A model of the contemporary employment relationship: The impact of ICT on work arrangements and the perceived value of human capital.

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Abstract

In this paper a model of the contemporary employment relationship model is developed. It is argued that ICT is playing an important role in influencing the dual demand for people as a source of competitive advantage and as a cost to be managed which is reflected in the literature on numeric and task flexibility. The model also highlights the relationship of ICT and the changing nature of value derived from human resources. The implications of this dynamic model are particularly relevant to understand firm level HR strategies, since human resource management (HRM) systems respond to and support the prevailing employment management paradigm. A brief discussion of these HRM implications is presented as well as a number of research propositions.
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Introduction

Since the late 1980’s, researchers have drawn attention to the changing conditions of the employment relationship (Hogler 1996; Osterman 1994). Content analysis of academic and practitioner writings has identified relatively consistent characteristics of this new employment relationship (Boswell 2001; Mir et al. 2002; Roehling et al. 2000) including, greater attention to employee’s psychological needs, more involvement or empowerment in decision-making, greater autonomy in work especially in the operation of teamwork, enhancement in training and development opportunities, greater two-way communication, and the use of performance-based pay and profit sharing compensation schemes. Employers in return expect greater commitment to the organisation and its goals, development of multi-skilling and flexibility in task operations. However, in parallel with these developments, the employment relationship has also been characterised by a decline in worker employment security, extensive organisation downsizings that involve mass redundancies, reduction in employment security, greater use of outsourcing and contract labour, movement of manufacturing jobs to overseas locations to access cheap labour and limited labour protection laws, and the intensification of work hours and work productivity through just-in-time manufacturing and lean production methods (Bacon and Blyton 2001; Morin and Vicens 2001).

Thus the contemporary ER is characterised by two differing approaches to labour. One approach views employees as an important source of competitive advantage within the firm and seeks to maximise their value by stimulating motivation and commitment to the organisation and highlighting mutual concern between employers and employees (Boswell 2001; Mir et al. 2002; Roehling et al. 2000). The second approach, views labour as a cost to be managed and lowered and organisations search for ways to enhance the efficiency and productivity of labour through employment practices that increase labour flexibility and increase productivity through work intensification practices.
These contradictory perspectives within the ER are becoming more salient as organisational leaders deal with the pressures of the information age. In this paper I present an overview of the impact of ICT and globalisation on the ER within the firm and explore the subsequent impact that these forces have on human resource strategy. The paper begins with a brief examination of the impact of ICT on the organisational environment, since it this impact that shapes the experience of work and the ER (Capelli 1997; Dastmalchian and Blyton 2001). A conceptual model of the ER is developed that is used to highlight and analyse the trends and pressures arising from ICT innovations. The final part of the paper highlights the implications of the model in understanding firm level HRM strategy.

**ICT and the Changing Organisational Environment**

Many social commentators have sought to draw attention to the distinctiveness of the current era relative to the industrial society that dominated the greater part of the last century (Bell 1973; Bradley 1997; Negroponte 1995; Tofler 1980). A central feature of this new period is the innovation in and extensive use of computer technology and Internet based communication throughout society and within organisations. While acknowledging that information and communication technologies (ICT’s) are themselves embedded within a broader social setting (Fleck and Howells 2001), advances in ICT present a useful point of conceptual focus to begin to understand the forces driving substantial change in the contemporary organisational environment. ICT’s are tangible and innovations and their adoption and use can be clearly observed and measured within societies and organisations. Figure 1 represents the influence of ICT on organisations both in its direct impact and indirectly through its influence on the broad competitive environment faced by organisations.

**ICT and the external organisational environment**

The significance of ICT within the within the external organisational environment resides with its relationship with globalisation, especially those aspects of globalisation that relate to the growing geographical dispersion of business units and to the increasing globalising market environment (Bartlett and Ghoshal 2000; Tuller...
ICT and globalisation have a reciprocal influence on each other, in that while ICT aids international communication and exchange of information that supports global trade and the development of global enterprises, globalisation also helps to increase the spread and speed of technological innovations (Aggarwal 1999). Thus a cycle exists of technological change impacting globalisation, which in turn increases the value of technology.

