

The Contribution of Skills to Business Performance

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Executive Summary

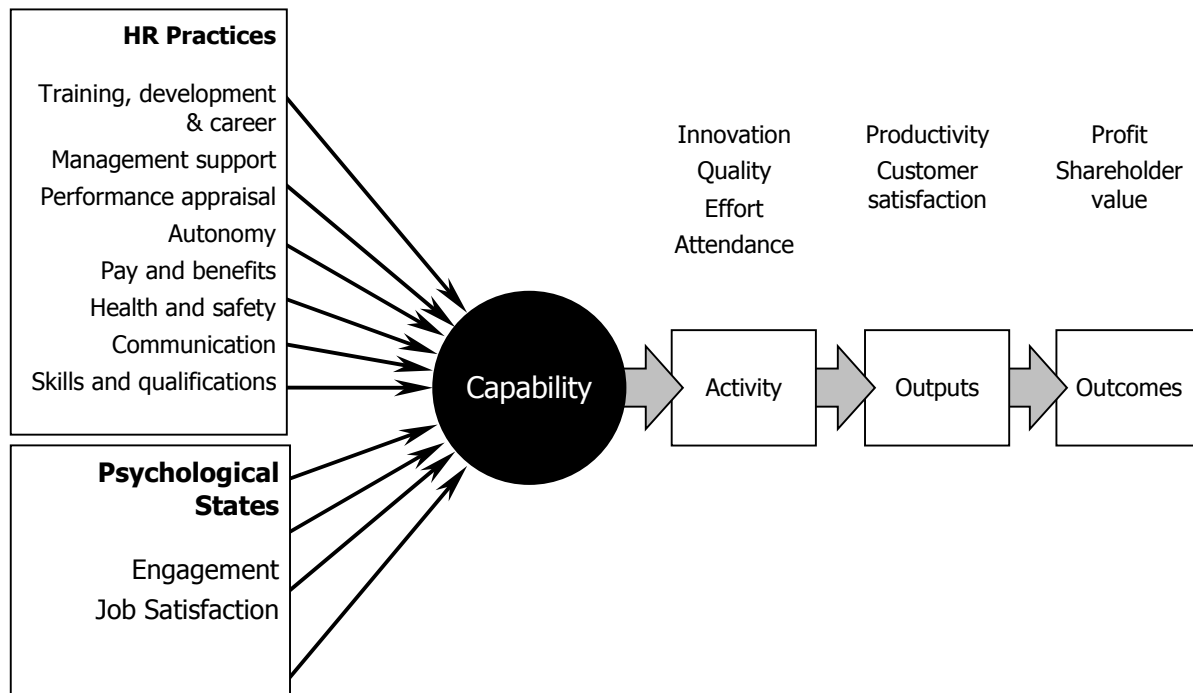
This report explores the literature linking skills with business performance with the explicit aims of:

- Providing a consistent, motivating and evidence based message to employers about the 'bottom line' business benefits of investing in skills and training.
- Developing a framework of human capital, Human Resource Management (HRM) and organisational performance measures/indicators for use by employers.
- Developing methodologies for interrogating the relationship between the measures with the goal of generating evidence of causal chains (where possible) and relationships, which can inform both executive-level business decisions and government policy interventions.
- Developing a framework of measures and methodologies which would be capable of underpinning future research, and which would take account of and make reference to existing measures and methodologies used by both business and government departments and agencies to ensure the widest alignment.
- Creating a framework that would be able to facilitate the gathering of cumulative and comparative data sets and therefore permit more robust conclusions to be drawn in the future.

To underpin this work, we have completed a large literature review focusing on the literature linking skills to performance and also the wider HR and High Performance literature and studies on engagement.

This work has highlighted a wide range of studies, which provide evidence of benefits from skills, training and development for individuals and organisations. The literature on high performance workplaces and practices also shows a considerable weight of evidence to suggest that a range of HR practices are linked to organisational performance, and are predominately adopted by organisations seeking to produce differentiated goods or services. The engagement and involvement of the workforce appears to be an essential part of the success of implementing such practices, often mediated by the capability of the managerial workforce.

Figure 1: The chain of impact



Source: IES, 2005

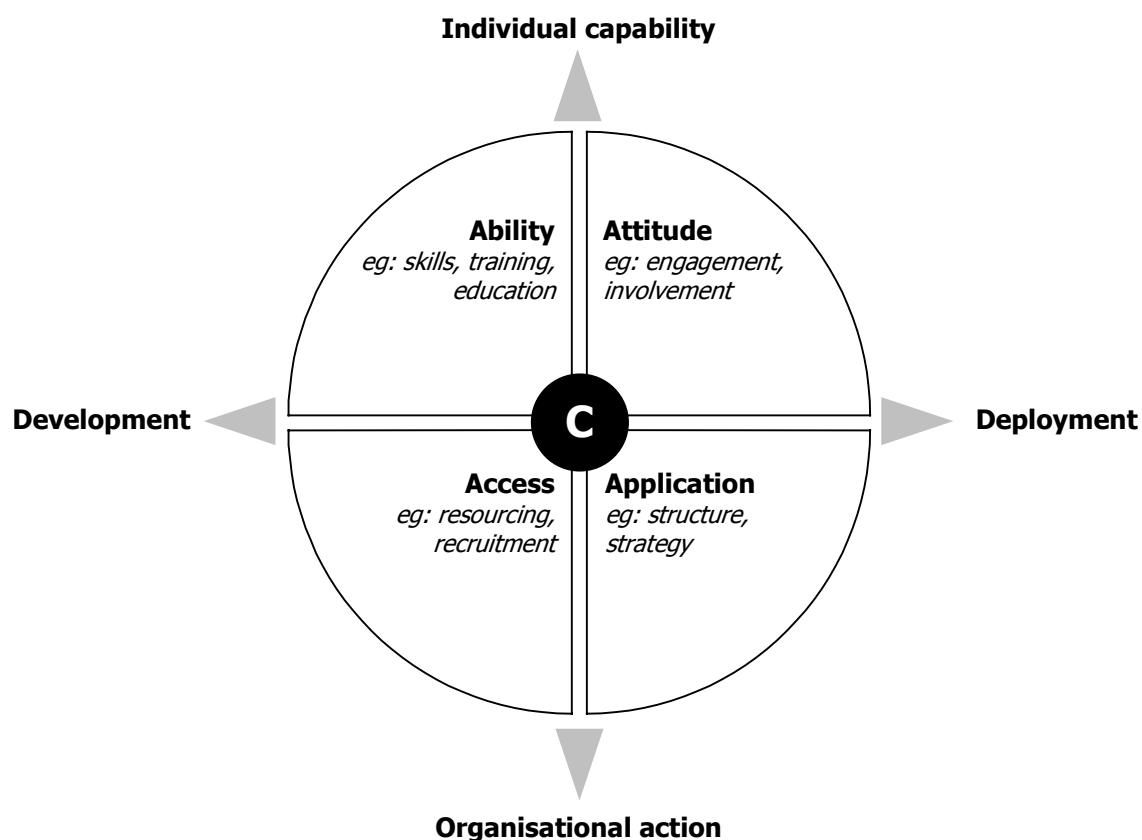
Our consideration of the literature suggests a chain of impact from a number of inputs (HR practices impacting in part through the motivation of the workforce), affecting human capability which in turn affects the activity of people at work; their productivity and the quality of what they do (see Figure 1).

Our review of the various studies looking at practices correlated to organisational performance led us to try and identify the underlying factors that emerge from the range of practices. This analysis identified two key dimensions to human capability: the first dimension encompasses the development of capability at one end and its deployment at the other; the second dimension has the individual at one end and the organisation at the other in terms of their roles. Putting these two dimensions together creates four quadrants of activity which together form our 4A model:

- Access – the effective resourcing of roles in the organisation
- Ability – the skills of the workforce
- Attitude – the engagement, motivation and morale of the workforce
- Application – the opportunities available to ensure skills and motivation are effectively applied.

This model was then tested against a range of other models and approaches to human capital management from the literature. This exercise demonstrated that the existing models and lists could all be successfully mapped against the 4A model. The model also has a theoretical underpinning which many others do

Figure 2: The 4A model of capability



Source: from Tamkin et al., 2005

not – all things being equal, this is preferable to models or approaches which do not have a framework, and this framework provides conceptually distinct factors which are less likely to create overlap between constituent HR practices.

We go on to detail in section 4.3, all the measures which have been used in the literature to successfully identify a link to performance and extract from that list a number of core and desirable measures of HR practice against each of the quadrants in our model which meet the criteria of:

- Resonance with employers, *ie* the measures should be meaningful to employers and align as far as possible with measures already in use.
- Alignment and compatibility with existing national and international measures to ensure that data generated can be used in comparison or in conjunction with other data that is tracked and reported.
- Rigour and lack of ambiguity – the measures should generate data which is as valid reliable and unambiguous as possible.
- Capacity for longitudinal study – the measures should be able to track organisational inputs, outputs and performance over time.

- Actionable indicators – the input measures should be able to reflect activities that are under the control of employers or by policy makers.

Finally, we make suggestions as to how this model and the indicators should be piloted with employers to check if it does indeed have resonance and provides indicators which are relatively easy to collect. We also consider the degree to which national data sets or existing questionnaires may be utilised to provide a further test of the model.

1. Introduction

This project emerged from the work of a number of key policy bodies and agencies in the skills arena, and has been taken forward by a steering group of interested parties. The project has been funded by the CIPD, DfES, IiP UK and the SSDA. The project seeks to build on the wide array of research which appears to demonstrate positive links between skills and their development and business performance by exploring this literature in some depth, extracting key messages and developing an overarching model and a set of indicators robustly linked to performance that can be used by employers. In doing so, the research has been guided by a set of key aims.

1.1 Aims

The aims of the project were to:

- provide a consistent, motivating and evidence based message to employers about the 'bottom line' business benefits of investing in skills and training
- develop a framework of human capital, human resource management (HRM) and organisational performance measures/indicators, which will have resonance with employers across different regions, organisational sizes and sectors. Also to develop methodologies for interrogating the relationship between the measures with the goal of generating evidence of causal chains (where possible) and relationships, which can inform both executive-level business decisions and government policy interventions
- this framework of measures and methodologies should be capable of use to underpin future research, and should take account of and make reference to existing measures and methodologies used by both business and UK and international government departments and agencies to ensure the widest alignment
- the framework should be able to facilitate the gathering of cumulative and comparative data sets and therefore permit more robust conclusions to be drawn in the future.

This study has involved four separate elements or phases:

1. an initial review of existing research to extract the most robust existing indicators and evidence of a causal relationship between investment in skills and development and organisational performance
2. the development of an underpinning model to explore these measures and the testing of this model against existing frameworks
3. the generation of a broad set of skills, training, HR and organisational performance indicators/measures
4. the development of an employer's guide.

1.2 Literature review

The first phase was to review existing evidence to see what is known about the relationship between skills, training and business performance to provide evidence which is as straightforward, methodologically robust and as convincing to employers as possible. Because of the importance of presenting the evidence to employers we have sought wherever possible to collate evidence from organisational or sectoral level research.

In our review, we looked at a range of studies that examine three relatively distinct parts of the literature:

1. the relationship between skills/training and individual or organisational outcomes
2. studies that explore the relationship between high performance working practices and outcomes
3. a smaller number of studies which explore issues around the psychological states of commitment, motivation and engagement.

We have analysed a significant amount of literature, full details of which are reported in Appendix 1.

1.3 Development of a explanatory model

In exploring the literature, clusters of factors begin to emerge which are associated with better organisational performance. Not only do studies explore skills and training investment, but they also look at the impact of a wide array of other HR practices *eg* appraisal, empowerment, performance-related pay, recruitment and selection processes, trade union membership *etc*. We wanted to develop a model which not only provided some coherence to all of these disparate factors, but which also would help create a degree of explanatory power. In developing such a model we have sought to faithfully reflect the range of practices or indicators contained in the literature and to attempt to identify the underlying factors they are measuring.

1.4 Development of a framework of indicators

A key stage of the project was to use the various measures identified from the literature and our model to highlight a range of indicators which could be used by organisations to help them improve their business performance. In doing so we have sought to identify measures underpinned by rigorous research and which will also be useable by employers. There have been a number of criteria against which measures in the framework have been assessed:

- Resonance with employers *ie* the measures should be meaningful to employers and align as far as possible with measures already in use. They should be able to generate and inform internal debate regarding decisions on training, development and management. We have sought to identify measures that are within the ability of employers to collect *ie* they are not overly complex or do not rely on the use of complicated data gathering techniques or analysis.
- Alignment and compatibility with existing national and international measures to ensure that data generated can be used in comparison or in conjunction with other data that is tracked and reported.
- Rigour and lack of ambiguity – the measures should generate data which are as valid reliable and unambiguous as possible. Proxy measures have been avoided where possible. To reduce ambiguity we have given full descriptions of the measures and how they should be gathered or calculated.
- Capacity for longitudinal study – the measures should be able to track organisational inputs, outputs and performance over time.
- Actionable indicators – the input measures should be able to reflect activities that are under the control of employers or by policy makers, so that they can be deliberately manipulated to alter performance over time.

1.5 Development of an employer's guide

The final stage was to develop an employer's guide, which aims to present the evidence linking skills to business performance in an accessible way, and presents the model and the framework of indicators to enable organisations to utilise the indicators to monitor their investments in those areas which have been shown to link to organisational performance. How to derive each of the indicators is clearly shown. The employer's guide is published separately as: *Measuring the Contribution of Skills to Business Performance: a summary for Employers*.

2. Linking Training and Skills to Performance

Although a large number of studies have sought to explore the relationships between skills and performance, this body of research has been subject to criticism of the assumptions made and methodology used. The area certainly isn't easy to research because of a range of complicating factors:

- Not all investments in education are considered equal in the labour market *eg* there are very different rates of return from arts and science degrees.
- Educational attainment may be an indicator of *ability* rather than *skill*.
- Education is only part of the input to skill; ongoing learning is much harder to codify.
- Not everyone fully utilises the skills they have or applies them to their current job.
- The traditional unit of skills measurement is some indicator of educational attainment but education, qualifications and training are all proxies for skills.
- As has been noted elsewhere (Bloom *et al.* 2004,) much of the discussion on skills assumes that training and skills are synonymous and it needs to be remembered that training is only one route to skill acquisition.
- Others have highlighted the difficulties in defining skills and the multiple functions of training apart from skill enhancement (Keep E, Mayhew K, Corney M, 2002).

Nonetheless despite these difficulties there are a range of studies which have looked at the benefits which accrue to both individuals and organisations from an investment in education, training or skill.

2.1 Individual benefits

A number of studies have looked at the benefits to the individual of attaining higher skills (*eg* higher wages). This relationship has primarily been assessed by looking at the effect of varying years of education or of having attained different levels of qualifications, and to a more limited extent, of having undertaken varying

Table 2.1: Wage premiums from obtaining qualifications (percentage)

Qualification	Men	Women	Qualification	Men	Women
CSE/lower GCSEs	9	5	Level 1-2 NVQs	Nil	Nil
O level/higher GCSEs	21	19	BTEC First	Nil	Nil
A level	17	19	Level 3-5 NVQs	6	5
First degree	28	25	RSA Higher	4	12
Higher degree	8	18	C&G Craft	7	Nil
			C&G Advanced	7	Nil
Professional qualifications	35	41	ONC/BTEC National	10	8
Nursing	13	21	HND/HNC	15	9
Teaching	Nil	27			

Notes:

1. The wage premiums are additive. For example, a man with 'O' levels/higher GCSEs and 'A' levels and a first degree will earn 66% more than a man with no qualifications.
2. Results control for age, ethnicity, region, firm, size, public/private sector

Source: Campbell, 2002 using data from Dearden *et al.*, 2001

amounts of training. There is now considerable UK evidence of an association between the amount of education, level of qualifications and individual benefits, *eg* salary level or likelihood of being unemployed (*eg* Greenhalgh and Stewart, 1987; Booth, 1991; Wilson and Hogarth, 2003).

A notable exception to this evidence is the lack of individual return on the acquisition of levels 1 to 2 vocational qualifications in marked contrast to the benefits accruing to academic qualifications (see Table 2.1, *eg* Sianesi B, 2003). Indeed some have found negative returns to NVQ level 2 (McIntosh, 2002) of between minus five and minus 20 per cent.

There is also evidence that acquisition of skills during a working lifetime can have benefits to the individual. Several studies have indicated that improving basic skills in adult life can improve UK labour market outcomes (*eg* Machin *et al.* 2001; Bynner *et al.* 2001).

Studies have indicated that training leading to a qualification, received from a current or previous employer brings wage benefits, improved promotability, and reduced likelihood of redundancy for the individual. (Blundell *et al.* 1999). Others have also found that training provided by employers has a positive effect on wages. Arulampalam, Booth and Elias (1997) found a seven to 12 per cent growth in real earnings, Blanchflower and Lynch (1992) found much the same; Blundell *et al.* (1996) found a pay off of five per cent real earnings growth; Harcotte (2000) found a positive wage effect from training (US data) exceeds ten per cent, Blundell *et al.* (1996) found that the wage premium for training is higher for those with low levels of educational achievements.

Some studies have sought to explore the impact of different kinds of training. It has generally been found that off the job training has a greater wage effect than on the job (Blundell, Dearden and Meghir, 1996).

There is considerable evidence that the higher trained and qualified are also more likely to receive further training investment, such that differences in earnings are amplified rather than compensated (Blundell *et al.* 1999, in Griffith *et al.* 2003):

'The current accumulated stock of human capital provides both strong incentives and more opportunities for future investment.'

AIM (Bloom *et al.* 2003) report a study by Jenkins *et al.* (2003) which uses panel data to explore lifelong learning on individual economic outcomes. They confirm that lifelong learning is more likely amongst those with some qualifications and found that one episode of lifelong learning increased the probability of undertaking more. However, there was little evidence of wage effects. One exception was for men who left school with only low-level qualifications who then go on to study for a degree later in life, for whom there are significant earnings effects. Lifelong learning was associated with reduced probability of being unemployed.

There have also been a few reports, which have sought to explore the degree to which individual benefits are also accompanied by benefits to the firm. These have generally shown advantages of training for the firm, that tend to off-set any increases in labour costs associated with training and rewarding a more highly skilled workforce. The consensus is that the gains for the organisation exceed the greater wage costs (eg Dearden *et al.* 2000; Blundell *et al.* 1999).

2.2 Organisational benefits

2.2.1 The impact of education

Various econometric studies have sought to understand the ways in which education impacts on national productivity. Early studies have tended to support a view that considerable proportions of differences in productivity are accounted for by differences in education (HM Treasury, 2000). Cross-country comparisons within the OECD find a strongly significant and robust relationship between educational attainment and output per capita (de la Fuente and Domenech, 2000). It has been estimated that increasing average education by one year would raise output per capita by six per cent (Bassanini and Scarpetta, 2001).

Within country studies also show similar effects. Work by Sianesi and Van Reenan (2002) have estimated that in the US, investments in human and physical capital account for 83 per cent of the

productivity growth between 1948 and 1986. Growth in labour input is estimated at 61 per cent of productivity growth, of which under half – 42 per cent – was due to changes in labour quality.

Criticism of this body of research (Bloom *et al.* 2004) has noted that these studies rely on 'levels estimation' across countries, relating levels of education with levels of productivity, and it may be that some other factor is driving the relationship, such as culture.

2.2.2 The impact of skills

Other studies have sought to isolate whether high skills are a contributory factor behind successful and higher performing firms. Taken together, these studies have identified a significant association between a highly skilled workforce and organisational performance, most commonly measured by the level of labour productivity. For instance Haskel and Hawkes (2003) have shown that the top performers in UK manufacturing hired workers with, on average, an extra qualification level compared to the lower performers. They also found that higher skill levels support innovation and more sophisticated production processes and were associated with the production of higher quality products.

Using matched establishment and workforce data Haskel, Hawkes and Pereira (2003) showed that more productive UK firms hired more skilled workers (the establishments in the top decile had workers with an average of two years extra schooling compared to those in the bottom decile). Both hard and soft skills were positively related to total factor productivity (TFP) and the skill gap between the top- and bottom-performing firms explained some eight per cent of the productivity gap. In addition, Lynch and Black (1995) found in the US, that an extra year of education raised productivity by between 4.9 and 8.5 per cent in the manufacturing sector and between 5.9 and 12.7 per cent in services. These results have been supported by Mason *et al.* in 2003 for the UK.

Green *et al.* (2003) has also found a strong relationship between different levels of UK workforce skills and the sophistication of products. Other research has suggested that a more highly skilled workforce can bring other benefits such as enhancing company survival. For instance, Reid (2000) suggested that a more skilled UK workforce was related to a greater commercial orientation and strategic awareness and propensity to innovate to retain competitive advantage. In the US, Bates (1990 in Bosworth *forthcoming*) found that higher qualification levels were related to improved access to finance and increasing probability of business survival.

An OECD study looked at innovation in UK SMEs and found that higher qualification levels of both managers and staff boosted innovation (Albaladejo and Romijn, 2001). Higher training expenditure per employee was also associated with higher technological complexity and originality.

Perhaps some of the most influential work in this area has focused on the investment in skills and training and the association between skills and productivity. This relationship was at the heart of a number of well-known studies by the National Institute for Economic and Social Research (NIESR). Through a series of 'matched plant' studies (see for example, Keep, Mayhew and Corney, 2002) the impact of workforce skills and development on productivity was considered alongside a range of other factors such as investment in capital equipment and maintenance practices. A clear connection between higher skills and higher productivity has been identified particularly at the intermediate skills level. All the studies found that the higher average levels of labour productivity in firms in continental Europe were closely related to the greater skills and knowledge of their workforces, especially intermediate skills. Within manufacturing, lower skills levels in the UK were found to have a negative effect directly on labour productivity and on the types of machinery chosen, the ways in which machinery was modified in line with particular needs, the smoothness of machinery running and the introduction of new technology. The proportion of employees holding a relevant vocational qualification at the intermediate level in these establishments in the UK was well below that in Europe. A study of the hotels sector suggested similar lower skills and productivity in services.

A more recent study returned to the automotive sector to discover whether the findings from the original NIESR studies had moved on (Mason and Wagner, 2002). They found that the UK had made gains in reducing inventory and reject rates but value added per employee was still 15 to 25 per cent higher in Germany. The study concluded that investment in capital equipment, human capital and R&D spend remained higher in Germany and there were still significant differences in qualification levels.

The NIESR reviews were critical of the skill levels of the UK compared to others and similarly critical of ongoing workplace training. NIESR (O'Mahoney and De Boer (2002), *Britain's Relative Productivity Performance, updates to 1999*) have been able to break down the productivity gap into component parts to establish how much of an influence these factors have on productivity differences between the UK and its competitors. They suggest that most of the productivity gap between the UK and Europe is accounted for by differences in the amount of investment in physical capital and skills. NIESR estimate that as much as one-fifth of the productivity gap between the UK and Germany is a result of the UK's relatively poorly skilled workforce, which was highlighted earlier.

There is evidence that skill levels are associated with innovation performance. Using US data, Hall (1995) argues that R&D spend is associated with higher market valuation. Others have focused on the relationship between the skills of the workforce and the ability to absorb and benefit from new technologies, eg Solo (1966), Amsden (1989), from Bosworth (forthcoming).

2.2.3 The impact of training

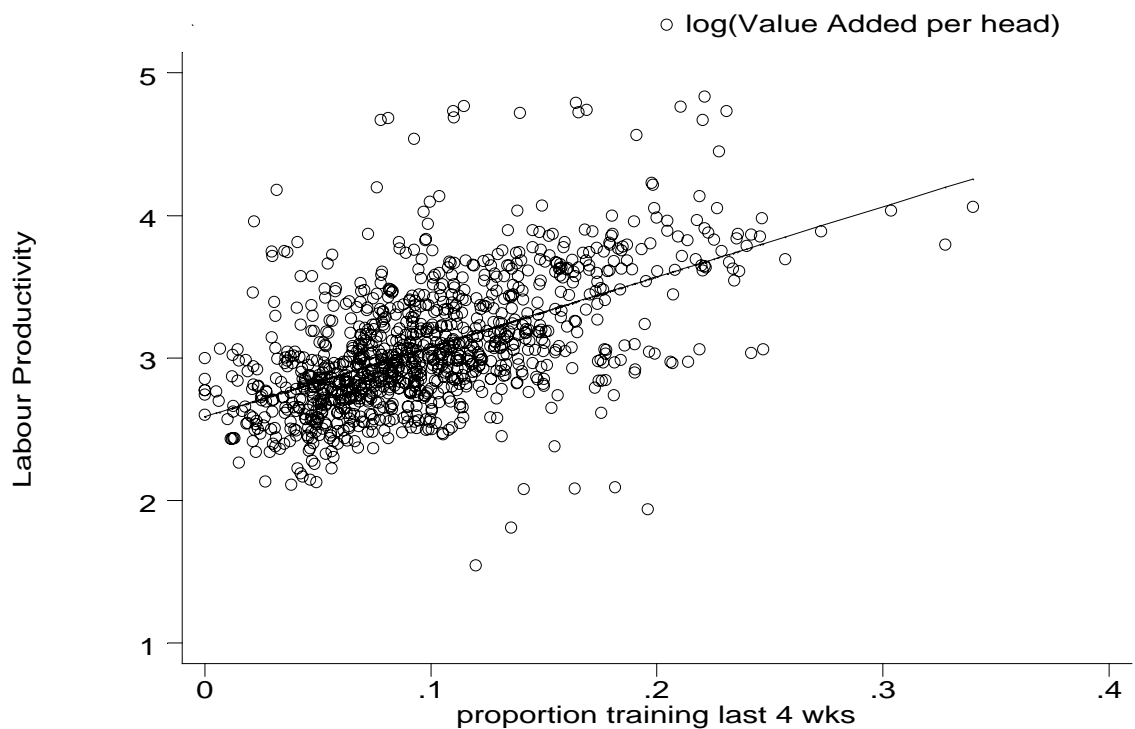
Several studies at the level of the firm have highlighted the performance benefits associated with *increasing* training activity, the *type* of training provided and the *depth*. For instance:

Increasing activity

Dearden, Reed and Van Reenen (2000) analysed the impact of training on performance for a variety of measures including value-added output, profits and wages for a group of British industries between 1983 and 1996. They found connections between more training and higher labour productivity across a number of sectors. In essence, manufacturing firms undertaking training were found to be more productive, to have higher capital intensity, to conduct more research and development and have a more highly qualified workforce (see Figure 2.1). A study in France (d'Arcimoles, 1997) found that the more training given, the better the economic performance. Training was permanently and clearly associated with an increase in profitability and productivity.

Raising the proportion of workers trained in an industry by five percentage points (say, from the average of ten per cent to 15 per cent) was associated with a four per cent increase in value added per worker and a 1.6 per cent increase in wages. They note that this level of increase has also been found by other researchers *eg* Blundell *et al.* (1996) and Booth (1991). Others *eg* Collier *et al.* (2002) have found that increasing investment in training reduces

Figure 2.1: Labour productivity and training in British industries



Source: Dearden, Reed and Van Reenan

the chance of firm closure. For small firms it was the training of craft and manual workers that made the difference, for larger firms it was training of professional, clerical and secretarial employees. Others have found rather mixed evidence on benefits from training in terms of motivation and attitude; Green (1997) suggested that there was limited evidence that training improves employees commitment to the firm; Booth & Zoega (2000): suggested that training fosters a common firm culture and helps attract good quality workers; Green & Felstead *et al.* (2000) found training had a downward impact on mobility; Dearden *et al.* (1997) suggested that off the job training increases mobility since it provides transferable skills.

In a broad review of the literature, Keep *et al.* (2002) report a UK study of management training (Amos *et al.* 1997) which explored the relationship between investment in education, training and development and various business outcomes. A relationship was found between overall investment and a range of outcome indicators but not for a number of specific training and development measures individually. A possible explanation for the relatively weak association was the absence of a strategic association between training and development policy and business strategy which others have found to be important (*eg* Thomson *et al.* 1997; Mabey and Thomson, 2001)

Type of training

Lynch and Black (1995) in the US, examined the impact of training in terms of the number of workers being trained, the type of training and how it was delivered (*eg* off the job and/or out of office hours) on company productivity. They found that in manufacturing, greater productivity improvements were achieved when more training was undertaken off the job. In contrast, specific types of training were more important in the service sector; in particular training in IT and computing skills was associated with higher productivity gains. Bishop (1994) noted that in the US on the job training from a previous employer raises productivity by 9.5 per cent but had no lasting effect whereas off the job training raised productivity by 16 per cent and was longer lasting. Other studies suggested that generic training was likely to produce greater returns than firm-specific training (*eg* Black and Lynch, 1996). The premiums to computing training was also confirmed by Green (1999).

Barrett and O'Connell in 1998 and in 2001, used a firm level dataset to explore the link between general and specific training and then went on to review a number of studies examining the business benefits of continuing vocational training and organisational performance. They report that in many studies continuing vocational training is found to have a positive influence on productivity and wages. Furthermore, it seems that this type of training has the greatest impact when it is specific to the firm

providing it. Their own research differentiates between general training (which provides broad skills and knowledge) and specific training (directly related to the operation of the company). General training, which may provide transferable skills and/or knowledge relevant to many firms, showed significant correlation with labour productivity regardless of whether measured in number of trainees as a ratio of total employment, training days as a ratio of total employment and training expenditure as a ratio of total payroll. This is interesting in comparison to the Lynch and Black study which also found off the job training, which might be assumed to be less firm specific than on the job, to have greater impact on productivity. Appleyard and Brown (2001), found in the US that initial training of technicians was correlated with quality and efficiency of production and training of operators was linked to line yield and productivity.

Depth and consistency of training

Cosh, Duncan and Hughes (1998) used a panel data set of 1,600 UK firms tracked between 1987 and 1995. They concluded that training makes little difference to business survival in addition to existing profit, level of maturity and past innovation. There was a relationship between business growth and training between 1987 and 1990 but not in the later period. Similarly, larger firms showed a link between training and profitability in the earlier period but not later.

In a follow up study in 2000, Cosh, Hughes and Weeks explored the impact of increasing investment in skills and training on business success in terms of employment growth. They found a strong significant effect of training on employment growth for small firms that were persistent trainers but not for those who were *ad hoc* trainers. They also established a positive relationship between sales growth and training but not at such significant levels. In a more recent study in 2003, examining the impact of training on business performance, and extending their earlier work, Cosh *et al.* (2003) found a significant link between the intensity of training and performance: training spend per firm was significantly related to changes in profit margins (but training spend per employee was much less so). There was no relationship between productivity growth and training intensity.

Kitching and Blackburn (2002) found that higher intensities of training were associated with employment growth and sales growth in UK SMEs, however they did not find a relationship with profit.

Apart from academic studies exploring the impact of training and development there is relatively little evidence of firm-level evaluation. In the US, the link between training evaluation and provision of training has been noted. A survey by Training Magazine found that the most highly regarded US firms spent

around four per cent of payroll on training (twice the industry average) and also conducted more rigorous evaluation with 92 per cent measuring business impact compared to 11 per cent industry average (Skillnets, 2005).

It would seem from the figures above, that relatively few firms conduct evaluation of impact (Kirkpatrick level 4) and even fewer conduct return on investment (ROI) studies. The work of Jack Phillips has stressed the need to conduct ROI studies through his 18 step, systematic approach (Phillips, 1997).

2.3 The wider context of HR practice

We now turn to studies that have taken a rather different perspective. There is a body of literature which, although not focusing on skills *per se*, is of relevance to our skills and training debate because it highlights a range of factors which appear to influence outcomes. The literature begins to paint a picture of skills as part of a wider approach to human capital and its contribution to organisations; it shows that the effects of skills or training are not always realised in isolation.

There has always been literature that explores the impact of skills or training within a broader context such as training and development strategy. Amongst these have been various studies that evaluated the impact of the Investors in People initiative. A number of evaluations of IiP have found a positive relationship between having IiP and a range of business benefits reported by employers, including improved service quality, increased turnover, and higher profitability (Hillage and Moralee, 1996; Tamkin *et al.*, 2000; Hambleton Group, 2000). Although such research cannot prove that the achievement of IiP has *caused* the improved performance, it nevertheless is an interesting association. There are also obvious problems of subjectivity and possible personal bias with studies reliant on self reporting of performance, but a number of studies have reported similar findings.

More recent work on management development has also highlighted the importance of context. In one study of European firms, organisational performance correlated significantly with the degree to which line managers believed management development demonstrated attributes of best practice (Mabey and Gooderhan, 2003).

2.3.1 High performance work practices

High performance work places or organisations (HPWOs) have been described in various ways, but there is a general emphasis on engaged and empowered workforces, and on high quality goods and services. For example the OECD has defined them as those organisations that are moving towards a flatter and less hierarchical

structure, where people work in teams with greater autonomy, based on higher levels of trust and communication. High Performance Working Practices (HPWPs) are similarly defined as those practices which contribute to HPWOs.

The CIPD has defined the component parts of high performance working as:

- a vision based on increasing customer value by differentiating an organisation's products or services and moving towards the customisation of its offering to the needs of individual customers
- leadership from the top and throughout the organisation to create momentum
- decentralised, devolved decision making by those closest to the customer, to constantly renew and improve the offer to customers; development of people capabilities at all levels with emphasis on self-management, team capabilities and project-based activity
- support systems and culture, which include performance operations and people management processes, aligned to organisational objectives to build trust, enthusiasm and commitment to the direction taken by the organisation
- fair treatment for those who leave the organisation and engagement with the needs of the community outside the organisation – an important component of trust and commitment-based relationships both within and outside the organisation.

Ashton and Sung (2002) suggest that HPWOs are unique in that:

'the organisation of production is based on the assumption that competition is based not just on cost, but on incremental improvements in the quality of the goods or services produced ... the division of labour is organised to ensure that all employees are in a position to contribute towards the overall performance of the organisation ... management is no longer the sole repository of knowledge ... and also means that they [the workers] must acquire the social and problem-solving skills required for the management of production, in addition to the technical skill required for their immediate work tasks. This generates the conditions not just for higher levels of learning and skill formation, but for learning to become a continuous process.'

These various definitions, while covering some common ground, are also clearly very different. Undoubtedly, clarity has not been assisted by the shifts in terminology that have taken place. Wood (1999) for example, has traced the debate from the use of the term 'high commitment management' by Walton in 1985 through 'high involvement management' in 1986, to the current debate around 'high performance management', or 'high performance organisations'. The use of the term 'high performance' has been seen to suggest that the link with performance is a causal one and

has been proven in practice. Those who are not convinced still prefer the term 'high involvement management'.

For simplicity we use the term HPWPs throughout this paper.

How do they work?

High performance working can be considered as an emerging organisational model and there is still a lively debate in the literature between competing perspectives of how it operates in practice.

Some commentators have suggested that certain practices always bring benefits whereas others have suggested that they need to be fitted to the organisation – the universalist and contingent views respectively (see Guest *et al.* 2004). A universalist perspective argues that there are a number of HR practices which, if adopted, will always result in superior performance whatever the context (*ie* some have concluded that it is the intensity with which HR practices are adopted that has greater effect on performance than organisational fit – Huselid and Becker 1997). Thompson (2000) found that both the number of HR practices adopted and the percentage of the workforce covered were differentiating factors in terms of performance.

The contingency model, on the other hand, argues that a distinct combination will work only under specified conditions or with specific groups of staff. Complementing the contingency view are other concepts such as the resource-based view of the firm (Barney 1991), which argues that resources internal to the organisation are a source of competitive advantage to the extent that they are rare, inimitable and difficult to substitute. HPWPs have two attributes associated with inimitability – path dependency (developed over time rather than acquired off the shelf) and causal ambiguity (easily understood in concept but requiring subtle and numerous inter-relationships which are less easy to see in practice – Collis and Montgomery, 1997). This perspective can be seen to be compatible with the concept of core competence (Hamel and Prahalad, 1994) *ie* what are the unique abilities that differentiate an organisation from its competitors?

An element of the contingency model argues for internal contingency, and suggests that practices need to be 'bundled' into meaningful groups of practices. There is some evidence in support of this bundling view *ie* that it is not practices *per se* that make the difference but the degree to which they align with each other to create meaningful 'bundles' of practice (*eg* Huselid, Jackson and Schuler, 1997). A recent study of HPWP in the Netherlands (Den Hartog and Verburg, 2004) found a bundle of practices labelled 'employee skill and direction', were related positively to perceptions of employees' willingness to go beyond contract, negatively to employee absence, and positively to the perceived

economic performance of the firm. Hoque (1999) found that HRM was more likely to contribute to competitive success in US hotels, where it was introduced as an integrated and coherent bundle of practices.

Various studies have found that adoption of single practices do not deliver the same improvement of results. For example Katz, Kochan and Keefe (1987) reported that plants which adopted team-based working without implementing other changes performed worse than those which had not. Ichniowski and Shaw (1995) also found that the adoption of single practices did not improve productivity and was sometimes associated with decline, as did Wood (1999).

Jackson *et al.* (1989) developed a model of HRM as a function of organisational characteristics. They focused on practices designed to influence attitudes and behaviour and found their adoption varied by firms grouped by strategy, sector *etc.* Bae and Lawler in a Korean study, found compelling support for their hypothesis that there was a strong relationship between the adoption of HPWP and the perceived performance of the organisation, they also found that adoption was related to a management team which highly valued HRM and to those organisations which were pursuing a differentiation strategy. Osterman (1994) found that management values favouring employee welfare, the degree of international competition and employee skill requirements, have an influence on the adoption of innovative forms of work organisation in manufacturing. Huang, (2001) explored different combinations of practices and HRM and found that, although there were differences in organisational performance, these were not always consistent with the predictions of contingency theory. Huselid (1995) also found only modest evidence for internal fit and no evidence of external fit in a study that confirmed the relationship between a gross measure of HPWP and performance.

Arthur's (1992) study of steel 'mini-mills' found two overarching strategic approaches: cost reduction and enhanced employee commitment. HRM systems were adopted that were consistent with these two strategic approaches but no association was found between the systems adopted and other variables *eg* firm age, size, union coverage, location and local labour market. There was a positive correlation between the strategy of the firm and labour turnover, with turnover lower in those plants with commitment systems. Ahmad and Schroeder (2003) explored a wide range of HR factors and found that organisational performance is positively related to a range of HRM practices but that organisational commitment was an important intervening variable. In a similar vein, Bacon and Blyton (2001) in a longitudinal study of steel plants in the US identified that employee attitudes had become more negative despite a range of positive HR practices being introduced because of cost cutting measures, which had led to much greater perceptions of job

insecurity. The importance of trust and satisfaction is both an important outcome of the adoption of HPWPs and an important mediator between the practices themselves and business performance. Work in the UK public sector found that HR practices are powerful predictors of trust and organisational performance (Gould and Williams, 2003)

Link with business strategy

Whereas some have sought to align practices into internally coherent bundles, others have looked to external alignment with business strategy. Various studies have failed to find support for the external fit argument (Huselid, 1995; Huselid and Becker 1995, 1996) whilst MacDuffie (1995) found some evidence of positive results related to fit with business strategy. Bjorkman and Xiucheng (2002) in a study of Chinese manufacturing organisations found a positive relationship between firm performance and extent to which firms used a HPWP system as well as the degree to which they engaged in the integration of HRM and firm strategy. Delery and Doty (1996) explored the performance of US banks that adopted a range of HPWPs. Their findings suggest that there was a relationship between the adoption of a range of practices and firm performance, but there was only weak support for this relationship being contingent on firm strategy.

In a review of British aerospace companies, Thompson (2000) found that establishments with high skill densities use HPWP more widely which may be evidence of 'fit'. Those firms that were following a high skill, high HPWP route also spent a high percentage of their non-management training budget on behavioural skills training.

Huselid and Rau (1997) found that progression of HPWPs over a three-year period was associated with the following characteristics:

- Firms in more profitable industries were more likely to adopt incentive and performance management dimensions of HPWPs.
- Those in more volatile or dynamic environments were more likely to shift risk on to employees through variable compensation systems (where they are least attractive to employees).
- Adoption of performance management and incentive systems is negatively correlated with unionisation and a unionised workforce is associated with the adoption of staffing development practices.
- There was some support for an association between HPWPs and business strategies. Those firms pursuing a differentiation strategy were more likely to adopt HPWPs than those pursuing a cost leadership strategy. However, there was little

evidence of the kinds of HRM policies and practices that might be appropriate.

- External factors have a greater impact on reward management factors than others.

What are the practices?

Reviews of 'bundles' of practices have sought to find which practices are most often included. It has been argued (Bosalie and Dietz, 2003) that practices relating to employee development and training, participation and empowerment, information sharing, and compensation systems are most often combined. An evolving understanding of high performance work systems suggests that they generally focus on high skill requirements, discretion at work, team working and incentives enhancing organisational commitment (Batt, 2002; Delaney and Huselid, 1996). Guest, in work for the CIPD identifies 18 key practices associated with high performance or high commitment HRM:

- realistic job previews
- use of psychometric tests for selection
- well developed induction training
- provision of extensive training for experienced employees
- regular appraisals
- regular multi-source feedback on performance
- individual performance-related pay
- profit related bonuses
- flexible job descriptions
- multi-skilling
- presence of work-improvement teams
- presence of problem-solving groups
- information provided on the business plan
- information provided on the firm's performance targets
- no compulsory redundancies
- avoidance of voluntary redundancies
- commitment to single status
- harmonised holiday entitlement.

