appraisals and employment security had relatively strong universalistic relationships with important accounting measures of performance. Contingency relationships between strategy and three HR practices – participation, results oriented appraisals, and internal career opportunities – explained a significant portion of the variation in the same performance measures. Similarity to the market-type employment systems was positively related to firm performance. The study demonstrates that universalistic, contingency and configurational perspectives can explain significant levels of variation in financial performance.

## **Huselid, M.A. Jackson, S.E. and Schuler, R.S. (1997)**

Type of study: cross sectional

Multi-method – 293 publicly held US firms

HR measures: strategic HRM scale (8 items including teamwork, communications, involvement, enhancing quality and developing talent to serve business in future)  
Technical HRM scale (describes perceptions of how well the HR function performs activities – 8 items including recruitment, selection, training, performance appraisals and compensation administration)  
Professional HRM capabilities scale (describes expertise and skill relevant to performing excellently within HR function - 11 items)  
Business related capabilities scale (describes the amount of business experience HR staff have had outside of HR function - 3 items)

Outcome measures: employee productivity (net sales per employee, gross rate of return on assets, and profitability, Tobin's q)

Controls: union coverage, firm size, capital intensity, industry concentration, sales growth, R&D expenditures, stock price variability (beta) and firm industry.

Method: Regression analysis

Findings: Significant relationship between strategic HRM and employee productivity, cash flow, and market value. No meaningful relationship between technical HRM and firm performance. On a per employee present value basis, a one standard deviation increase in overall HRM effectiveness corresponds to an estimated increase in sales per employee of 5.2 per cent, a cash flow of 16.3 per cent, and a market value of 6%.

## **Ichniowski, C., Shaw, K., and Prenzushi, G. (1997)**

Type of study: Cross sectional

Single industry: 36 finishing lines in 17 US owned companies matched with 2190 monthly observations of productivity data.

HR measures: Identified 8 HR variables (incentive pay, recruitment and selection, employment security, flexible job assignment, communications and labour relations) and identified 4 distinctive combinations of HR practices.

System 4 - traditional HRM (firms identified as having no innovative practices with close supervision, strict work rules, narrow job responsibilities, incentive based pay on quantity not on quality of output, no work teams, no information sharing and no formal training).

System 3 (similar to system 4 except introduced innovative practices through worker involvement in teams and enhanced labour management communication)

System 2 (similar to three but also includes extensive skills training and high involvement in teams)

System 1 (incorporates innovative practices in all areas). Lines with this system have incentive pay plans, profit sharing, extensive screening of new employees, recruitment, high participation, multiple teams, formal team practice, employment security, job rotation, high training, low training, information sharing, managers meet workers regularly, meet with union, unionised, low grievance).

Outcome measures: Productivity (production line uptime – percentage of scheduled operating time that the line actually runs); quality (percentage of total production that met the industry standards).

Controls: Capital vintage (when line was built), learning curve effects, technical line specifications, periods of unusually high downtime, quality of steel input, maintenance activity effects.

Method: OLS regression

Findings: Innovative HRM practices raise worker productivity and systems of innovative HRM practices had large effects on production workers' performance. While changes in individual employment practices have little or no effect.

### **Patterson, M.G., West, M.A., Lawthorn, R., and Nickell, S. (1997)**

Type of study: Longitudinal

Single industry: 67 single site single product manufacturing firms with less than 1000 employees.

HR measures: Acquisition and development of employee skills (selection, induction, training and use of appraisals); job design (skill flexibility, job responsibility, job variety and use of formal teams); quality improvement teams, communication, harmonisation, comparative pay, incentive compensation systems.

Outcome measures: Labour productivity, real profits per employee (profits before tax, deflated by the producer price index of the industry and controlling for size of firm)

Method: Qualitative and quantitative data collection, multi-level.

Findings: HRM practices account for 19 per cent of variation between companies in change in profitability and 18 per cent of variation between companies in change of productivity. The acquisition and development of skills and job design are significant determinants of change in both productivity and profitability.

### **Guest, D.E., Michie, J, Sheehan, M, Conway, N. & Metochi, M (2000)**

Type of study: Cross sectional

Multi-industry: 610 firms above 50 employees

HR measures: Use and coverage of HR practice (48 items in the following sections): recruitment and selection, training and development, appraisal, financial flexibility, concern with quality, job design, communication and consultation, employment security and single-status and harmonisation.

Outcome measures: HR outcomes 8 items, including employee commitment, flexibility, and behaviour.

Performance outcomes – labour turnover, absenteeism, perception of the firm's financial results, labour productivity, quality of products/services and effectiveness of HR practices compared with other organisations in the same industry.

Controls: Composition (part-time, short-term employment), representation at the workplace (trade union recognition, single union/partnership deals, presence of a staff association) and redundancies

Method: Matched sample of HR managers and CEOs. Regression.

Findings: Effective use of progressive HR practices is linked to superior performance, and also linked to perceptions of positive employee attitudes and behaviour.

### **Guest, D.E., Michie, J, Conway, N & Sheehan, M (2003)**

Type of study: Cross sectional and longitudinal

Multi-industry, 366 firms with over 50 employees

HR measures: 48 items on HRM covering nine main areas: recruitment and selection, training and development, appraisal, financial flexibility, job design, two-way communication, employment security and the internal labour market, single-status and harmonisation, and quality.

Outcome measures; labour turnover, absence and industrial conflict. Labour productivity (value of sales per employee) and financial performance (company's profit per employee).

Controls: sector, trade union membership, part of multinational, presence of consultative committee, staff committee, and single union deal, respondent holds HR position, perceived importance of overall HR policy in terms of controlling for labour costs.

Method: Telephone interview using structured questionnaire, regression.

Findings: Using objective measures of performance, greater use of HR practices was associated with lower labour turnover and higher profit per employee, but showed no association with HR and productivity. There was a strong association between subjective estimates of HR and productivity and financial performance. The study supports the association between HRM and performance but does not show that HRM causes high performance.