The dynamic interchange between ICT and globalisation has contributed to an organisational environment of rapid innovation and change which both academics and business leaders have noted has increased the scope and scale of competition facing organisations (Bartlett and Ghoshal 2000; Daft 2000). Global markets increase competition by extending the number and variety of firms that are seeking to service customers and exposes firms to pressure in underlying costs of production. ICT innovations such as the Internet have also increased the need for organisations to provide substantial information to customers through company web sites. This information, gives customers more information to make judgements about service and product quality (Burton and Nesbit 2002) that in turn raises their expectations. Rising customer’s demands provide incentives to utilise technologies to better service customer needs (Alkadi et al. 2003). Thus, technological innovations and globalising markets, are combining to produce a dynamic cycle of increasing the competitive forces operating within business environments.
The increased competitive pressure requires organisations to attend to the efficiency of internal operations and the effectiveness of providing customer needs (Davis and Peri 2002). Efficiency refers to an input-output ratio or comparison, which relates to the operations and productivity of a firm. Effectiveness refers to the strategic focus of the output in addressing the needs expressed within a market environment (Ostroff and Schmitt 1993). While organisations have always responded to these twin concerns of performance, the degree and speed of change with the increase in competitive pressures, is putting enormous pressure on organisational structures and systems to adjust to respond to both dimensions simultaneously (Ostroff and Schmitt 1993). Competitive forces require organisations to continually maintain efficient operations in producing products and services while also ensuring innovation in products and services responding to changing customer needs, and ensuring high quality in those products and needs (Prahalad 1990).

**ICT and the internal organisational environment**

ICT innovations, have arguably contributed to revolutionary changes in the structure and organisation of work (Evans and Wurster 2000; Nesbit 2002; Steingraber 1996). Since the 1950’s the processing power of computers has made significant impact on organisations. The introduction of the Internet into business in the early 1990’s has added even more pressure on the pace and scale of structural changes as organisational leaders seek to exploit the advantages of a communication medium that offers global reach in the communication of contextually rich data at low cost (Evans and Wurster 2000). Furthermore, the Internet increases the value of computer processing capability through its potential to connect computers into networks where information can be readily exchanged. From an initial focus on e-commerce, buying and selling using the Internet, the use of the Internet has extended into every facet of business. Organisations are now engaged in substantial e-business transformations where internal structures and processes are reengineered to develop a seamless electronic movement of information throughout the value chain (Burton and Nesbit 2002; Greenhalgh 2000).

The significance of ICT for organisational structures and processes derives from its impact on the processing and communication of information (Evans and Wurster
Organisational structures and processes are designed to carry out activities needed to convert inputs into required outputs as efficiently as possible. These activities call for considerable processing and communication of information, even in those processes focused around the manufacture of tangible products (Evans and Wurster 2000). For example, lean production manufacturing relies on up to the minute communication of information flows between manufacturers and suppliers to provide for just-in-time deliveries and low inventories (Ranky 2003). Within service oriented and information-based industries the focus on information and its processing and communication has become even more central in the operations and processes of the organisation (Nezlek and Hidding 2001; Wymbs 2000).

Because of the global reach of the Internet, the exchange and access to information by the human resources of the firm is less dependent on proximity to the firm’s physical structures. Instead workers can engage with each other “virtually” using ICT mediated communication (Rutkowski et al. 2002). This has allowed the development of new work arrangements such as virtual teams where geographically dispersed members form teams to work on projects without the necessity to meet face-to-face (Townsend and DeMarie 1998). Additionally, ICT adds impetus to the increased use of teleworking arrangements such as mobile workers and home-based workers (Alkadi et al. 2003; Nesbit 2002). ICT also leverages the value of intellectual labour, by enabling communication between organisational members who hold particular expertise and those in need of this information. This is aided by enhanced information storage, collation and sorting and electronic distribution, and the ubiquity of e-mail communication (Nesbit 2002). In summary, the consequence of ICT innovations and globalisation is an increasingly competitive and rapidly changing organisational environment. In the section below the influences of ICT are considered against the backdrop of a model of the ER.

A Dynamic Model of the Employment Relationship

The ER concerns the conditions of exchange and reciprocal obligations between employers and employees for the sale of labour and the generation and appropriation of surplus economic value (Bell and Henry 2001; Legge 1995). For most of the last
century this contract was based on long-term permanent employment as the primary work arrangement. In recent years, there has been a move away from traditional full-time permanent work and towards increased use of a variety of employment arrangements (Atkinson 1984; Valverde et al. 2000). These arrangements include part-time employment, temporary or casual employment, and fixed term contracts. In the model presented in figure 2, these trends are represented as a dichotomous classification of employment arrangements – core and periphery. Core work arrangements refer to permanent employment arrangements that signal a desire by organisations for long-term relationships with employees (Tsui et al. 1997). Peripheral arrangements refer to relationships that are governed by loose contractual and often short-term contracts. The changing pattern of work arrangements are a salient feature of the contemporary employment environment and one that has received considerable attention in the industrial relations literature (Dastmalchian and Blyton 2001; Long 2001; Morin and Vicens 2001). This literature on employment arrangements gives attention to the decline in permanent employment as managers pursue numeric flexibility objectives in order to control labour costs.