Thompson's work (2000) in aerospace identifies over 30 practices that fall into three distinct clusters:

1. high involvement practices that aim to create opportunities for engagement (*eg* semi-autonomous teams, problem-solving teams, continuous-improvement teams, responsibility for own

work quality, job rotation within and/or between teams, team briefings, staff suggestion schemes, attitude surveys)

2. human resource practices to build skill levels, motivation and ability (eg formal recruitment interviews, performance or competency tests, psychometric tests, share ownership schemes, personal development plans, training, competence-based pay, team rewards, incentive pay)
3. employee relations practices that help build trust, loyalty and identity with the organisation (eg single status, formal grievance procedures, formal salary reviews, social gatherings).

Pfeffer (1998) describes seven practices of successful organisations: employment security, selective hiring, self-managed teams and decentralisation of authority, comparatively high compensation, extensive training, minimal status distinctions, and extensive sharing of financial and performance information. Pil and MacDuffie (1996) suggest five key practices arising from their work on car manufacturing: online work teams, employee involvement practices, problem-solving groups, job rotation, suggestion programmes and decentralisation of quality efforts. Huselid also maintains a very comprehensive online list of studies linking HRM systems with firm performance, but does not give any details of the practices included.

Ashton and Sung (2002) sift all of these various lists down to four dimensions:

1. employee involvement and autonomy in decision making (the use of self-managed work teams and multi-skilling that provide the employee with the opportunity of developing teamworking and decision-making skills)
2. support for employee performance (appraisal systems, mentoring, coaching)
3. rewards for performance (individual and group-based performance pay)
4. sharing of information and knowledge (communication of information to all employees).

More recent work (Sung and Ashton, 2005) divides 35 practices into three bundles:

- high employee involvement practices
- HR management practices
- reward and commitment practices.

High involvement practices are those encouraging trust and communication. They are accompanied by empowerment and discretion eg promoting information on business performance, disseminating the business plan, undertaking staff surveys, suggestion schemes, quality circles *etc.* **HR practices** are designed

to create human capital investment and skills formation. Higher levels of skill are linked to improved quality of goods and services *eg* appraisal and feedback, formal assessment tools for recruitment, annual review of training needs, training for multiple jobs *etc.* **Reward and commitment** practices utilise financial rewards such as profit sharing to increase stake holding in the organisation. Egalitarian terms and conditions and free facilities also help. Examples are: performance pay, flexible working, family friendly policies and practices.

Bosworth (forthcoming) refers to a meta-analysis by Kling (1995) which considered the impact of three specific working practices – training, compensation linked to worker or firm performance, and employee involvement in decision making – across a number of predominately US studies. Kling concluded that all three practices seemed to improve labour productivity and were complementary in their effects – that is, that systems of interrelated practices had greater impact than the sum of practices adopted independently.

What is the impact?

Whilst there may be disagreement about what combination of practices constitutes a ‘perfect system’ and how this should be defined, the evidence commonly highlights positive improvements to organisational performance. For instance, Wood *et al.* (2001), using the UK Workplace Employee Relations Survey (WERS) data, found that the implementation of high involvement management raised the rate of productivity growth. Patterson *et al.* (1998) found that nearly one-fifth of variations in productivity and profitability were associated with differences in HR practices. Guest (2000) also identified a link between high commitment practices and financial performance. Guest *et al.* (2003) failed to find a link with profitability once the previous year’s profit was controlled for. However, the consensus from these studies was that high performance HR systems had economic benefits for firms’ financial performance.

The Work Foundation (2003) developed a high performance index, which measures performance on five categories, based on interviews with 1,000 UK chief executives:

- customers and markets
- shareholders
- stakeholders
- employees
- creativity and innovation.

Firms scoring highest on the index were found to be over 40 per cent more productive than those at the bottom, with the average UK business around 25 per cent less productive than those at the

top. A one per cent increase in the index score simulates two and a half percent extra sales per employee and a one per cent increase in profitability.

Huselid and Becker (1995) have found that there are greater gains from adopting HPWPs at both the low and high end of the performance distribution but not so much in the middle. Using various measures of an HR system they find a seven to nine per cent effect on market value for a narrow measure of HPWPs, and 11-13 per cent for a broader measure, when either is changed by one standard deviation. Based on average employment costs these effects are equivalent, they suggest, to a cash value of from \$38,000 to \$73,000. They suggest that achieving such benefits takes some time and effort.

A recent study published by the CIPD (Purcell *et al.* 2003) examines the ways in which HR practices may impact on performance. The authors seek to move the debate on, from whether HR practices do have an impact, to understanding *how* they have an impact. The researchers assert that for people to perform above minimal requirements they must:

- have the *ability*, ie the requisite knowledge and skills
- be *motivated* to work well
- be given the *opportunity* to deploy their skills and contribute.

HR practices serve to turn these three elements into action, and managers have a key role in implementing policy and practice. The importance of employee attitudes to business performance is another layer of complexity in seeking to understand the skills-performance link. The body of research on engagement has shown that employee motivation is a key intervening variable in producing higher performance (*eg Barber et al.* 1999), an area we return to later. Recent work by Sung and Ashton (2005) found significant positive association between the level of HPWP adoption and a range of organisational outcomes. They found that various outcomes are differentially associated with three distinct 'bundles' of practices:

1. high employee involvement practices
2. human resource management practices
3. reward and commitment practices.

They also found differential uptake of practices by sector, with uptake of a wider range of practices in manufacturing and business services than in financial services and wholesale and retail.

There have been criticisms of such studies, raising the point that association does not prove causality, but the few studies that have included a longitudinal element have also tended to support the view that the practices impact on performance rather than the

other way round. For example, Patterson *et al.* (1995) using the UK WERS data set, found that implementation of HPWPs was followed by improvements in performance, a finding echoed in the US by Ichniowski *et al.* (2004). These longitudinal studies also suggest that there is a lagged effect, with the implementation of the practices taking some time to filter through to performance improvement.

The size of the effect

Patterson *et al.* 1998 identified two dimensions that were linked to performance: 'the acquisition and development of employee skills' and 'job design'. These two factors accounted for 19 per cent of the variation in the change in profitability and 18 per cent of the variation in productivity. Huselid, in the US, used a one standard deviation shift in HRM practices as a benchmark and found that sales per employee rose by \$27,000 and market value per employee by \$18,000.

Huselid and Becker (1997) found that there were consistently strong associations between the presence of a HPWPs (measured by the intensity of adoption of 24 practices) and firm performance. A one standard deviation improvement in HR system index was associated with an increase in shareholder wealth of \$41,000 per employee. The impact of HR alignment was less clear and the statistical association with business performance disappeared once management quality was taken into account.

Method issues

Across this very broad literature there have been a range of methodologies used. While some see this as a weakness, others believe that the range of methodologies strengthens the argument in favour of HPWPs, because the findings have much in common, despite the different measures used. In looking at effect, some have used management perceptions, and some hard measures of performance derived from published data on companies' results or stock market valuations. Some are studies of a single firm (*eg* Ichniowski's, 1990, study of a paper mill), some of industries (*eg* Berg *et al.*'s 1996 study of the apparel industry and Ichniowski *et al.*'s 1996 study of the steel industry), whilst others are cross sectoral (Huselid, 1995; Ichniowski, 1990; Ichniowski and Shaw, 1995; Huselid and Becker, 2000 in Ichniowski *et al.* 2000; all in the US, and Wood S, 1999 in the UK).

Because of this lack of consistency, there is some confusion about which HR practices are the important ones in raising performance. There has also been debate about how practices should be combined (Delery, 1998). Some suggest that practices might be additive (combinations may produce additional and non-overlapping benefits), or substitutable (*ie* either on or off the job training will do and there may be no additional benefits in either),

synergistic (more than the sum of the parts) or negatively synergistic (where certain combinations may be worse than no practice at all). It has been suggested that the positive results associated with much of the research on individual HR practices may be related to the underlying HR systems (Becker and Huselid, 1998).

Even where the focus was on more systematic elements of HR *eg* employee involvement, the exclusion of other elements affecting performance such as training, appraisal or compensation may lead to rather narrow conclusions. It is also not always clear when an HR policy or practice becomes a system or a bundle (*eg* Bosalie and Dietz, 2003). For example, training and development might be considered a single practice but may be expressed through management development, internal labour markets, succession planning processes, or training. These kinds of practices have also appeared as a development bundle. Some researchers have focused on related concepts such as a high involvement system (Lawler *et al.* 1995) or a high commitment system (Wood and Albanese, 1995). There is also an absence of consensus over which aspects of firm performance it is that work practices are proposed to affect (Den Hartog and Verburg, 2004), with measures ranging from financial performance, productivity, employee commitment, absenteeism and customer satisfaction. Some studies have looked at hard data, others have focused on managerial perceptions of performance.

What is clear from the huge range of studies in this area, is that the motivation of people at work is a key element of the relationship between these input factors and organisational outcome. Kohn *et al.* (1983) have been researching the impact of work on personalities of the worker using longitudinal data and comparing the personalities of workers ten years apart. Those working in jobs free from close supervision where complex operations and independent judgement demonstrated a lasting impact on their personalities. They became self confident and showed greater flexibility in handling ideas. Those in more routine jobs had lower levels of self-confidence, were more fatalistic, more likely to experience psychological distress, and were less flexible in dealing with ideas.

2.3.2 Employee engagement

As we have seen, many of the studies of HPWPs have hinted that they are associated with employee commitment. This is not an uncontentious term and there has been some literature to attempt to explain just what this concept means. Indeed, earlier work focused on high commitment practices rather than the current term of high performance (Wood, 1999). Indeed there is growing recognition that commitment is an important aspect of high performance. Commitment and engagement have been the focus of their own literature, which overlaps with some of the literature on HPWPs. We briefly review some of it here.

Types of Commitment

In simple terms, we might think of commitment in terms of feelings of obligation or emotional attachment. However, in the last 15 years, a growing consensus has emerged that commitment should be viewed as a multidimensional construct. Allen and Meyer (1990) developed an early model that has received considerable attention, based on their observation that definitions of commitment reflected at least three distinct themes: an affective emotional attachment towards an organisation (Affective Commitment); the recognition of costs associated with leaving an organisation (Continuance Commitment); and a moral obligation to remain with an organisation (Normative Commitment). Importantly, not all of these forms of commitment are positively associated with superior performance (Meyer and Allen, 1997) For example, an employee who has low affective and normative commitment, but who has high continuance commitment is unlikely to yield performance benefits.

In more recent years, this typology has been further explored and refined to consider the extent to which the social environment created by the organisation makes employees feel incorporated, and gives them a sense of identity. O'Malley (2000) contends that a review of the commitment literature produces five general factors that relate to the development of employee commitment:

1. **Affiliative commitment:** An organisation's interests and values are compatible with those of the employee, and the employee feels accepted by the social environment of the organisation.
2. **Associative commitment:** Organisational membership increases employees' self-esteem and status. The employee feels privileged to be associated with the organisation.
3. **Moral commitment:** Employees perceive the organisation to be on their side and the organisation evokes a sense of mutual obligation in which both the organisation and the employee feel a sense of responsibility to each other. This type of commitment is also frequently referred to in the literature as normative commitment.
4. **Affective commitment:** Employees derive satisfaction from their work and their colleagues, and their work environment is supportive of that satisfaction. Some (eg Allen and Meyer, 1991) suggest that this has the greatest potential benefit for the organisation. Employees who have high affective commitment are those who will go beyond the call of duty for the good of the organisation. In recent literature this form of commitment has also been referred to as 'engagement' and is the form of commitment that is most usually measured by organisations.
5. **Structural commitment:** Employees believe they are involved in a fair economic exchange in which they benefit from the relationship in material ways. This type of commitment is also

frequently referred to in the literature as continuance commitment.

Factors which build commitment

Relationships with managers

The quality of the relationship between managers and their employees relates to the development of commitment. Several studies have found significant positive relationships between the two variables, that is, employees who have good relationships with their immediate managers have greater commitment (Green *et al.* 1996; Nystrom, 1990; Settoon *et al.* 1996). Similarly, a recent study by the CIPD (2001) concluded that good relationships between managers and employees is one of the most important factors affecting motivation at work. Employees' commitment reflects their day to day contacts with their line managers about their job, and the way in which objective targets are set. Effective communication on job-related issues is a key ingredient in securing individual performance.

To a great extent, individual line managers are responsible for ensuring that these maintenance behaviours occur. Indeed, managers are key to creating commitment in an organisation, as was demonstrated in Barber *et al.* (1999). The most well developed organisational programme can break down at the point of transmission through poor management.

Relationships with colleagues

Emotional attachment to colleagues is another important aspect, maintained through frequent, rewarding contact with peers (Baumeister and Leary, 1995), which promote feelings of belonging that can bind employees to the organisation.

Organisational justice and trust

It is also argued that employees evaluate their experiences at work in terms of whether they are fair and reflect a concern on the part of the organisation for the well-being of the employees (Meyer, 1997). Research findings (eg McFarlin and Sweeney, 1992) suggest that employees' commitment to the organisation might be shaped, in part, by their perception of how fairly they are treated by the organisation. It is suggested in the literature that, by treating employees fairly, organisations communicate their commitment to employees. This suggests that organisations wanting to foster greater commitment from their employees must first provide evidence of their commitment to employees.

Organisational justice also has links with the concept of trust. According to Kramer (1999), trust in an organisation can promote the acceptance of organisational initiatives. When there is trust, employees are willing to suspend judgement and defer to the

authority of others. In addition, trust permits organisational flexibility because a payback need be neither immediate nor of equivalent value. O'Malley (2000) identifies four areas in which employees' sense of trust in the employer can be increased:

1. **Growth:** As most employees want to be more proficient in their job, a good way to instil trust is to attend to employees' development needs.
2. **Work-life balance:** Most employees would like organisations to allow greater personal time when needed.
3. **Individual accommodation:** Acts of organisational flexibility or benevolence toward employees.
4. **Health and safety:** Organisations that are committed to protecting employees' health and safety are more likely to be trusted.

Promotion

Policies and practices concerning promotion can also affect commitment. For example, Schwarzwald et al (1992) found that commitment was higher among employees who had been promoted, and was also related to employees' perceptions that the organisation had a preference of recruiting from their internal labour market. Such a policy might be perceived as an example of the organisation's commitment to the employee as discussed earlier. Among those who are considered for promotion, the outcome of the decision is likely to have an effect on commitment. But, for some, the perception of fairness in the decision-making process might be even more important.

Work-life balance

A key issue emphasised by research, especially in recent years, is the extent to which employees perceive they are able to achieve the right balance between home and work. Organisations are beginning to recognise this, and are making more concerted efforts to introduce a host of programmes intended to ease employees' burdens. These include initiatives such as: flexible work arrangements; child care; time off policies; elderly care; health care; information and counselling; and convenience services to name but a few. A major study by The Families and Work Institute (1998) found that such employer support was related to increased employee commitment.

Job satisfaction

Perhaps fairly obviously, how happy an employee is in a job has a profound effect on behaviour and commitment. From meta analyses (eg Iaffaldano and Muchinsky, 1985) it is clear that employees who enjoy their jobs will work harder and stay longer

with their employers than employees who do not. A satisfying job typically has three properties:

1. It has intrinsically enjoyable features: Mathieu and Zajac (1990) found that the strongest correlation with commitment was obtained for job characteristics, particularly job scope (enrichment).
2. It provides an opportunity for growth and development.
3. It makes employees feel effective in their roles (that they can positively influence organisational outcomes).

A positive relationship between job satisfaction and commitment, using a variety of satisfaction and commitment measures, has been consistently reported in the literature (Balfour and Wechsler, 1990, 1991; Cook and Wall, 1980; Green *et al.*, 1996).

Pay and reward

As mentioned previously, employees may remain with an organisation because there are constraints against leaving and incentives for staying. It is important for organisations to structure the economics of the relationship in a way that will not obstruct commitment.

Empirical tests of the administration of benefits have implications for employee commitment. For example, Grover and Crooker (1995), using data collected in a national survey of over 1,500 US workers to examine the relationship between availability of family-responsive benefits and affective organisational commitment, found a positive correlation between the availability of such benefits and commitment, even for those who would not benefit directly. They argue that organisations that offer such benefits are perceived by employees as showing greater caring and concern, and as being fair in their dealings with employees. Similarly, Cohen and Gattiker (1994) examined the link between organisational commitment and rewards, operationalised as actual income and pay satisfaction. They found that commitment was more strongly related to pay satisfaction than to actual income.

2.3.3 The benefits of commitment

The performance benefits accrued from increased employee commitment have been widely demonstrated in the literature. These include:

- increased job satisfaction (Vandenberg and Lance 1992)
- increased job performance (Mathieu and Zajac, 1990)
- increased total return to shareholders (Walker Information Inc, 2000)
- increased sales (Barber *et al.*, 1999)

- decreased employee turnover (Cohen, 1991)
- decreased intention to leave (Balfour and Wechsler, 1996)
- decreased intention to search for alternative employers (Cohen 1993)
- decreased absenteeism (Cohen, 1993; Barber *et al.* 1999).

One study (Harter, Schmidt, and Hayes, 2002) found that both employee satisfaction and engagement are related to objectively measurable business outcomes. Their research involved 36 organisations, from a variety of public and private sector areas, and sought to examine the relationship between employee satisfaction, engagement and business unit outcomes. These included customer satisfaction, productivity, profit, employee turnover, and workplace accidents. Harter *et al.* defined engagement as referring to an individual's involvement and satisfaction with, as well as enthusiasm for, their work. This was based on Kahn's view (1990), that engagement occurs when:

'... individuals are emotionally connected to each other, and are cognitively vigilant in their work.'

Initial findings in this study indicated that employee engagement appears to have a positive impact on customer satisfaction, customer loyalty ratings and financial outcomes, while a negative relationship is found with employee turnover.

Employee commitment is recognised as a contributor to business success, notably as a result of the work done by Sears in the USA. The 'service-profit chain' emphasises the importance of employee commitment to customer service, which in turn impacts on customer satisfaction and financial out-turn.

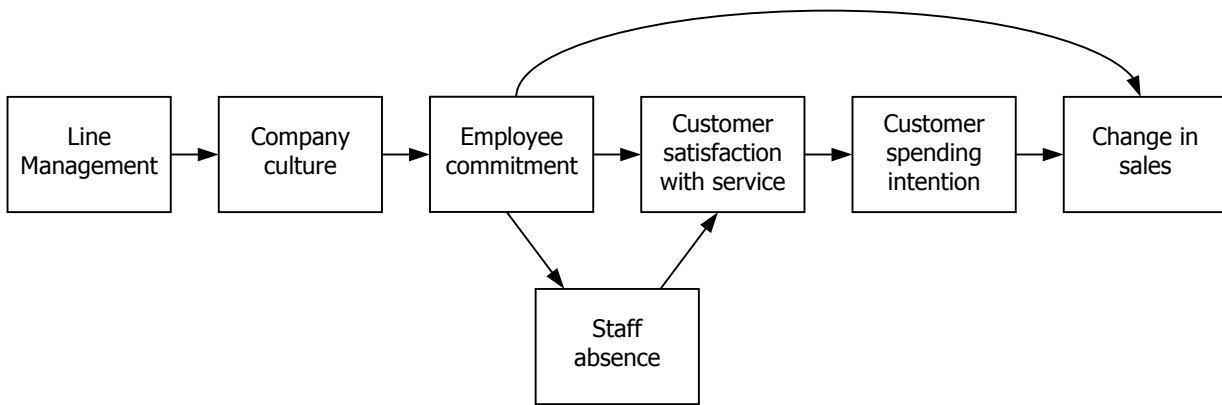
'From People to Profits'

IES research, in the UK retail sector, showed conclusively that employee commitment had a direct impact on sales (Barber *et al.*, 1999). As well as the direct link (which was not expected at the start of the research), commitment influenced sales through improved customer loyalty and improved employee attendance. Broadly, as employee commitment increased, sales went up; in addition, employee absence decreased, customer satisfaction increased and customer spending intention increased, causing sales to go up even more. The relationship is illustrated in Figure 2.2.

Engagement relationships

Work by IES has shown that engagement has clear links to attitudes towards other aspects of working life, as can be seen from Table 2.3.

Figure 2.2: Service profit chain



Source: IES, 1999

It is apparent that the strongest driver is a sense of **feeling valued and involved**, the components of which relate to several aspects already identified as relevant to engagement:

- involvement in decision-making
- the extent to which employees feel able to voice their ideas, and to which managers listen to these views, and value employees' contribution
- the opportunities employees have to develop their jobs
- the extent to which the organisation is concerned for employees' health and well-being.

Table 2.3: Highly significant engagement relationships

Attitude/experience	Correlation coefficient	N
Feeling valued and involved	0.588	9,941
Co-operation	0.515	9,868
Communication	0.481	9,933
Training, development and career	0.485	9,943
Equal opportunities and fair treatment	0.479	9,911
How the organisation compares as a place to work with two years ago*	0.452	7,267
Job satisfaction	0.410	9,944
Immediate management	0.401	9,941
Pay and benefits	0.398	9,904
Performance and appraisal	0.381	9,923
Colleagues	0.280	9,934
Current career intentions	0.257	9,700
Stress and work pressure	0.155	9,930
Number of days spent on formal training and development in the last 12 months	0.069	9,459
Length of service	-0.062	9,744

Note: Not including employees with less than two years' service

Source: IES, 2005

All the correlations are highly significant – that is, there is a greater than 99 per cent probability that the association really exists, and is *not* due to chance. All except one are positive, which means that an increase is associated with a higher engagement level – so, for example, higher levels of satisfaction with communication are associated with higher engagement scores. The exception is length of service, which is negatively correlated – that is, engagement levels go down as length of service increases.

2.3.4 IES' engagement model

The model in Figure 2.3 was developed by IES from research on engagement in both the public and private sector and makes use of two significant findings:

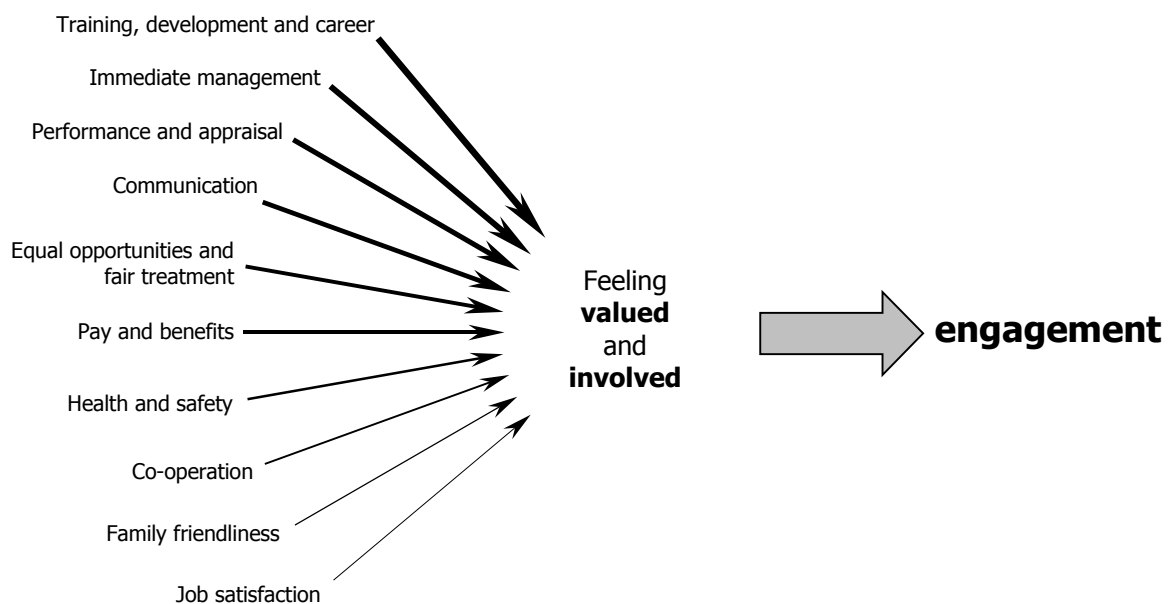
- the key role of feeling valued and involved as a driver of engagement
- the most important aspects (strongest correlations) found to foster this perception of being valued and involved.

The model indicates that a focus on increasing individuals' perceptions of their involvement with, and value to, the organisation will pay dividends in increased engagement levels. What is interesting, in this context, is that many of the components of feeling valued and involved, are what might be termed high performance working practices.

The key driver

It is apparent that the strongest driver is a sense of **feeling valued and involved**. This makes intuitive sense, given that the

Figure 2.3: The drivers of employee engagement



Source: IES, 2003

components of the 'feeling valued and involved' indicator relate to several aspects already identified as relevant to engagement:

- involvement in decision-making
- the extent to which employees feel able to voice their ideas, and to which managers listen to these views, and value employees' contributions
- the opportunities employees have to develop their jobs
- the extent to which the organisation is concerned for employees' health and well-being.

Statistical regression shows that feeling valued and involved accounts for over 34 per cent of the variation in engagement scores. Five variables account for an additional 13 per cent of the variation, co-operation, job satisfaction, equal opportunities and fair treatment, ethnicity (white/minority ethnic) and communication.

2.3.5 What fosters a sense of value?

If feeling valued and involved is found to be key in the relationship with performance, it is important to understand what factors are related to this construct. Table 2.4 gives the components of feeling valued and involved, again showing only those associations that are highly significant. The key role of the line manager can be clearly seen – not only as a direct link, but

Table 2.4: Highly significant associations with feeling valued and involved

Attitude/experience	Correlation coefficient	N
Training, development and career	0.689	9,940
Immediate management	0.636	9,940
Performance and appraisal	0.616	9,938
Communication	0.614	9,950
Equal opportunities and fair treatment	0.592	9,915
Pay and benefits	0.532	9,919
How the organisation compares as a place to work with two years ago*	0.478	7,274
Co-operation	0.473	9,866
Job satisfaction	0.409	9,937
Colleagues	0.355	9,934
Current career intentions	0.302	9,703
Stress and work pressure	0.273	9,929
Length of service	-0.090	9,755
Age	-0.076	9,644
Number of days spent on formal training and development in the last 12 months	0.066	9,459

* Not including employees with less than two years' service

Source: IES, 2005

also indirectly, in that the line manager is instrumental in such aspects as delivering performance appraisals, smoothing the path to training, communicating and demonstrating equality of opportunity.

Again, almost all the correlations are positive. The two negative correlations are age and length of service – meaning that the sense of feeling valued and involved diminishes as both age and length of service increase.

3. A Chain of Impact

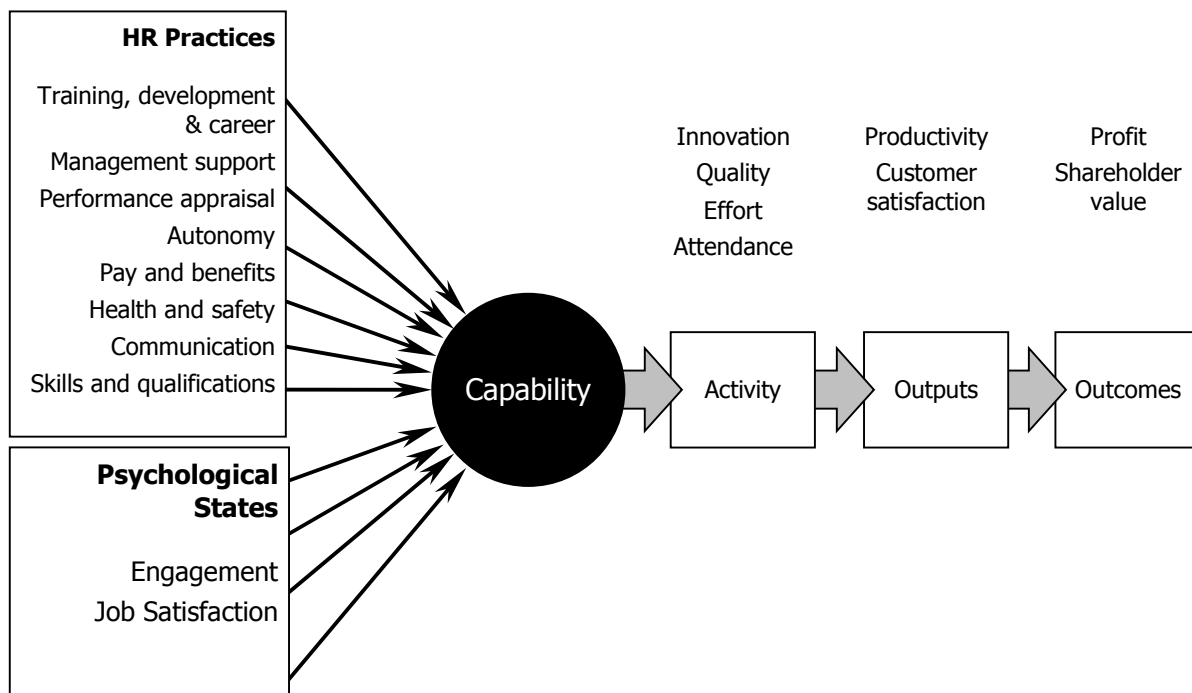
As we have seen from the literature there is considerable evidence that skills and development are seen to produce individual and organisational outcomes. But what we have also seen is that broader HR practices and enhanced employee commitment give rise to improved organisational performance. It is clear that there are a number of other factors which we need to take into account if we are to present a model which helps employers make the link between HR investment and organisational performance. For that reason we have included wider aspects of HR investment.

In trying to understand how this effect takes place, we have constructed a value chain from antecedents of capability – the input factors that develop employees’ abilities or their commitment, through to the outcomes of capability – the final results, be they profit or shareholder value or improved goods or services. Such a chain is inevitably set within the environmental context – all the other factors that can affect organisational performance – such as the level of competition, the environmental infrastructure, the regulatory environment *etc.* The capability of the workforce is expressed through the activities of people – the effort they make, the new products or services they create or the quality of what they do. That activity will impact on the amount of work which takes place – the productivity of the workplace, and the satisfaction of consumers or customers of the organisation. Productivity and customer satisfaction are likely to give rise to final outcomes of profit or shareholder value (for private sector companies, see Figure 3.1). This model places capability as a black box, where lots of inputs of process, practice or attitude, make a difference to individual activity and organisational outputs and outcomes.

3.1 A model of capability

This rather begs the question of what constitutes workforce capability in the first place. Just what is it that underpins the way in which the array of factors to the left of capability in Figure 3.1 make a difference to activity and outcome? In trying to un-pick just what it is that affects capability, we have focused on developing a model, which provides a coherent framework for exploring the impact of HPWPs on individual activity. We have seen from the literature (see Section 2.3) that skills are one element

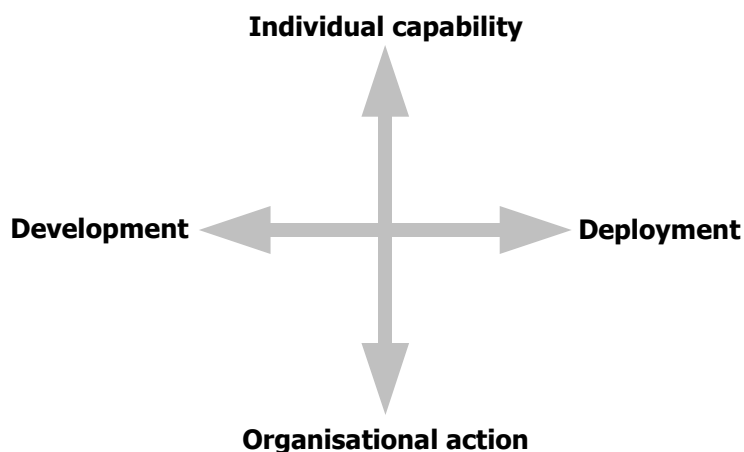
Figure 3.1: The chain of impact



Source: IES, 2005

of business success but that there are a host of other factors that also correlate with business performance. We have attempted therefore to develop a model which deliberately seeks to capture and explain the dynamic inherent in the literature on high performance working practices by taking the wide array of practices from the literature and exploring the factors which sit beneath them, including skills but looking more widely. This analysis has identified two key dimensions to human capability – its development and deployment on the one hand and the interplay between the individual and organisational capability on the other (see Figure 3.2).

Figure 3.2: Dimensions of Capability



Source: IES, 2005

3.1.1 Inputs to and deployments of capability

Whereas training and skill development are focused on the growth and stock of human capital, the capability of the workforce is also dependent on the way in which such capital is utilised in practice. This utilisation is dependent in part on the motivation and engagement of employees, their attitudes to their organisation, their manager, their colleagues, customers and their job will all affect their performance. As we have seen from the literature, motivation is a crucial element of performance.

3.1.2 The individual/organisational partnership

Individuals acting alone cannot create exceptional organisations, but rather work in the context of the organisation – its policies, processes, culture, strategic direction; ultimately the permissions it gives and the opportunities it creates. In developing human capital the organisation has policies and practices in terms of the kinds of skills it looks for and where it looks, for example the resourcing policies of internal versus external labour markets, and processes on succession planning.

In deploying capital, organisations create the context through the resources they provide, their operating procedures, job design, the degree of autonomy allowed and the product or market strategy the organisation follows. Skills and enthusiasm are attributes of the individual, but they can only make a difference when the organisation provides access to roles and an appropriate context within which they can be applied.

3.1.3 The four quadrants

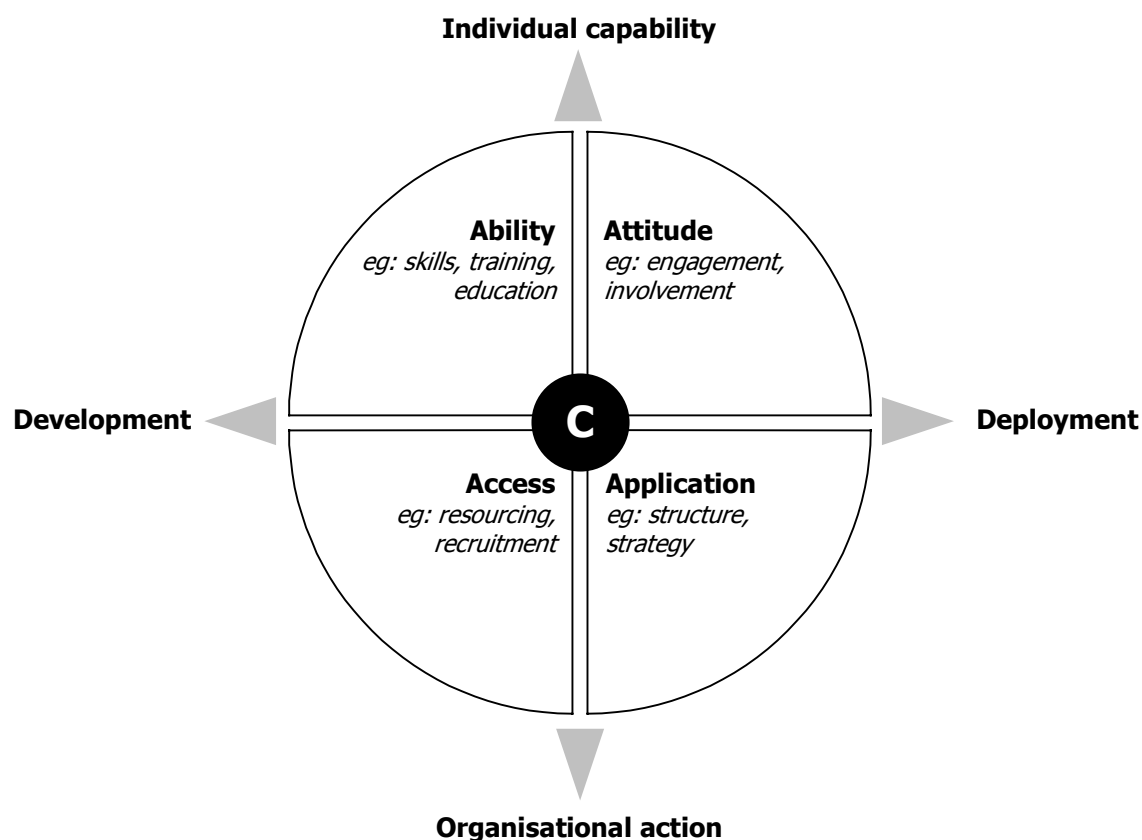
If these two dimensions are put together we arrive at four quadrants (see Figure 3.3), which we have termed the ‘4A model’:

- Access – the effective resourcing of roles in the organisation
- Ability – the skills of the workforce
- Attitude – the engagement, motivation and morale of the workforce
- Application – the opportunities available to ensure skills and motivation are effectively applied.

Access

This quadrant describes those policies and practices which are to do with entry; either into the organisation or into new roles. Access is influenced by the explicit and tacit resourcing policies of the organisation, what kinds of qualifications are sought for particular jobs, the recruitment practices which the organisation utilises, the processes for internal job filling, and the approach to operating an internal rather than external labour market.

Figure 3.3: The 4A model of capability



Source: from Tamkin et al., 2005

Ability

This quadrant encompasses the existence and development of talent – the level of skill and competency of the workforce, the way in which skill is developed through training and other means of development. Ability is increased through the process and practice of training, mentoring, coaching, internal and external courses, informal and formal means of development. It includes deliberate attempts to improve capability through planned job moves, experiential learning opportunities and measures of the skill levels of the workforce.

Attitude

This quadrant encompasses the motivational and psychological side of capability. Individuals with enormous ability may still not work at the level organisations hope for, if they are disengaged from the work they do or the organisation they work for. Great performance requires people to be willing to work hard for their organisation, to care what quality of service they produce, to attend because they feel responsibility for the outcomes of the organisation. Organisations need their employees to feel loyal. The attitudinal quadrant encompasses the policies to improve engagement, the way people are treated at work, the role of the line manager, the level of reward people receive and how this is

organised to encourage effort. This quadrant also encompasses the way people are kept informed as to what is required of them, and the communication processes the organisation has in place.

Application

Finally there are those processes and practices which are about application – the opportunities which organisations provide for their workforce to excel. It is the way in which skills and engaged and motivated workers are utilised by the organisation through the jobs people do, the resources that are available to them and the strategy that the organisation pursues. The most able and fully motivated people may not produce an exceptional organisation if they are constrained into small restrictive roles, if they do not have the right equipment or if their organisation is following a narrowly constrained product/market strategy.

The model we have developed, draws heavily on previous work for the SSDA (Tamkin *et al.* 2004) to explore the relationship between skills, motivation and HR practices.

3.1.4 Critique

At the centre of our model is workforce capability. On the left are the factors that might be expected to contribute to the development of capability *eg* ‘inputs’ in terms of experience of education and workplace training and development activity, the investment that organisations put into the training and development of their workforce, and choices organisations make about filling their posts. On the right are the deployments of capability *ie* factors affecting the ways in which capability is used in practice. The result of capability are corporate activity and performance (*eg* productivity).

The model is not un-contentious and there are a range of other factors which exert influence on both sides of the figure and which need to be taken into account in any study of the relationships underpinning the elements of the framework. These include:

- the economic, social and judicial context within which managers work
- the dynamics inherent in the model
- the importance of considering quality not just quantity of, for example, inputs
- mediating factors that influence the relationship between the elements.

Context

It has been pointed out (Bosworth and Wilson, 2002) that the context within which management operates is very influential.

This context includes the culture and systems of governance of organisations and at a broader level, the factors that constitute the legal, economic and social systems of economies and the educational traditions and infrastructure.

Dynamics

Another important factor is the dynamics inherent in the model and the environment within which it operates. Inputs to capability will depend on the functioning of the labour market and the stock of skills available to the organisation. As labour markets tighten, the external stock of available skill levels may reduce and this may affect organisational resourcing policies with respect to 'buying in' or 'growing own' approaches.

Quality

There is also an issue of responding to quality on the input side of the model. Management development and training and management experience, are all concepts with quality dimensions that will subsequently affect management capability. These quality dimensions are however very difficult to measure and therefore tend to be ignored in any metric, which tend to focus merely on quantitative activity.

Mediating factors

The various elements of the model also impact on each other. For example, the receipt of training and development opportunities may in itself raise motivation and commitment. Similarly, a strong internal labour market whereby jobs are filled by internal rather than external candidates, will also impact on motivation. Managers are in a unique position, as well as having their own capability influenced by the same factors in the model as the rest of the workforce, this capability will in turn impact on all parts of the model for others. Good managers will be providing a developmental environment and coaching and stretch opportunities, good management has a direct effect on the motivation of the workforce, the strategy of the organisation and its resourcing approach. The model can be used to explore the contribution of key groups such as managers (see Figure 3.4).

The literature also clearly indicates that there are likely to be types of organisations where the various element of the model act together appropriately and which are most likely to adopt high performance working practices. Such organisations are those which rely on a strategy of differentiation from competitors on the grounds of quality, innovation or tailoring products or services to the individual needs of customers.

Figure 3.4: The role of managers

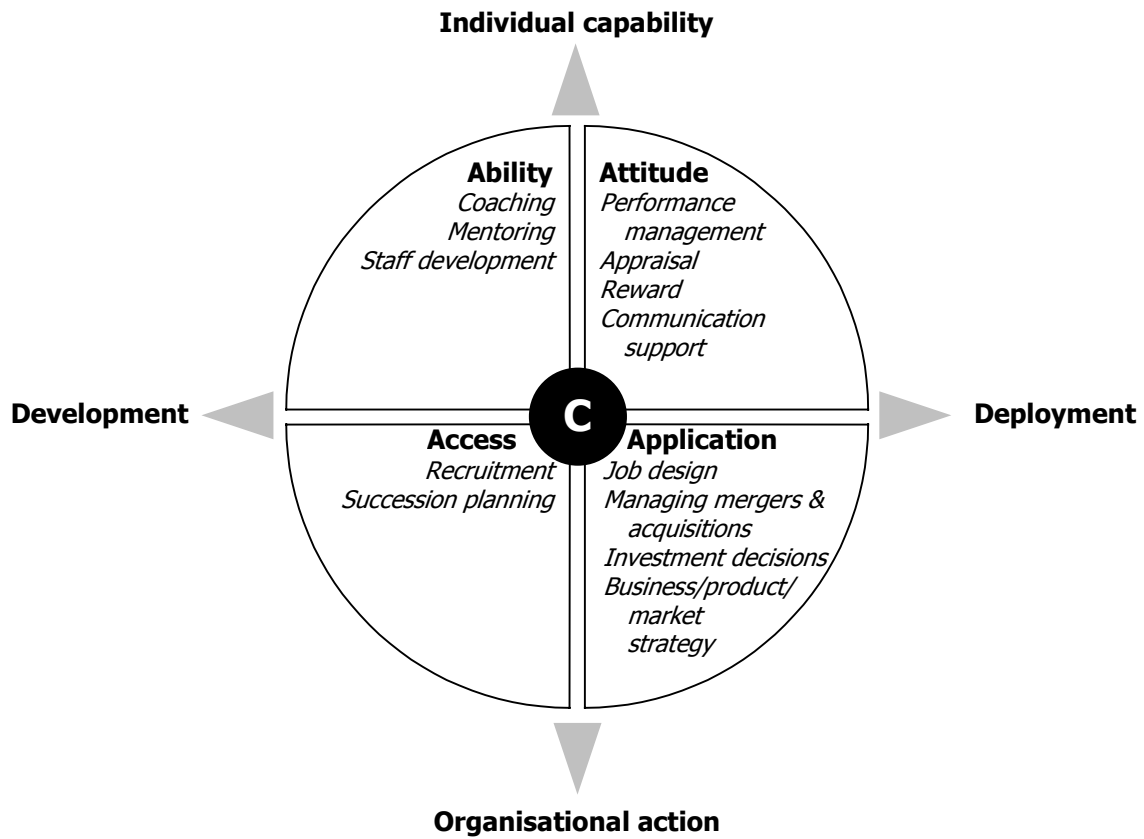
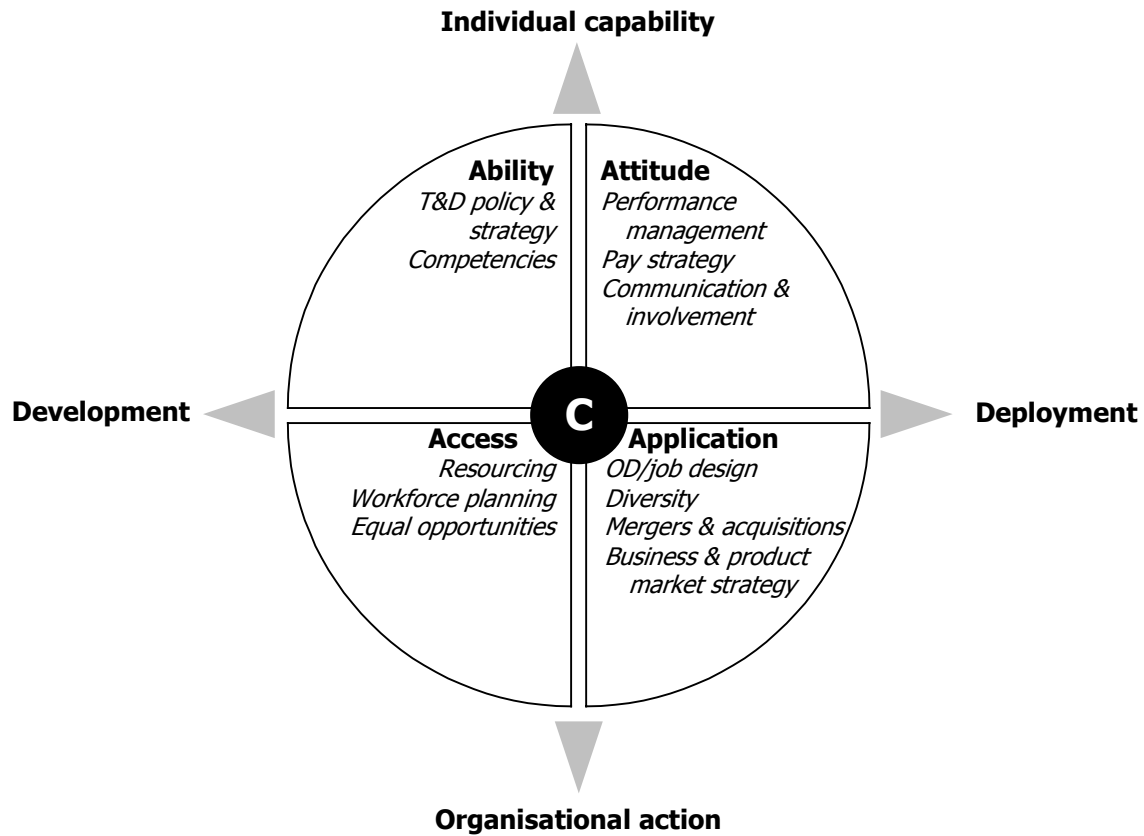


Figure 3.5: The role of HR in the 4A model



Source: Tamkin et al, 2005

Layers of responsibility

It is not always easy to determine who is responsible for people management within organisations. In some ways it is the people themselves, perhaps their willingness to take responsibility for their own learning, or to utilise feedback from appraisal to change their behaviour. It might also be considered to be the role of the line manager or the HR function. The 4A model has explored people management in the organisation rather than the HR function and its policies and practices. But these can also be mapped on to the model more directly (see Figure 3.5).

3.2 Mapping the 4A model against existing models or measures

Our model has emerged from a thorough analysis of the literature and consideration of the underlying factors which appear to contribute to organisational performance and how they align with each other. However, in exploring the literature we have seen a wide range of other models or approaches which seek to provide the means to evaluate human capital. There are three main approaches:

- lists of suggested measures for the measurement of human capital by policy bodies
- commercial models
- academic studies.

In this section we explore some of these and compare them to our emerging model to ensure we have not omitted anything of significance. We have included measures or models which have some significance *eg* because they are from some key studies which have been referenced many times and influenced the thinking of others, or because they purport to be explicit models which provide an explanation of how these HR factors influence performance, or because they provide HR measures and are explicitly aimed at improving business performance. In doing so, we have sought to test if the 4A model:

- has omitted anything of significance
- provides a more coherent framework than existing measures
- clusters factors together in a coherent way.

As we explore each model, we have briefly critiqued against the aims of this study.

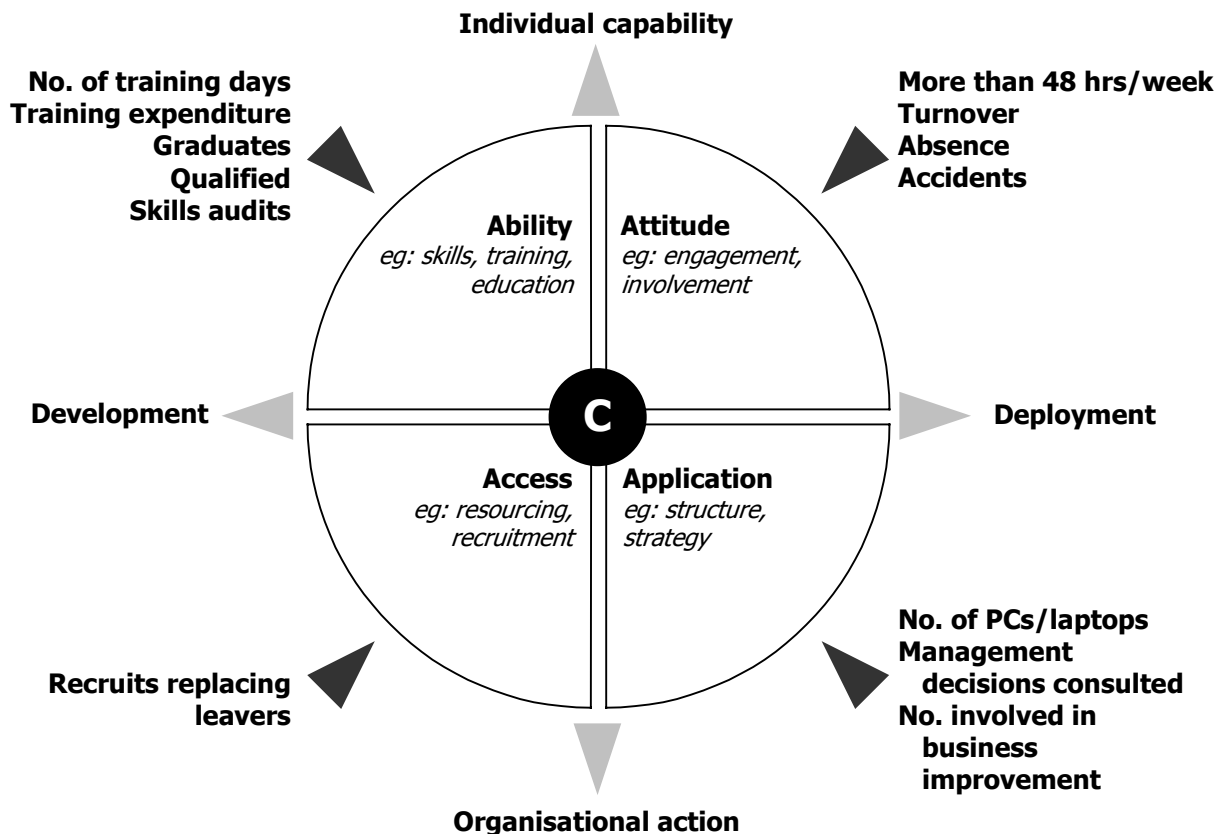
3.2.1 Measures by policy bodies

DTI – Benchmark Plus – core diagnostic

The core diagnostic underpins the DTI's support to implement best business practice. It is intended that this support enables organisations to learn from other businesses and to better understand where they stand relative to others. The questionnaire focuses on a number of performance indicators covering financial data, financial management, ICT expenditure, processes, customer satisfaction, product and or service innovation, suppliers, people management, people satisfaction. For comparison with the model presented here we focus on indicators of the contribution of people to performance:

- number of full time equivalents (FTEs)
- number of FTE managers
- number of management levels
- total number of training days per year (ratio)
- training expenditure (spend per employee)
- new joiners FTEs
- number of FTE graduates (percentage)

Figure 3.6: IES Model and Benchmark Plus



Source: IES, 2005

- number of FTE employees with formal qualification (percentage)
- number of formal skills audits
- number of PCs and laptops (per employee)
- number of employees working more than 48 hours per week
- number of key management decisions subject to information and consultation (percentage)
- number of key management decisions
- number of employees involved in business improvement activity (percentage)
- number of FTE employees directly replacing leavers (percentage)
- number of employees who leave the organisation (percentage)
- number of FTEs who leave within six months (percentage)
- number of new FTE employees (percentage)
- absenteeism (ratio)
- number of accidents.

The diagnostic is much broader in scope than our remit, and provides a range of measures of business performance and human capital issues.

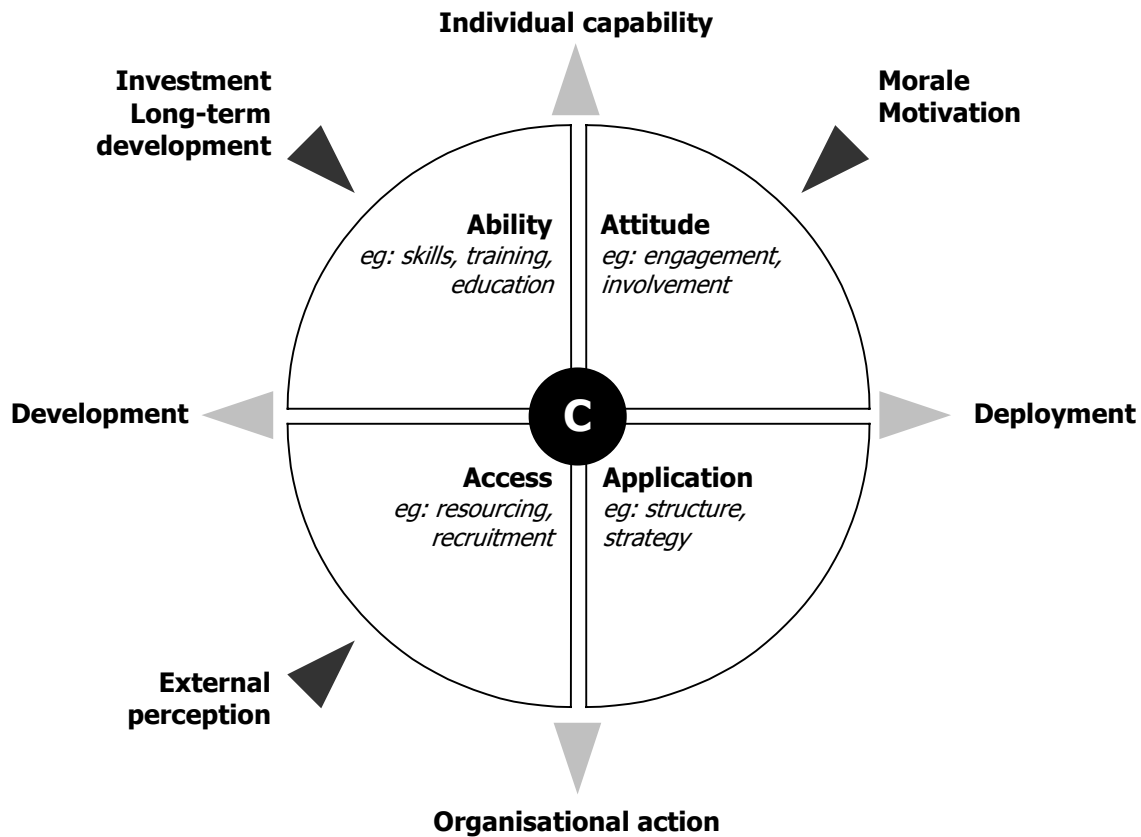
Council for Excellence in Management and Leadership (CEML)

The CIPD have reviewed the conclusions from the CEML report (Human Capital; the reporting framework – CIPD, 2003) which, whilst arguing that a generic set of reporting standards is impractical, acknowledges the value of greater corporate reporting and disclosure and suggests a range of measures from which organisations can select a key set appropriate to their needs and situations. These measures are grouped under a range of intangibles:

Morale

- absenteeism
- accidents
- employee turnover
- director and manager turnover
- employee satisfaction (attitude survey measure)
- sickness.

Figure 3.7: IES Model and CEML



Source: IES, 2005

Motivation

- appraisal completion rates
- percentage of jobholders for whom documented appraisal agreed
- percentage jobs for which objectives documented
- percentage jobs for which JDs
- employee understanding of strategy
- employee understanding of vision
- employee retention
- director and manager retention
- working hours.

Investment

- benchmarked remuneration levels
- director and manager salaries as a percentage of total resource
- HR spend per employee
- training investment.

Long-term development

- management capability
- potential management capability
- management skill gaps
- percentage of jobs where emergency cover identified
- percentage of jobs for which long term cover identified
- percentage of jobholders for whom a development plan is agreed
- percentage of jobs for which competencies audited
- training days.

External perception

- Job applications: vacancies
- Job offers: job acceptances.

There is a comprehensive range of measures suggested by CEML, although none are suggested which might fit into the application quadrant. There is, however, no underpinning model and although the measures have emerged from the literature, they are measures commonly used rather than the result of a more explicit search of those correlated with performance.

3.2.2 CIPD

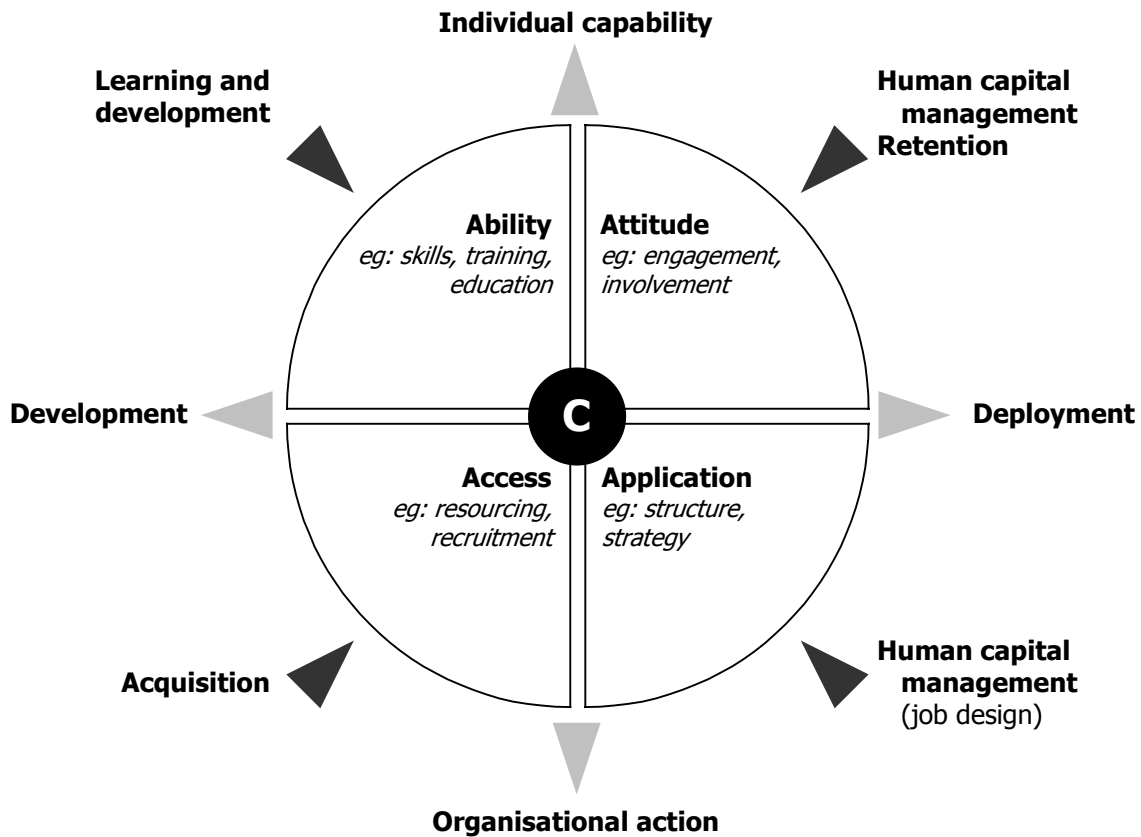
The CIPD has developed a guide on how to report human capital. The guide draws on the work of Scarborough and Elias (2002) which drew four conclusions:

1. Human capital should be viewed as a bridging concept between strategy and HR practices.
2. It is a precarious asset – the potential mobility of employees could and can undermine an organisation's ability to deliver.
3. It is a paradoxical asset in that the qualities that individuals bring to the workplace *ie* flexibility, commitment which create competitive value, are some of the most difficult to measure.
4. Human capital management is context-dependent.

Scarborough and Elias (2002) found that the set of measures reported were less important than the process of measuring. In a follow up review, the CIPD (*Evaluating Human Capital: external reporting framework*) develop an outline framework which reports on three components:

1. Human capital strategy – *ie* an account of the firm's overall approach to the acquisition, development, management and performance of human capital.

Figure 3.8: IES Model and CIPD



Source: IES, 2005

2. Sections on acquisition and retention, learning and development and human capital management.
3. Information on performance – details of the effectiveness and performance of human capital and human capital management policies and practices.

The framework suggests a range of indicators to help organisations report on the second of these three components (see Table 3.1).

The CIPD indicators provide a comprehensive list with the advantage of using underpinning variables. The list also gives attention to the acquisition of talent and to application issues such as job design. However, there is conceptual overlap between some of the clusters eg human capital management and learning and development, which suggests they may not be measuring distinct concepts.

3.2.3 Marketed models

All marketed models have the major disadvantages of not being freely available (and in most cases) dependent on a proprietary questionnaire based tool, which means the data is not easy to collect or analyse over time.

Table 3.1: CIPD indicators

Activity areas	Primary indicators	Secondary Indicators
Acquisition and retention	Average no. of vacancies as % of total workforce per month/year	Composition of workforce; age; gender and race
	Ratio of internal to external recruitment for job vacancies	Costs of recruitment
	Salaries and benefits breakdown by FT and temp worker costs	Length of service distribution
	Average time taken to fill vacancies	ROHC (profits/payroll and training costs)
	Staff turnover, average for different levels	Evidence of skill shortage or skill gaps
Management and leadership	Composition of board and executive team — age, gender, experience	Turnover in senior management, % per annum
	Numbers covered and size of talent pools	Performance criteria for senior management and extent linked to remuneration
	% of senior managers recruited internally/externally	
	% of variable pay at senior levels	
Learning and development	Off the job training days/FTE (% for different categories/grades)	No. of employees attained competency level
	Expenditure on off-the-job training (%overall and by category)	No. of employees attaining formal qualifications
	Expenditure on workplace learning (overall and % by category)	No. of internal promotions
Management and leadership	Management development spend per manager	No. of employees who complete personal development plans
	Average no. of days training per year per manager	Expenditure on career counselling/planning
		No. of managers possessing formal management qualifications
Human capital management	HR spend per employee	Length of time required for managers to attain satisfactory level of competence
	% of employees covered by formal HR policies in:	Staff or customer data on management ability
	• recruitment and selection	Available benchmark indicators based on recognised methodology/standard
	• training and development	Measures of employee commitment
	• appraisal and performance management	Measures of employee satisfaction
	• job design	% of shares held by employees
	• communication, consultation and employee involvement	% of variable pay by category and grade of employee
	• financial flexibility (performance/team based rewards)	% of employees covered by company share schemes
	• harmonisation	
	• employment security	
Management and leadership	Days per year spent resourcing top team development	
Performance	Market capitalisation per employee	Adjusted profit per employee
	Revenue per employee	Unit productivity per employee
	Profit per employee	Measures of customer satisfaction
	Value added per employee	Measures of employee satisfaction and loyalty
	Sales per employee	
Management and leadership	% flow of human capital in and out of the organisation	Employee perceptions of management

Source: CIPD

Bassi, McGraw and McMurrer

As a result of promoting the benefits of human capital investments to organisations, Bassi *et al.* 2003 began to invest in portfolios of companies that invested more extensively in their human capital. These portfolios have been consistently outperforming the market. Bassi *et al.* 2003 have also developed the Human Capital Management Assessment Tool based on the linkage of measures of the development and management of people to the organisation’s future business outcome. Their research work has highlighted five human capital indices and they have developed a proprietary questionnaire based tool of four or five items per theme, scored one to five (strongly disagree to strongly agree) in the areas of:

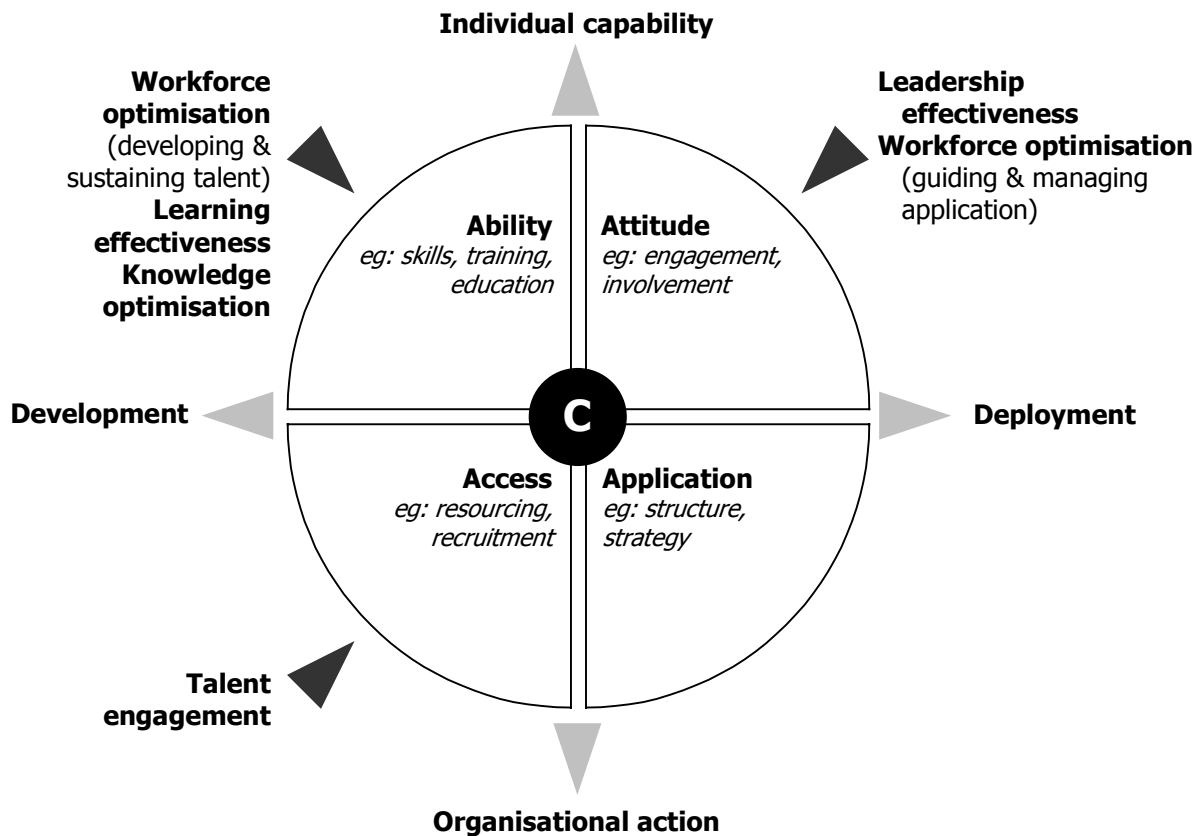
Leadership effectiveness

Ability to optimise the organisation’s human capital through communication, performance feedback, efforts to instil confidence and demonstration of key organisational values.

Workforce optimisation

An organisation’s success in optimising the performance of its workforce by means of developing and sustaining talent (skills, competencies, abilities *etc.*) and guiding and managing application on the job.

Figure 3.9: IES Model and Bassi *et al.*



Source: IES, 2005

Learning effectiveness

The organisation's overall ability to learn, change and continually improve.

Knowledge optimisation

Extent of the organisation's collaborativeness and efforts and ability to share knowledge and ideas across the organisation.

Talent engagement

Organisation's ability to retain, engage, and optimise the value of its talent.

There is a good emphasis on leadership in this approach, which has been shown to be strongly linked with performance. There is however, no coverage of organisational environment *ie* application issues, and some overlap between workforce optimisation and learning and knowledge.

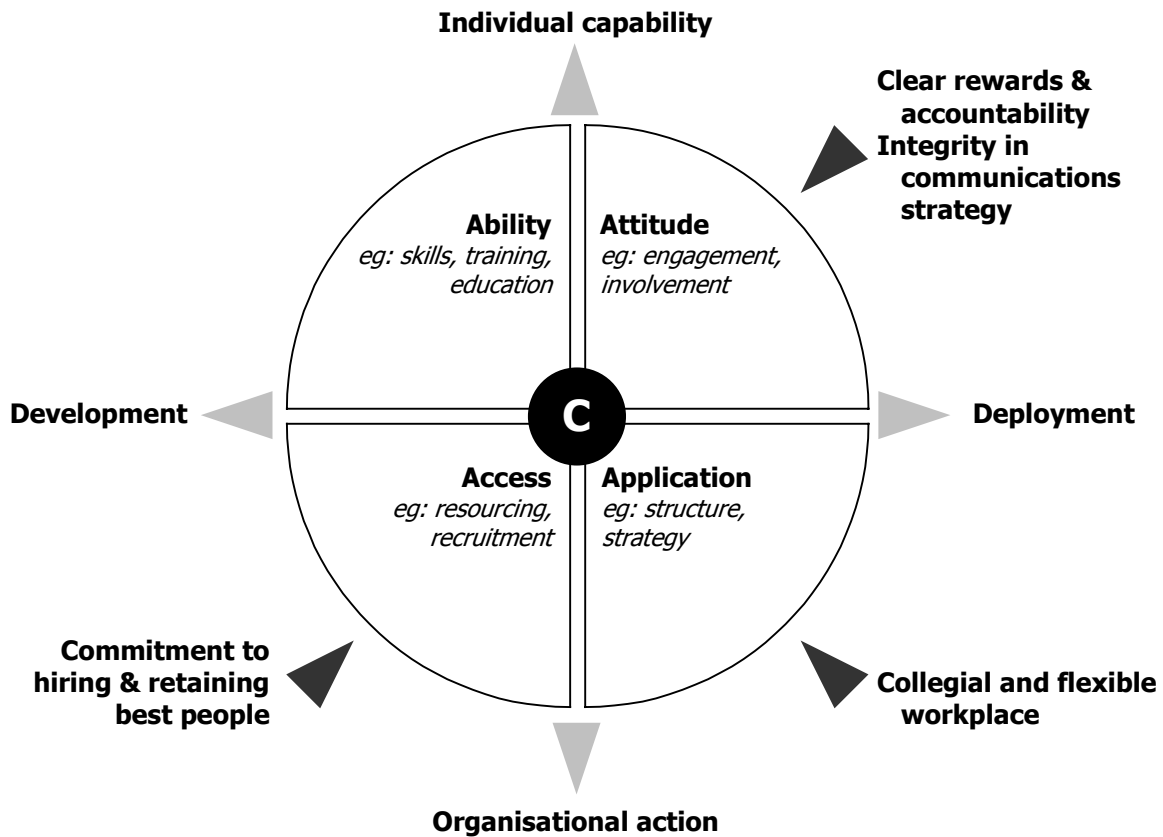
3.2.4 Human capital index (Watson Wyatt Worldwide, 2002)

The Human Capital Index is a methodology developed by Watson Wyatt to calculate the correlation of human capital to shareholder value. They developed a set of measures quantifying which HR practices and policies have the greatest correlation with shareholder value and use these results to create a single human capital index (HCI) score. The index uses a proprietary questionnaire, which measures responses on a one to five scale against four critical practices:

1. **Clear rewards and accountability** that differentiate between high and poor performers (a 1SD improvement in score has 16.5 per cent impact on shareholder value).
2. **Collegial and flexible workplace** – environment encouraging teamwork and co-operation (a 1SD improvement in score has a 9 per cent impact on shareholder value).
3. A **commitment to hiring and retaining the best people** and development of recruitment practices to support the firm's strategic aims (a 1SD improvement in score has a 7.9 per cent impact on shareholder value).
4. A level of **integrity in communication strategy** where goals are clearly stated and business processes have a high level of transparency (a 1SD improvement in score has a 7.1 per cent impact on shareholder value).

Rather surprisingly, the Watson Wyatt approach does not cover skills and development, and like many approaches, does not have an underpinning conceptual framework.

Figure 3.10: IES Model and Watson Wyatt



Source: IES, 2005

3.2.5 The organisational performance model — Mercer HR consulting

In the early 1990s Mercer HR consulting developed methods to measure the business impact of human capital practices in organisations with a research group of economists and work psychologists. According to the model, a firm's human capital strategy consists of six interconnected factors:

1. **People** — who are in the organisation, their skills and competencies on hiring; what skills and competencies they develop through training and experience, their level of qualification and the extent to which they apply firm-specific or generalised human capital.
2. **Work processes** — how work gets done; the degree of teamwork and interdependence among organisational units and the role of technology.
3. **Managerial structure** — the degree of employee discretion, management direction and control, spans of control, performance, management and work procedures.
4. **Information and knowledge** — how information is shared and exchanged among employees and with suppliers and customers through formal or informal means.

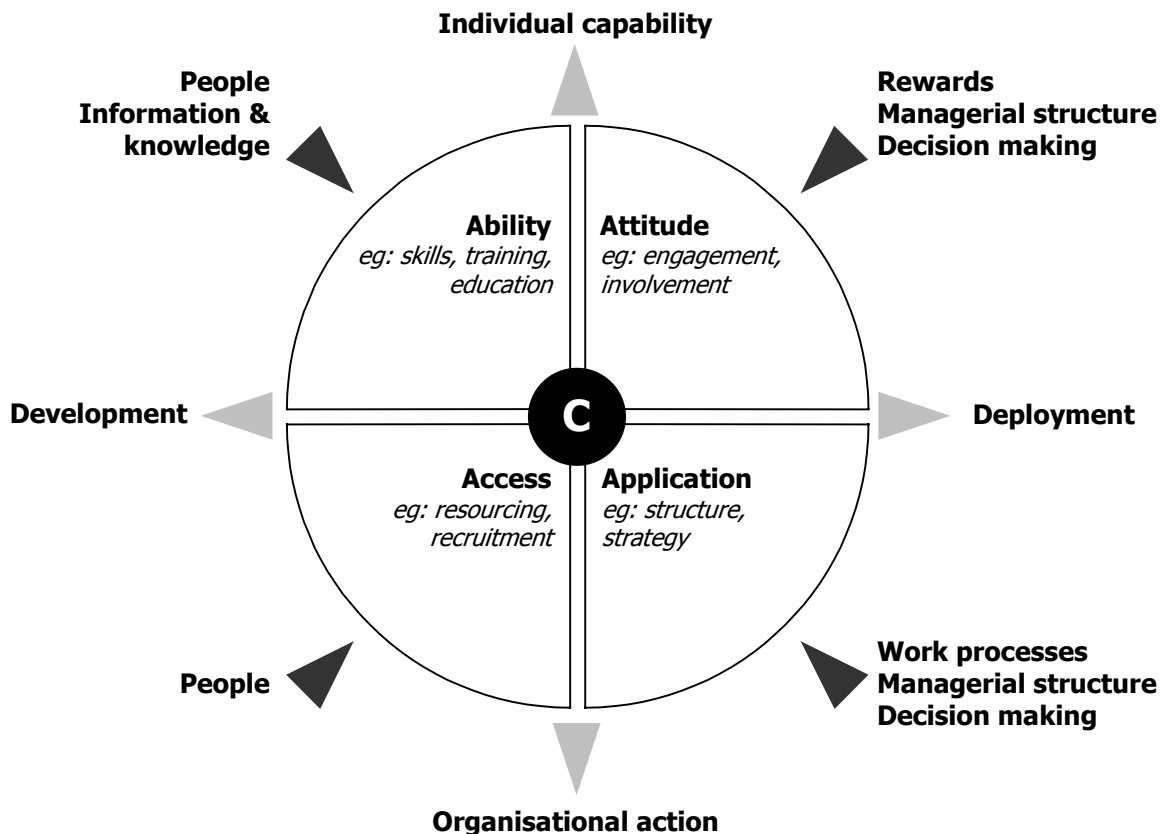
Figure 3.11: The organisational performance model



Source: Mercer Human Resource Consulting (2004)

5. **Decision-making** – how important decisions are made and who makes them; the degree of decentralisation, participation and timeliness of decisions.
6. **Rewards** – how monetary and non-monetary incentives are used; how much pay is at risk; individual versus group rewards; current versus longer-term ‘career rewards’.

Figure 3.12: IES Model and the Mercer, organisational performance model



Source: IES, 2005

Organisations can measure their performance against the model using two statistical tools marketed by Mercer's.

The model has good coverage of work processes and management (at least in terms of structure, but little on management capability). The model does not attend to how individuals access the organisation or, directly, with motivational issues. Decision making is treated in two ways; as both an impact on structures and motivation but also in terms of outcome *eg* quality and speed of decisions.

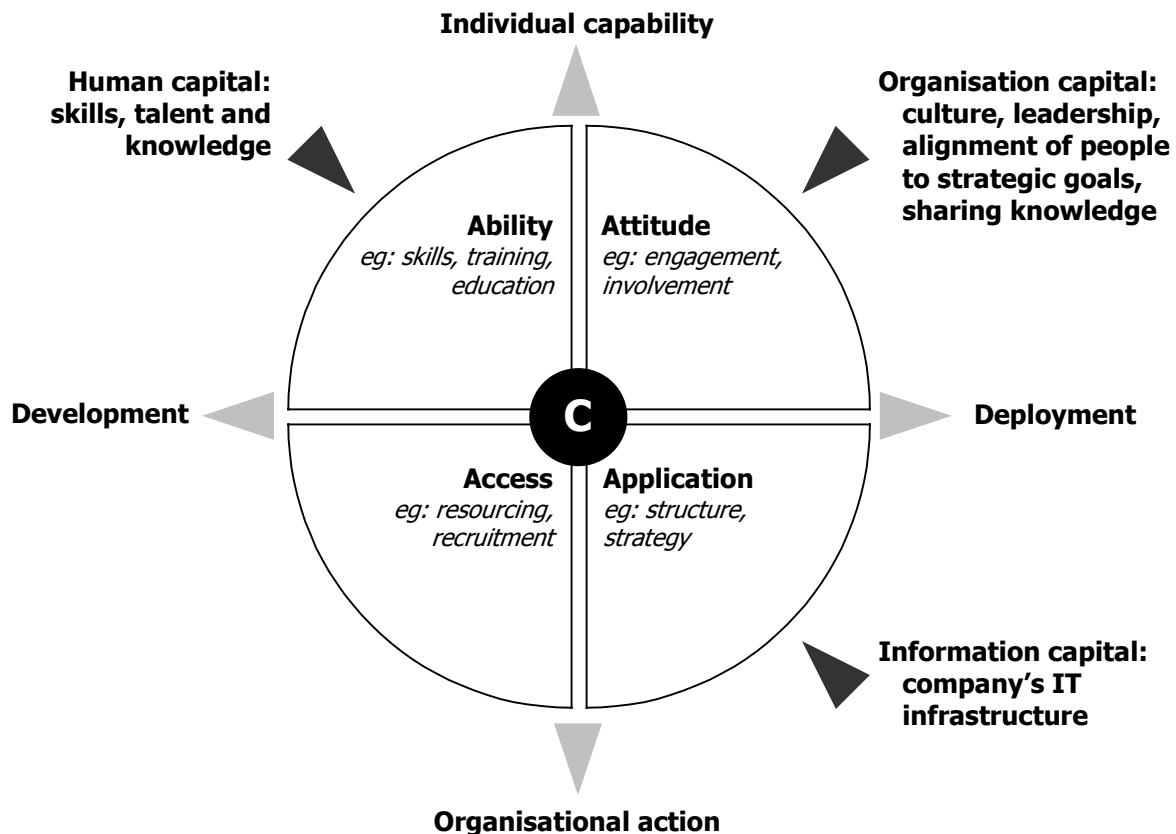
3.2.6 Academic approaches

Kaplan and Norton 1996, 2004

Kaplan and Norton created the balanced scorecard that has had considerable influence on HR practice. The scorecard suggested that companies should measure their performance against a range of measures, which fully captured four constituencies of interest:

1. **Financial**, *to succeed financially, how should we appear to our shareholders?*
2. **Internal business processes**, *to satisfy our shareholders and customers, what business processes must we excel at?*

Figure 3.13: IES Model and Kaplan and Norton



Source: IES, 2005

3. **Learning and growth**, *to achieve our vision, how will we sustain our ability to change and improve?*
4. **Customers**, *to achieve our vision how should we appear to our customers?*

More recent work has developed the 'strategy map' which provides a cascade of processes to which firms should attend. This map begins with long term financial goals, then suggests organisations need to determine the value proposition which will deliver the revenue growth specified, identify the processes most critical to creating and delivering that value proposition and finally determine the human, information and organisation capital the processes require. This final layer builds on the learning and growth perspective embedded in the balanced scorecard and identifies three categories of intangible assets essential for implementing any strategy:

- Human capital – skills, talent, and knowledge that a company's employees possess.
- Information capital – the company's databases, systems, networks and technology infrastructure.
- Organisation capital – the culture, leadership, alignment of people to strategic goals, employees ability to share knowledge.

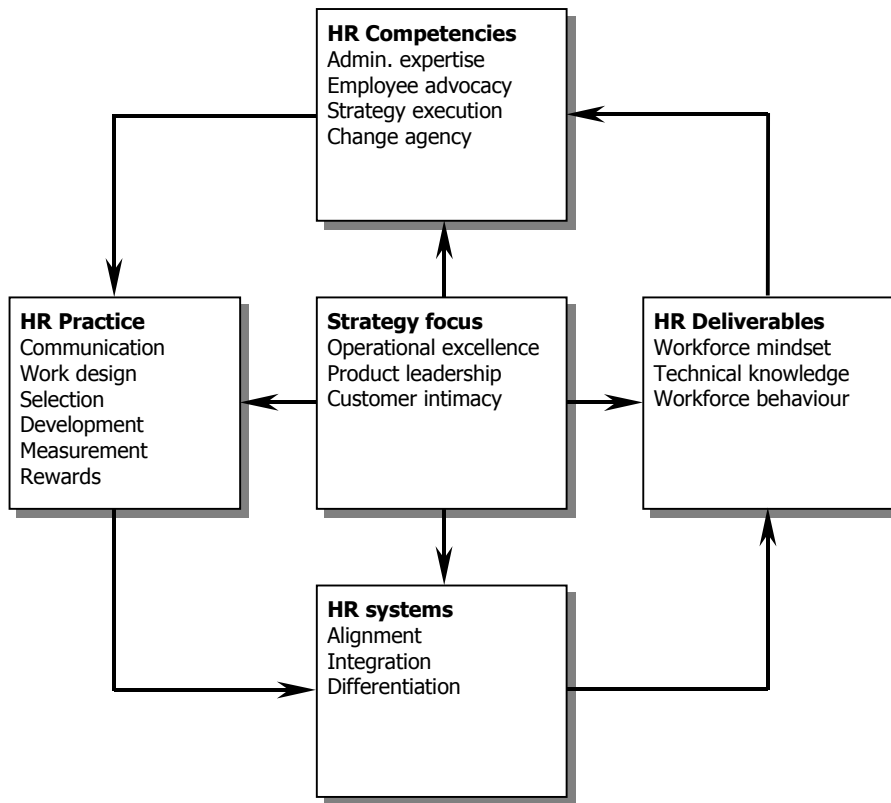
The balanced scorecard approach has the advantage of being underpinned by a conceptual approach to determining value. It is however, primarily a process model rather than an attempt to explain human capability in organisations. It does not deal with access issues or job design factors within application. The balanced scorecard does not suggest the measures which organisations may use.