The second dimension of the model concerns the perceived value of human resources within a firm, and reflects the potential for labour to perceived as a source of competitive advantage (Huselid 1995; Pfeffer 1998; Ulrich 1998). This perception has implications for the creation and appropriation of surplus economic value and the conditions offered and demanded within the ER. Given the transactional basis of the ER, the higher the economic value that can be derived from an employee the more valuable that employee is to the firm and the better the conditions the employee can demand. The combination of ‘employment arrangements’ and ‘value of HR to firm’ form the foundation of the ER model presented in figure 2. In the section that follows I outline and examine the nature of trends and pressures on the contemporary ER arising from innovations in ICT.

**Influences on the “Employment Arrangements” Dimension**

The move towards non-core work arrangements is generally seen to reflect a desire on behalf of management to increase the alignment of labour resources to the needs of the organisation (Valverde et al. 2000). Specifically, managers seek “numeric flexibility” to control manage labour costs by matching employee numbers to
fluctuations in demand for their products and services (Grenier et al. 1997; Valverde et al. 2000). It should also be recognised that benefits can also accrue to employees who seek limited engagement in their relationship with organisations, and desire the ability to pick and choose hours of work that most suits their lifestyles. Nevertheless, it is argued that the major driver of peripheral employment arrangements stem from economic advantages for organisations as they struggle to more efficiently deal with changing business and market conditions (Dastmalchian and Blyton 2001). This trend towards peripheral work arrangements is expected to continue and is indicated by an arrow marked ‘numeric flexibility’ on the employment arrangements dimension in figure 2.

Employment arrangements are also being influenced by ICT because it increases the utility and attractiveness of contingent work arrangements through its impact on the costs of administration and monitoring of contract workers. Research on peripheral work arrangements suggest that contracts for freelance and temporary work are often poorly specified and monitored, resulting in higher costs and low productivity of these workers (Klaff 2003; Mallon and Duberley 1999). Web-based applications help to overcome these problems by integrating the administration of contract work in centralised databases that aid in coordination of contractors, help to oversee monitor contractor performance and monitor contract arrangements (Klaff 2003). Thus ICT plays an enabling role in the move towards greater use of peripheral employment arrangements.
arrangements. This is highlighted in the model by an arrow marked ‘ICT enabling’ on the employment arrangement dimension.

However, the trend to utilise peripheral work arrangements reduces the advantages from control and influence over the flexibility of tasks and functional activity of employees (Dastmalchian and Blyton 2001; Tsui et al. 1997). Rapidly changing and competitive environments produce uncertainty not only in demand for labour but also in the nature of task to be done. In other words, in the increasingly competitive and changing work environment, there is need for employees to work on a variety of activities often outside their specified employment (Tsui et al. 1997). While traditionally, full-time and permanent employment arrangements did not stress task flexibility (Smith 1999), in the new competitive climate, core employees have been subjected to considerable efforts to make them more flexible. Multi-skilling, team based work groups, quality circles and process improvement teams of cross-functional employees are some of the initiatives introduced in recent years to increase task flexibility of labour (Dastmalchian and Blyton 2001; Kallenberg 2001; Valverde et al. 2000). This trend for task flexibility increases the need for permanent core employees (Tsui et al. 1997) and is noted on the employment arrangement dimension in figure 2.