3.2.7 HR scorecard – Becker B, Huselid M

Becker and Huselid have built on the balanced business scorecard of Kaplan and Norton to create an HR scorecard (Figure 3.14). At the centre of the model is the strategic choice of the organisation. This uses Tearcy and Wiersema's scheme in which firms pursue value propositions of low cost provider (operational excellence), innovator (produce or service leadership) or customisation/unique solutions (customer intimacy). The targets of the HR system are defined as workforce mindset, competencies and behaviours, and to produce these the HR system has to have in place the right competencies, practices, and be aligned and integrated with the strategy of the business.

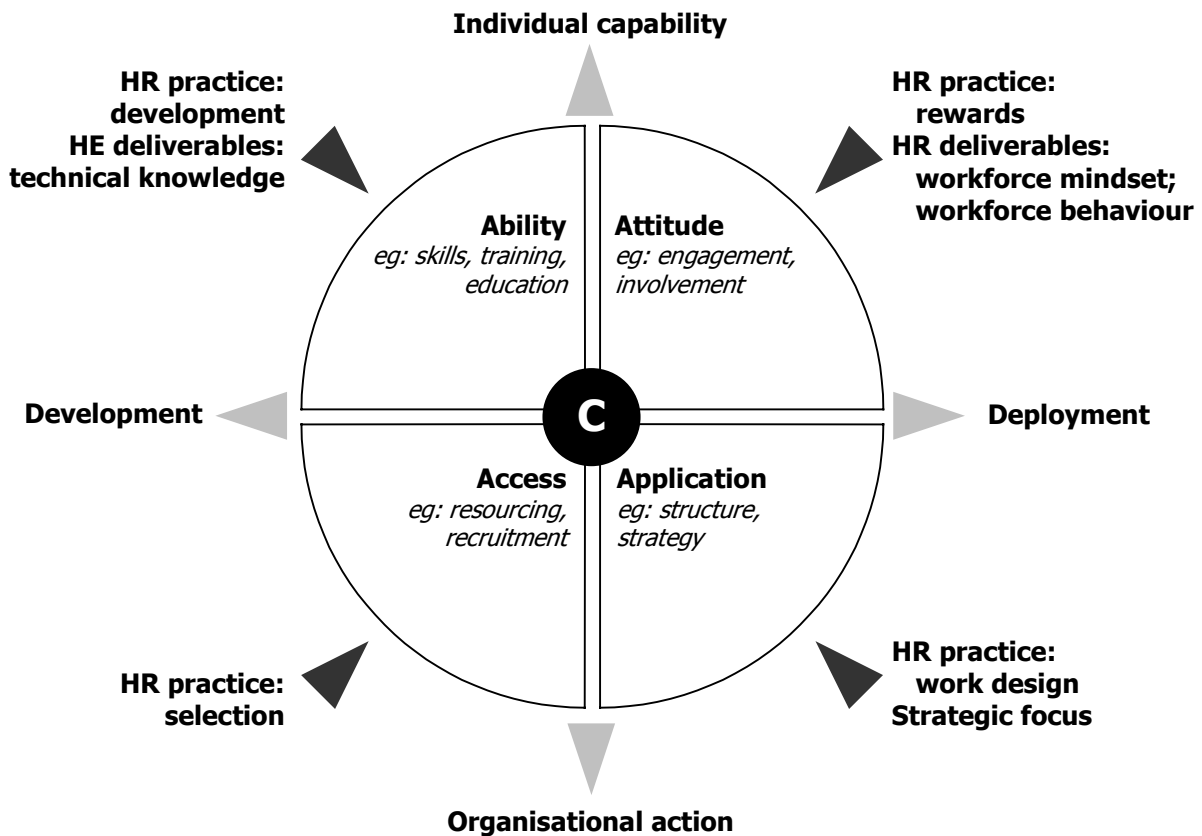
The focus of the model is HR rather than people management and Becker and Huselid suggest that bespoke measures are developed within the organisation in line with the organisation's objectives for each of these elements of the scorecard.

Figure 3.14: HR Scorecard – Becker and Huselid



Source: Beatty, Huselid, Schmeier, 2003

Figure 3.15: IES Model and HR scorecard – Becker and Huselid



Source: IES, 2005

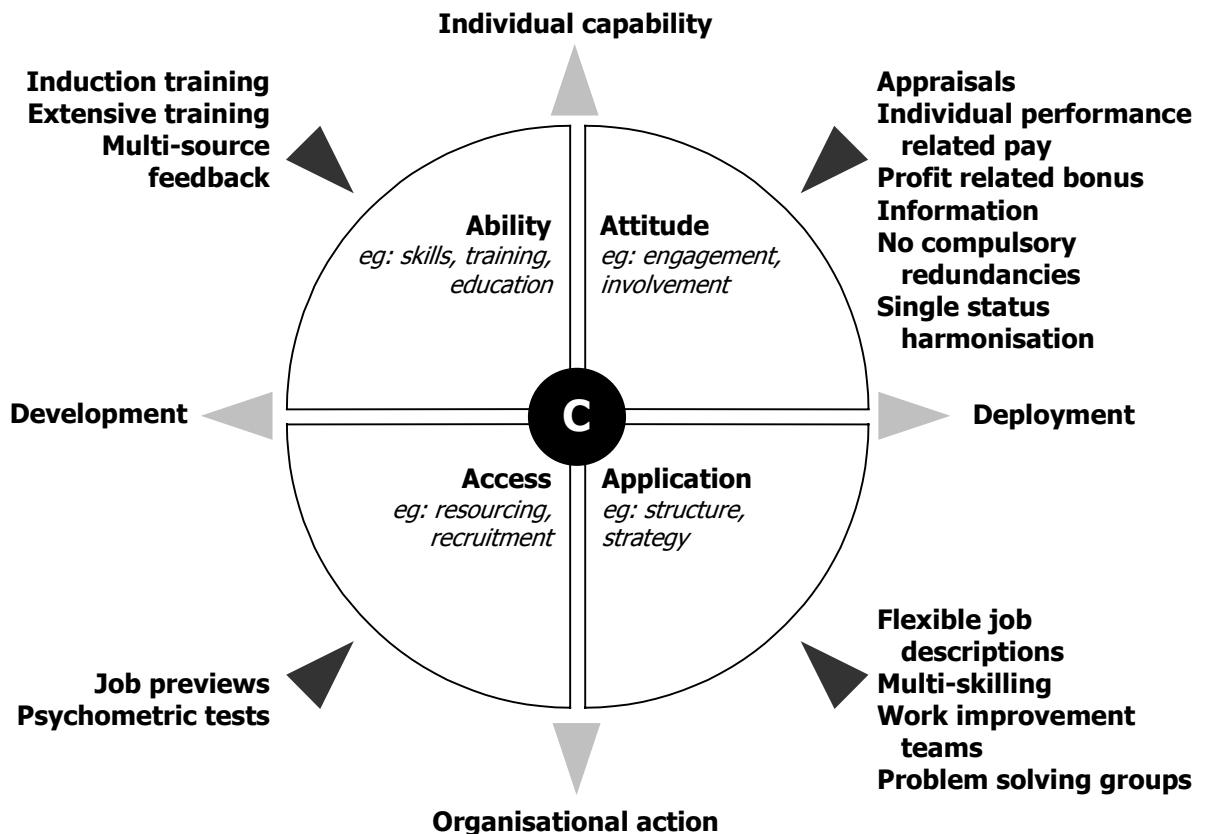
In comparing this approach with the IES model, the key similarities are in the horizontal line: HR practice; strategic focus; and HR deliverables. The IES model integrates practice and deliverables into each quadrant of the model and places strategy firmly within the application quadrant. The IES model does not explicitly cover HR competence (but does look at management) and alignment is not considered a separate issue but emerges from the interaction across and within the model.

3.2.8 Guest, 2000

David Guest identified 18 key practices associated with high performance or high commitment HRM:

- realistic job previews
- use of psychometric tests for selection
- well developed induction training
- provision of extensive training for experienced employees
- regular appraisals
- regular multi-source feedback on performance
- individual performance related pay
- profit related bonuses

Figure 3.16: IES Model and Guest



Source: IES, 2005

- flexible job descriptions
- multi-skilling
- presence of work-improvement teams
- presence of problem solving groups
- information provided on the business plan
- information provided on the firm's performance targets
- no compulsory redundancies
- avoidance of voluntary redundancies
- commitment to single status
- harmonised holiday entitlement.

The Guest list provides a comprehensive range of indicators identified from the literature but was not intended to act as a guide for employers and therefore, not all the indicators would be easy to collect or measure. The indicators are not clustered into explicit bundles of practices and are not underpinned by a conceptual/explanatory model.

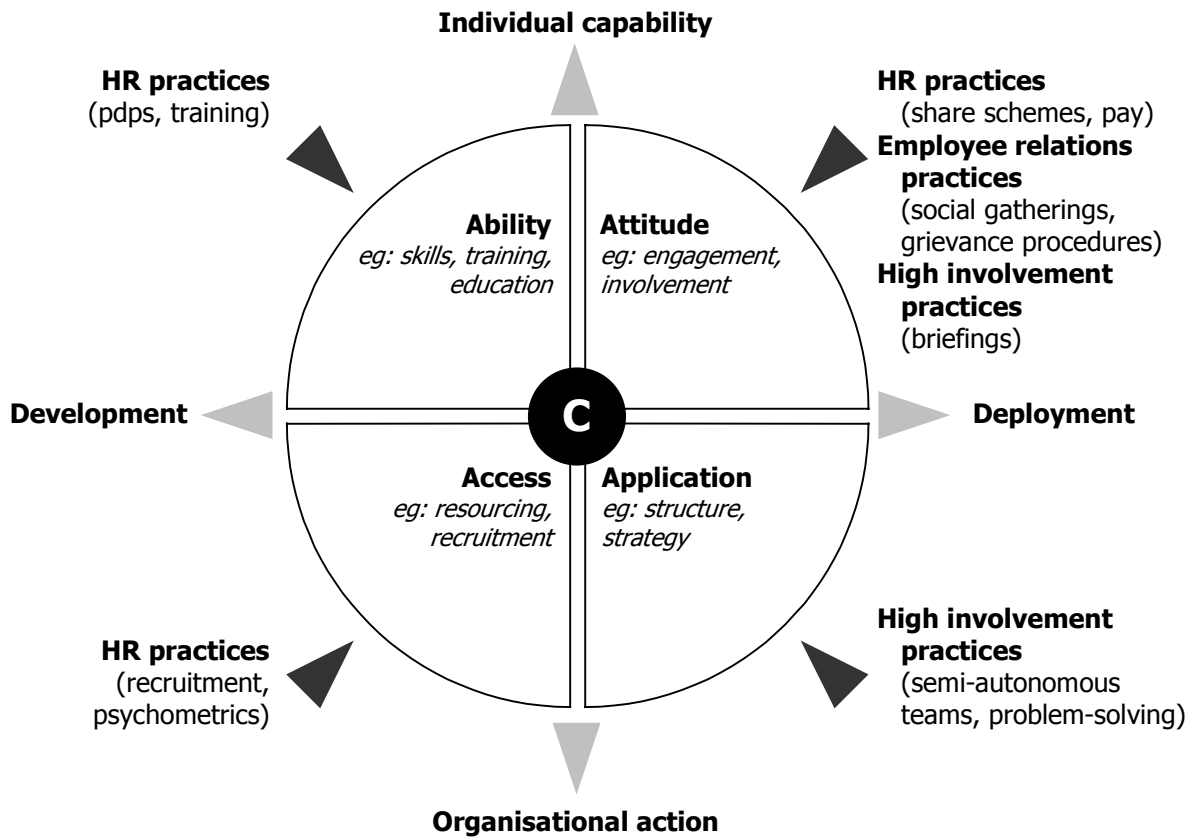
3.2.9 Thompson, 2000

Marc Thompson has conducted a major review of HR practices in British aerospace companies. The report identifies a close link between high performance working and financial performance. Companies high on the index of high performance working in 1999 recorded sales per employee in 2002 of £162,000 compared with £62,000 for those low on the index. In terms of value-added per employee, the corresponding figures were £68,000 and £42,000.

The research identified over 30 practices, which fall into three distinct clusters:

1. High involvement practices that aim to create opportunities for **engagement** (eg semi-autonomous teams, problem-solving teams, continuous-improvement teams, responsibility for own work quality, job rotation within and/or between teams, team briefings, staff suggestion schemes, attitude surveys).
2. Human resource practices to **build skill levels, motivation and ability** (eg formal recruitment interviews, performance or competency tests, psychometric tests, share ownership schemes, personal development plans, training, competence based pay, team rewards, incentive pay).
3. Employee relations practices that help **build trust, loyalty and identity** with the organisation (eg single status, formal grievance procedures, formal salary reviews, social gatherings).

Figure 3.17: IES Model and Thompson



Source: IES, 2005

The Thompson model explores practices emerging from a specific sector. The broad clusters of processes used create some overlap between similar concepts *eg* motivation, engagement and loyalty, and may not as easily apply to other sectors.

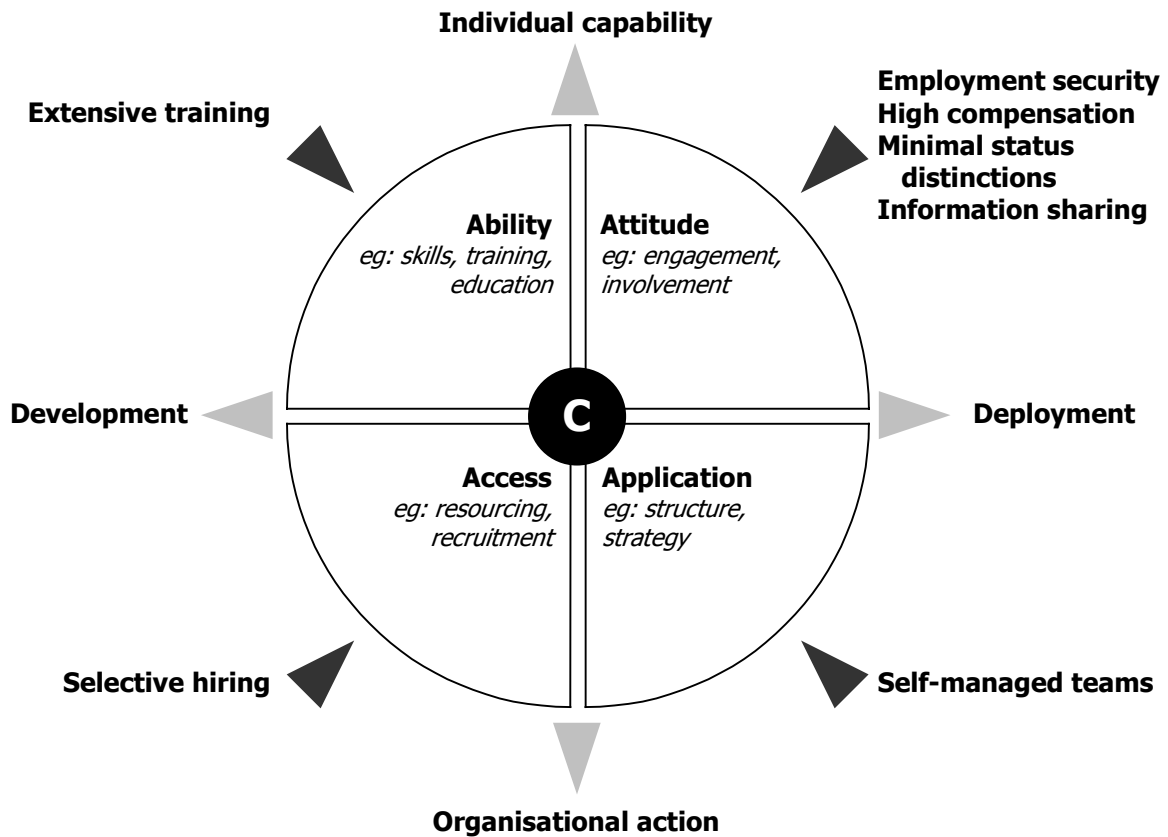
3.2.10 Pfeffer, 1998

Based on US research findings, Jeffrey Pfeffer identified seven practices of successful organisations:

- employment security (to eliminate fear of lay-offs)
- selective hiring (emphasising a good fit with company culture)
- self-managed teams and decentralisation of authority empowering employees
- comparatively high compensation
- extensive training
- minimal status distinctions (to build a sense of 'we')
- extensive sharing of financial and performance information (to build trust).

As in many studies that have identified lists of practices, other work has shown that there is a much larger set of practices, which are used by organisations depending on sector, or context.

Figure 3.18: IES Model and Pfeffer



Source: IES, 2005

However, the Pfeffer model has been very influential on others such as Becker and Huselid. We believe it is too narrow for the purposes of assisting employers move to high performance working and omits some key factors *eg* the role of managers.

3.2.11 Pil and MacDuffie

Similarly, US research in the car manufacturing industry resulted in suggestions of five key practices contributing to organisational success:

- on line work teams
- employee involvement practices
- problem solving groups
- job rotation
- suggestion programmes
- decentralisation of quality efforts.

There are similar criticisms of the Pil and MacDuffie list of five key practices to that made of the Pfeffer list above. The list is quite limited in scope and focuses almost exclusively on attitude and application measures whilst ignoring access and ability issues. It is clearly very sector specific.

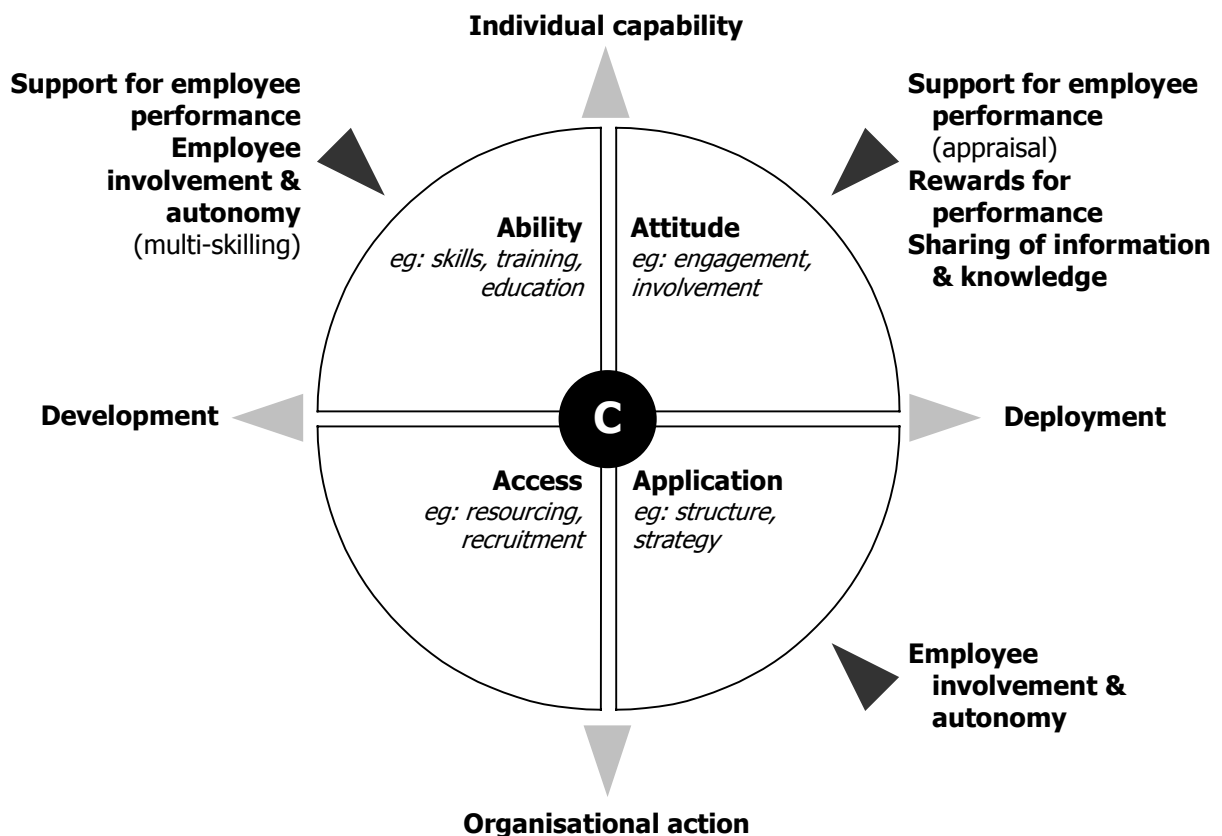
3.2.12 Ashton and Sung, 2002

In a review for the ILO, Ashton and Sung reviewed a number of studies and the various dimensions of HR practice explored and concluded that the many individual practices could be collapsed into four key dimensions:

1. employee involvement and autonomy in decision making (the use of self-managed work teams and multi-skilling provide the employee with the opportunity of developing teamworking and decision making skills)
2. support for employee performance (appraisal systems, mentoring, coaching)
3. rewards for performance (individual and group based performance pay)
4. sharing of information and knowledge (communication of information to all employees).

There is no coverage of access issues and some of the categories can be seen to affect several underlying concepts *eg* both skill and motivation, or motivation and opportunity.

Figure 3.19: IES Model and Ashton and Sung



Source: IES, 2005

3.2.13 Sung and Ashton, 2005

More recent work for the DTI has identified three clusters of practices.

High involvement practices

These are practices, which encourage a greater level of trust and communication, which in turn require greater empowerment and the exercise of discretion.

- circulating information on performance and strategy
- providing employees with copy of business plan and targets
- staff association
- internal staff surveys
- staff suggestion schemes
- quality circles/TQM
- self-managed or self-directed teams
- cross-function teams
- 'Kaizen' approaches.

Human resource practices

Many of these practices are targeted to create a greater depth of human capital investment and hence skill formation. Such improved skills are linked to higher quality of work and services to the customer and in turn, to better organisational performance.

Figure 3.20: HPWS and organisation objectives



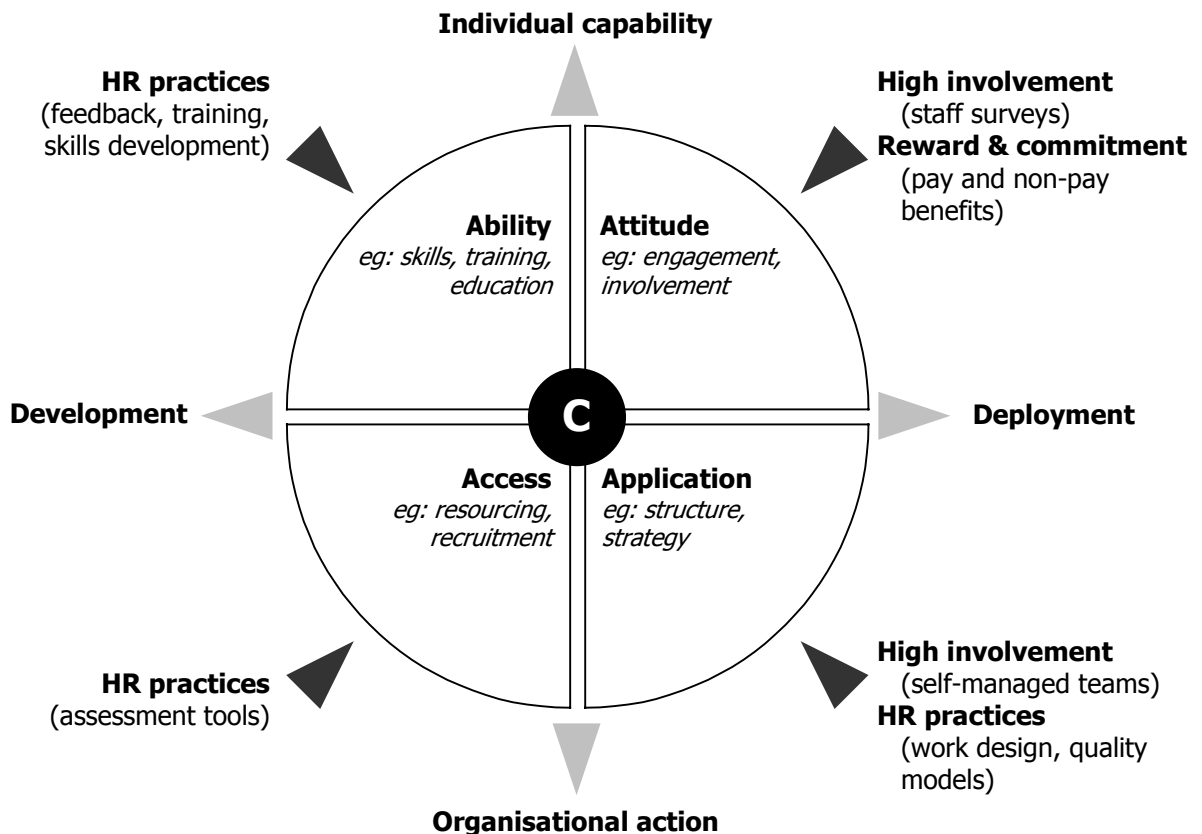
Source: Sung and Ashton, 2005

- appraisal
- feedback on performance (can include 360 degree)
- review vacancies against strategy
- formal assessment tools for recruitment
- annual review of training needs
- training to perform multiple jobs
- continuous skill development
- work design for improved performance
- diversity
- mentoring
- business excellence model.

Reward and commitment

These are practices that facilitate a greater sense of belonging and commitment *eg* profit sharing, share options *etc.* They will also include non-financial rewards such as egalitarian terms and conditions and family-friendly policies and practices.

Figure 3.21: IES Model and Sung and Ashton (2005)



Source: IES, 2005

- performance pay
- profit-sharing
- share options
- flexible working and job descriptions
- family-friendly policies
- non-pay benefits.

Whilst covering an array of practices, there is considerable overlap between the clusters of practices and the underlying concept they are impacting on.

3.3 Conclusions

In this section we have looked at a wide range of existing models or emerging views on what practices lead to business success and compared them with our suggested model. This review serves two purposes, it tests the inclusivity of the model and that it does not omit anything of interest or pertinent which is contained in either other models or in other approaches to measuring the contribution of people to organisational performance. It also enables us to explore if the conceptual underpinning of the 4A model stands up to scrutiny against this array of existing models and measures. The key tests are:

- Does the model contain all the key factors identified by other research, measures of human capital and lists of indicators of performance?
- Does the model add value to the debate by providing a coherent framework by which to understand the contribution of various aspects of HR practice?
- Does the model provide a vehicle by which to present relevant indicators in a coherent, understandable way, which has resonance with employers?
- Does the underpinning conceptual model provide a framework, which is more coherent, which shows little overlap of concepts and which is more inclusive than existing models or approaches?

This exercise has demonstrated that each of the extant models, whilst covering different areas, can all be successfully mapped against the 4A model presented here, which suggests that it covers all the key areas which other research has identified as important. The (4A) model has a sound theoretical underpinning. The model has been discussed with employers in a limited way, although we suggest full testing of the model and indicators would be highly desirable to which we return shortly. Employers tend to like the model and can understand it. Finally we have seen that the model

provides a framework which creates less overlap of underpinning factors than other models in existence.

We are confident therefore that our model is theoretically and empirically robust. Moreover, the 4A model is underpinned by an overarching framework, which many of the other approaches are not. This framework provides a rationale for the measures used and the underlying aspect of human capability they are intended to affect in a way we are confident adds value to employers and adds value to the existing literature.

4. Emerging Measures from the Literature

We have reviewed a vast number of studies which have either sought to identify empirically the measures which are associated with organisational success, or which have commented on how organisations should seek to measure human capital so that they might either assess its benefits or enable them to improve firm performance. We firstly extract all these various indicators and map them against the elements of our model and then identify from these, a range of indicators that can provide a core set for organisations to measure and monitor their human capital.

4.1 Existing measures

In this section we map the various measures which have been identified from this literature against the model. We have not included measures from marketed models or where the literature is inexplicit over the exact measures used. We have focused predominately on studies that have included an empirical test of association but have also included measures, which are included in existing advice to employers by policy bodies. Such measures are clearly marked below.

Table 4.1: Measures emerging from the literature

Factor	Measures	Source
Access	Average Number of vacancies as percentage of total workforce per month/year	CIPD
	Ratio of internal to external recruitment for job vacancies	CIPD
	Average time taken to fill vacancies	CIPD
	Percentage of senior managers recruited internally/externally	CIPD
	Number of FTE employees directly replacing leavers (%)	DTI
	Number of internal promotions	CIPD
	Percentage of employees covered by formal HR policies in recruitment and selection	CIPD
	Days per year spent resourcing top team	CIPD
	Selective hiring	Academic
	Importance of attitudes and behaviour towards teamwork and problem solving	Academic
	Highly selective staffing	Academic
	Internal promotions — prefer to fill internally, expectation of promotion	Academic
	Recruitment of previously trained individuals	Academic

Factor	Measures	Source
	Recruitment of experienced individuals	Academic
	Percentage administered an employment test prior to hiring	Academic
	Promotion rules used most often:	Academic
	Merit/seniority if = merit/seniority amongst those meeting minimal standard/ seniority	Academic
	Number of qualified applicants per position on average	Academic
	Percentage of employees who were promoted from within	Academic
	Realistic job previews	Academic
	Use of psychometric tests	Academic
	Review vacancies against business strategy	Academic
	Ratio of job applications: vacancies	Academic
	Ratio of job offers: job acceptances	Academic
Ability	Amount	
	Total number of training days per year	DTI
	Training expenditure (£ per employee)	DTI
	Number of formal skills audits	DTI
	Off the job training days/FTE	CIPD
	Expenditure on career counselling/planning	CIPD
	Management development spend per manager	CIPD
	Average number of days training per year per manager	CIPD
	Extent of training (days)	Academic
	Initial training (days)	Academic
	Training days in first 3 years	Academic
	Training expenses/total wage costs	Academic
	'Extensive training' (yes/no)	Academic
	Amount of on and off job	Academic
	How much spent on training	Academic
	How many days of training are provided	Academic
	Number of weeks training 'typical' employee receives each year	Academic
	Training spend	Academic
	Training expenditure per employee	Academic
	Average number of hours training received by 'typical' employee over the last 12 months	Academic
	Over past 12 months have funded any training? Was any leading to qualification?	Academic
	Last 12 months which of; induction, H&S, supervisory, management, training new tech, training in foreign languages, job specific.	Academic
	Last 12 months how much spent in total on training	Academic
	How many days on average arranged for each member of staff	Academic
	Spread	
	Off the job training days/FTE (percentage for different categories/grades)	CIPD
	Expenditure on off-the-job training (overall and percentage by category)	CIPD
	Expenditure on workplace learning (overall and percentage by category)	CIPD
	Number of employees who complete personal development plans	CIPD

Factor	Measures	Source
	Percentage of employees covered by formal HR policies in:	CIPD
	Training and development	
	How many staff have been funded	Academic
	Extent of training for shop floor, supervisors, clerical, administrative, management staff	Academic
	Proportion participating in previous year	Academic
	How many employees receive training	Academic
	Train non-manual workers	Academic
	Training of operatives, assembly workers, personnel and protective service workers, craft and technical workers	Academic
	% of job holders with agreed development plan	Academic
	% of jobs for which audited competencies	Academic
	Type of training	
	Types of training	Academic
	General and specific training	Academic
	Non-technical training	Academic
	Computer skills training for non-manufacturing	Academic
	External vs. internal training	Academic
	Multi-skilling	Academic
	Induction	Academic
	Education/qualifications/skills	
	Number of FTE graduates	DTI
	Number of FTE employees with formal qualifications	DTI
	Number of employees attained competency level	CIPD
	Number of employees attaining formal qualifications	CIPD
	Number of managers possessing formal management qualifications	CIPD
	Length of time required for managers to attain satisfactory level of competence	CIPD
	Qualifications of managers	Academic
	Number of years of education of the typical employee	Academic
	Number of years of formal education and on the job training needed for new employee to become fully proficient	Academic
	Questionnaire items on whether skills have been upgraded	Academic
	Qualifications, career plans, dev centres, job rotation, high flier schemes	Academic
	Management capability	Academic
	Management skills gaps	Academic
	Other	
	Only fund if immediate return (yes/no)	Academic
	Extent of cross training	Academic
	Knowledge practices	Academic
	What proportion of the qualifications of the workforce were supplied by education system, the workforce, previous employers and current employer	Academic
	Sophistication of approach, how well planned, comprehensive, training needs assessed	Academic

Factor	Measures	Source
Attitude	Learning climate, mentoring scheme, career development conversations, importance of learning	Academic
	Continuous skill development	Academic
	Morale	
	Staff turnover (average for different levels)	DTI
	Turnover in senior management (percentage per annum)	CIPD
	Salaries and benefits breakdown by FT and temp worker costs	CIPD
	Performance criteria for senior management and extent linked to remuneration	CIPD
	Available benchmark indicators based on recognised methodology/standard	CIPD
	Measures of employee commitment	CIPD
	Measures of employee satisfaction	CIPD
	Percentage of employees covered by formal HR policies in:	CIPD
	● <i>Appraisal and performance management</i>	
	● <i>Communication, consultation and employee involvement</i>	
	● <i>Harmonisation</i>	
	● <i>Employment security</i>	
	Number of employees working more than 48 hours per week	DTI
	Number of employees who leave the organisation (%)	DTI
	Number of FTEs who leave within 6 months (%)	DTI
	Absenteeism (ratio)	DTI
	Number of accidents	DTI
	Employment security not laid off during past 5 years	Academic
	Reduced status distinctions/harmonised holiday entitlement	Academic
	Sharing of information	Academic
	Number of dismissals	Academic
	Rates of absenteeism	Academic
	Reward for loyalty importance of seniority, criteria for promotions	Academic
	Objectives for appraisal — choice	Academic
	Security — adjust staffing vs. provide security	Academic
	Organisation culture scale items	Academic
	Security (percentage of employees permanent)	Academic
	Percentage of work monitored	Academic
	Annual number of grievances or complaints	Academic
	Number of core employees displaced in past year	Academic
Union presence	Academic	
Results oriented appraisal —item based measure	Academic	
Employment security —item based measure	Academic	
Percentage of workforce included in formal information sharing programme	Academic	
Percentage subjected to formal job analysis	Academic	
Percentage administered attitude surveys regularly	Academic	
Percentage participating in quality circles, participation teams	Academic	

Factor	Measures	Source
	Percentage access to formal grievance procedure	Academic
	Percentage receiving formal appraisals	Academic
	Negative relationship with job evaluation	Academic
	Appraisal scheme, frequency, training on appraisal, monitoring	Academic
	Turnover, absence	Academic
	Retention/manager retention	Academic
	Information on business plan and performance targets	Academic
	Staff survey	Academic
	Regular appraisal (including multi-source)	Academic
	Appraisal completion rates	Academic
	% of job holders for which documented appraisal agreed	Academic
	% of jobs for which objectives documented	Academic
	% of jobs for which there are JDs	Academic
	Understanding of strategy and vision	Academic
	Reward	
	Percentage of shares held by employees	CIPD
	Percentage of variable pay by category and grade of employee	CIPD
	Percentage of employees covered by company share schemes	CIPD
	Percentage of employees covered by formal HR policies in Financial flexibility (performance/ team based rewards)	CIPD
	'Performance based pay' (% receiving)	Academic
	Compensation contingent on performance	Academic
	Median base pay	Academic
	Percentage of pay that is variable	Academic
	Ratio of median pay to cost of living	Academic
	Profit sharing (%)	Academic
	Share options	Academic
	Percentage whose appraisals used to determine compensation	Academic
	Percentage access to company incentive plans, profit sharing or gain sharing	Academic
	Appraisal linked to remuneration (but negative link to innovation)	Academic
	Group based performance pay	Academic
	Non-pay benefits	Academic
	Benchmarked remuneration	Academic
	Director/manager salaries as % of total reward	Academic
	HR spend per employee	Academic
Application	Number of PCs and laptops (per employee)	DTI
	Number of key management decisions subject to information and consultation (%)	DTI
	Number of key mgmt decisions	DTI
	Number of employees involved in business improvement activity (%)	DTI
	Percentage of employees covered by formal HR policies in job design	CIPD
	Self managed teams and decentralisation	Academic

Factor	Measures	Source
	Cross-function teams	Academic
	Employee participating in problem solving	Academic
	'Broad job design'/work (re)design	Academic
	Degree of influence over tasks, tools, work methods, pace of work, schedules, vacation, technology, design , customer interactions	Academic
	Percentage or number of employees involved in problem solving groups	Academic
	Percentage participating in self directed teams	Academic
	Computer usage by non-managerial staff	Academic
	Quality focused business strategy	Academic
	Flexible job descriptions	Academic
	Presence of work improvement teams	Academic
	Presence of problem solving team/groups	Academic
	Suggestion schemes	Academic
	Quality circles/TQM	Academic
	Kaizen	Academic
	Quality models	Academic

Source: IES, 2005

4.2 Issues of interpretation

In arriving at a core set of indicators for firms to utilise we have referred to our initial criteria:

- Resonance with employers *ie* the measures should be meaningful to employers and align as far as possible with measures already in use. They should be able to generate and inform internal debate regarding decisions on training, development and management. We have sought to identify measures that are within the ability of employers to collect *ie* are not overly complex or do not rely on the use of complicated data gathering techniques or analysis.
- Alignment and compatibility with existing national and international measures to ensure that data generated can be used in comparison or in conjunction with other data that is tracked and reported.
- Rigour and lack of ambiguity – the measures should generate data which is as valid reliable and unambiguous as possible. Proxy measures have been avoided where possible. To reduce ambiguity we have given full descriptions of the measures and how they should be gathered or calculated.
- Capacity for longitudinal study – the measures should be able to track organisational inputs, outputs and performance over time.
- Actionable indicators – the input measures should be able to reflect activities that are under the control of employers or by

policy makers, so that they can be deliberately manipulated to alter performance over time.

These criteria apply a rigorous set of demands on any indicators. They inevitably mean a concentration on simple rather than complex indicators, they have also led us to try and align with existing indicators wherever possible, even if not completely ideal. We have also sought to contextualise indicators by relating them to workforce population through the use of ratios or proportions. The indicators developed should be considered a core set, to be used by all organisations and which can be supported and enhanced by additional indicators specific to the needs and sophistication of the organisation.

4.2.1 Interpreting the indicators

The heart of our set of indicators is the 4A model. This model illustrates the four underlying factors that sum to human capability.

1. Access – the effective resourcing of roles in the organisation
2. Ability – the skills of the workforce
3. Attitude – the engagement, motivation and morale of the workforce
4. Application – the opportunities available to ensure skills and motivation are effectively applied.

If we return to our initial chain of impact (Section 3), we can see that indicators may be of HR activity (the inputs to capability), they can be of capability itself, the activity which follows, the outputs or outcomes. Activity includes measures of innovation, of quality of service or produce, the effort people expend and their attendance reliability. In determining the link with organisational performance, the metrics of outputs – of productivity and customer satisfaction are important as are measures of final outcomes ie profit or shareholder value.

Much research has focused, not on the factors themselves, but on the HR practices which might be assumed to influence these factors. In any measure of HR *practice*, the focus is on inputs to improving capability – processes designed to improve ability eg training and development, or policies designed to maximise motivation eg share schemes. These practices are not a measure of skill attainment or morale in themselves. Ideally, what we might want is to capture measures of skills; engagement; opportunity to act; but because organisations seek to build capability, it is vital to capture the journey as well as the destination. This means that measures may be shedding light on processes, capability, activity, outputs or outcomes.

Beyond outcomes

The final set of indicators are designed to be able to capture the essence of the factor which we are seeking to measure. This is not always straightforward, sometimes the best measure may be attitudinal (for example in the attitude quadrant of the model) and yet attitudes are difficult to measure and interpret. In such cases we may have to identify observable outcomes as a result of improving attitudes, for example lower rates of absence or reduced turnover. However, such outcomes are indirect and can be influenced by other factors *eg* staff turnover may be affected by staff morale, but might also be influenced by the labour market, pay rates, the performance of the economy *etc.* Such indirect measures need to be interpreted with care.

4.3 An emerging set of indicators to populate the 4A model

This section takes all the indicators we have seen used in the literature mapped against the 4A model and arrives at a core and desirable set, using our criteria to help selection. In doing so compromises have to be made, there is no ideal set of indicators which meet all the criteria, some have to be offset against others. For example, a small set of easy to collect and interpret measures (ie most resonant with employers) and which show alignment and compatibility with existing measures, may not be the most rigorous indicators available. We therefore discuss for each quadrant of the model what it is we are trying to capture and ideally how that might be done, before going on to explore what measures might best fit from the literature.

This process has led us to a longer list than we would like and would benefit enormously from full testing to see just which measures are most strongly correlated with business success. We anticipate that piloting of the measures would reduce the list to something more manageable for employers as we understand that, in practice, it will be difficult for firms to collect all the measures presented here.

4.3.1 Access

The Access quadrant covers the resourcing and succession strategy, process and practice of the organisation. How people are attracted and selected for the organisation, both at entry and at promotion points.

Access measures are designed to explore this resourcing strategy of the firm in a simple way. This covers both the care taken with recruitment and the degree to which an internal labour market operates. An ideal set of measures would include measures of the attractiveness of the organisation, the inclusivity of its resourcing

strategies, the calibre of recruit, the degree of internal labour market which operates, the rigour of recruitment processes and ideally, a measure of the quality of the recruitment/ resourcing process (desirable but difficult to devise). We have contemplated measures of average time taken at interview, proportion of interviewers who have received interviewing skills training, and numbers of steps in the selection process, but these measures are more subjective than we would like and probably of more use to compare between firms than to assist firms with their own performance.

Core Measures

- number/proportion of vacancies/posts filled internally
- number/proportion of jobs subject to test on recruitment
- number/proportion of new recruits fully experienced on appointment (average)
- proportion of vacancies for which there exists a person specification detailing skills needed for the role.

Desirable measures

- proportion of interviewees trained in interview techniques
- proportion of interviews conducted using criteria based interviewing techniques.

4.3.2 Ability

Ability includes the skills and competencies of the workforce. It also captures the activity taking place to grow this capability through training and development. It is therefore both a measure of stock and growth. Measures of development are difficult in that much development takes place through the job or through informal means of development *eg* coaching and mentoring which are notoriously difficult to measure.

In looking at growth, ideally, we would wish to include measures that pick up both breadth and depth of activity *ie* the total quantity of activity going on and some indication of the spread of that activity – *ie* the proportion of the workforce receiving that investment.

The type of development activity would also appear to be important: at the broadest level it is the split between general and firm specific training.

In an ideal model we would also wish to include measures of the quality of training and development activity but this is difficult to measure easily and therefore we have omitted quality indicators from the core set.

Measures of the stock of ability are more problematic. The most widely used measure of ability is qualification, but this is a proxy measure that we would prefer to avoid. Alternative measures of ability are likely to be complex to collect and maintain over time – eg appraisal ratings, competency assessments, scores on psychometric tests, which will all be so unique as to defy any possibility of national reporting. We have therefore had to return to measures of qualification attainment in the core set, in spite of the problems. Organisations should be encouraged to develop their own bespoke measures of ability.

Core Measures

Activity

- how many/proportion of workforce receiving training
- total training days per annum (per non-managerial employees)
- training expenditure per annum (spend per non-managerial employee)
- management training days per annum (per manager)
- expenditure on management training per annum (spend per manager)
- proportion of the workforce with current PDP or development objectives.

Stock

- number/proportion of non-managerial employees with degrees/degree level.
- number/proportion of managers with degrees/degree level.
- proportion of workforce with formal qualifications to level 2 minimum.
- proportion of managers who are fully proficient.
- proportion of key workforce group who are fully proficient (can be broken down by workforce group if able to do so).

Desirable measures

Quality

- proportion of training expenditure on accredited training ie resulting in a qualification
- proportion of training which is generic
- proportion which is firm specific – definitions from other surveys
- proportion of training days directly linked to the business strategy.

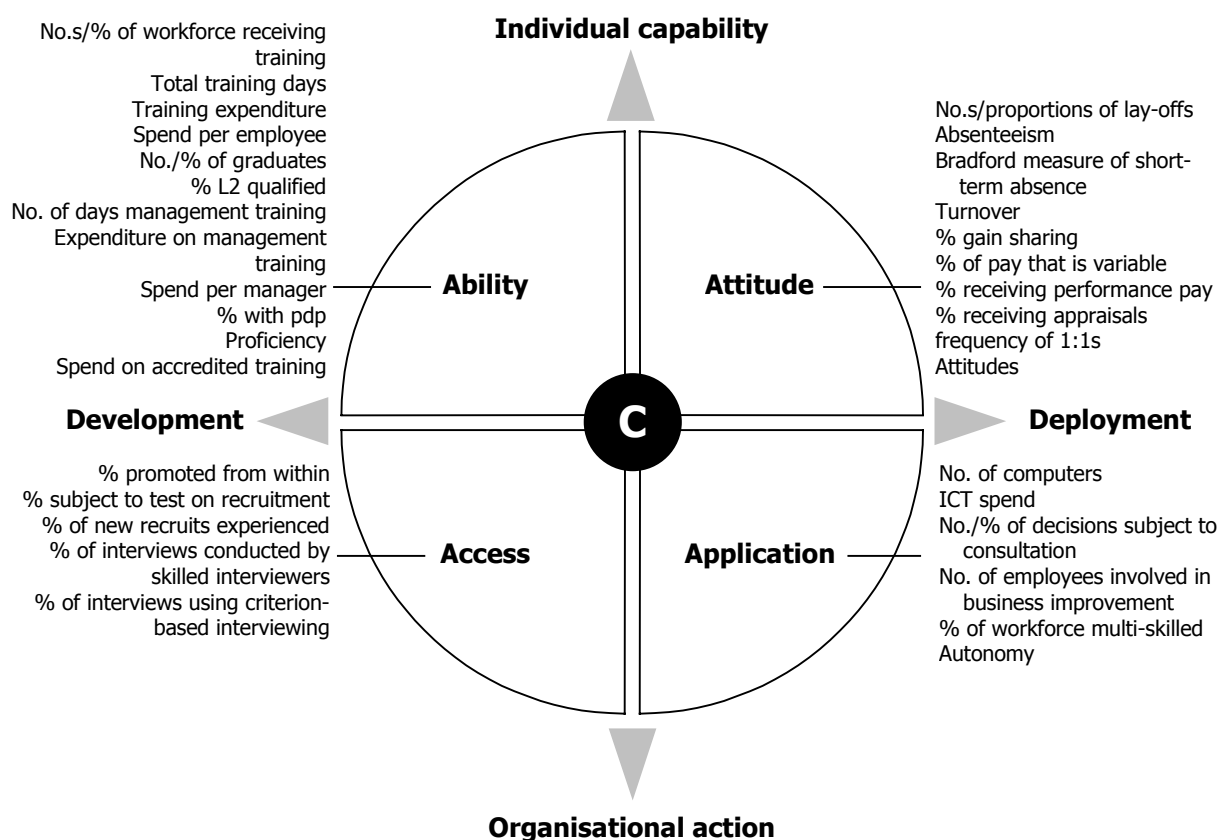
4.3.3 Attitude

This quadrant captures the motivational well being of the workforce. It includes the effort people put into work and the pride and quality of what they do. It therefore captures the motivation, morale and engagement of the workforce and all the policies and practices which are designed to help engage people better. For many organisations this may include giving people a share of the profits of the enterprise and in all organisations there may be aspects of reward strategy and practice which are deliberately designed to reward and maximise effort. Similarly, there will be processes and practices, which provide explicit feedback on performance and objectives for the future.

Motivation and engagement have been shown to be affected by policies and practices, which encourage buy-in to the objectives of the organisation *eg* through performance-based pay or gain-sharing schemes. IES research has also clearly shown that the following areas are of fundamental importance to engagement.

- **Good quality line management** – managers who care about their employees, who keep them informed, treat them fairly, encourage them to perform well, take an interest in their career aspirations and smooth the path to training and development opportunities.
- **Two-way, open communication** – which allows the employee to voice ideas and make suggestions, while at the same time keeping employees informed.
- **Effective co-operation** – between different departments and functions, and also between management and trade unions.
- **A focus on developing employees** – so that individuals feel that the organisation takes a long-term view of their value, and delivers both the training they need now and fair access to development opportunities.
- **A commitment to employee well-being** – demonstrated by taking health and safety seriously, working to minimise accidents, injuries, violence and harassment, and taking effective action should a problem occur.
- **Clear, accessible HR policies and practices** to which line managers and senior managers are committed – particularly with regard to appraisals, equal opportunities and family friendliness.
- **Fairness in relation to pay and benefits** – in terms of comparisons within and outside the organisation.
- **A harmonious working environment** – which encourages employees to respect and help each other.

Figure 4.1: Indicators and the 4A model



Source: IES, 2005

A considerable array of policy and practice has been shown to be important to the emotional well being of employees *eg* the existence of appraisals and we have sought to include some of the key variables which seem to have been implicated in the literature as contributing to high levels of motivation or which have been seen to link to performance. We have identified a number of measures that capture these kind of inputs and the proportion of the workforce affected. We have sought to provide some measure of both breadth and depth of policy *ie* the numbers or proportions of the workforce affected by any policy and the size of the effect *eg* the proportion of pay which is variable. Other important inputs have been identified in the literature, for example employment security, often captured by some measure of the number of lay-offs there have been in the past (note this is a retrospective measure and will not pick up high levels of current insecurity which has no previous aetiology).

In attempting to measure engagement itself, much of the literature uses bespoke measures of motivation – normally some kind of attitudinal tool. Such measures are difficult for organisations to collect and analyse and therefore we present secondary hard measures of the impact of motivation and morale wherever possible. This is not to ignore attitudinal measures, IES research indicates that there are some key items which can be helpful in capturing engagement and which we present as optional for those

organisations which have the ability to conduct attitudinal research.

Engagement outcomes are often used as proxies for engagement eg turnover rates, absenteeism (often better proxied by the rate of short-term absence rather than long-term absence).

Core Measures

- numbers/proportions of lay-offs in last two years
- percentage gain sharing (*ie* proportion of the workforce receiving profit related bonus or share options)
- percentage of pay that is variable (average)
- percentage receiving performance pay (proportion of the workforce for which some element of pay is performance related)
- percentage receiving appraisals (*ie* at least an annual review of performance)
- frequency of 1:1s (average) a regular, formal and private discussion between an individual and their line manager
- absenteeism (total hours lost to sickness per/total available hours)
- Bradford factor = (number of incidences of absence)² × total number of days lost, *eg* five individual days = 125 (5 × 5 × 5), five continuous days = 5 (1 × 1 × 5)
- Turnover – number of voluntary leavers in year (excluding lay-offs, retirements or redundancies) / total workforce numbers.

Desirable measures

- Attitudes:

The 12 statements developed and tested by IES are:

- *I speak highly of this organisation to my friends.*
- *I would be happy for my friends and family to use this organisation's products/services.*
- *This organisation is known as a good employer.*
- *This organisation has a good reputation generally.*
- *I am proud to tell others I am part of this organisation.*
- *This organisation really inspires the very best in me in the way of job performance.*
- *I find that my values and the organisation's are very similar.*
- *I always do more than is actually required.*

- *I try to help others in this organisation whenever I can.*
- *I try to keep abreast of current developments in my area.*
- *I volunteer to do things outside my job that contribute to the organisation's objectives.*
- *I frequently make suggestions to improve the work of my team/department/service.*

4.3.4 Application

Application comprises the ways in which organisations provide opportunity for people to apply their skills and enthusiasm at work. This opportunity can be through the design of jobs people do, the resources they have at their disposal, as well as through the culture of an organisation and the degree to which it encourages involvement and autonomy.

The essence of this factor is thus:

- the freedom to make decisions
- the information to enable employees to do so
- the equipment to support employees
- the structure of the organisation and how it encourages full application of skills and enthusiasm *eg* job design
- the culture of the organisation and its support for autonomy
- adoption of added-value business strategy.

This is an area where good indicators are hard to find. It tends to be an area of the literature, which has not been subject to much in the way of empirical test, although there is plenty of commentary about the importance of firm strategy and of job design.

Some of these issues are difficult to measure in any kind of meaningful way. It is also an area where a number of indicators exist, which are not ideally suited for our purpose – *eg* do not have resonance with employers or where the link to business performance is not proven. We have therefore highlighted such indicators, which have been used in the literature (and where we are not convinced that they differentiate performance for many firms *eg* ratio of computers per employee). We have also indicated two areas where attitudinal measures could be useful but which are, as previously mentioned, difficult to collect and analyse.

Core measures

- IT spend as a percentage of total turnover
- existence of formal process for employee involvement (*ie* there are formal opportunities for employees to express their views and influence their immediate working environment)

- proportion of workforce participating in
 - team briefing
 - suggestion schemes
 - quality circles
 - regular face to face meetings with managers
 - upward appraisal
 - receiving organisation wide newsletter
 - regular staff survey
- frequency of meetings per annum with staff representatives to discuss employee matters
- percentage of workforce multi-skilled *ie* can do range of different jobs or perform range of job roles.

One of the key factors likely to be correlated with organisational performance is the degree to which employees have autonomy *ie* permission to make decisions within their sphere of influence. However, measuring this is difficult and may be best answered by employees than from an organisational perspective. We think a measure of autonomy would be very useful and have made some suggestions below. There are not however, any good examples from the literature to support us here. We also think there is some evidence that the commercial strategy of the organisation is important for business success and also influences all the other segments of the model. It would be very useful to be able to contextualise the other indicators by understanding the business strategy of the enterprise and the questions below (Table 4.2) are designed to capture these key elements. Whilst such responses may not be of direct benefit to employers themselves, they will help the overall analysis of the data and therefore we would like to see them included and employers encouraged to complete them.

Desirable measures

- autonomy – two attitudinal items that can be inserted into staff surveys are:
 - *I have a lot of say in deciding how to do my job*
 - *I have a lot of say in deciding what goes on in my work group*
- strategy measures (see Table 4.2).

Taken together these measures provide a selection of measures which have been found to correlate with business performance and which organisations can relatively easily collect and use to monitor their own human capital performance. The indicators are summarised in Table 4.3 and the expected direction of the relationship is indicated *ie* whether an increase or a decrease in the measure is better.

Table 4.2: Possible strategy questions

Going up-market

Over the last year have you implemented any changes designed to:

Significantly improve the *quality* of your existing products or services

Significantly improve the *efficiency* with which you produce your existing products or service

Introduce significant new products or services

Introduce significant new technology

Introduce significant new methods of work organisation

Over the coming 12 months do you have any formal plans to:

Significantly improve the *quality* of your existing products or services

Significantly improve the *efficiency* with which you produce your existing products or service

Introduce significant new products or services

Introduced significant new technology

Introduced significant new methods of work organisation

Likely degree of competition

Do you see the main markets for your products or services as being:

Local

Regional

National

International

Performance

Would you say your organisation performs better or worse than other similar organisations in terms of each of the following:

A. Financial performance

B. Growth in sales or income

C. Market share

D. Product or service innovation

E. Quality of goods or services

Much worse

A bit worse

The same

A bit better

Much better

Value added business strategy

Do customers for your goods/services make their decisions based:

On price

On quality

On your ability to tailor to their needs

On your ability to be different from other suppliers

And which of these is most important?

Price

Quality

Your ability to tailor to their needs

Your ability to be different from other suppliers

Source: IES, 2005

Table 4.3: Expected direction of movement of indicators for improved performance

Factor	Indicator	Direction
Access	Number/proportion of vacancies/posts filled internally	↑
	Number/proportion of jobs subject to test on recruitment	↑
	Number/proportion of new recruits fully experienced on appointment (average)	↑
	Proportion of vacancies for which there exists a person specification	↑
	Proportion of interviewees trained in interview techniques	↑
	Proportion of interviews using criterion based techniques	↑
Ability	Proportion of workforce receiving training	↑
	Total training days per annum (non managerial)	↑
	Training expenditure per annum (non managerial)	↑
	Management training days per annum (per manager)	↑
	Expenditure on management training per annum (per manager)	↑
	Proportion of workforce with current pdp	↑
	Number/proportion of non managerial workforce with degree or equivalent	↑
	Number/proportion of managers with degrees or equivalent	↑
	Proportion of workforce with formal qualifications to level 2 minimum	↑
	Proportion of managers who are fully proficient	↑
	Proportion of defined key workforce group who are fully proficient	↑
	Proportion of training expenditure on accredited training	↑
	Proportion of training which is generic vs specific	↑
	Proportion of training days linked to business strategy	↑
Attitude	Numbers/proportions of lay-offs in last two years	↓
	Percentage gain sharing (<i>ie</i> proportion of the workforce receiving profit related bonus or share options)	↑
	Percentage of pay that is variable (average)	↑
	Percentage receiving performance pay (proportion of the workforce for which some element of pay is performance related)	↑
	Percentage receiving appraisals (<i>ie</i> at least an annual review of performance)	↑
	Frequency of 1:1s (average) a regular, formal and private discussion between an individual and their line manager	↑
	Absenteeism	↓
	Bradford measure of short term absence	↓
	Turnover — number of voluntary leavers in year (excluding lay-offs, retirements or redundancies)/total workforce numbers	↓
	Attitudes (core set of measures of drivers of engagement)	↑
Application	ICT spend as % turnover	↑
	Existence of formal processes for employee involvement	↑
	Proportion of employees involved in various business improvement processes	↑
	Frequency of meetings with staff representatives to discuss employee matters	↑
	Percentage of workforce multi-skilled <i>ie</i> can do range of different jobs or perform range of job roles	↑
	Autonomy questions	↑

Source: IES, 2005

4.4 Making the link to performance

In this report we have concentrated on exploring the literature on the factors which have been shown to link to performance. Organisational performance can be measured in many ways and the literature varies in terms of the measures used. Not all studies try to make the link to hard outcome measures, what in our chain of impact we described as final measures such as shareholder value or profits. Some studies have instead used measures of business growth or survival rates, others have focused on output measures such as productivity or customer satisfaction and a few have tried to demonstrate a link with activity measures such as innovation or quality. However the emphasis of this review is the link of training/development and the other HR inputs we have described, to the bottom line. In this sense, the bottom line is normally taken to be profitability but most academic studies use productivity as both easier to measure and more easily influenced by HR inputs. The further along the chain of impact we travel the more difficult it is to be able to show linkages from the various inputs to capability and its effects. Other investments and activities of the organisation will also impact, and profitability is particularly sensitive to other factors such as the business cycle, competitor behaviour, economic climate, interest rates *etc.* The evidence is that various HR investments link through to improved productivity, and in some studies, improved profitability.

The literature reports many ways of measuring both productivity and profitability. We report some of them below.

Many organisations will have their own method for evaluating their business performance, but a core set of measures may help some firms which are unsure exactly what to measure and would also facilitate the use of a core set of measures to use for testing the model at a national level. We suggest here some of the commonly used measures drawn from the DTI Benchmark Plus, which also contains a number of other measures, *eg* of innovation. We would wish to test the ease of usage of these measures and their link to performance. It might be expected that outcome measures which are nearest to the employee *ie* productivity measures, will be more sensitive to the various input measures we have devised than more distant measures such as profitability.

Measures of productivity

Gross value added / Total turnover (%) – this is the value expressed as a percentage of total turnover. It is an indicator of wealth creation and productivity.

Calculated as ((employee remuneration + directors and owners remuneration + employers National Insurance contributions + employers pension contributions + pre-tax profit + depreciation) / Total turnover) × 100

Total turnover per employee (£) – this is the ratio of turnover (sales) divided by the total number of FTEs employees and is an indication of employee productivity.

Calculated as total turnover / no. of FTE employees

Gross added value per employee (£) – this ratio represents the value added divided by the number of FTE employees and is an indication of employee productivity.

Calculated as (employee remuneration + directors and owners remuneration + employers National Insurance contributions + employers pension contributions = pre tax profit = depreciation) / no. of FTE employees

Measures of profitability

Tax profit/total turnover (not profit margin) % – this is the profit before tax expressed as a percentage of turnover. It is an indicator of profitability and provides a useful measure for how well costs have been controlled.

Calculated as (pre tax profit/total turnover) × 100.

Return on capital employed (ROCE) % – this is the profit before tax expressed as a percentage of shareholders' funds. It is an indicator of profitability regardless of financing method.

Calculated as (pre tax profit / (total assets-other liabilities-creditors)) × 100

Return on net assets (RONA) % – this is the profit before tax expressed as a percentage of total assets. It is an indicator of operating efficiency.

Calculated as (pre tax profit / total assets) × 100

Pre tax profit / No. of FTE employees (£) – this is a pre-tax profit divided by the number of FTWE employees. It is an indicator of employee profitability.

Calculated as pre tax profit/no. of employees

Other

Total turnover / no. of orders received (£) – this ratio provides an indication of the average order value expressed as pounds (£) per order.

Calculated as total turnover/no. of orders received

5. Conclusions and Recommendations

We have seen from the literature that there is considerable evidence of the value of skills to individuals and to organisations. There is now an array of studies that seek to explore the link between skills and business performance. Such studies have varied in their approach but the evidence is striking in its weight and consistency and increasing methodological sophistication. We have seen compatible results emerging from different theoretical perspectives, using different methodologies, and research in organisational and national contexts. The emerging theme is that skills make a difference to individual and organisational performance.

What we also see emerging is a deeper understanding of the *ways* in which skills impact, which has shifted from an initial and straightforward belief that skills improve performance on to an exploration of a more complex dynamic where skills sit alongside and are linked to other HR practices, then on to believing skills to be contextually embedded, and finally to an understanding that organisational culture and organisational support may attenuate or exaggerate the action of skills at work. What has emerged is an understanding that skills and their development (through education and training) affect performance but so does the way people are managed and the opportunities organisations provide to use higher levels of skills. Underlying this complexity we think there are two key dimensions:

1. the inputs to, and deployments of, individual capability
2. the partnership between the individual and the firm.

Putting these two dimensions together, results in four quadrants – distinct factors which each contribute to the expression of human capability in organisations. These four quadrants/factors cover:

- **Access** to organisations.
- Workforce **ability**.
- Workforce **attitude**.
- **Application** opportunities.

Having developed this model from the array of measures in the literature we have tested it back again against other existing models and lists or measures of performance. This 4A model has been shown to provide a theoretical underpinning to much of the literature, to be more coherent and broader in scope than many other models or approaches.

This model also provides a coherent framework for organisations to understand the place of training and skills in business performance and the ways in which organisations support their development and deployment. It can be used to explore the human capital debate and provide a vehicle for organisations to think about how they get the most out of their employees and how managers, leaders and HR can help.

The model sits alongside an identification of a set of measures which we believe captures the key factors explored in the literature. From our analysis we have identified a wide range of indicators used and mapped these against the core quadrants of the model. This huge list has been sifted down to create a core set of indicators that have been designed to meet certain stringent criteria.

- Resonance with employers *ie* the measures should be meaningful to employers and align as far as possible with measures already in use. They should be able to generate and inform internal debate regarding decisions on training, development and management. We have sought to identify measures that are within the ability of employers to collect *ie* are not overly complex or rely on the use of complicated data gathering techniques or analysis.
- Alignment and compatibility with existing national and international measures to ensure that data generated can be used in comparison or in conjunction with other data that is tracked and reported.
- Rigour and lack of ambiguity – the measures should generate data which are as valid reliable and unambiguous as possible. Proxy measures have been avoided where possible. To reduce ambiguity we have given full descriptions of the measures and how they should be gathered or calculated.
- Capacity for longitudinal study – the measures should be able to track organisational inputs, outputs and performance over time.
- Actionable indicators – the input measures should be able to reflect activities that are under the control of employers or by policy makers, so that they can be deliberately manipulated to alter performance over time.

The essence of these core criteria is that they are easy to collect and interpret by employers, and build on measures already in use and promoted by UK policy bodies. This is no easy task as some

measures meet some of the criteria but not others. We have highlighted measures which we consider to be less than ideal.

Application of the model

The model provides a unique attempt to make sense of what we know already and provides a framework to help organisations utilise this knowledge to monitor their own investment in people; investments which have been shown to link to organisational performance. There is considerable information about the contribution of skills and the development of people. We know too that HR practices in terms of selection have been included in the key lists of practices explored in the High Performance literature. HR practices in terms of reward also appear to make a difference, and there are hints that motivation is a critical variable with managers playing a key part in bringing to life HR practices in order to have a positive impact on employees. Some research has suggested that context is important – some organisations do not encourage performance, don't provide jobs of sufficient size and don't pursue product market strategies that emphasise skills. The model takes key areas of HR investment that have a demonstrated link to organisational performance and presents easy to use measures for employers to capture information on their own investment in these areas.

5.1 Next steps

The model and indicators have been developed primarily from academic material that demonstrates correlations between different HR practices and organisational performance. The various partners on this project – CIPD/DfES/liP UK/SSDA – may all find the model of use with their own clientele and may now want to undertake internal discussions.

The model and the indicators have not been tested with employers to check the ease with which they can be collected. The next stage would be to test the resonance of the model and the indicators with employers. It may be possible to do this alongside the Skills Alliance partners existing activity, *eg* the promotion of Benchmark Plus from the DTI.

If employers can be persuaded to utilise the indicators, what we would hope is that sufficient data can be collected and linked to organisational performance to test the assumption that these indicators are positively, and causally related to business performance. This is the explicit purpose for which the model was designed. This is a massive undertaking and will require the support and commitment of all the partners to market the approach to employers and support their adoption of the model. An employer guide to the model has also been produced to help this process. The number of partners to this project is both an

advantage but also potentially a hindrance. If all partners could agree on the model and the core set of indicators, and all seek to promote them actively, the potential impact is significant. However the number of partners may dilute ownership and willingness to promote the model, and hence result in take up too low to provide meaningful data. Data is critical to enable us to narrow the full set of indicators presented here to a much smaller set of core indicators which show the most significant relationship with business performance. This will in itself make the model much more accessible.

Voluntary take up by employers would still help them make the connections with performance, but would not provide the national data hoped for, and crucially, would not enable us to narrow the range of indicators to a more readily useable set.

An alternative approach would be to use national data to populate the model and to test it. Evidence against the factors/quadrants of the model could be collected through various existing surveys *eg* NESS, SSDA employer survey, WERS. Table 5.1 maps indicators from these surveys to our model. This would of course mean using different indicators from different surveys, as they do not all measure HR investments in the same way.

For the link to performance to be demonstrated the findings of these surveys would need to be linked to organisational performance via the IDBR. This is a complex exercise with high fall-out of data. Alternatively, relative performance questions could be included (as they are in WERS) which would provide a perceptual performance measure. Recent research has shown that such perceptual measures may be highly correlated with hard measures (Wall *et al.* 2004).

We believe that this is the less preferred option, as quite deliberately, the measures have been designed for employers to collect for themselves. However, it might provide the opportunity to test the coherence of the model (it may be possible to analyse scores within each segment of the model and see if they correlate with each other). It might also be possible to see if there are clusters of employers who tend to do better in certain quadrants of the model than in others.

Table 5.1: Existing UK national surveys

Survey	Access	Ability	Attitude	Application
SSDA/SfBN Employer Survey	Improving reputation in local community	Focus on developing skills	Conduct appraisals	Focus on reducing labour costs
	We have problem finding recruits with the skills we need	Gap between skills we need and skills we have is growing	Have processes for consultation	Reducing other costs of production/service delivery
	The education system does not supply people with skills needed	Improving skills is a priority	Consult with unions over more than pay	Increasing sales/turnover
	Degree to which new recruits are fully equipped	Skill needs have stayed the same	Formally assess performance of employees who have received training	Meeting government targets
		We would like to make more complex products/services but are constrained by skills	Have performance related pay	Developing new products and services
		Has your establishment funded or arranged training in past 12 months	Bonuses based on performance of company	Achievement of ISO 9000/IiP
		What kind of training induction, H&S, job specific, supervisory, management, in new technology, languages, IT)	Have flexible benefits	Give information on financial position
		Funded generic training in last 12 months	Have share options	Create teams of people to work together on specific projects
		Approaches to development (supervision, watching others, perform new tasks and feedback		
		Benefits of training (reduced turnover, improved productivity, increased profit margins, more motivated staff <i>etc.</i>)		
	Conduct TNAs			
	Have training plan/training budget			
	Training resources linked to business strategy			
	HR strategy linked to business strategy			
NESS	Incidence of skill gaps	Main causes of skill gaps (lack of experience, lack of motivation, failure to train, not keeping up with change, recruitment problems, high turnover)	Main causes of skill gaps (lack of motivation, not keeping up with change, high turnover)	Impact of skills gaps (difficulties meeting customer aims, difficulties meeting quality standards, increased costs, difficulties introducing working practices, delayed new products, loss of business)
	Main causes of skill gaps (recruitment problems)	Skills lacking (communication, customer care, team working, problem solving, technical, management <i>etc.</i>)	Action to combat skill shortages (increased salaries, redefine jobs)	IiP accreditation
	<i>Experience of skill shortages¹</i>		Existence of performance review	
	Impact of skill shortages (increased workload, customer service difficulties,			

¹ Measures used in our framework are shown in bold, similar measures are shown in italics

Survey	Access	Ability	Attitude	Application
	<p>loss of business, delayed new products <i>etc.</i>)</p> <p>Action to combat skill shortages (increased recruitment spend, increased salaries, redefine jobs, increased training)</p>	<p>Action to combat skill shortages (increased training)</p> <p>Impact of skills gaps (difficulties meeting customer aims, difficulties meeting quality standards, increased costs, difficulties introducing working practices, delayed new products, loss of business)</p> <p>Presence of business plan, training plan, training budget.</p> <p>Extent to which skill gaps are assessed</p> <p>Providing training in last 12 months</p> <p>Training to specific occupational groups</p> <p>Percentage of staff in receipt of training in last 12 months</p> <p>Number of training days provided (average)</p> <p>Types of training (languages, supervisory, management, induction, new technology, H&S, job specific)</p> <p><i>Training leading to a formal qualification</i></p> <p>Expenditure on training and development pa</p>		
WERS	<p>Emphasis on internal applicants</p> <p>Importance of references, recommendation, skills, qualifications, experiences, motivation recruitment channels used</p> <p>Procedures to encourage disadvantaged groups</p> <p>Use of performance tests</p>	<p>Proportion of work group having off the job training over last 12 months</p> <p>Proportions of work group trained to do jobs other than own</p> <p>Induction and time spent</p> <p><i>How many days of training did they experience</i></p> <p>What did training cover (computing, teamworking, communication, leadership, new equipment <i>etc.</i>)</p> <p>objectives of training (improve skills in current job, extend skills in current job, provide skills for new job, increase commitment)</p> <p>% trained to do jobs other than own</p>	<p>Employees take unfair advantage</p> <p>Led to expect long term employment</p> <p>Balance of work and family</p> <p>Consultation arrangements</p> <p>Staff fully committed</p> <p>Decisions made without consultation</p> <p><i>Proportion working in teams</i></p> <p>System of briefings</p> <p>Consultative committees</p> <p>Means of consultation</p> <p>Information on business performance</p> <p>Variable pay schemes</p>	<p>Team workers decide how job to be done</p> <p>Teams given responsibility for specific products/service</p> <p><i>Use of quality circles</i></p> <p><i>Proportion of employees involved</i></p> <p>Market for main product/service</p> <p>Level of competition</p> <p>Own performance relative to industry</p> <p>Proportion workforce doing jobs other than own at least one a week</p> <p>Degree of discretion as to how do work</p> <p><i>% of workforce use computers as part of normal work</i></p>

Survey	Access	Ability	Attitude	Application
			Including non-managerial staff	
			Workgroups participating	
			% of non managerial staff receiving prp	
			share schemes	
			Workgroups participating	
			% of non managerial staff receiving share schemes	
			individual, team, work based measures, org based measures	
			Non-managerial staff formally appraised	
			Frequency of appraisal	
			Appraisal linked to training needs	
			Linked to pay?	
			Equal ops policies	
			Family friendly	
			Employee relations	
			Relative size of pay settlements	
			Guaranteed job security	
			For which roles	
			Any redundancies in last 12 months	
			Why	
			% working in excess of 48 hours per week	

Source: IES, 2005

Appendix 1: The Literature

Appendix Table 1:

Author	Comments
Ahmad & Schroeder 2003	<p>Based on Pfeffer's 7 HRM factors meant to enhance organisational performance, including employment security, selective hiring of personnel and extensive training. Focused on operations level of the organisation</p> <p>Hypothesis 1 — 'After controlling for industry and country effects, organisational performance will be positively related to each of the following HRM practices:</p> <p>a) employment security (no. of employees laid off during past5 years/no in orgX100)</p> <p>b) selective hiring (6 item scale measuring co-operation between manufacturing and HR in design of JD and staffing activities; 5 item scale importance given to prospective employees attitudes and behaviour towards teamwork and problem solving)</p> <p>c) use of self-managed teams and decentralisation (5 item scale asses use of teams on shop floor; 3 item extent to which supervisors encourage and help team working))</p> <p>d) use of compensation contingent on organisational performance (group incentive plans Y/N, profit sharing Y/N; 4 item scale on whether reward system is consistent with objectives)</p> <p>e) the extent of training (3 items on whether employees skills and knowledge are being upgraded; 5 items extent to which receive cross training to do multiple tasks/jobs)</p> <p>f) reduced status distinctions (assigned car parking Y/N; uniforms by workers Y/N; restricted access to canteen Y/N; diff rest rooms Y/N)</p> <p>g) sharing of information'(3 effort to communicate competitive strategy; 5 items test extent to which provides shop floor with info on performance).</p> <p>Hypothesis 2 — 'After controlling for the industry and country effects, the degree of dissimilarity between an organisations' existing HRM system and the ideal type HRM systems will be negatively related to the organisational performance.'</p> <p>Differences in HRM practices were found in plants operating in different countries but majority of HRM practices used by plants did not differ by industry. Overall support was found for H1 as most of the relationships specified in H1 were found to be significant. H2 mediating effect analysis revealed that most of HRM practices impact operational performance indirectly through organisational commitment. Findings provide overall support for Pfeffer's seven HRM practices and empirically validate an ideal type HRM system for manufacturing plants.</p>
Almeida-Santos, Mumford (2004)	<p>Probability employee has recently received training and Duration of training by Individual Measures: Experience, Gender, Living with spouse or partner, Ethnic Origin, Job tenure, house, union, part Vs full time, wage compression (90-10 percentile)</p> <p>Workplace measures: sector, degree of competition, number of employees, age, part of multiple workplaces, union, proportion females, proportion part time, proportion aged less than 21, proportion non-whites, proportion in formally designed workteams, proportion of non-managerial in quality circles, difficulty filling vacancies.</p> <p>No consistent significant differences in the probability of training for those living with a spouse or partner.</p>

Females are not significantly more or less likely to receive training than males.

Duration of training spells for females is significantly shorter than for males.

Females are more likely to work in workplaces that offer shorter training periods than males.

Non-whites consistently are found to have less training.

Workers with low education levels are not found to be significantly less likely to be recently trained.

Training is found to be strongly and positively related to previous vocational qualifications.

Level of current job tenure is found to be negatively and significantly associated with training.

Quit rates are significantly and negatively related to the incidence of training.

Temporary employees are less likely to be trained.

Current union membership is positively and significantly related with training.

Organisational structures, which may lower the costs of training, are found to have a substantial relationship with the probability of recent training.

Higher levels of relative wage compression are associated with a greater incidence and duration of training.

Appleyard & Brown 2001 Analysis of firm level data from the US, Asia and Europe. Relationship between firm performance through quality and quantity measures and three factors of the employment system being skill development (initial training days and training days in first 3 years), employee participation in problem solving and employee collaboration. Considers 3 types of team — quality improvement, self directed and cross-functional. Based on fieldwork and data analysis findings suggest that manufacturing success is related to the introduction of new production technology and involving all levels of staff in one process of problem solving under engineers leadership of the team. Initial training of technicians related to quality and efficiency and of operators to line yield and productivity, interaction between training in areas related to maintenance is negatively correlated with defect density, line yield and direct labour productivity Does not find a strong relationship between linking training to work activities.

d'Arcimoles, 1997 Hypothesis 1 — 'Higher wages encourage better economic performance but no measure (no relation found)'

Hypothesis 2 — 'The more training given (training expenses/total wage costs), the better the economic performance'

Hypothesis 3 — 'Higher lay-offs and workforce redundancies does not lead to better economic performance (short-term inverse relationship between dismissals and performance, long term positive relationship)'

Hypothesis 4 — 'A good social climate is conducive to an improved economic performance, relations between level of performance and absenteeism are negative, positive relation between social expenditures and performance but not predictive'

Results = Immediate and lagged significant correlation's between training expenses a, rate of accidents associated with immediate decrease in performance but is not permanent and economic performance. All results converge on this point, whether performance is considered at a given time or has changed through time.

Thus, while efforts devoted to training and performance are considered at a given time, the associations are immediate and permanent. They seem to be delayed by three or four years when change in this effort is taken into account. This is a logic result since increasing efforts devoted to training cannot, by themselves, guarantee a good level of performance. Results show that the level of training expenses, rather than their evolution, might have positive effects on performance level.

Positive correlations remain, not only when the performance level, but also when the change in performance is taken into consideration. Training level is found to be permanently and clearly associated with an increase in profitability and productivity. No positive correlation between rates of dismissal and absolute levels of performance — but companies with most dismissals are also those with greater performance progression a few years later.

Negative correlation's between levels of absenteeism of performance.

Bacon & Blyton
2001

Longitudinal study, revisiting some steelworks in 1950s, 1991 and 1999. Although job enhancement, greater variety and improved earnings had occurred, overall the picture was a more negative attitude compared to the two case studies previously. Possible to identify the potential long-term impacts of management cost-cutting measures where any savings must be weighted against the potentially far greater cost of the loss of employee support. The findings suggest that the benefits of team working in terms of greater employee satisfaction over skills, variety, responsibility, have been undermined particularly by perceptions of greater job insecurity, especially that deriving from the threat of sub contracting, which in turn has contributed to a widespread lowering of morale. Important as a strong current of recent HRM literature relates to high commitment management with the suggestion that workplaces with particular bundles of employment policies, such as team-working, extensive training and selective recruitment will deliver greater organisational performance than those sites where managers pursue a more traditional approach.

Bae & Lawler 2000

Developed model based on organisational strategic variables, including factors such as management values regarding HRM and source of competitive advantage. Model was tested using data from 138 firms of workers who were non-managers in Korea. Had six working hypotheses.

Hypothesis 1 — 'An organisation with a management that strongly values HRM and people as a source of competitive advantage is more likely to use high involvement HRM strategies'

Hypothesis 2 — 'Organisations with differentiation strategies are more likely to have high involvement HRM strategies'

Hypothesis 3 — 'The extent to which a firm pursues a differentiation strategy is positively related to firm performance'

Hypothesis 4 — 'Organisations emphasising higher speed in firm activities and services for internal and external customers are more likely to have high involvement HRM strategies'

Hypothesis 5 — 'The speed of HRM activities and services for internal and external customer is positively related to firm performance'

Hypothesis 6 — 'The presence of a high involvement HRM strategy is positively related to firm performance'

HRM strategy measured by likert scale items on highly selective staffing, extensive training, empowerment, performance-based pay, and broad job design. Performance scale covered public image and goodwill, growth rates of sales, product or service quality, long run profitability, financial strength and employee productivity — all perceptual measures.

Empirical analysis strongly supports the main hypothesis (Hypothesis 6). Hypothesis 1 was also strongly supported, as was Hypothesis 3 HRM strategy variable is positive and significant at the 0.01 level thus supporting Hypothesis 6. The differentiation scale is positively and significantly related to firm performance in all specifications, which supports Hypothesis 3. However, Hypothesis 2 was at best only weakly supported. Hypothesis 4 and Hypothesis 5 involving the speed variable were rejected. It was shown that firms that scored high on valuing HRM and people as a source of competitive advantage were more likely to have high involvement HRM strategies.

Barnard & Rodgers
2000

Singapore Independent variables employee development, internal staffing and employment stability. Hypothesis was that practices identified as indicators of internally oriented HRM all reflect same underlying construct and would be highly correlated.

(Internal promotions whether prefer to fill internally, regular promotion ladders, and whether good performers could expect to be promoted, rewards for loyalty — importance of seniority performance and market rates for compensation rank criteria for promotions, performance appraisal rank order objectives for appraisal — evaluate, id training needs, determine pay increases, determine laid off, performance feedback, succession, training questions relating to amount type and purpose of training *eg* number of hours on and off job, proportion participating in previous year, types of training, agreement that only fund training which gives immediate return, security more imp't to adjust staffing to demand of to provide security, formal policies, exp. of lay-offs, steps that would be taken on overstaffing, organisational culture likert scale). Support for the theory that employee development practices are associated with high performance work systems (HPWS). Analysis failed to support the theory that HRM practices involving internal staffing and employment stability are positively related to the implementation of HPWS. Reported that the conventional confidence levels contribute less to the implementation of HPWS than the practices relating to employee development.

Barrett and O'Connell, 1999

654 survey returns, asked how many employees received training, how much was spent including estimate of time foregone, how many days of training were provided. Measured general and specific training (broad knowledge and skill vs. directly related to the operation of the company). Dependent variables were output 93/95, the value of fixed assets, size of workforce, changes in policy and organisation. General training significant effect on productivity growth but not specific training measured by number of trainees/total employment, training days/total employment, training expenditure/total payroll.

Batt 1999

Hypothesis 1(a) — 'Workers who have limited discretion in how they conduct their work activities will have higher productivity, but offer lower service quality. Time spent in training or problem-solving meetings will decrease productivity'

Hypothesis 1(b) — 'Workers who have more discretion in their work & who participate in off-line quality improvement teams will achieve higher service quality & sales than those who have less discretion & do not participate in QIT'

Hypothesis 1(c) — 'Employees who work in self-managed teams will provide better-quality service & have higher sales than those who work under traditional supervision'

Hypothesis 2(a) — 'The combined use of the TQM model & advanced info tech will have a positive interactive effect on individual service & sales performance'

Hypothesis 2(b) — 'The combined use of self-managed teams & advanced info technology will have a positive interactive effect on individual service & sales performance'

Hypothesis 3 — 'Employee participation in self-managed teams leads to better service & sales in three ways: by creating a structure that encourages greater individual discretion at work, by creating a structure of group self-regulation that leads to better learning & problem-solving and by creating responsibility for external co-ordination & information gathering across groups and individuals in other departments'

Comparison of three approaches to organising work in call centres being mass production, total quality management and self-managed teams. Both a self reported service quality and increase in sales was shown in the self-managed teams which was also increased by new technology and over time. Whereas total quality management did not affect performance. Self-managed team participation increase sales by a statistically significant amount, while participation in meetings has a statistically significant negative effect of small magnitude. The percentage difference in sales attributable to each variable — 7.6% for team participation minus 0.1% for time in meeting, creating a positive net effect of 7.5%. The interaction of teams & technology increases sales by 17.4% over & above a 9.3% direct effect of team participation. TQM model has no effect on perceived quality. Self-managed team membership has a statistically significant positive effect on perceived quality. Teams jointly maximise both service quality & sales. Work organised into self-managed teams leads to better service & sales performance. Three dimensions of work that are likely to be associated with self-managed teams & lead to better performance: high individual discretion, internal group self-regulation & external co-ordination with other groups & employees. Self-managed team membership is significantly correlated with all three, but in varying degrees. Self-managed teams are the most highly correlated

with group self-regulation ($r=0.51$) they are considerably less correlated with external coordination ($r=0.21$) and individual discretion ($r=0.13$). Group self-regulation has the most statistically significant effect on quality ($0.59, p<.01$) & on sales ($0.22, p<.05$). Contrary to predictions, individual discretion has a statistically significant negative effect on quality ($-0.23, p<0.05$) & no effect on sales. TQM had no statistically significant positive effects on performance. Participation in self-managed teams raised objective sales by 9.3% Time spent in SMT meetings had a statistically significant negative effect on sales of .1% so that the net effect of teams was 9.2%. The interactive effect of team participation & use of new technology raised sales by an additional 17.4%. Perceptions of job insecurity were associated with decreased service quality & higher sales.

Batt 2002

Hypothesis 1 — 'High involvement HR practices will be negatively related to employee quit rates'

Hypothesis 2 — 'High involvement HR practices will be positively related to sales growth'

Hypothesis 3 — 'Employee quit rates will partially mediate the relationship between high-involvement HR practices & sales growth'

Conceptualised high involvement practices along 3 dimensions — skill level work design and involvement enhancing HR incentives. Skill index = mean of the number of years of formal education of the typical employee and the number of years of formal and on-the-job training needed for a new employee to become proficient. Z scores Work design = individual discretion assessed degree of influence over tasks, tools, work methods, pace of work, schedules, vacations and technology design and customer interactions. and employee collaboration % of employees involved in problem solving groups and % participating in self directed teams. z scores. HR incentives ongoing training no. of weeks typical employee receives each year, pay = log of median base pay, security = % of workforce that was permanent and FT, electronic monitoring = % of work monitored — all transformed to z scores and take mean value for HR incentive index.

Multivariate analysis showed quit rates were lower and sales growth was higher in establishments that emphasised high involvement practices. Quit rates partially mediated the relationship between HR practices and sales growth. Greater use of high-involvement practices is associated with lower quit rates and higher sales growth in customer service & sales centres. Quit rates partially mediate the relationship between high-involvement practices & sales growth. High-involvement practices have a direct effect on employee performance via lower quit rates. Relationship between high-involvement practices & sales growth is moderated by the identity of an establishments' primary customer base. High-involvement practices are associated with higher sales growth in small business and residential centres. In large business centres, high-involvement practices appear to be the price of entry and to affect sales growth primarily indirectly through quit rates.

Batt, Colvin, Keefe, 2002

Sample from Dun and Bradstreet listing — telephone interview of 636 with a follow up survey on disputes for 302. Primary dependent variable is annual quit rate; 'as a percentage, what is your annual voluntary quit rate among "target staff" excluding discharges, retirements, transfers and promotions? Average =11%, collective voice is captured by a dummy variable 1=union, 0=no union. Team participation — consultative = % of the establishment participating in problem solving teams, substantive participation as % of employees organised in self directed teams, dispute resolution procedures = annual number of grievances or complaints brought under the internal procedure. Downsizing = no. of core employees displaced in last 5 years as % of current workforce, electronic monitoring % of a typical employees daily work that is monitored, contingent staffing % of workforce that is temporary and part time, variable pay = % of pay that is variable, training no of weeks of training received by the typical core employee, mobility - % of core employees who were promoted from within the company or transferred from other departments or business units pay = ration of median pay to local cost of living. Controlled for size, branch or not, gender, education level.

Union and team voice ass with lower quit rates but not non-union procedures and dispute rates. Each of cost cutting HR practices is assoc. with higher quit rates bar electronic monitoring, internal labour markets ass. with lower and high pay, training no relation.

1% increase in the reduction of the workforce relates to 3.5% point increase in quit rate, increasing part-timers by 10% points is associated with 1.1% point increase in quit, temp

workers increase by 10% points, increases by 1.2% points electronic monitoring at all times relates to 2.1 % point increase in quit compared to those not monitors at all, increase in proportion of variable pay by 10% points related to 0.5% increase in quit rates, increase in proportion of employees with mobility opportunities increases by 10% points relates to decrease by 0.3 % points.

- Bayo — Morjores & Hezerta-Arriba 2002 Analyses the factors that influence the adoption by Spanish manufacturing firms of incentive schemes that link blue-collar workers' pay to the results achieved by the organisation for which they work. Sample of 719 manufacturing plants each with at least 50 employees. Findings revealed the positive influence of factors such as the small size of the plant, the prospects of growth in the workforce or multinational company. It has also been found that workplace or firm incentives are more usual in factories with automated technologies, with widely defined jobs in plants that encourage workers' involvement and that do not consider personality traits in new employee selection processes.
- Berman, Wicks, Kotha & Jones 1999 Contribute to stakeholders theory development by deriving two distinct stakeholder management models from extant research. Testing descriptive accuracy of these models. Include important variables from the strategic literature in the tested models. The results provide support for a strategic stakeholder management model but no support for an intrinsic stakeholder commitment model.
- Billett 1998 Investigates recent literature on the expenditure by enterprise on vocational education and their interest in securing returns on the expenditure. Enterprise expenditure is far from uniform and is influenced by factors including their size, speciality and location. Enterprise interest on returns on their expenditure is focused on goals which are different kinds from those of government and may be aligned to achieving long-term national goals of maintaining and developing the skilfulness of the workforce.
- Birdi, Patterson, Wood, Wall. 2005 Hypothesis 1 — 'Organisation using knowledge generation, sharing and storage learning practices to a greater extent will show higher levels of innovation in products services and ways of working'
- Hypothesis 2 — 'Organisation showing greater innovation on these will demonstrate greater financial performance'
- Hypothesis 3 — 'The level of innovation will mediate the relationship between organisation learning practices and financial performance'
- Survey based knowledge practices measured on 20-item scale from 1-5 (knowledge generation. Knowledge sharing and knowledge storage`. Financial performance assessed by 3 item scale how well org compared to similar org on fin performance, growth in sales or income and market share on 1-5 scale much worse to much better, product and service innovation and ways of working innovation single items.
- Hypothesis 1 supported all 3 learning practices were significant and independently related to product or service innovations. Ways of working innovation only knowledge generation and storage practices related. Organisations reporting greater financial performance show significant greater usage of knowledge sharing and knowledge storage practices support for Hypothesis 2 and H Hypothesis 3.
- Bjorkman & Xiucheng 2002 Investigated the relationship between HRM and Organisational performance in 62 manufacturing Chinese — Western joint ventures and wholly own subsidiaries located in different parts of the People's Republic of China. A positive relationship was found between firm performance and the extent to which firms used a high performance HRM system as well as the degree to which they engaged in the integration of HRM and firm strategy.
- Black & Lynch 2001 Findings suggest it is not whether an employer develops a particular work practice, but rather how that work practice is actually implemented within the establishment that is associated with higher productivity. Unionised establishments that have adopted HR practices that promote joint decision making coupled with incentive-based compensation have higher productivity than other similar non-union plants, whereas unionised businesses that maintain more traditional labour management relations have lower productivity. Finally, plant productivity is higher in businesses with more educated workers or greater computer usage by non-managerial employees.

Blundell, Dearden, Meghir, 1999	<p>Data: British National Child Development Survey</p> <p>Aim: To investigate the returns to employer provided training.</p> <p>Findings: Men have a substantially higher probability than women of undertaking employer provided training. 62% over ten years — 1981-1991. Women 49%. Above average returns to work related training for men of 65% or 5.1% per annum, and women of 45% or 3.8% per annum.</p> <p>More highly educated people have a greater probability of undertaking qualification training and employer provided training. A levels by 19.9 % points men and 30.4 women, Training begets training, members of unions get more.</p> <p>EPTC course leading to a qualification has a return of 7.8%, no qual return of 8.3%, non EPTC 0 return, more than five incidents of EPT 12.5% more pay. Employer provided training leading to a qualification offers positive returns regardless of whether it was obtained with the current or earlier employer, in fact previous training appears to confer higher returns than current — possibly because employer recoups some of cost through lower wages. Informal training offers lower or no returns when move jobs.</p> <p>Different types of work related training are also found to have a significant impact on the earnings prospects of individuals.</p> <p>Evidence shows that employer provided training involving a recognised vocational qualification is transferable across employers.</p>
Bresnahan, Brynjolfsson & Hitt 2002	<p>HI-Combination of IT, complementary workplace reorganisation and new products and services constitute a significant skill-based technical change affecting labour demand in the US. Using detailed firm-level data, found evidence of complementarities among all three of these innovations in factor demand and productivity regressions. In addition firms that adopted these innovations tended to use more skilled labour.</p>
Brown & Reich 1997	<p>Investigating between US and Japan employment and pay systems. The emphasis is upon the external fit between high performance organisations and their wider environments. The conclusion is that the effectiveness of an organisation system critically depends upon the macro-economic and institutional contexts within which it is located.</p>
Caligiuri & Sutton? 1995	<p>Examined relationship between multinational corporations' global management strategies and the resulting international HR practices. Four global strategies which vary in their extent of global integration and local responsiveness were examined. Data from international HR professionals in 46 companies generally supported the hypothesis that HR practices (recruitment, selection and socialisation) varied by global strategy. These strategies were found to be related to two composite multinational corporations success index of economic variables (return on capital, sales growth, return on equity, profit margins). Companies which had ethnocentric strategies were found to be less successful than companies operating under any of the other three strategies. Finding suggested that local responsiveness should be incorporated into global strategy of multinational companies.</p>
CEDEFOP	<p>Aims of the study:</p> <p>Better understanding of in-company and inter-company HRD, competence and qualification policies. Comparison of the different approaches of European multinational companies (MNCs) while taking into account regional, sectoral and international challenges. Suggest competition between companies and countries is no longer dominated by access to capital, equipment, systems or location. Increasingly it is the capability of people to generate, share and deploy knowledge for value-adding purposes, which makes the difference.</p> <p>It was reported that to secure competitive advantage in the global marketplace, each of the MNCs in the survey:</p> <ol style="list-style-type: none"> 1) exploited their 'intellectual capital' and 'core capabilities' to offer added value products and services 2) introduced a 'flat hierarchy' and significantly broadened occupational role profiles, in an attempt to encourage all employees to take responsibility for adding value by managing

internal work processes and relationships with stakeholders more effectively and efficiently.

- CIPD Summary of a six-month study of CIPD investigating how ten major UK based firms evaluate human capital. Report found that measures of employee competencies on business performance were dependent on context. Findings based on internal views of managers on human capital within their business. Concluded that without advances in internal measurement and reporting of human capital, management will be unable to measure or report the value of employees' competencies and commitment for business performance. Investments in training and development are all too often viewed narrowly as costs and the contribution of key skills risks being lost through mergers and restructuring.
- Cockerill & Schroder International research aiming to create an empirically verified process for identifying and developing managers who can build successful organisations in today's workplace. Tested this in two environments, being when managers attempt to change the structure of their units in response to external change or when managers are responsible for enhancing performance of units that are structured appropriately for dynamic and competitive environment. Findings suggested two independent, core dimensions of organisational unit structure — unit tasks and unit processes. By exploring how these dimensions relate to the dynamism of a units external environment two organisational types were noted. Being the organic type — unstructured tasks and team working, and the mechanistic type — structured tasks and individualised working. The organic type is suited to a dynamic environment whilst the mechanical type fits the stable environment.
- Collier W, Green F, and Wilkinson D (2002) Using WERS data from 1990, 1991 and 1998 link between investment in training and firm survival raising investment of non-manual workers by 10 per cent reduces chance of closure by 0.7 per cent. For larger organisations (>200) it is training of professional, clerical and secretarial that makes the difference, for smaller it is training of craft and manual workers
- Machin *et al.* 2003 sectoral and Area analysis of the Economic Effect of Qualifications and Basic skills. Those establishments training at least some of their non-manual workers are 7 percentage points less likely to close down than those who did not train any.
- Collier, Green, Peirson & Wilkinson 2003 Investigated the relationship between training and the likelihood of commercial survival over a seven year period, using a survey of British establishments, found that in establishments of 200 or more employees, increased training of those in Professional, Sales and Clerical and secretarial occupations are associated with a greater chance of survival. In smaller establishments of less than 200 employees, increased training for operatives and assembly workers, personnel and Protective service workers and Craft and Technical workers were associated with better chances of survival. 19% of establishments which did no training closed down. 13% of establishments which did train. Difference statistically sig. at 5% level. Establishments which trained at least some of their non-manual workforce had closure rate of 12% compared with 19% which did not, sig. at 1% level. Multivariate confirmed this- training non-manual workers 7% points less likely to close down. No effect for manual. Raising proportion of non-manual workers receiving training by 10% points associated with rise in chances of establishment survival by 0.7% points. Findings suggested that training for these groups generated above normal returns and indicated under-investment in training by such firms. There was no evidence to suggest under investment in management training.
- Colvin, Batt & Katz 2001 Using data from a nationally representative sample of telecommunications establishments this study finds that HR practices and workforce unionisation influence managerial pay level and the ratio of manager-to-worker pay. High performance HR practices, including investment in the skills of the workforce in computer based technologies and in performance based worker pay practices, are all positively related to managerial pay but use of workforce teams which shift some managerial responsibilities to workers, has the opposite association. High performance HR practices also are associated with lower manager-to-worker pay differentials. In addition, workforce unionisation is positively associated with managerial pay levels, with worker base pay mediating the relationship between managers and pay and unionisation.

- Colvin and Katz, 2001
- Hypothesis 1(a) — 'Investment in high skilled workforce & IT will be associated with higher managerial pay levels'
- Hypothesis 1(b) — 'Work organised giving non-managerial employees greater discretion through participation in teams will associated with lower managerial pay levels'
- Hypothesis 1(c) — 'HR incentives for workers, such as performance-based pay associated with higher managerial pay levels'
- Hypothesis 2(a) — 'High performance HR practices will be associated with lower manager-to-worker pay ratios'
- Hypothesis 2(b) — 'Use of IT associated with lower manager-to-worker pay ratios & electronic monitoring will have the opposite association'
- Hypothesis 3(a) — 'Unionisation of workers will be associated with higher manager pay levels'
- Hypothesis 3(b) — 'Worker base pay will partially mediate relationship between workforce unionisation & managerial pay levels'
- Hypothesis 3(c) — 'Unionisation of workers will be associated with modest reduction in manger-to-worker pay ratios. Unionisation has sig. positive association with worker pay levels, receive 19.2% higher pay'
- Cosh, Hughes, Weeks
- Sample 768 businesses in the manufacturing and business service sectors. Information was collected for these forms for 1991 and 1997.
- Findings: No evidence that high profitability led to the adoption of training. Trainers are more likely to have people with professional qualification running the business. Trainers give more emphasis on design, quality, product range, marketing in order to gain competitive advantage. Trainers are more likely to identify skill shortages as an inhibitor of their growth performance. Trainers more likely to have sought external advice to support their training activities. Trainers more sophisticated management. Persistent trainers are four times larger on average than persistent non-trainers.
- Training in 1991 is significantly related to employment growth 87-90
- Training in 1997 is significantly related to employment growth 90-95
- No relationship between training in 1991 and employment growth 90-95
- Persistent trainers do not appear to exhibit a clear trend in terms of employment growth. Results show that small firms grow faster than larger SMEs. Significant effect of training on employment growth.
- Evidence for training providing a positive impetus to employment growth. Amongst persistent trainers there is a positive association between training and performance. However, the effect of training amongst persistent trainers is significant only for those which are using sophisticated management practices.
- Cosh, Hughes, Bullock and Potton, 2003
- Large survey looked at training spend:
- Training Expenditure
- Training spending per firm, Training spending per employee
- Performance effects of training
- Log firm employment, log firm sales, profit margins, change in log labour product
- For training expenditure regression: Number of employees which represent the pool of potential trainees, length of time taken to train employees in non-managerial skill groups, recruiting difficulties, difficulties in recruiting managers, growth objectives of the firm, business plan, written training plan, HR plan, director for employee relations, involvement of employees in work design, total quality management, quality circles, job rotation, PRP, investors in people, skill requirements for the firm have been rising in the past three years, status as independent or subsidiary.
- For performance effects of training regression: impact of business age, employment size, turnover, profit margin, industry, business planning, training plan, innovative activity,

quality circles, job rotation, PRP, investors in people, number of serious competitors, spending on training.

Findings:

Training expenditure: employment size is highly sig and positive determinant of training spending, growth ambitions of firm were significantly related to training spending (lower training spending being sig. related to lower growth ambitions), difficulties in recruiting were related with higher training expenditure, use of TQM and job rotation was significantly related to higher spending.

Performance effects of training: growth is significantly positively affected by training spend. But diminishing returns to training were also observed.

Firm Sales: the level of training expenditure per employee appears to be largely irrelevant for turnover growth.

Profit Margins: the impact of training expenditure per firm, generally has a positive impact on the change in the profit margin and the impact is greater amongst the smaller firms. When training is measured by the level of training expenditure per employee, the results are much less significant in both economic and statistical terms.

Turnover per employee: Does not support hypothesis that training can have a direct and immediate beneficial impact on labour productivity.

Case studies were separated into 4v groups:

1. Firms that trained in 1997 and 1999
2. Firms that didn't train in both periods
3. Firms that trained in 1997 but didn't in 1999
4. Firms that didn't train in 1997 but did in 1999.

Firms that trained in both periods were found to have very positive attitudes to training. They train in order to ensure that operations are carried out properly. They also train because it increases employee satisfaction and makes employees more productive.

Weak impact on employment growth, positive impact on turnover growth with diminishing returns, no effect of training spend per employee. Only really apply in the larger size groups. The impact of training expenditure per firm has positive impact on profit margin and impact greater amongst small firms.

Dearden, Reed, &
Reenen 2000

Analysis of a number of British industries between 1983-1996. Training information is derived from a question that has been asked consistently over time in the LFS. This is combined with complementary industry-level data sources on value added, usage, labour and capital. A variety of panel data techniques were used to argue that training significantly boosts productivity. The existing literature has underestimated the full effects of training for two reasons. First it has tended to treat training as exogenous whereas in reality firms may choose to re-allocate workers to training when demand and therefore productivity is low. Secondly, estimates of the effect of training on wages are about half the size of the effects on industrial productivity, it is misleading to ignore the pay-off firms take in higher profits from training. The effects are economically large.

Production sector: Training has a significant impact on productivity. An increase of 5% in the proportion of employees trained is associated with 4% increase in productivity and a 1.6% increase in wages. The overall effect of training on productivity was around twice as large as the effects on wages. However the association is reduced dramatically (significant at 10%) after it is controlled for skills (qualifications + occupation). The coefficient of capital labour is highly significant. When they do their analysis they run the same regression several times controlling for different factors each time. When they control for skills the association between training and productivity is reduced. Productivity significantly increases in hours per employee and decreases with the degree of worker turnover. Lagged R+D intensity is also positively associated with higher productivity. Industries with a larger proportion of very young workers (16-24), female employees, and small firms are associated with lower productivity.

Manufacturing sector: same results as production sector.

Further investigation: using the on-the-job/off-the job distinction in the training variable did suggest that off the job training had a larger impact on productivity.

Delaney, Huselid
(1996)

Dependent variables were perceived org. performance: was constructed from seven items assessing respondents' perceptions of their firm's performance over the past three years relative to that of similar organisations.

Perceived market performance: is constructed from four questions concerning respondents' perceptions of their firm's performance over the past three years relative to product market competitors.

Independent variables: Staffing selectivity, employee training (3 item index, whether the organisation had provided any formal job training in the past two years, the number of employees that received formal training, respondents' views on the overall effectiveness of their training programs), incentive compensation (3 item index, respondents' perceptions of how important job performance is in determining the earnings), grievance procedure (existence or not of formal procedure for resolving disputes), Employee Involvement (8 item scale), Internal Labour market index (5 item that captures the existence of opportunities for promotion within), vertical hierarchy (number of occupation levels in the organisation between the highest and lowest jobs)

Hypotheses:

Hypothesis 1 — 'Progressive HRM practices (those affecting employee skills, employee motivation, and the structure of work) will be positively related to organisational performance'

Hypothesis 2 — 'Complementarities or synergies among progressive HRMM practices will be positively related to organisational performance'

The relationship between the HRM practices and perceptual performance measures is generally positive. Coefficients on the HRM practices => many of the control, variables are significantly associated with the perceptual performance variables.

Results of regression equations for perceived organisation performance: five of the seven HRM practices coefficients are positive and significant (training, incentive compensation, grievance procedure, decentralised decision making, vertical hierarchy).

Results on regression equations for perceived market performance: similar results. Coefficients on five of the seven HRM practices are positive and significant (staffing selectivity, training, incentive compensation, internal labour market, vertical hierarchy).

Regarding Hypothesis 2 a variable was created which indicated the number of HRM practices for which a firm was above the sample average. Analysis showed that this variable was consistently positive but insignificant for each dependent variable.

Delery, Doty, 1996

Three different approaches to HPWP in US Banks; Universalistic the relationship between a given independent variable and a dependent variable is universal across the population of organisations. Contingency — interactions with strategy as prime factor, Configurational — unique pattern of factors that are posited to be maximally effective.

Hypothesis 1 — 'There will be a positive relationship between financial performance and:

(a) the use of internal career ladders (likert scale of 4 items)

(b) formal training systems (4 items)

(c) results-oriented appraisal degree to which focused on output or results measures rather than behavioural (2 items)

(d) performance-based compensation (profit sharing extent to which bonuses related to profit)

(e) employment security (degree to which employee could expect to stay in job over time, 4 items)

(f) employee voice (4 items, degree to which employees allowed to have input and degree to which valued)

(g) broadly defined jobs (4 items degree to which jobs clearly defined)'

Contingency perspective imply interactions rather than simple linear relationships — the relationship between the relevant independent variable and the dependent variable will be different for different levels of the contingency variable (need therefore to find measures of firm strategy).

Hypothesis 2 — 'The relationship between HR practices and Financial performance will be contingent on an organisation's strategy'

Configurational perspective suggests unique combinations of factors that are maximally effective. Incorporate the concept of equifinality — multiple unique configurations of the relevant factors can result in maximal performance, assumed to be ideal types that are theoretical constructs rather than empirically observable phenomena.

Hypothesis 3 — 'The greater the similarity to the ideal-type employment system that is most similar to an organisation's employment system, the higher the financial performance'

Hypothesis 4 — 'An employment system's similarity to the ideal-type system that is appropriate for an organisation's strategy will be positively related to financial performance'

Hypothesis 5 — 'An employment system's similarity to the one hybrid employment system that is appropriate for an organisation's strategy will be positively related to financial performance'

ROA/ROE related to results oriented appraisal, employment security and profit sharing, all variables entered in hierarchical regression explain 12.5% of variance in ROA and 9% in ROE, 1SD higher on appraisal and job security are 0.08 and 0.09 higher on ROA and 0.98 and 0.63 on ROE. Weak support for Hypothesis 2, 4 and 5 not supported.

Dunlop & Weil 1996 Aim to examine the determinants of the diffusion of team production systems and the impact of these systems on firm performance relative to traditional assembly in the apparel industry. An extensive survey provided detailed information on a wide range of manufacturing practices and retail relationships in the US Apparel industry. Primarily the product market drives findings suggesting the recent diffusion of modular practices. Also suggesting that modular systems affect business-unit performance where they are combined with complementary investment in information system linking apparel suppliers with retail customers. 1% increase in modular assembly leads to 0.6 day decrease in lead time, which represents less than a 1% decrease in average lead times. However for the typical modular adopter that draws on modules for 36% of assembly, these coefficients imply lead time reductions of about 23(standard) & 25 days(shortest). Business units using bar codes & EDI in 1992 earned average operating profits as a % of sales 6.5% higher than those business units lacking information investments. Major performance effects arise from the investment in bundles of manufacturing practices, particularly those associated with information linkages.

Fey, Bjorkman & Pavlovskaya 2000 Based on 101 foreign firms operating in Russia, the effect of HRM in firm performance in Russia was investigated. This is accomplished by developing and testing a model including HR outcomes (motivation, retention and development) as a mediating variable between HRM practices and firm performance. Provides some support for the use of HRM outcomes as a mediating variable between HRM practices and firm performance. The results also indicate that non-technical training and high salaries will have a positive impact on HR outcomes for managers while job security is the most important predictor of HR outcomes for non-managerial employees. Provides support for the importance of including both managers and non-managers in the same study but treating them separately. Results also indicate a direct positive relationship between managerial promotions based on merit and firm performance for managers and job security and performance for non-managers.

Guest & Peccei 2001 Survey using a matched sample of 54 UK management and employee representatives found a link between partnership principles and practices, between practices and ratings of employee attitudes and behaviour, between these and estimates of positive employment relations and quality productivity, finally between productivity and sales and

profitability. The findings support a mutual gain model but show that the balance of advantage is skewed towards management and reflects generally low management trusts in employee representatives.

Gould, Williams
2003

Examines the impact of bundles of HR practices on workplace trust, job satisfaction, commitment, effort and perceived organisational performance. A theoretical model is developed and tested using data collected through a postal survey of UK local government employees. The results support the hypothesis that HR practices are powerful predictors of trust and organisational performance. The findings demonstrate the need for public organisations to re-evaluate their current battery of HR practices in an attempt to improve overall performance.

Green

Aim — Review the formal evidence in existence on the benefits to training for employers. The report describes the findings of 21 research studies from Britain and abroad.

Impact of Training on Productivity or Turnover

Nine studies on data from other countries (non UK). All but one of these studies found that training has some positive impact on productivity. However the size of impact varied. Type of training matters a lot. Lynch & Black — non manufacturing companies that concentrate their training in computer skills can raise productivity above those that do not. Manufacturing companies that concentrate their training on formal training outside working hours do well.

Tan & Batra — external training more beneficial than internal. Training is beneficial when given to skilled workers. Training which is not reinforced by other company policies may be ineffective. Companies which do not make an effort to retain the employees that they are training, increase their risk of losing their investment. Studies that attempted to investigate an interaction between training and other human resource management policies did not find evidence for this.

Bishop — Found that employers do gain by hiring employees from other companies, benefiting both from their previous experience and from their previous employer provided training. The extra productivity such workers have compared to those with no such previous experience and to those with no such previous training, exceeds any extra wages that they are paid.

Impact of Training on Labour turnover

Six studies (3 UK data/3 US data). Studies mainly based on data about individuals rather than companies, but two of them combine data for companies with data about some of their employees. The general finding is that the impact of training on labour mobility is comparatively small, in relation to other factors determining mobility and for the most part is in the downward direction.

Impact of Training — Organisational commitment

Only two studies provide evidence. Both confirm a positive correlation between training and commitment. However, neither develop a suitable multivariate analysis to examine the influence of training separately from the influence of other variables.

Evidence that company training in Britain leads to increases in wages (Green *et al.* 1996, Blundell *et al.* 1994, White 1994). However, unclear how strongly this can be taken as evidence that training is beneficial to companies.

Guest, Michie,
Sheenan, Conway

Study undertook telephone interviews with 610 managers responsible for HRM and 462 CEOs from a cross-section of companies in the UK. The aim of the survey was to explore the relationship between HRM and business performance. Study was conducted within a model that examined links between business strategy, HR practices, effectiveness of these practices, impact on employee attitudes and behaviour, and the consequences for productivity, quality and financial performance. The results are based on the descriptions and judgements of a large group of senior managers in British industry, supporting the view that effective use of a wide range of progressive HR practices is linked to superior performance. This link includes taking seriously into account employee attitudes and behaviour.

Guest, Michie, Conway & Sheehan 2003	Investigated the relationship between HRM and performance in 366 companies — UK based using both subjective and objective performance measures using cross-sectional and longitudinal data. Objective measures — performance is linked with greater use of HRM resulting in low labour turnovers and higher profit per employee but not high productivity. Subjective measures — strong association between HRM and both productivity and financial performance.
Guthrie, Spell & Wyanori 2002	Study focuses on the current changes that have taken place in New Zealand in the sense of product and labour market reforms which have tried to stimulate economic growth and national competitiveness findings suggest that whereas more intensive use of high involvement work practices promotes firm effectiveness, this effect depends on the competitive strategy being pursued. The use of high involvement work practices is positively associated with performance in firms competing on the basis of differentiation and shows no relationship in firms pursuing a strategy of cost leadership.
Guthrie, Chester, Spell & Nyamori 2002	Measure of High Involvement Work Practices based of 12 items (HIWP index). 165 New Zealand Business Organisations. Mixed results HIWP particularly beneficial to firms pursuing a differentiation strategy & less for firms competing more on cost
Guthrie	<p>Positive association between use of high-involvement work practices and employee retention and firm productivity. Employee turnover was associated with decreased productivity when use of high involvement work practices was high and with increased productivity when use of these practices were low.</p> <p>Data on a multi-industry sample of 164 New Zealand firms. Postal survey — directed to senior managers.</p> <p><i>Dependent variables</i></p> <p>High involvement work practices Turnover (Employee retention) Productivity</p> <p><i>Independent variables</i></p> <p>Firm size Age of each firm Union representation Market pay level Industry.</p>
Hazel, Tzatrif & Baruch 2003	HRMs, women in management and organisational effectiveness — a model was developed bringing these perspectives together in a single compressive framework. The model suggests positive associations between HRM practices and fairness in promotion and organisational effectiveness. A survey was conducted among 102 Israeli organisations, which represented a 44 per cent response rate. The findings indicate a significant and positive association between high-quality HRM fairness and the promotion of women in organisations. Fairness in the promotion into managerial ranks was also found to be associated with higher organisational effectiveness.
Harris & Ogbonna 2001	Investigated market orientation and Strategic Human Resource Management (SHRM) to organisational performance. The findings suggest a direct link between market orientation and performance and indicate that the association between strategic human resource management and performance is mediated by the extent of market orientation exhibited by the organisation. Hence it is argued that SHRM can be viewed as an antecedent to market orientation.
Haskel, Hawkes and Pereira, 2003	Matched data from ESS and ONS ABI. Can match performance to qualifications and job proficiency. Match ABI with NES gives wages, occupation and age gives measure of soft skills (by controlling for person and firm effects and implied experience). Plants at the top of the productivity distribution hire workers with on average 2 years schooling, both measures based on qualifications and those on wage regressions affect productivity, explains about 8% of TFP gap between firms at top and bottom of productivity gap.
Haskel & Headen 1998	Use of two UK panel data sets to investigate skill upgrading in the UK and how it has been affected by computerisation. Census data reveals that most aggregate skill

upgrading is explained by within — establishment computerisation, a relation that is robust to different worker and computer types, human capital upgrading and other technology measures.

- Hitt, Bierman, Shimbu & Kocher 2001
Examines direct and moderating effects of human capital on professional service firm performance. The results show that human capital exhibits a curvilinear effect and the leveraging of human capital a positive effect on performance. Furthermore, the results show that human capital moderates the relationship between strategy and firm performance, thereby supporting a resource-strategy contingency fit. Results contribute to knowledge on the resource-based view of the firm and the strategic importance of human capitals.
- Hogue 1999
Study used data from over 2,000 hotels and the results demonstrate first that the relationship between HRM and performance is dependent upon the business strategy the hotel is pursuing. Second that hotels pursuing an HRM approach coupled with a quality focus with their business strategy perform best. Finally that HRM is more likely to contribute to competitive success where it is introduced as an integrated and coherent package or bundle of practices. HRM & performance dependant upon business strategy being pursued. Relationship between HRM & performance exists only in hotels emphasising the importance of quality enhancement.
- Huang 2000
Study examined different approaches to HRM practices for business firms in different performance categories. Findings obtained from a study of 315 firms in Taiwan demonstrate that organisational performance is significantly related to the management of such HR functions as planning, staffing, appraisal, compensation and training and development. The results also indicate that successful firms are often those that adopt a highly effective approach to management of their HR.
- Huang 2001
Attempts to examine the interactive effects of various combinations of business and HRM strategies from the standpoint of contingency theory. Hypothesis that Business strategy & HRM strategy have interactive effects on organisational performance. The organisational performance of firms that achieve strategic linkage between business strategy & HRM strategy is superior to that of firms that do not achieve such linkage. Findings that Business strategies had significant impact ($P < 0.05$) on organisational morale & overall performance. Different types of HRM strategies lead to statistically significant differences ($P < 0.01$) in organisational morale, financial performance & overall performance indicators. HR strategy has an independent effect on organisational performance. Conclusions based on analysis of questionnaires completed by 315 local firms in Taiwan. Results show that different business and HRM strategy combinations have different effects on organisational performance. However these differences were not always consistent with the predictions of contingency theory.
- Hunter & Lafkas 2003
Using 1994-95 survey data on customer service representatives in 303 US bank branches, investigate the effects of wages, of IT and of those factors in combination off-line high involvement practices were related positively to wages, as was more extensive use of IT that supports sales efforts. Where IT was used more extensively to automate routine processes, wages were lower in branches that did not have high involvement work practices. The effects are partially explained by higher education requirements and more extensive introductory training in higher-wage jobs.
- Huselid, 1995
National sample of around 1000 firms to investigate the impact of HPWPs an economically and statistically significant impact on both intermediate employee outcomes (turnover and productivity) and short and long term measures of corporate financial performance, financial information from 'compact disclosure' database, questionnaire mailed to senior HR professionals in each firm:
Skills and structures
What is the proportion of workforce included in a formal information sharing program
Proportion of the workforce whose job is subject to a formal job analysis
Proportion of the workforce administered attitude surveys on a regular basis
Proportion of the workforce who participate in Quality of Work Life, quality circles, and labour management participation teams

Proportion of the workforce who have access to company incentive plans, profit sharing plans and or gain sharing plans

What is the average number of hours of training received by a typical employee over the last 12 months?

What is the proportion of the workforce who have access to a formal grievance procedure and or complaint resolution system?

Proportion administered an employment test prior to hiring?

Employee motivation

Proportion whose performance appraisals used to determine compensation?

Proportion of the workforce receiving formal performance appraisals?

Which of the following promotion rules do you use most often? a) merit or performance rating alone, b) seniority only if merit is equal, c) seniority among employees meeting a minimal requirement, d) seniority

For the five positions that your firm hires most frequently, how many qualified applicants do you have per position on average?

Factor analysed two factors emerged: employee skills and organisation structures and employee motivation as above.

Results: each standard deviation increase in each practice reduces turnover by 1.3 raw percentage points. Controls for firm size, the impact of unions and employee compensation. 40 per cent difference in turnover between those firms 3 SDs below the mean and those 3 SDs above the mean.

Employee skills and org structures and employee motivation were both independently positive and significant in relation to productivity. A one SD increase in each of the practices raises sales an average of \$27K per employee for one year = 16 per cent of the mean sales per employee.

Financial performance measured using Tobin's Q and GRATE (Gross rate of return on capital), Q was positively related to both factors, GRATE employee skills was positive and motivation not significant. Increases practices by 1SD increased market value by \$18,641 and each 1SD increased cash flow by \$3,814.

Regression analysis implies that lower turnover and/or higher employee productivity mediates the results of high performance working practices on performance. Only modest evidence for internal fit and little evidence of external fit.

Huselid & Barnes

Article drawing from prior work on resource based view of the firm and economics of information, examine the primary attributes of Human capital management systems (HCMS). Suggest developing the standard balanced scorecard framework to focus specifically on intangibles such as HR. HR scorecard framework is an example of the larger process known as H Cons — which are integrated measurement systems that focus on prediction and feedback of the firms people-related assets. HCMS must focus on the firms strategy.

Huselid, Becker, 1995

Survey based in 1991 and 1993, 13 items loaded on to two factors: employee skills and organisational structures and employee motivation. Found support for more is better, those firms with high than average uptake of the various variables making up the two factors is associated with performance.

1994 survey had three factors HR strategy efforts by the firm to link HR and business strategies, employee motivation elements linking employee behaviours with firm level outcomes, selection and development — more heterogeneous. All three factors are combined. In 1994 there was better support for all factors *ie* a universal model than the flexible model of above average performance on each — when formal grievance procedures and policy of promotion from within are removed effect increases remaining practices 1SD increase increases market share by nearly 21 per cent. Effects of initial investments and changes to really set firm apart from peers and greater than changes in the middle.

Huselid M, Becker B, Academy of Management Annual Meetings, HR Division 1997

Aim: To what extent is the HRM — firm performance relationship contingent upon the degree to which systems have been implemented effectively, the 'fit' among HRM policies, and the 'fit' between those policies and firm's larger strategic objectives.

Hypothesis 1 — 'The presence of a High Performance Work System will be positively associated with corporate financial performance'

Hypothesis 2 — 'HRM effectiveness and alignment will be positively associated with corporate financial performance'

Hypothesis 3 — 'The financial returns to alignment and effectiveness will be greater to the extent the firm has adopted a more comprehensive HPWS'

Hypothesis 4 — 'The returns to investments in a HPWS will be greater for firms adopting a differentiation or a focus competitive strategy than for firms adopting a cost leadership competitive strategy'

Sample: from Compact Disclosure N = 548 firms

Measures: Financial Performance — variant of Tobin's question as dependant variable

HR Management System Measures — survey included more than 50 questions about the natural coverage and effects of a firm's HR system, strategy and management practices.

Index of HRM 'systems'

Index of Effectiveness and Alignment

How many hours of training are typically received by a new employee in the first year?

Other UK issues included are:

- staffing, recruitment and retention
- appraisal, merit increase or incentive pay
- employees owning shares of company's stock, grievance procedure.

Results:

HR system and Effectiveness and Alignment indices have economically and statistically significant positive effects on firm performance (H1) and (H2).

The effect of the Effectiveness and Alignment index provides strong support for the presence of complementarities.

1 SD improvement in HR system index associated with increase in Shareholder value of \$41,000 per employee.

HR system has strong independent effect on firm performance, while the impact of HR's organisational fit is much more limited. (Effectiveness & alignment) looked at interaction effects between variables using cluster analysis, identified four clusters — weak HR — below average on both dimensions, high performance cluster strong on both.

Compensation cluster — below average on effectiveness and alignment, rely on pay) above on HR system (effectiveness and alignment). Alignment cluster — describe as above average on effectiveness and alignment, but have undeveloped HR system.

Compensation cluster 75 per cent as effective as High Performance.

Huselid, Rau, 1997

Three waves of data 1992, 1994 and 1996 with HRM systems data from 91, 93 and 95. Sample drawn from 'Compact Disclosures' a commercial databases all those with more than 100 employees and \$5million in sales almost a 1000 firms returned questionnaires — 28 per cent in 92, 20 per cent 04 and 18 per cent 96. Used the measures developed by Huselid 95 *ie* used the same items. 94 survey also focused more on the strategic architecture of HR and included new measures — new 17 items.

Items loaded onto three factors as shown. The third is more heterogeneous. Independent variables — complexity, dynamism, munificence. Complexity was defined as the four-firm industry concentration ratio, a higher ratio = lower complexity. Munificence is the five-year growth in industry sales, calculated by regressing the log of new sales on time. Dynamism reflects the degree of volatility in industry sales growth. Internal data included total employees and size of HR function, value of property, plant and equipment, R&D

expenditure, risk leadership, security, motivation. Expected link between HPWPs and firms environment, complexity had mixed results, munificence related to reward management but negatively related to staffing and development in 2 out of 5 comparisons. Dynamism was negatively related to HPWP. Larger firms more likely but larger HR function not much related. Emphasis on cost leadership strategy shows negative on staffing and development (2 out of 5 comparisons but impact on reward management stronger and negative in 5 out of 5 comparisons. Also hypothesised that values of senior managers would be related to adoption of HPWS found values had effect on HR strategy, weaker for PM and S&D, also found positive effects for employment security on HR strategy and for S&D in one year of two.

Panel data used to undertake fixed and random effects regression models. Panel results ESOS (S&D) related to firm size — those becoming larger are more likely to adopt an HPWS. Some evidence that increased volatility in environment means shift from contingent to fixed reward systems those increasing in profit increase use of employee motivation measures, those increasing in size reduce. Firms increasing R&D intensity decreased emphasis on HR strategy. Increase in risk positively linked to adoption of HR strategy also where management increasingly seen as visionary and those offering more employment security.

Huselid, Jackson, Schuler

Evaluate impact of HR managers capabilities on HR management effectiveness and the latter's impact on corporate financial performance.

N = 293 publicly held US firms (survey)

HRM effectiveness. HRM capabilities scales, Firm performance (dependent variable)

Union coverage

Firm size, capital intensity, industry concentration, sales growth, R&D expenditures, stock, price variability, firm industry (independent variables)

Findings:

Effectiveness was associated with capabilities and attributes of HR staff. They also found relationships between HR management effectiveness and productivity, cash flow and market value.

Hutchinson, Kinnie & Purcell 2002

Case study based research, which employs both quantitative and qualitative data analysis techniques. Particular focus on the importance of discretionary behaviour by employees and managers and the effect of variations in this behaviour on business performance. The root assumption is that virtually all employees have the capacity to engage in discretionary behaviour and it is the ability of the firm to trigger such useful behaviour that leads to higher performance beyond meeting the basic requirements of the job. The second proposition is that line managers have discretion in the way they apply certain, specific HR practices and more generally in the way they behave towards employees. Findings that it is the way in which the rules and routines are implanted that is considered a key ingredient to success. The way managers encourage, allow & support the exercise of discretionary behaviour by employees is a crucial intervening variable between HR practices & performance.

Ichniowski, Kochan, Levine & Strauss 1996

Assess the problems of measuring the effects of management practices on organisation performance whilst also demonstrating the body of evidence that suggests that innovative workplace practices can increase performance, primarily through the use of systems of related practices that enhance worker participation, make work design less rigid and decentralise managerial tasks. Majority of US businesses have adopted some innovative work practices. However, only a small per cent of businesses have adopted a full system of innovative practices.

Jayaram, Droge & Vickery 1999

HRM analysis is tested using data from first tier suppliers to the big 3 in North America. Relationship between HRM practices and manufacturing performance was investigated. Hypotheses that

Hypothesis 1 — 'There are positive relationships between individual HRM practices & manufacturing performance'

Hypothesis 2 — 'HR initiatives can be grouped according to the manufacturing

performance priority they are meant to support'

Hypothesis 3 — 'There is a positive relationship between each HRM factor & measures of manufacturing performance'

Top management commitment to time, communication of goals related to flexibility & employee training for flexibility were significantly related to manufacturing performance (measured by cost and quality, flexibility and time). Findings suggested that HRM practices can be grouped into five distinct factors, four of which are associated with specific manufacturing competitive dimensions — quality, flexibility, cost and time. With the remaining HRM factor being generic. The priority specific HRM factors are strongly related to their respective manufacturing performance dimensions.

Kaplan & Norton

Researched into how to measure performance within their workforce. Suggest that senior executives do not rely on one set of measures. Based on a year long project with 12 companies. Designed a 'balanced scorecard' to help managers measure performance. Includes financial measures of actions already taken along with operational measures on customer satisfaction, internal processes and organisations innovation and improvement activities. Answers four basic questions:

How do customers see us? (customer perspective)

What must we excel at? (internal perspective)

Can we continue to improve and create value? (innovation and learning perspective)

How do we look to shareholders? (financial perspective)

Concluded that the scorecard puts strategy and vision, not control at the centre. It establishes goals but assumes that people will adopt whatever behaviours and take whatever actions are necessary to arrive at those goals. The measures are designed to pull people towards the overall vision.

Keep., Mayhew,
2004

Machin *et al.* 2003 Sectoral and Area Analysis of the Economic Effect of Qualifications and Basic Skills. Sectoral analysis and regional using LFS, NES, CoP and ABI to assemble panel data between 93 and 2000. Stock of human capital grew at very different rates and diff largely accounted for by increasing levels of academic as opposed to vocational qualifications — strong productivity effects from level 4 academic quals and to a lesser degree from academic level 2, no effect from vocational quals regardless of level.

Which of the following exist at your establishment:

A business plan that specifies objectives for the coming year

A training plan that specifies in advance the level and type of training your employees need in the coming year

What percentage of your staff have a formal performance review

Formal job description

Over the past 12 months has this establishment funded or arranged any training or development for staff employed at this establishment

Was any of this training leading to formal qualifications

Over the last few months which if any of the following forms of training have been provided:

- Induction
- Health and safety
- Supervisory
- Management
- Training in new technology
- Training in foreign languages
- Job specific
- Other

In the last 12 months, how much has this establishment spent in total on training and development of staff

Over the last 12 months how many staff have you funded or arranged training for

Over the last 12 months on average how many days training and development have you arranged for each member of staff receiving training

It would be useful to be able to break down training into skill levels *eg* knowing what induction training covered...

What proportion of the qualifications of the workforce were supplied by the education system, the workforce, previous employers and current employer.

Keep *et al.* SKOPE, 2002

Review existing evidence on the returns to employer investment in training. Existing Research Review.

Examine returns to investment in training as measured via productivity gains

Sector level gains and individual firms

Research available based on both large scale surveys and more limited case studies.

The overall conclusion from the majority of studies is that there is a positive relationship between increased levels of skills and productivity, but little agreement about the magnitude of the effect.

Comparative studies of skill and productivity underline the fact that whereas the UK's relatively weak productivity performance vis-à-vis Europe can be explained by differences in workforce skill, skill is unlikely to be the determinant factor in America's productivity leadership, as US workforce no more highly skilled than the UK.

UK literature — link between training — profitability

One found positive relationship between IIP status and company profits the other no clear link between training levels and SME profits.

Other UK studies investigating impact of skills — company level performance found complex weak and unclear linkages

US & UK literature — skills only have a significant impact on firm performance in combination with other aspects of people management. The bulk of literature on the returns to employers from investment in skills has relatively little to say about the impact of product market strategies within individual firms. Wider research evidence suggest that different product market strategies set limits on the levels of skill required in firms and on the payback that might result from investing in additional skills.

Khabri 1999

Base is the two major streams of research in the strategic HR management literature (1) the link between strategy and HR practices and (2) the link between HR practices and firm performance. Using a sample of 200 of the largest companies representing all major industries in Singapore. Findings suggest that organisation strategy affects HR practices with the strategy — HR interaction accounting for more variation in firm performance than the main effect of HR.

Kling 1995

Literature review aiming to ascertain whether high performance work practices are more generally associated with better firm performance. This review of the effects of high performance work practices focuses on studies that use quantitative measures of productivity, quality and financial performance that are comparable across firms. Examines effects on labour productivity of three specific practices.

1. Training

2. Compensation linked to firm or individual performance

3. E.I.

High performance systems in which such practices are implemented together.

Findings: Taken together, the studies reviewed show that specific practices such as training, alternative pay systems, and employee involvement often are correlated with higher productivity. These and other practices are associated with greater productivity improvements when implemented together in systems. However, the relationship between high performance work practices and productivity is not clear.

Li, 2003	Study tested a perspective of strategic human resource management (SHRM) and compared HR practices among multinational enterprises (MNEs) in two industries in China. Specifically empirical data from firm in China's soft drinks and electronics industries were analysed. The results supported a number of basic assumptions of the SHRM model such as those regarding the relationship among HRM environments, firm strategy, firm HR practices and firm performance.
Liouville, Jacques, Bayad & Mohammed 1998	The research aims at clarifying the links which may exist between HRM practices and economic performance of firms. A theoretical model of an exploratory nature is proposed, based on the hypothesis of the existence of cascading relationships between three categories of performance, social, organisational and economic. The model was applied to a sample of almost 300 French small and mid-sized firms, with the main hypothesis being supported.
Lowe, Delbridge & Oliver 1997	Examined the manufacturing performance and practices of 71 automotive components suppliers located in Europe, Japan and North America. Reporting to what extent these plants have adopted lean? production practices and tests the proposition that these techniques are linked with high manufacturing performance. High-performance plants benefit from greater levels of integration & process discipline, as evidenced by their lower inventories & more frequent deliveries to customers. The use of teams does not necessarily guarantee high manufacturing performance. High-performance plants benefit from more stable workforces, with Japanese high performers having average of 12.7 years service, Western high performers having 10.2 years services and other plants 7.5 years. Also lower turnover at 3.7% for Japanese high performers, 2.6% for Western high performers & 6.1% for other plants. The results support the contention that tight process control and closely integrated operations are more productive. But the data does not support the notion that the work organisation and HR policies associated with the lean production model represent a universal best way for achieving high manufacturing performance. Rather findings emphasise importance of context, specific characteristics and choice for understanding the performance of manufacturing organisations.
Lynch & Black	Robust positive impact of education level upon company productivity, an extra year's schooling was found to result in between five per cent and 13 per cent higher productivity.
MacDuffie, 1995	62 automotive assembly plants, relationship between independent measures — use of buffers HRM policies (hiring criteria importance <i>eg</i> previous experience in a similar job), compensation contingent on performance, extent of status of barriers — common uniform, common cafeteria, common parking, no ties) level training; up to one week for newly hired production, one to two weeks, two to four weeks, over four weeks, level of ongoing training provided; 0-20 hours per year, 21-40 hours per year, 41-80 hours, over 80. Production organisation measures: use of buffers (low score: 'buffered', high score: 'lean'), HRM policies (index that measures a set of policies that affect the psychological contract), production organisation index (low score traditional mass production, high score flexible production), work systems (how work is organised in terms of both formal work structures and the allocation of work responsibilities and participation of employees in production related problem solving activity). Formed one index for HRM and tested against performance. Two regression analysis. 1. Productivity regression: all control variables are statistically significant except for model mix complexity. Scale and automation have negative signs. Product design age and parts complexity have positive signs. 2. Quality regression: too low R-square to make any conclusions. So, the analysis of the survey data supports the hypothesis that innovative HR practices affect performance not individually but as interrelated elements in an internally consistent HR bundle, and that these HR bundles contribute most to assembly plant productivity and quality when they are integrated with manufacturing policies under the "organisational logic" of a flexible production system. Flexible production plants with team based work systems, High Commitment HR practices, and low inventory and repair buffers consistently outperformed mass production plants.

Aim — Economic benefits of training to:

Individual = higher wages and better job prospects

Firm = increased productivity and profitability

Economy = higher economic growth and benefits to society

Literature review

1. Individuals — Evidence suggests a positive impact from on & off JT on individual wages and their likelihood of employment

Arulampalam, Booth & Elias (1997) training of British workers in their early 20's = positive effect of 7-12 per cent growth in real earnings (81-91)

Blanchflower & Lynch (1992) = same

Blundell *et al.* (1996): UK employer provided training yields a pay off of five per cent to individual real earning growth between ages 23-33

Harcotte (2000): positive wage effect from training (US data) exceeds ten per cent

Blundell *et al.* (1996): wage premium for training is higher for those with low levels of educational achievements

Blundell *et al.* (1999), Card 1999: a year of education yields a wage premium for the individual worker of about 6-10 per cent

Blundell (1996): positive wage return from on-the-job training

Blundell *et al.* (1999): the wage effects from employer provided training are higher than the effects from off-the-job training

Parsons & Bynner (1998): individuals with very poor literacy and numeracy are considerably less likely to receive any work related training

Firm

Stevens (1999): under investment in training by firms—explanation—credit constraints, externalities due to poaching and lack of information about the types and quality of training available

Besman, Bound & Machin (1998): new technologies are biased in favour of skilled workers

Green (1999): Employers believe that training is beneficial to them and training creates a productive workforce

Blundell (1999): are firms that train more productive? Or are the more productive firms the ones who train?

Dearden, Reed, Van Reenen (2000): Industry level data on training and productivity and have found sizeable connections between higher productivity and higher industry rates of training. Industry productivity levels are significantly higher if more training is undertaken. The overall effect of training on productivity is around twice as high as the wage effect, implying that employers make profits out of training workers

Black & Lynch (1995) — US firm level data showed that the equivalent of an extra year of educational attainment raised firm productivity by 5-12 per cent. Formal training that took place outside office hours (worker bore some cost) had positive effect on productivity in manufacturing firms. Computer training had a positive impact on firm performance.

Barron *et al.* (1999): US firms pay for the majority of training and the effects of on-the-job training are greater for firms than individuals

Cosh *et al.* (2000): positive impact from training on employment growth in SME in UK. Impact of training depends on the 'human resource practices within which it is embedded'

Green (1997) Limited evidence that training improves employees commitment to the firm

Booth & Zoega (2000): Training fosters a common firm culture, it helps attract good quality workers

Green & Felstead *et al.* (2000): training has a downward impact on mobility

Dearden *et al.* (1997): off-the-job training increases mobility since it provides transferable skills

Green & Felstead *et al.* (2000): most training leads to transferable skills but when employer pays for training it is more likely to lead to downward mobility

Economy & Society

Positive relationship between primary and secondary school enrolment rates and literacy/numeracy rates and economic growth

Sianesi & Van Reenen (2000): one percentage point increase in school enrolment rates generates extra per capita GDP growth of between one and three percentage points

Mason *et al.* (1994) Training — Productivity

Comparison of engineering plants in Britain and Netherlands. UK plants — lower than average productivity levels, and much of this is due to the lower inputs of craft and technical level skills. Improved skills enabled procedures to be done more quickly and greater skills make it easier to innovate with new production lines.

McKinsey Global Institute

Study reveals UK is currently bottom of G7 league table in output per capita pointing to labour productivity as main cause. Concluded that product market and land use legislations are primary explanatory factors for the large differences in GDP per capita between the US and other OECD countries. Most frequently invoked reason for UK's economic under-performance are low capital investment, poor skills, and sub-scale operations which are secondary effects due to — (1) regulations governing product matters and (2) land use on competitive behaviours, investment and pricing. This analysis suggests that the key factor explaining the UK's relatively low current output level is low labour productivity, which would be a function of low capital intensity. Concluded that UK companies do invest less and appear to have somewhat less skilled workforce than other countries, both of which would be explored, at the industry level. But not one all-explaining the reason for low UK labour productivity. Suggest this can only be answered by looking at specific industries and how operations differ across countries and reasons for managers' different choices.

de Menezes LM, Wood S, 2005

Latent variable analysis suggest that flexible work and skill acquisition practices form a single coherent system reflecting an underlying high-involvement management centred on enhanced participation in work processes. Excludes practices relating to motivational supports. Three approaches to high involvement management and TQM a) flexible working and TQM b) skill acquisition and TQM c) integrated model — therefore flexible working and TQM seem to be associated. Used Bailey's model (1993) that flexible work practices have a significant effect when allied with HRM practices, which ensure right skills and appropriate motivation.

Suggests that core of HRM management is flexible work practices and implied orientation towards employee involvement. Also used in conjunction with quality practices, third motivational practices such as variable pay and job security guarantees are not distinctive to high involvement management workplaces.

Montemayor

Aim: To examine the link between business-level competitive strategy and pay policy.

Study: Questionnaires to ACA (American Compensation Association) N = 261. Multi-industry sample.

Dependent variables:

- Performance
- Strategy
- Compensation Policy

National samples from a cross section of industries were collected. Multivariate analyses demonstrated significant differences in pay policy profiles between high-performing organisations with different dominant strategy* and showed that inferior firm performance is associated with the lack of fit between pay policy and business strategy.

The finding support the need for a contingency approach in the design of pay policy.

* (Three types of strategies: Cost partnership/Innovation/Differentiation).

McNabb &
Whitefield 1997

Indicates that workplaces in which the high performance approach has been most fully implemented are less likely to have more formal analytical type of job evaluation. Those with both analytical job evaluation and a high performance work system are less likely to have above average financial performance than with either of these on a single basis. Results suggest that there is a potential incompatibility between some type of job evaluation and the high performance approach and that managers need to take this into account in their HR strategies.

Melero (2004)

Relationship between job-related training and career progress. Measures Training, Promotion (previous period) Tenure, Experience, Contract type, Full time Vs Part time work, Overtime, Bonus, Union coverage, Union membership, Educational level, Firm size, Industry, Region, Year Promotion: questions from BHPS and creation of new variables (promotion within firm, quit for a better job elsewhere).

Training: measured in terms of events and intensity Last year training received: significant positive effect on promotion changes male and female.

Training received: no clear conclusion can be made concerning the probability of quitting for a better job. Training seems to slightly decrease the probabilities of switching employers for the sample of male workers while increasing the chances for females.

Male and female workers are expected to obtain respectively 1.6% and 1.9% permanent wage increases from each training event with their current employers.

Interaction of training and promotion is positive and significant only in the case of men, being their expected returns to training some 1% higher after obtaining a promotion.

Training events with previous employers produce more uneven results: while women are expected to obtain 2.2% wage increase from them, the estimated effect for men is around 0.4% and not statistically significant.

Summing up the evidence: for females training has a positive impact on probabilities of promotion and on probabilities of quitting for a better job and their returns to training are quite independent of promotion achievement.

For males their promotion prospects are not significantly boosted by their participation in training and their wage returns to training do not change very much when promotion achievement is controlled.

Mendelson 2000

Study into organisational architecture known as information — age architecture. A measure of organisational IQ is defined and tested whether it is related to financial and market success using data from the IT industry. Relationship is stronger in business environments that are characterised by faster clock-speeds.

Meyer & Smith 2000

Study into the mechanisms involved in observed relations between HRM practices and employee commitment. Two hundred and eighty-one employers from several organisations completed a survey that included measures of (a) the quality of HRM practices pertaining to performance appraisal, benefits, training and career development used in their organisations, (b) procedural justice and organisational support, (c) affective, continuance and normative commitment to the organisation.

Hypothesis tested:

Hypothesis 1 — 'Employees' commitment to the organisation as well as their perceptions of procedural justice & organisational support within their organisation, could be predicted from their evaluations of HRM practices'

Hypothesis 2 — 'Relations between employees' evaluation of HRM practices & their affective & normative commitment to the organisation would be mediated by their perceptions of procedural justice & organisational support'

Affective & normative commitment both correlated significantly with all of the HRM evaluation measures & with organisational support & justice. Continuance commitment did not correlate significantly with any of the HRM evaluation measures or with procedural justice & organisational support. Correlations among the HRM evaluation measures were

all positive & significant ranging from 0.36 (training & benefits) to 0.65 (performance appraisal & career development). Organisational support & procedural justice were highly correlated, as were affective & normative commitment.

Structural equation modelling analyses revealed that relations between employees evaluations and HRM practices and their affective and normative commitment were largely mediated by perceptions of organisational support and procedural justice. These findings support previous claims and although HRM practices can be valuable tools in the establishment and maintenance of employee commitment, their effects are neither direct nor unconditional.

Miller & Lee 2001 Study argues that a well designed decision making process will have its most positive impact on company financial performance when it is carried out by a capable, motivated and dedicated workforce, prior research has determined that such a workforce can be developed via an organisation's commitment to its employees (OCE) in the form of training and compensation, fairness and meaningful personal consideration. Findings suggested a positive association between return on assets and the interaction contributed the most to return on assets in uncertain environments where effective information processing, collaboration and initiative were especially important.

Neal, West, Patterson (2004) The study seeks to explore if the relationship between HRM practices and productivity in manufacturing companies is contingent upon org. climate and strategic orientation. 74 manufacturing firms. Climate data collected from 5415 individuals from 41 firms. Independent variables are Organisational Climate (employee perceptions of work environment), HRM practices (quality of selection, induction, training, performance appraisal, non-monetary benefits and work design). Questions related to training: overall training strategy? Objectives over 6 years regarding training? Training approach? Training budget? How well does it meet the training needs of the company? Sorts of training? Strategic orientation (firms' structure and competitive strategy)? Dependent variables are firm productivity taken from financial accounts.

Findings; firms may gain greater benefits from the use of high quality HRM practices if they have a poor climate, or if they are attempting to gain a competitive advantage by being more innovative or efficient than their competitors.

High quality HRM practices appear to provide fewer benefits, in terms of productivity, if a firm has a good climate, or if it is pursuing a 'middle-of-the-road' strategy.

Newkirk-Moore and Bracker, 1998 Research Questions
Is there a significant relationship between a firm's strategic management training activities and firm performance?

Is there a significant relationship between a firm's strategic management training activities, its level of commitment to planning and firm performance?

313 small community banks in the US were included in the sample 49% response rate

Information about employees' educational activities and the firm's commitment to education, including strategic management training was included in the survey instrument. Performance data taken from a performance data base (Sheshunoff Company Inc) dependent variables = firm performance over 3 years 1990-1992 ROA, ROE, spread and overhead.

Newkirk-Moore's three level continuum of commitment to planning used.

Three classifications of responses

No formal commitment to planning (54%)

Prescriptive commitment to planning (10%)

Strategic commitment to planning (37%)

There was no significant relationship between a firm's frequency of management training and performance measures but there was a significantly higher return on equity for firms strategically committed to planning and training.

Richard and Johnson, 2001

Measured impact of HRM effectiveness on organisational outcomes — dependent measures were annual turnover, employee productivity and return on equity, independent variables were measured from scale developed by Huselid *et al.* 97, employee participation and empowerment, teamwork, planning flexibility and deployment, management and executive development, succession and development planning, productivity and quality, and communication.

SHRM effectiveness was measured from a scale derived by Huselid *et al.* (1997). It includes employee participation and empowerment, teamwork, workforce planning-flexibility and deployment, advanced issue identification, strategic studies, management and executive development, succession and development planning, workforce productivity and quality output, employee and management communications.

Measure of extensiveness of employee training using a 3-item index that includes a variable indicating whether the organisation had provided any formal training in the past two years, the number of employees that had received formal training in that time period, and respondents' views on the overall effectiveness of their training programs.

Questionnaire 323 23% response rate. All data collected from HR executives.

Hypothesis tested:

Hypothesis 1 — 'Firms that achieve higher levels of SHRM effectiveness will have higher levels of organisational effectiveness'

Hypothesis 2 — 'Strategic HRM effectiveness and capital intensity will influence organisational effectiveness through a positive interaction effect'

SHRM effectiveness was significant and negatively related to employee turnover, no relation with productivity or ROE. Alignment between HRM effectiveness and capital intensity increase both productivity and ROE but not any greater effect on turnover. SHRM effectiveness significantly increases overall market performance assessment. But SHRM effectiveness affected both firm productivity and return on equity only when moderated by capital intensity.

Training is positively and statistically significant to perceived organisational performance (strong positive relation). Training is positively related to perceived market performance.

Rogg, Schmidt, Shill & Schmitt 2001

Examined the degree to which organisational climate mediates the relationship HR practices and customer satisfaction in 351 businesses.

Hypotheses tested:

Hypothesis 1 — 'The relationship between HR practices & service outcomes will be mediated by climate'

Hypothesis 2 — 'HR practices will have a significant impact on organisational climate'

Hypothesis 3 — 'Organisational climate will be significantly related to customer service indices'

Significant correlation between the HR practices and climate variables, including training, performance review, policy, hiring, testing, job description, managerial consistency, employee commitment, co-operation/co-ordination, customer handling, dealer loyalty, product loyalty & service satisfaction. Results suggested support for the hypothesised-mediated relationship. The indirect effects of HR practices on customer satisfaction were significant and relatively large while the direct effect was non-significant. The results were supportive of a social context model of the impact of HR practices on organisational outcomes.

Scarborough H & Elias J, 2002

Six month study into how a small sample of UK-based firms evaluate their human capital. Related existing theories and models for evaluation of human capital to actual practices in 10 major firms based in the UK drawn from a variety of sectors. Study found that there was no single measure that was independent of context and that could accurately represent the impact of employee competencies and commitment on business performance.

Shaw, Delery, Jenkins & Gupta 1998	<p>Used organisational level data from 227 organisations in the trucking industry to explore issue of HRM practices in quit rates and discharge rates.</p> <p>Hypotheses:</p> <p>Hypothesis 1 — 'Direct HRM investment strategies & indirect HRM investment strategies will be negatively related to voluntary turnover at the organisational level & employer expectations will be positively related to voluntary turnover at the organisational level'</p> <p>Hypothesis 2 — 'Organisational staffing systems will be negatively related to voluntary turnover at the organisational level & organisational monitoring systems will be positively related to involuntary turnover at the organisational level'</p> <p>Hypothesis 3 — The interaction of selection ratio & valid selection techniques is a stronger predictor of involuntary turnover than the main effects of each.'</p> <p>Average pay (-0.31, $p < 0.01$) & time on the road (0.25, $p < 0.01$) had strong relationship with quit rates. Benefits (-0.16, $p < 0.05$) & electronic monitoring (0.16, $p < 0.05$) had moderate relationship with quit rates. The hypothesised predictors of discharge rates only (selection ratio, selection procedures & performance appraisal) were unrelated to quit rates. In the HRM practices block, training (0.15, $p < 0.05$) & the selection ratio (0.26, $p < 0.01$) were significant predictors of discharge. Results show that HRM practices predict quit rates and discharge rates but that the determinants of each are quite different.</p>
Shipton, West, Dawson, Patterson, Birdi	<p>Hypothesis 1 — 'HRM practices which promote internal variety will predict organisational innovation'</p> <p>Hypothesis 2 — 'Sophisticated and extensive induction procedures will predict org innovation'</p> <p>Hypothesis 3 — 'Appraisals will predict org innovation'</p> <p>Hypothesis 4 — 'Sophisticated and extensive training will predict org innovation'</p> <p>Hypothesis 5 — 'There will be an interaction between HRM practices designed to promote internal variety, skill development and goal clarity such that combinations of these will incrementally predict innovation above direct effects of these practices'</p> <p>Gathered economic performance gathered annually, managerial interviews and innovation surveys over 3 points in time. Explored internal variety <i>eg</i> secondments, external visits, non-work related training, best practice solutions solving.</p> <p>Skill development overall training strategy, details of current and recent approaches to training on 5 point scale — very reactive to highly planned and organised, training budget relative to previous year from big increase to big decrease, how well budget meets needs wholly inadequate to more than enough.</p> <p>Induction whether scheme exists, whether communicates values, means of evaluating</p> <p>Appraisal exists</p> <p>Information on product and process innovation via questionnaire — no. of new products, % of workers involved in making new products, current sales accounted for by new products. Profit from company accounts. Those HRM practices designed to generate internal variety and these intended to develop skills are related significantly to innovation, effect more where both, also relation between internal variety and training/induction and innovation in technical systems but not product. Perhaps training focused on shop floor and innovation in R&D. Variety needs the support of induction, appraisal and training to work, high variety but weak development processes is less effective than high div weak variety</p>
Shipton, Fay, West, Patterson, Birdi, 2003	<p><i>Organisational knowledge represents a capacity to create, transfer and implement knowledge.</i> Argue learning = innovation where approach is exploration rather than exploitation.</p> <p>Hypothesis 1 — 'The more an organisation has implemented HRM the more innovation takes place'</p>

Hypothesis 2 — 'The more there are processes to encourage a learning climate the more innovation takes place'

Hypothesis 3 — 'The more pay is linked to appraisal the less innovation takes place'

35 companies time 1 (sophistication of HRM) and 27 time 2 (learning climate, pay, innovation)

Sophistication rated by interviewers on 1-5 scale using dimensions of performance management (appraisal scheme, appraisal of shop floor, frequency, formal training, monitoring), recruitment and selection (procedures for filling shop floor posts, management posts and other), induction (quality of induction for shop floor, management), training (extent of training for shop floor, supervisors, clerical, administrative and management staff, sophisticated approach, how well planned, comprehensive, training needs assessed), strategy (is there one, turnover, qualifications, age, absence, equal ops, whether management development looked at career plans, dev centres, job rotation, high flier schemes). Measured learning climate on 1-5 scale — mentoring system, career development conversations, importance of learning, measured pay linked to remuneration — for 3 categories of staff asked if appraised and if linked to remuneration.

Dependent variables product innovation no. of entirely new and adapted products in last 2 years, % of workers involved in these, total sales turnover accounted for by new prods, extent to which production processes changed to accommodate them. Innovation in production technology included introduction of new machines/systems and estimates of novelty and magnitude, innovation in processes — interviewees rated responses from 1-7 (very innovative). Control variables size and profitability.

Significant positive correlation between sophistication of HRM and innovation in products and product technology. Also between learning climate and these forms of innovation. Sig. negative relationships between appraisal linked to remuneration and innovation of production processes and product innovation (but not significant). Sophistication of HRM accounts for 20 per cent of variance in product innovation and 25% of variance in production technology, but no relation with prod processes, learning climate accounts for 20% variance for product innovation and 24% of prod technology, link to pay practices accounts for 16% of variation in production processes but not other measures.

SKOPE No. 34 2002 Review of the evidence on the rate

Review existing evidence on the returns to employer investment in training. However much of the extent research does not centre on the firm. In some cases it is concerned with the returns of having a skilled workforce as measured at the level of the national economy or sector.

Employer — Invest in skills and learning

Individual Firms — Sectors, Regions, National economies

Individual

Skills — productivity

Used wage gains accruing to those with higher training as proxy for increased productivity.

Firm and Sector

Number of workers being trained had no significant impact on either establishment turnover or productivity but the type of training did make a difference.

Snell and Youndt, 1995

HRM control theory is based on three premises; org emerge and thrive because collective better than individual, individual may serve self interest; HRM is a mechanism by which managers integrate actions of individual with the whole. Three approaches behaviour control with standardised approaches, observation and feedback; output control performance targets and appraisals with monetary rewards; input control selection and training, internalise goals. Independent variables HRM control system: behaviour control (six item Likert scale, top-down programmed procedures).

Output control (twelve item Likert scale, degree to which performance measured via results)

Input control (seven item Likert scale, opportunities provided for training and development).

Administration Info: knowledge of cause-effect relations (six item Likert, extent to which the relationship between subordinate actions and outcomes could be predicted and observed).

Crystallised performance standards (Five item Likert scale, extent to which executives have clearly defined and articulated standards that indicate performance benefiting the firm).

Industry environment (munificence, dynamism, complexity).

Organisational context: firm size, technology, strategic posture.

Hypotheses:

Hypothesis 1 — 'HRM based on behaviour control is positively related to firm performance when knowledge of cause effect relations is complete, but negatively related to performance when such knowledge is incomplete'

Hypothesis 2 — 'HRM based on output control is positively related to firm performance when standards of desirability are crystallised, but negatively related to firm performance when standards are ambiguous'

Hypothesis 3 — 'HRM based on output control is positively related to firm performance when knowledge of cause-effect relations is incomplete and standards of desirability are ambiguous'

All measured by likert scale questionnaires. Findings suggest that input control is most viable as a basis for HRM when executives do not have a clear set of standards by which to evaluate performance. This finding partially supports H3, which states that input control is most useful in those ambiguous situations where equivocal information requires socialisation towards a common purpose. The findings also indicate that the decision to use input control should be conditioned by the particular measure of performance executives find most important. Input control works best when ambiguous standards by which to evaluate performance, behaviour control better when executives have clear understanding of cause effect relationship; output control associated with lower profitability.

- Spell 2001
Develops a model that integrates organisational level technology research with HRM strategies. The model related dimensions of technical processes to HR practices, focusing on practices used to develop employees. An empirical study of 139 employees found support for two hypothesis developed from the model. Results suggested that technology and HRM activities are connected through the level of cognitive skill complexity and amount of support employees receive in developing new skills. Due to changes in the way decisions are made in organisations today, these issues are becoming increasingly important.
- Stiles & Kulvisaechana
Literature review into the development of human capital and organisation performance. Intangible resource — HR suggests that both contingency and best practice models can complement each other to create the conditions for effective human capital management.
- Storey 2002
Examined the relationship between training and firm performance in middle-sized UK companies. Justifies the wider concept of education, training and development (ETD) and applicable to such companies.
Hypotheses:
Hypothesis 1 — 'The economic performance of middle-sized companies is only weakly influenced by ETD policies & practices'
Hypothesis 2 — 'ETD policies & practices have a bigger impact upon the economic performance of middle-sized company than its business strategy'
Weak positive relationships Variables affecting performance was firm size, location, and a positive ethos towards ETD. Finding clusters of some ETD variables that appear to be associated with better middle-sized company performance.

Task force on Human capital management	Performance of an organisation depends upon the motivation and commitment of its people as well as upon their knowledge and skills. From the literature review and research shown to be a wide range of varied theories and approaches to human capital and organisational performance. Though there is an increasing body of evidence linking effective high performance human capital management (HCM) practices to the financial performance of the organisation. Propose to conduct surveys via The London Business School into issue of HCM.
Tregaskis 1997	Analysis of French & UK organisations to explore the impact of national and formal HR strategy on employee development systems. Survey data drawn from 531 French and 879 UK organisations. Results suggest national context is strongest predictor of how employee development is organised above and beyond the impact of a formalised HR strategy. In contrast to French organisations, UK companies tended to be less restrictive in the range of management tools they used for monitoring, evaluating and delivery training and development. Differences were investigated by using a formalised HR strategy correlated with the collection of workforce data on training and development needs and effectiveness.
van der Klink, Gielen, 2001	Examined the impact of priming supervisors to provide support to implement training through meetings with staff after return from the training event. In Dutch banking organisations the support was insignificant, discussions regarding training goals or the application of the skills learned were carried out by only a small minority of the supervisors and therefore support was superficial. In German bank action plans were created and discussed, after the letter from the training department asking them to do so. But no effects of supervisory behaviour on trainees performance.
Varma, Beatty, Schneider & Ulrich 1999	Study based on recent occurrence of several organisations reporting implementing high performance work systems with remarkable success. Survey of 39 organisations was conducted to examine the antecedents, the design and the overall effectiveness of these initiatives. Results indicate that HPWSS create a change in the organisations cultural behaviour and people management practices and can positively impact the financial and operational performance of these organisations.
Way 2002	<p>Formal training — in the past year, percentage of front line employees who received formal training.</p> <p>HPWS related to lower workforce turnover not labour productivity.</p> <p>Individual association of each of the seven HRM practices. Seven separate regular analysis.</p> <p>Results — group-based performance pay is the only HRM practice included within this study's HPWS that is associated with lower workforce turnover, lower voluntary turnover, high labour productivity, higher perceived productivity, and higher pay associated with lower turnover. Extensiveness of staffing is associated with higher perceived productivity (when controlling for the impact for the other six practices).</p> <p>When controlling for the impact for the other six practices, the results do not show any other significant associations between this study's four intermediate indicators of firm performance and:</p> <ul style="list-style-type: none"> self-directed teams job rotation formal training <p>involvement in meetings discussing work-related issues were associating however, with perceived productivity.</p> <ul style="list-style-type: none"> Formal training — negative impact on workforce turnover Formal training — negative impact on voluntary turnover Formal training — positive impact on labour productivity Formal training — positive impact on perceived productivity (but not significant) <p>Use National Employer Survey (NRS) dataset (private establishment) administered by US</p>

Bureau of the Census, 20-100 employees — consists of establishment level data — 446 firms.

Seven components of HPWP — (additive score of selective devices, interviews, tests, work samples, drug screens, extensiveness of staffing, group based performance pay, pay level (average pay of frontline), job rotation, percentage involved in job rotation, percentage of staff in self-managed teams, percentage of frontline employees who receive training, teams, formal training, involvement in meetings, percentage discussing work related issues.

Variables

HPWs additive score of the seven components

Workforce turnover Ln of percentage left in last year

Productivity — Ln of total value of sales, receipts *etc.*

Capital intensity Ln of fixed capital

Ln percentage of employees covered by collective agreements

Firm size 20-49, 50-99

Voluntary turnover — Ln of percentage that left voluntarily

Perceived pwd — compared to competencies (up/down) = Industry

Welbourne & Andrews 1996

Investigating relationship between HRM and organisational performance. Results indicated that two HR variables, HR value and organisation based rewards predicted initial investor reaction and long-term survival.

West, Borrill, Dawson, Scully, Carter *etc.* 2002

HR directors from 61 acute hospitals in England completed questionnaires or interviews exploring HR practices and procedures. The interviews probed for information about the extensiveness and sophistication of appraisal for employees, the extent and sophistication of training for employees and the percentage of staff working in teams. Data on patient mortality were also gathered. Findings revealed strong associations between HR practices and patient mortality generally. Extent and sophistication of appraisal in the hospitals was particularly strongly related, but there were links too with the sophistication of training for staff and also with the percentages of staff working in teams.

Whitener (2001)

Relationships among HR practices, trust in management and organisational commitment, relying on a cross-level paradigm and on social exchange theory. Independent measures were HRM practices: contained scales developed by Snell and Dean (1992) to measure (selective staffing measures, comprehensive training measures, appraisal measures, externally equitable reward system, internally equitable reward system)

Employee attitudes: perceived organisational support was measured with Eisenberger's scale, positively worded items from Org. Commitment Questionnaire measured org. commitment, Robinson and Rousseau (1994) developed a scale to measure employees' trust in their employer. Individual level analysis shows that trust in management partially mediates the relationship between perceived organisational support and organisational commitment.

Cross level analysis using hierarchical linear modelling indicate that HR practices affect the relationship between perceived org. support and org. commitment.

Strong positive correlation between appraisal and training. Strong + correlation between external rewards and training. Strong + correlation between internal rewards and training. Positive correlation between staffing and training.

Interactions of developmental appraisal and comprehensive training with perceived org. support were related to trust. The relationship between perceived org. support and trust is stronger in organisations with highly developmental appraisal processes but weaker in organisations with highly comprehensive training opportunities. The appraisal and rewards processes are more likely to be associated with commitment and trust than selection and training. Comprehensive training moderated the relationship between perceived organisational support and trust.

Whitfield & Poole 1997	<p>Among the key propositions of employment are:</p> <ol style="list-style-type: none"> 1) Labour being deployed in a more flexible manner. 2) Productivity increasingly depends on the commitment offered by workers. 3) Performance-oriented work practices only work if introduced in an internally consistent manner. 4) It is crucial that such practices are congruent with the overall strategy of the organisation in which they are sited. Empirical evidence has indicated that there is much support for these propositions but that link between them and high organisational performance is both complex and variable.
Wilkinson, Godfrey & Marchington 1997	<p>Those who favour total quality management (TQM) suggest it empowers employees. Whereas those from a labour-process perspective argue it represents an intensification of work, shifting the frontier of control firmly in management's favour. This study suggests that both of these perspectives are blinkered and that the reality is more dependent on local circumstances and motives.</p>
Wright, McCormick, Sherman & McManan 1998	<p>Examines the impact of HR practices, selection, training, compensation and appraisal and participation on the financial performance of US petrochemical refineries.</p> <p>Hypotheses tested:</p> <p>Hypothesis 1 — 'HR practices that consist of an emphasis on selection, training, appraisal & compensation should be positively related to the skills & motivation of the workforce'</p> <p>Hypothesis 2 — 'Emphasis on selection, training, appraisal, compensation systems should be positively related to organisational performance'</p> <p>Hypothesis 3 — 'Employee participation will be positively related to organisational performance'</p> <p>Hypothesis 4 — 'The positive impact of selection, training, appraisal & compensation systems on organisational performance will be stronger when employee participation is high than when participation is low'</p> <p>Participation failed to account for any significant variance in refinery performance. Survey results from HR and operations respondents indicated that appraisal and training were significantly related to workforce motivation. Training & compensation were both marginally related to the measure of operators' motivation. In addition only training was significantly related to refinery performance, although the relationship was negative. However, selection, compensation and appraisal interacted with participation in determining refinery financial performance only under highly participate systems.</p>
Winterton & Winterton	<p>Study to ensure the business benefits of competence-based management development (CBMD) through case studies of 16 selected organisations. After refining the case study protocol, written evidence was gathered and in-depth, semi-structured interviews conducted with senior strategic managers, line managers and junior managers in each organisation. Conclusions included that organisation size explained some of the variance in evidence of performance outcomes of CBMD, whereas the sector or organisation only exerted a small influence. In the cases studied CBMD improved performance by all measures, especially in terms of individual and business performance, more effectively when linked with organisational strategy, unlike using the management standards as a framework for human resource development (HRD) systems and processes brought additional benefits.</p>
Wood <i>et al.</i> , 2004	<p>Repeat survey of manufacturing companies to find levels of use and success of modern management practices. Found significant increase in the use and success of practices. Also increases in service sector. Judged success had also increased.</p>
Youndt, Snell, Dean & Lepak 1996	<p>Examines two alternative views of HR performance in a manufacturing setting. Universal perspective implies direct relationship between particular approaches to HR and performance. Contingency perspective suggests an organisation's strategic posture diminish the impact of HR practices on performance, such as employee productivity, machine efficiency and customer alignment.</p>

Hypotheses:

Hypothesis 1 — 'A human-capital-enhancing human resource system will be positively associated with operational performance'

Hypothesis 2 — 'Manufacturing strategy moderates the relationship between human resource systems & operational performance'

Hypothesis 2(a) — 'A cost manufacturing strategy will positively moderate the relationship between an administrative HRS & operational performance'

Hypothesis 2(b) — 'A quality manufacturing strategy will positively moderate the relationship between a human-capital-enhancing HRS & operational performance'

Hypothesis 2(c) — 'A flexibility manufacturing strategy will positively moderate the relationship between a human-capital-enhancing HRS & operational performance'

HR systems as a set were significantly related to customer alignment & employee productivity. Specifically the human-capital-enhancing index had a significant main effect on employee productivity & was marginally associated with customer alignment & equipment efficiency. Overall these findings provide preliminary support for support for H1 & suggest that a HR system focused on enhancing human capital is a valuable approach for strengthening operational performance in manufacturing. Subsequent analysis revealed that this main effect was predominantly the result of linking human capital enhancing HR systems with quality manufacturing strategy.

British National
Child Development
Survey

Longitudinal survey British National Child Development Survey.

Who actually receives training and whether different types of training are taken by different types of individuals?

Impact training has a wage

Training: non-government work related training courses

Findings

The probability of undertaking an employer provided training course increases with school qualifications. Post school qualifications have no significant effect

Employer provider training course — return for the worker of 7-8 per cent

Appendix 2: Bibliography

- Adams J D (1999), 'The Structure of Firm R&D, the Factor Intensity of Production and Skill Bias', *The Review of Economics and Statistics*, Vol. 81, No. 3, pp. 499-510
- Agarwala T (2003), 'Innovative human resource practices and organisational commitment: an empirical investigation', *International Journal Of Human Resource Management*, Vol. 14, No. 2, pp. 175-198
- Ahmad S, Schroeder R (2003), 'The Impact of Human Resource Management Practices on Operational Performance: Recognising country and industry differences', *Journal of Operations Management*, Vol. 21, pp. 19-43
- Albaladejo M, Romijn H (2001), *Determinants of Innovation Capability in Small UK Firms*, ECIS working paper No. 00.13
- Allen D G, Shore L M, Griffeth R W (2003), 'The Role of Perceived Organizational Support and Supportive Human Resource Practices in the Turnover Process', *Journal Of Management*, Vol. 29, No. 1, pp. 99-118
- Allen N, Meyer J (1990), 'The measurement and antecedents of affective, continuance, and normative commitment to the organisation', *Journal of Occupational Psychology*, Vol. 63, pp. 1-18
- Almeida-Santos F, Mumford K (2004), *Employee Training and Wage Compression in Britain*, IZA Discussion paper 1197
- Anderson M A, Robertson R, Smith S L S (2001), *Measuring Skill Intensity: Production Worker vs. Education Data in the NAFTA Countries*, US International Trade Commission, Office of Economics Working Paper, No. 2001-07-B
- Andrew N, West M, Patterson M (2004), *Do Organizational Climate and Strategic Orientation Moderate the Relationship between HRM practices and Productivity?* CEP Discussion Paper No. 624
- Anon (2001), *Competence and Human Resource Development in Multi-national Companies in Three European Union Member States. A Comparative Analysis Between Austria, the Netherlands and the United Kingdom*, Panorama
- Appleyard M, Brown C (2001), 'Employment Practices and Semiconductor Manufacturing Performance', *Industrial Relations*, Vol. 40, No. 3, pp. 436-465

- Arthur J B (1992), 'The link between Business Strategy and Industrial Relations Systems in American Steel Minimills', *Industrial and Labor Relations Review*, 45
- Ashton D, Sung J (2002), *Supporting Workplace Learning for High Performance Working*, ILO
- Bacon N, Blyton P (2001), 'Management practices and employee attitudes: a longitudinal study spanning fifty years', *Sociological Review*, Vol. 49, No. 2, pp. 254-274
- Bae J, Lawler J (2000), 'Organisational and HRM Strategies in Korea: Impact on firm performance in an emerging economy', *Academy of Management Journal*, Vol. 43, No. 3, pp. 502-517
- Balfour D, Wechsler B (1996), 'Organisational commitment: Antecedents and outcomes in public organisations', *Public Productivity and Management Review*, Vol. 29, pp. 256-277
- Banker RD, Field JM, Schroeder RG, Sinha KK (1996), 'Impact of Work Teams on Manufacturing Performance: A Longitudinal Field Study', *Academy Of Management Journal*, Vol. 39, No. 4, pp. 867-890
- Banker RD, Lee SY, Potter G, Srinivasan D (1996), 'Contextual Analysis of Performance Impacts of Outcome-Based Incentive Compensation', *Academy Of Management Journal*, Vol. 39, No. 4, pp. 920-948
- Barber L, Hayday S, Bevan S (1999), *From People to Profits*, IES Report 355, Institute for Employment Studies
- Barnard M, Rogers R (2000), 'How are internally orientated HRM policies related to high-performance work practices? Evidence from Singapore', *International Journal of Human Resource Management*, Vol. 11, No. 6, pp. 1017-1046
- Barney J (1991), 'Firm Resources and Sustained Competitive Advantage', *Journal of Management* Vol. 17
- Barrett A, O'Connell P J (1998), *Does Training Generally Work; the Returns to In-Company Training*, Paper No. 1879, Centre for Economic Policy Research (CEPR)
- Barron J M, Black D A, Loewenstein M A (1989), 'Job Matching and on the Job Training', *Journal of Labor Economics*, 7, 1
- Bartel A P (1995), 'Training, Wage Growth and Job Performance: Evidence from a Company Database', *Journal of Labor Economics*, 13, 3
- Bassi L, McGraw K, McMurrer D (2003), 'Talent Optimization Measuring Value Not Costs', *Human Capital Capability*, Vol. 39, No. 2, pp.
- Batt R (1999), 'Work Organisation, Technology and Performance in Customer Services and Sales', *Industrial and Labor Relations Review*, Vol. 52, No. 4, pp. 539-563

- Batt R (2002), 'Managing Customer Services: Human resource practices, quit rates, and sales growth', *Academy of Management Journal*, Vol. 45, No. 3, pp. 587-597
- Batt R, Colvin AJS, Keefe J (2002), 'Employee Voice, Human Resource Practices, and Quit Rates: Evidence from the Telecommunications Industry', *Industrial And Labor Relations Review*, Vol. 55, No. 4, pp. 573-594
- Bauer T, Maertz C, Dolen M, Campion M (1998), 'The Longitudinal assessment of applicant reactions to employment testing and test outcome feedback', *Journal of Applied Psychology*, Vol. 83, pp. 892-903
- Baumeister R, Leary M (1995), 'The need to belong: Desire for interpersonal attachments as a fundamental human motivation', *Psychological Bulletin*, Vol. 117, pp. 497-529
- Bayo-Moriones A, Huerta-Arriba E (2002), 'Organisational Incentive Plans in Spanish Manufacturing Industry', *Personnel Review*, Vol. 31, No. 2, pp. 128-141
- Beatty RW, Huselid MA, Schneier CE (2003), 'New HR Metrics: Scoring on the Business Scorecard', *Organizational Dynamics*, Vol. 32, No. 2, pp. 107-121
- Becker B, Huselid M (1992), 'The incentive effects of tournament compensation schemes', *Administrative Science Quarterly*, Vol. 37, No., pp. 336-350
- Becker B E, Huselid M A (1998), 'High Performance Work Systems and Performance: A Synthesis of Research and Managerial Implications Research', *Personnel and Human Resources Journal*, Vol. 16, (1), pp. 53-101
- Becker B E, Huselid M A, Pickus P S, Spratt M (1997), 'HR as a Source of Shareholder Value: Research and Recommendations', *Human Resource Management Journal*, Vol. 31 (1), Spring
- Berg P, Applebaum E, Bailey T, Kalleberg AL (1996), 'The Performance Effects of Modular Production in The Apparel Industry', *Industrial Relations*, Vol. 35, no. 3
- Berman S, Wicks A, Kotha S, Jones T (1999), 'Does Stakeholder Orientation Matter? The relationship between stakeholder management models and firm financial performance', *Academy of Management Journal*, Vol. 42, No. 5, pp. 488-506
- Billet S (1998), 'Enterprises and Vocational Education and Training: Expenditure and expected returns', *Journal of Vocational Education and Training*, Vol. 50, No. 3, pp. 387-400
- Bishop J (1994), *The Incidence of and Pay-off to Employer Training: A Review of the Literature with Recommendations for Policy*, Cornell
- Bjorkman I, Xiucheng F (2002), 'Human Resource Management and the Performance of Western Firms in China', *International Journal of Human Resource Management*, Vol. 13, No. 6, pp. 853-864

- Black S, Lynch L (1996), 'Human Capital Investments and Productivity', *American Economic Review*, Vol. 86, No. 2
- Black S, Lynch L (2001), 'How to Compete: The impact of workplace practices and information technology and productivity', *The Review of Economics and Statistics*, Vol. 83, No. 3, pp. 434-445
- Blau FD, Kahn LM (2001), *Do Cognitive Test Scores Explain Higher Us Wage Inequality?* Nber Working Paper Series, No. 8210
- Bloom N, Conway N, Mole K, Moslein K, Neely A, Frost C (2004), *Solving the Skills Gap*, summary report from a CIHE/AIM Management Research Forum
- Blundell, Dearden, Meghir (1996), *The Determinants and Effects of Work-Related Training in Britain*, Institute for Fiscal Studies
- Blundell R, Dearden L, Meghir C (1999), *Work-Related Training and Earnings*, Institute for Fiscal Studies
- Blundell R, Dearden L, Meghir C, Sianesi B (1999), 'Human Capital Investment: the returns from education and training to the individual, the firm and the economy', *Fiscal Studies*, Vol. 20, No. 1
- Blundell R, Deraden L, Sianesi B (2004), *Evaluating the Impact of Education on Earnings in the UK: Models, Methods and Results from the NCDS*, IFS Working paper WP03/20.NJ
- Booth A (1991), 'Job Related Training; Who Receives it and What is it Worth?', *Oxford Bulletin of Economics and Statistics*, Vol. 53, 3
- Boselie P, Paauwe J, Jansen P (2001), 'Human resource management and performance: lessons from the Netherlands', *International Journal Of Human Resource Management*, Vol. 12, No. 7, pp. 1107-1125
- Bosalie, Dietz (2003), 'Commonalties and Contradictions in Research on Human Resource Management and Performance,' *The Academy of Management Conference*, Seattle, August
- Bosworth D L (2001), *Goals, Strategies and Targets: Empirical Evidence from the Employer's Skill Survey*, Report to the council for Excellence in Management and Leadership, UMIST
- Bosworth D L (forthcoming), *The Determinants of Enterprise Performance*, Manchester University Press
- Boxall P, Steeneveld M (1999), 'Human Resource Strategy and Competitive Advantage: A Longitudinal Study of Engineering Consultancies', *Journal Of Management Studies*, Vol. 36, No. 4, pp. 443-464
- Bresnahan TF, Brynjolfsson E, Hitt LM (2002), 'Information Technology, Workplace Organization, and the Demand for Skilled Labor: Firm-Level Evidence', *Quarterly Journal Of Economics*, Vol. 117, No. 1, pp. 339-376
- Brown C, Reich M (1997), 'Micro-Macro Linkages in High-Performance Systems', *Organization Studies*, Vol. 18, No. 5, pp. 765-782

- Brynjolfsson E, Hitt L M, Yang S (2002), 'Intangible Assets: Computers and Organizational Capital', *Brookings Papers On Economic Activity*, Vol., No. 1, pp. 137-181
- Bynner J, McIntosh S, Vignoles A, Dearden L, Reed H, Van-Reenan J (2001), *Improving Adult Basic Skills benefits to the individual and to society*, DfEE Research Report, RR251, HMSO
- Caligiuri P, Stroh L (1995), 'Multinational corporation management strategies and international human resource practices: bringing HRM to the bottom line', *The International Journal of Human Resource Management*, Vol. 6, No. 3, pp. 494-507
- Campbell M (2000), *Learning Pays and Learning Works*, NACETT, Sheffield, p. 2
- Campbell M (2002), *Learn to Succeed: the Case for a Skills Revolution*, Policy Press
- Campbell M, Giles L (2003), *The Skills and Productivity Challenge: A Summary of the Evidence Base for the SSDA Strategic Plan, 2003-2006*, SSDA
- Campbell M, Chapman R, Hutchinson J (2001), *Spatial Skill Variations: their Extent and Implications*, Skills Task Force, Research Paper 14, DfEE
- Charlesworth K, Cook P, Crozier G (2003), *Leading Changing in the Public Sector: Making the Difference*, Chartered Management Institute
- CIPD (2002), *Evaluating Human Capital: Raising People Management up the Business Agenda*. Chartered Institute of Personnel and Development
- CIPD (2003), *Evaluating Human Capital: external reporting framework*, Chartered Institute of Personnel and Development
- CIPD (2001), *Employers' perceptions of the psychological contract*, Chartered Institute of Personnel and Development, Report 112
- Cockerill A P (1993), *Validation Study into the High Performance Managerial Competencies*, London Business School
- Cockerill T, Schoder H (1993), *Validation Study into the High Performance Managerial Competencies*, London Business School
- Cohen A (1991), 'Career stage as a moderator of the relationship between organisational commitment and its outcomes: A meta-analysis', *Journal of Occupational Psychology*, Vol. 64, pp. 253-268
- Cohen A (1992), 'Antecedents of organisational commitment across occupational groups: A Meta-Analysis', *Journal of Organisational Behaviour*, Vol. 13, pp. 539-558
- Cohen A (1993), 'Age and tenure in relation to organisational commitment: A meta-analysis', *Basic and Applied Social Psychology*, Vol. 14, pp. 143-159

- Collier W, Green F, Peirson J, Wilkinson D (2003), *Training and Establishment Survival*, Royal Economic Society Annual Conference
- Collis D, Montgomery C (1997), *Corporate Strategy: Resources and the Scope of the Firm*, Magraw Hill Professional Book Group
- Colvin A, Batt R, Katz H (2001), 'How High Performance Human Resource Practices and Workforce Unionization Affect Managerial Pay', *Personnel Psychology*, Vol. 54, No. 4, pp. 903-932
- Cook J, Wall T (1980), 'New work attitude measures of trust, organisational commitment and personal need non-fulfilment', *Journal of Occupational Psychology*, Vol. 53, pp. 39-52
- Cosh A, Duncan J, Hughes A (1998), *Investment in Training and Small Firm Growth and Survival; an Empirical Analysis for the UK 1987-1996*, DfEE Research Brief No. 36
- Cosh A, Hughes A, Duncan J (1998), *Investment in Training and Small Firm Growth and Survival*, DfEE Research Report
- Cosh A, Hughes A, Weeks M (2000), *The Relationship between Training and Employment in SMEs*, DfEE Research Report RR245
- Cosh A, Hughes A, Weeks M (2000), *The Relationship Between Training and Employment Growth in Small and Medium-sized Enterprises*, DfEE Research Report
- Cosh A, Hughes A, Bullock A, Potton M (2003), *The Relationship between Training and Business Performance*, RR 454, DfES
- Cosh A, Hughes A, Bullock A, Potton M (2003), *The Relationship between training and Business Performance*, Research Brief 454, DfEE
- Crafts N (2002), *Britain's Relative Economic Performance 1870-1999*, Institute of Economic Affairs Research Monograph No. 55, IEA London
- D'Arcimoles CH (1997), 'Human Resource Policies and Company Performance: A Quantitative Approach Using Longitudinal Data', *Organization Studies*, Vol. 18, No. 5, pp. 857-874
- Dawis R (1992), 'Person-environment fit and job satisfaction', In CJ. Cranny *et al.* (eds.) *Job Satisfaction*, Lexington
- Dearden L, Macintosh S, Myck M, Vignoles A (2001), *The Returns to Academic, Vocational and Basic Skills in Britain*, Research Report 192, DfEE
- Dearden L, Reed H, Van Reenen J (2000), *Who Gains when Workers Train? Training and Corporate Productivity in a Panel of British Industries*. IFS Working paper No. WP 00/04, Institute for Fiscal Studies
- Dearden L, Reed H, Van Reenan J (2004), *Who Gains When Workers Train? Training and Corporate Productivity in a Panel of British Industries*, The Institute for Fiscal Studies

- Delaney J, Huselid M (1996), 'The Impact of Human Resource Management Practices on Perceptions of Performance in For-profit and Non-profit Organizations', *Academy of Management Journal*, Vol. 39, pp. 949-969
- Delery J E (1998), 'Issues of Fit in Strategic Human Resource Management: Implications for Research', *Human Resource Management Review*, 8:3
- Delery J E, Doty D H (1996), 'Modes of Theorizing in Strategic Human Resource Management: Tests of Universalistic, Contingency, and Configurational Performance Predictions', *Academy Of Management Journal*, Vol. 39, No. 4, pp. 802-835
- Delery J E, Gupta N, Shaw J D, Jenkins G D, Ganster M L (2000), 'Unionization, Compensation, and Voice Effects on Quits and Retention', *Industrial Relations*, Vol. 39, No. 4, pp. 625-645
- Den Hartog D N, Verburg R M (2004), 'High Performance Work Systems, Organisational Culture and Firm Effectiveness', *Human Resources Management Journal*, Vol. 14, No. 1
- Devroye D, Freeman R (2001), *Does Inequality in Skills Explain Inequality of Earnings Across Advanced Countries?* NBER Working Paper, No. 8140
- Department for Employment and Learning in Northern Ireland (2003), *The Northern Ireland Skills Monitoring Survey, 2002*, Skills Unit Research and Evaluation Branch, June
- DfEE (1988), *The Learning Age and Renaissance for New Britain*, White Paper, DfEE
- DfES (2003), *21st Century Skills: Realising Our Potential*, Skills White Paper, DfES
- Dindia K, Canary D (1993), 'Definitions and theoretical perspectives on maintaining relationships', *Journal of Social and Personal Relationships*, Vol. 10, pp. 163-173
- DTI (1998), *Our Competitive future: Building the Knowledge Driven Economy*, Department of Trade and Industry
- DTI (2001), *UK Competitiveness Indicators second edition*, Department of Trade and Industry
- DTI (2003), *UK Productivity and Competitiveness Indicators 2003*, DTI Economics Paper No. 6
- DTI (2003), *Prosperity For All*, DTI Strategy Analysis
- Dunham R, Grube J, Castaneda M (1994), 'Organisational Commitment: The utility of an integrative definition', *Journal of Applied Psychology*, Vol. 79, pp. 370-380
- Dunlop J, Weil D (1996), 'Diffusion and Performance of Modular Production in the US Apparel Industry', *Industrial Relations*, Vol. 35, No. 3, pp. 334-355

- Eduardo M (2004), *Evidence on Training and Career Paths: Human Capital and Incentives*. IZA Discussion Paper No. 1377
- Elias J, Scarbrough H (2004), 'Evaluating human capital: an exploratory study of management practice', *Human Resource Management Journal*, Vol. 14, pp. 21-40
- Engelbrecht H J (2002), 'Human Capital and International Knowledge Spillovers in TFP Growth of a Sample of Developing Countries: an Exploration of Alternative Approaches', *Applied Economics*, Vol. 34, pp. 831-841
- The Families and Work Institute (1998), *USA Today*, July, No. 43
- Fernie S, Metcalf D (1995), 'Participation, Contingent Pay, Representation and Workplace Performance: Evidence from Great Britain', *British Journal Of Industrial Relations*, Vol. 33, No. 3, pp. 379
- Fey C, Björkman I, Pavlovskaya A (2000), 'The effect of human resource management practices on firm performance in Russia', *International Journal of Human Resource Management*, Vol. 11, No. 1, pp. 1-18
- Finegold D, Soskice D (1988), 'The Failure of British Training; Analysis and Prescription', *Oxford Review of Economic Policy*, Vol. 4, No. 3
- Forth J, Mason G (2004), *The Impact of High-Level Skill Shortages on Firm Level Performance: Evidence from the UK Technical Graduates Employers Survey*, NIESR Discussion Paper No. 235
- Forth J, Mason G, O'Mahony M (2002), *Industrial Performance, ICT Investments and Workforce Skills: Literature and Statistical Review*, a NIESR report for the DTI and DfES
- Future Skills Wales (2003), *Generic Skills Survey*
- Gaertner K, Nollen S (1989), 'Career experiences, perceptions of employment practices, and psychological commitment to the organisation', *Human Relations*, Vol. 42, pp. 975-991
- Godard J (2004), 'A Critical Assessment of the High Performance Paradigm', *British Journal of Industrial Relations*, Vol. 42, No. 2, pp. 349-378
- Gould-Williams J (2003), 'The importance of HR practices and workplace trust in achieving superior performance: a study of public-sector organizations', *International Journal of Human Resource Management*, Vol. 14, No. 1, pp. 28-54
- Green F (1997), *Review of Information on the benefits of training for Employers*, Research Report 7, DfEE
- Green S, Anderson S, Shivers, S (1996), 'Demographics and organisational influences on leader-member exchange and related work attitudes', *Organisational Behaviour and Human Decision Processes*, Vol. 66, pp. 203-214

- Green F, Machin S, Wilkinson D (1996), *An Analysis of Workplace Training and Skill Shortages*, DfEE Research Studies RS7
- Green F, Mayhew K, Molloy E (2003), *Employer Perspectives Survey*, DfES
- Green F (1999), *The Market Value of Generic Skills*, Paper 12, NSTF
- Green F (1997), *Review of Information on Benefits of Training for Employers*, DfEE Research Report No. 7
- Greenhalgh C, Stewart M (1987), 'The Effects and Determinants of Training', *Oxford Bulletin of Economics and Statistics*, 49
- Griffith R, Harrison R, Haskel J, Sako M (2003), *The UK Productivity Gap and the Importance of the Service Sectors*, summary report of the AIM Management Research Forum
- Grover S, Crooker K (1995), 'Who appreciates family-responsive human resource policies: The impact of family-friendly policies on organisational attachment', *Personnel Psychology*, Vol. 48, pp. 271-288
- Guest D, Peccei R (2001), 'Partnership at Work: Mutuality and the Balance of Advantage', *British Journal of Industrial Relations*, Vol. 39, No. 2, pp. 207-236
- Guest D (2000), *The Future of Work*, CIPD
- Guest D, Conway N, Dewe P (2004), 'Using Sequential Tree Analysis to Search for "Bundles" of HR Practices', *Human Resources Management Journal*, 14:1
- Guest D, Michie J, Conway N, Sheehan M (2003), 'Human Resource Management and Corporate Performance in the UK', *British Journal of Industrial Relations*, Vol. 41, June
- Guest D E, Michie J, Conway N, Sheehan M (2003), Human Resource Management and Corporate Performance in the UK, *British Journal Of Industrial Relations*, Vol. 41, No. 2, pp. 291-314
- Guthrie JP (2001), 'High-Involvement Work Practices, Turnover, and Productivity: Evidence from New Zealand', *Academy Of Management Journal*, Vol. 44, No. 1, pp. 180-190
- Guthrie J, Spell C, Nyamori R (2002), 'Correlates and consequences of high involvement work practices: the role of competitive strategy', *International Journal of Human Resource Management*, Vol. 13, No. 1, pp. 183-197
- Hall B H (1995), 'The Stock Market Valuation of RD Investment during the 1990s', *American Economic Review, Papers and Proceedings*, Vol. 83, No. 2
- Hambledon Group (2000), *Corporate Financial Performance Observed Before and After Investors in People Recognition*, DfEE, 222
- Hamel G, Prahalad C (1994), *Competing for the Future*, Harvard Business School Press

- Harel G, Tzafrir S, Baruch Y (2003), 'Achieving organizational effectiveness through promotion of women into managerial positions: HRM practice focus', *International Journal of Human Resource Management*, Vol. 14, No. 2, pp. 247-263
- Harris L, Ogbonna E (2001), 'Strategic human resource management, market orientation, and organizational performance', *Journal of Business Research*, Vol. 51, pp. 157-166
- Haskel J, Hawkes D (2003), *How Much of the Productivity Spread is Explained by Skills? UK Evidence Using Matched Establishment / Workforce Survey Data*, CeRIBA discussion paper
- Haskel J, Hawkes D, Pereira S (2003), *Skills and Productivity in the UK Using Matched Establishment, Worker and Workforce Data*, CeRIBA
- Haskel J, Heden Y (1998), *Computers and the Demand for Skilled Labour: Industry- and Establishment-Level Panel Evidence for the UK* Working Paper, Royal Economic Society
- Haskell J, Martin R (2002), *The UK Manufacturing Productivity Spread*, CeRIBA Discussion Paper
- Hogg M, Terry D, White K (1995), 'A tale of two theories: A critical comparison of identity theory with social identity theory', *Social Psychology Quarterly*, Vol. 58, pp. 255-269
- Hillage J, Moralee J (1996), *The Return on Investors*, IES report 314, Institute for Employment Studies
- Hitt M, Bierman L, Shimizu K, Kochhar R (2001), 'Direct and Moderating Effects of Human Capital on Strategy and Performance in Professional Service Firms: A resource-based perspective', *Academy of Management Journal*, Vol. 44, No. 1, pp. 13-28
- HM Treasury (2001), *Productivity in the UK: Progress Towards a Productive Economy*
- HM Treasury (2000), *Productivity in the UK: The Evidence and the Government's Approach*.
- Hogarth T, et al. (2004), *National Employers' Skill Survey 2003: key findings*, LSC
- Hogarth T, Wilson R (2001), *Employer Skills Survey Synthesis report*, DfES
- Hoque K (1999), 'Human Resource Management and Performance in the UK Hotel Industry', *British Journal of Industrial Relations*, Vol. 37, No. 3, pp. 149-443
- Horne M, Stedman Jones D (2001), *Leadership the Challenge for All?*, The Institute of Management
- Huang T-C (2000), 'Are the human resource practices of effective firms distinctly different from those of poorly performing one? Evidence from Taiwanese enterprises', *International Journal of Human Resource Management*, Vol. 11, No. 2, pp. 436-451

- Huang T-C (2001), 'The effects of linkage between business and human resource management strategies', *Personnel Review*, Vol. 30, No. 2, pp. 132-149
- Hunter L, Lufkas J (2003), 'Opening the Box: Information Technology, Work Practices, and Wages', *Industrial and Labor Relations Review*, Vol. 56, No. 2, pp. 224-243
- Huselid M, website: <http://www.rci.rutgers.edu/~huselid/>
- Huselid M A (1995), 'The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance', *Academy Of Management Journal*, Vol. 38, No. 3, pp. 635
- Huselid M, Barnes J (2003), *Human capital measurement systems as a source of competitive advantage*, Rutgers University
- Huselid M A, Becker B E (1995), 'The Strategic Impact of High Performance Work Systems', http://www.rci.rutgers.edu/~huselid/Papers/1995_Strategic_Impact_of_HR.pdf
- Huselid M A, Becker B E (1996), 'Methodological Issues in Cross-Sectional and Panel Estimates of the Human Resource-Firm Performance Link', *Industrial Relations*, Vol. 35, No. 3, pp. 400-422
- Huselid M A, Becker B E (1996), 'Methodological Issues in Cross-Sectional and Panel Estimates of the Human Resource-Firm Performance Link', *Industrial Relations*, 35
- Huselid and Becker (2000), 'Methodological Issues in Cross Sectional and Panel Estimates of the Link between Human Resource Strategies and Firm Performance', in Ichniowski *et al.* (2000)
- Huselid M A, Becker B E (1997), *The Impact of High Performance Work Systems, Implementation Effectiveness and Alignment with Strategy on Shareholder Wealth*, Academy of Management Meetings HR Division
- 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*, Vol. 40, No. 1, pp. 171-188
- Huselid M A, Rau B L (1997), 'The Determinants of High Performance Work Systems; Cross Sectional and Longitudinal Analyses', *1997 Academy of Management Meetings, Division*
- Hutchinson S, Kinnie N, Purcell J (2002), *Bringing Policies to Life: Discretionary Behaviour and the Impact on Business Performance*. Paper presented at the Bath Conference, University of Bath School of Management, 10-11 April
- Iaffaldano M, Muchinsky P (1985), 'Job satisfaction and job performance: A meta analysis', *Psychological Bulletin*, Vol. 97, pp. 251-273

- Ichniowski C (1990), *Human Resource Management Systems and the Performance of US Manufacturing Businesses*, NBER working paper No 3449
- Ichniowski C, Kochan T, Levine D, Olson C, Strauss G (1996), What Works at Work: Overview and Assessment, *Industrial Relations*, Vol. 35, No. 3, pp. 299-332
- Ichniowski C, Levine, DI, Olson C, Strauss G (2000), *The American Workplace: Skills, Compensation and Employee Involvement*, Cambridge University Press
- Ichniowski C, Shaw K (1995), 'Old Dogs and New Tricks: Determinants of the Adoption of Productivity Enhancing Work Practices', *Brookings Papers on Economic Activity: Microeconomics*, Spring
- ILO (2002), 'Supporting Workplace Learning for High Performance Working', <http://www.ilo.org/public/english/employment/skills/workplace>
- Jackson S E, Schuler R S, Rivero J C (1989), 'Organisational Characteristics as Predictors of Personnel Practices', *Personnel Psychology*, 42
- Jayaram J, Droge C, Vickery S (1999), 'The impact of human resource management practices on manufacturing performance', *Journal of Operations Management*, Vol. 18, pp. 1-20
- Kaplan RS, Norton DP (1992), The Balanced Scorecard - Measures that Drive Performance, *Harvard Business Review*, January-February
- Katz H C, Kochan T A, Keefe J H (1987), 'Industrial Relations and Productivity in the US Automobile Industry', *Brookings Papers on Economic Activity*, 3
- Keep E, Mayhew K, Corney M (2002), *Review of the evidence on the rate of return to employers of investment in training and employer training measures*, SKOPE Research Paper No. 34.NJ
- Kelly M (1996), Participative bureaucracy and productivity in machined products, *Industrial Relations*, Vol. 35, pp. 949-969
- Khatri N (2000), Managing human resources for competitive advantage: a study of companies in Singapore, *International Journal of Human Resource Management*, Vol. 11, No. 2, pp. 336-365
- Kramer R (1999), 'Trust and distrust in organisations: Emerging perspectives, enduring questions', *Annual Review of Psychology*, Vol. 50, pp. 569-598
- Keep E, Mayhew K (1999), 'The Assessment: Knowledge, Skills and Competitiveness', *Oxford Review of Economic Policy*, Vol. 15, No. 1

- Keep E, Westwood A (2003), *Can the UK Learn to Manage? The Work Foundation*
- Keep E, Mayhew K, Corney M (2002), *Review on the Evidence of the Rate of Return to Employers of Investment in Training and Employer Training Measures*, SKOPE Research Paper No. 34
- Kitching J, Blackburn R (2002), *The Nature of Training and Motivation to Train in Small Businesses*, DfES
- Kohn M L, Schooler C (1983), *Work and Personality: an Inquiry into the Impact of Social Stratification*, Ablex
- Lahteenmaki S, Storey J, Vanhala S (1998), HRM and company performance: The use of measurement and the influence of economic cycles, *Human Resource Management Journal*, Vol. 8, No. 2, pp. 51-65
- Lawler F N, Mohrman S, Ledford G (1995), 'Creating High Performance Organisations: Practices and Results of Employee Involvement and Total Quality Management', *the Fortune 1,000 Companies*, Jossey Bass
- Li J (2003), 'Strategic human resource management and MNEs' performance in China', *International Journal of Human Resource Management*, Vol. 14, No. 2, pp. 157-173
- Liouville J, Bayad M (1998), 'Human resource management and performances: proposition and test of a causal model', *Human Systems Management*, Vol. 17, No. 3, pp. 183-192
- Lowe J, Delbridge R, Oliver N (1997), High-Performance Manufacturing: Evidence from the Automotive Components Industry, *Organization Studies*, Vol. 18, No. 5, pp. 783-798
- Lynch L, Black S (1995), *Beyond the Incidence of Training, Evidence from a National Employers' Survey*, NBER working paper W 5231
- Mabey C, Gooderhan P N, (2003), 'The Impact of Management Development on the Organisational Performance of European Firms', *Seventh Conference on HRM*
- Mabey C, Thomson A (2001), *The Learning Manager: A Survey of Management Attitudes to Training and Development*, Institute of Management
- MacDuffie JP (1995), 'Human Resource Bundles and Manufacturing Performance: Organizational Logic and Flexible Production Systems in the World Auto Industry', *Industrial And Labor Relations Review*, Vol. 48, No. 2, pp. 197
- Machin S, McIntosh L S, Vignoles A, Vitanen T (2001), *Basic Skills, Soft Skills and Labour Market Outcomes: Secondary Analysis of the National Child Development Study*, DfES 250
- Machin S, Vignoles A (2001), *The Economic Benefits of Training to the Individual, the Firm and the Economy: The Key Issues*, Centre for Economics of Education
- Mason, Wilson (2003), *Employer Skill Survey. New Analysis and Lessons Learned*, DfES Research Report, NALL1

- Mason G, Wagner K (2002), *Skills, Performance and New Technologies in the British and German Automotive Components Industries*, DfES
- Mathieu J, Zajac D (1990), 'A review and meta-analysis of the antecedents, correlates, and consequences of organisational commitment', *Psychological Bulletin*, Vol. 108, pp. 171-194
- McFarlin D, Sweeney P (1992), 'Distributive and procedural justice as predictors of satisfaction with personal and organisational outcomes', *Academy of Management Journal*, Vol. 35, pp. 626-637
- McIntosh S (2003), *What difference does it make? Vocational Education for Low-Achieving School-Leavers*, CEE Mimeo
- McKinsey (1998), *Driving Productivity and Growth in the UK Economy*, McKinsey Global Institute.
- McNabb R, Whitfield K (1997), 'Unions, Flexibility, Team Working and Financial Performance', *Organization Studies*, Vol. 18, No. 5, pp. 821-838
- McNabb R, Whitfield K (2001), 'Job Evaluation and High Performance Work Practices: Compatible or Conflictual', *Journal of Management Studies*, Vol. 38, No. 2, pp. 293-310
- Mendelson H (2000), 'Organizational Architecture and Success in the Information Technology Industry', *Management Science*, Vol. 46, No. 4, pp. 513-529
- Meyer J (1997), 'Organisational commitment', *International Review of Industrial and Organisational Psychology*, Vol. 12, pp. 175-228
- Meyer J, Smith C (2001), 'HRM Practices and Organizational Commitment: Test of a Mediation Model', *Canadian Journal of Administrative Sciences*, Vol. 17, No. 4, pp. 319-331
- Mignerey J, Rubin R, Gordon W (1995), 'Organisational entry: An investigation of newcomer communication behaviour and uncertainty', *Communication Research*, Vol. 22, pp. 54-85
- Miller D, Lee J (2001), 'The people make the process: commitment to employees, decision making, and performance', *Journal of Management*, Vol. 27, pp. 163-189
- Miller SU, MP (1997), *The Effects of Trade Orientation and Human Capital on Total Factor Productivity*, University of Connecticut, Department of Economics Working Paper 1997-07
- Montemayor EF (1996), 'Congruence Between Pay Policy and Competitive Strategy in High-Performing Firms', *Journal Of Management*, Vol. 22, No. 6, pp. 889-908
- Nystrom P (1990), 'Vertical exchanges and organisational commitments of American business managers,' *Group and Organisational Studies*, Vol. 15, 296-312
- OECD (1997), *Literacy Skills for the Knowledge Society: Further Results from the International Adult Literacy Survey*

- O'Mahoney M, De Boer (2002), *Britain's Relative Productivity Performance, Updates to 1999*, NIESR Final Report to DTI
- O'Malley M (2000), *Creating commitment*, John Wiley & Sons
- Osterman P (1994), 'How Common is Workplace Transformation and How Can we Explain who Adopts it? Results from a National Survey', *Industrial and Labor Relations Review*, 47
- Parks M, Floyd K (1996), 'Meanings for closeness and intimacy in friendship', *Journal of Social and Personal Relationships*, Vol. 13, pp. 85-107
- Patterson M, West M A, Lawthom R, Nickell S (1998), *Impact of People Management Practices on Business Performance*, IPD
- Pfeffer J (1994), *Competitive Advantage through People*, Harvard University Press
- Pfeffer J (1998), *The Human Equation: Building Profits by Putting People First*, Harvard Business School Press
- Phillips J (1997) *Handbook of Training Evaluation*, third edition, Gulf Publishing, Houston
- Pil F K, MacDuffie P (1996), 'The Adoption of High Involvement Work Practices', *Industrial Relations*, 35 (3)
- Porter M E, Ketels C H M, (2003), *UK Competitiveness: Moving to the Next Stage*, DTI economics paper No. 3
- Premack S, Wanous J (1985), 'A meta-analysis of realistic job preview experiments', *Journal of Applied Psychology*, Vol. 70, pp. 706-719
- Purcell J, Kinnie N, Hutchinson S, Rayton B, Swart J (2003) *Understanding the People and Performance Link: Unlocking the Black Box*, CIPD
- Reid G C (2000), *The Development and Survival of New Small Businesses*, Centre for Research into Industry, Enterprise, Finance and the Firm, St Andrews University
- Richard O C, Johnson N B (2001), 'Strategic human resource management effectiveness and firm performance', *International Journal Of Human Resource Management*, Vol. 12, No. 2, pp. 299-310
- Rogg K L, Schmidt D B, Shull C, Schmitt N (2001), Human resource practices, organizational climate, and customer satisfaction, *Journal Of Management*, Vol. 27, No. 4, pp. 431-449
- Rucci A J, Kirm S P, Quinn R T (1998), 'The Employee-Customer-Profit Chain at Sears', *Harvard Business Review*, January-February 1998
- Rusbult C, Buunk B (1993), 'Commitment processes in close relationships: An interdependence analysis', *Journal of Social and Personal Relationships*, Vol. 10, pp. 175-204

- Schwarzswald J, Koslowsky M, Shalit B (1992), 'A field study of employees' attitudes and behaviours after promotion decisions', *Journal of Applied Psychology*, Vol. 77, pp. 511-514
- Scottish Enterprise (2003), *Skills in Scotland (2003): key results of the Employers Skill Survey*, Future Skills Scotland, Scottish Enterprise
- Settoon R, Bennet N, Liden R, (1996), 'Social exchange in organisations: Perceived organisational support, leader-member exchange, and employee reciprocity', *Journal of Applied Psychology*, Vol. 81, pp. 219-227
- Shaw J, Delery J, Jenkins G, Gupta N (1998), 'An Organization-Level Analysis of Voluntary and Involuntary Turnover', *Academy of Management Journal*, Vol. 41, No. 5, pp. 511-525
- Sianesi B (2003), *Returns to Education*, CEE Mimeo
- Sianesi B, Van Reenan J (2002), *The Returns to Education: A Review of the Empirical Macroeconomic Literature*, IFS, WP02/05
- Skillnets (2005) *Measuring the Impact of Training and Development in the Workplace*, Skillnets
- Small Firms Enterprise Development Initiative (2002), *Small Firms Skills Assessment*, SFEDI
- Snell S A, Youndt M A (1995), 'Human Resource Management and Firm Performance: Testing a Contingency Model of Executive Controls', *Journal Of Management*, Vol. 21, No. 4, pp. 711
- Spell C (2001), 'Organizational technologies and human resource management', *Human Relations*, Vol. 54, No. 2, pp. 193-213
- Spilsbury D (2003), *Learning and Training at Work*, DfES
- Steedman H, Mason G, Wagner K (1991), *Intermediate Skills in Workplace; Deployment, Standards and Supply in Britain, France and Germany*, National Institute Economic Research No. 136
- Steedman H (1999), *Report to the Department for Education and Employment: Updating of the Skills Audit 1998*, Centre for Economic Performance, LSE
- Storey D (2002), 'Education, training and development policies and practices in medium-sized companies in the UK: do they really influence firm performance', *Omega*, Vol. 30, No., pp. 249-264
- Strategy Unit (2001), *In Demand: Adult skills in the 21st Century – Part 1*, Cabinet Office
- Tamkin P, Hillage J, Cummings J, Bates P, Barber L, Tackey N, (2000), *Doing Business Better: the Long Term Impact of Investors in People*, FOCUS central London
- Taylor R (2003), *Skills and Innovation in Modern Workplaces*, ESRC Future of Work programme seminar series

- TFHCM (2003), *Accounting for Human Capital - Research Framework*, Task Force on Human Capital Management
- TFHCM (2003), *Accounting for People Consultation Paper*, Task Force on Human Capital Management
- Thompson M (2000), *The Competitiveness Challenge: The Bottom Line Benefits of Strategic Human Resources*, DTI
- Thomson A, Storey J, Mabey C, Gray C, Farmer E, Thomson R (1997), *A Portrait of Management Development*, Oxford University Business School
- Tregaskis O (1997), 'The Role of National Context and HR Strategy in Shaping Training and Development Practice in French and UK Organizations', *Organization Studies*, Vol. 18, No. 5, pp. 839-856
- Troy K (1998), *Managing the corporate brand*, The Conference Board
- Vandenberg R, Lance C (1992), 'Satisfaction and organisational commitment,' *Journal of Management*, Vol. 18, pp. 153-167
- Varma A, Beatty R W, Schneier C E, Ulrich D (1999), 'High Performance Work Systems: Exciting Discovery or Passing Fad?' *Human Resource Planning*, Vol. 22, No. 1, pp. 26-37
- Walker Information Inc (2000), *Employee commitment and the bottom line: Ethical Issues in the Employer-Employee Relationship*, Work, USA
- Wall T, Michie J, Patterson M, Wood S, Sheehan M, Clegg C, West M, (2004) 'On the Validity of Subjective Measures of Company Performance' *Personnel Psychology*, 57, 95-118
- Walton R (1985), 'From control to commitment in the workplace', *Harvard Business Review*, Vol. 63. No. 2, March-April
- Way SA (2002), 'High Performance Work Systems and Intermediate Indicators of Firm Performance Within the US Small Business Sector', *Journal Of Management*, Vol. 28, No. 6, pp. 765-785
- Welbourne T, Andrews A (1996), 'Predicting the Performance of Initial Public Offerings: Should human resource management be in the equation', *Academy of Management Journal*, Vol. 39, No. 4, pp. 891-919
- West M, Borrill C, Dawson J, Scully J, Carter M, Anelay S, Patterson M, Waring J (2002), 'The link between the management of employees and patient mortality in acute hospitals', *International Journal of Human Resource Management*, Vol. 13, No. 8, pp. 1299-1310
- Whitener EM (2001), 'Do "high commitment" human resource practices affect employee commitment?' *Journal Of Management*, Vol. 27, No. 5, pp. 515-535

- Whitfield K, Poole M (1997), 'Organizing Employment for High Performance Theories, Evidence and Policy', *Organization Studies*, Vol. 18, No. 5, pp. 745-765
- Wilkinson A, Godfrey G, Marchington M (1997), 'Bouquets, Brickbats and Blinkers: Total Quality Management and Employee Involvement in Practice', *Organization Studies*, Vol. 18, No. 5, pp. 799-819
- Wilson R, Hogarth T (2003), *Tackling the Low Skills Equilibrium: a Review of Issues and some New Evidence*, November DTI Skills Research Programme
- Winterton J, Winterton R (1996), *The business benefits of competence-based management development*, HMSO
- Wood S (1999), 'Human Resource Management and Performance', *International Journal of Management Review*, I (4), 367-413
- Wood S, Albanese M T (1995), 'Can We Speak of Human Resource Management on the Shop Floor?', *Journal of Management Studies*, 32:2
- Woods W J (1992), 'Who is Running British Manufacturing?', *Industrial Management and Data Systems*, Vol. 92
- Wood S, de Menezes L, Lasoosa A (2001), 'Quality Time', *Centrepiece*, Spring
- The Work Foundation (2003), *The Missing Link: from Productivity to Performance*, The Work Foundation
- Wright P, McCormick B, Sherman W, McMahan G (1999), 'The role of human resource practices in petro-chemical refinery performance', *The International Journal of Human Resource Management*, Vol. 10, No. 4, pp. 551-571
- Youndt M, Snell S, Dean J, Lepak D (1996), 'Human Resource Management, Manufacturing Strategy, and Firm Performance', *Academy of Management Journal*, Vol. 39, No. 4, pp. 836-865