Influences on the “Value of Human Resources” Dimension

According to human capital theory a significant component of the valuation of human resources derives from the heterogeneity of skills and knowledge, education and experience, within the labour market (Strober 1990). Labour markets incorporate information of these facets of employee value into the differing compensation arrangements offered to and demanded by potential employees (Steffy and Maurer 1988). Thus labour market value can be considered a signal of employee value within an organisation, with high labour market price indicating perceptions of high firm value. Just as high levels of knowledge and skills of employees will raise their labour market value, so too, firm perceptions of value will rise. The arrow marked “Personal Knowledge” represents the relationship between employee’s value in the firm and their labour market value arising from employee skills and abilities.
Given the high value associated with employee skills and knowledge, there has been considerable attention, in recent years, to attracting high quality employees into organisations (Axelrod et al. 2001; Huselid 1995; Pfeffer 1998; Ulrich 1998). However, exceptional human capital, as Boxall (1997) reminds us, is only “latent with productive possibilities” (p.67). In other words, productivity is not assured simply by the possession of high ability but is dependent on how people are treated, the appropriateness of productive resources used by the firm’s human resources (machinery and materials), and the design of work processes and systems (Nesbit 2004). The growing literature on intellectual capital also recognises the relationship between human resource capability and organisational systems in creating economic value (Stewart 2001; Sveiby 1997). Thus internal firm dynamics will also play a role in determining the value of human resources.

An important firm dynamic is the level of interdependence embedded within work systems. Interdependence in this context refers to the level of interconnectedness between activities and tasks carried out by the firm’s employees (Kiggundu 1981). Interdependence increases the linkages between people in the organisation and leads to what Boxall (1996) describes as “human process advantage…understood as a function of causally ambiguous, socially complex, historically evolved processes such as leaning, co-operation and innovation” (p67). Interdependence potentially increases the productivity of the workforce through the effect on better servicing of customer needs, especially in a climate where customers are looking for integrated solutions to their needs (Meyer and Menzel 2000). The degree of interdependence also influences the value that can be derived from highly skilled employees. Low interdependence in work systems isolates and limits the effects of highly talented employees, while high interdependence leverages their value. Thus high task interdependence provide for more value within the human capital of the firm by its potential to increase the creation of economic value. This view that value rises with the increasing interdependent nature of work systems is indicated in the model by the arrow “labour interdependence” on the HR value dimension.

Human resource value is also being directly impacted by the use of ICT, through the increasing use of knowledge management systems. Knowledge management refers to the activities that seek to develop, support and spread the use of knowledge and skills
of employees through the organisation in order to create value (Nonaka and Takeuchi 1995; Rutkowski et al. 2002). Two strategies have been identified for these knowledge management systems (Hansen et al. 1999). One approach, the codified strategy, focuses on computer-stored knowledge in which information is collated and stored in databases. The other approach, the personalisation strategy, focuses on linking people to interact in the exchange of information and knowledge. Both approaches seek to enhance the value of expertise of the firm by increasing the utilisation of their knowledge within the firm. This increase in value to the human resources of the firm, associated with ICT in represented by the arrow marked “virtuality” in figure 2.

The use of technology in knowledge management, however, also has the potential for decreasing the value of employees. To the extent that stored and distributed data substitutes for personal knowledge or skills or makes those skills and knowledge more common then those employees who derive their value from that knowledge and skill will be devalued (Barney 1991). Braverman (1974), discussing the impact of pre-Internet technology and process design, argued that the use of industrial technology in the design of work systems could transfer the knowledge of workers to systems owned by employers. He used the example of highly skilled craftsmen in the automotive industry, who where radically deskilled through process design innovations to the point that workers operated as appendages to machines and the assembly line process. Consequently their value to the organisation decreased when technological enabled systems substituted for previously valued skills. In the same way, ICT raises the potential for devaluation of skills and knowledge of some employees.

Indeed, knowledge management systems, which are designed to capture, store, sort and disseminate corporate information previously possessed by employees (Roberts 2001), can be seen as a way of reducing the reliance by organisations on these employees. These knowledge management systems resemble the efforts to capture “tacit” knowledge of workers as described by Braverman (1974). While efforts to capture “tacit knowledge” of workers through technological systems remain elusive because of the intangible nature of this knowledge (Davenport and Thomas 2002; Sveiby 1997), the increasing sophistication and popularity of codification systems are
likely to lead to devaluation of aspects of knowledge once it is stored and disseminated. The trend for codification of knowledge and hence the potential for devaluation of workers is represented on figure 2 as an arrow titled ‘codification’ indicating lower value of human resources to the organisation.

The model presents a broad overview of the ER from the perspective of work arrangements and firm perceptions of the value of its human resources. The model draws out the trends associated with innovations in ICT on these two dimensions of the ER. Of particular note is that the influence is not unidimensional. That is to say, the trends do not present a picture of simple trends but highlights that there are contradictory influences arising from ICT. In the section that follows the complexity of managing in this new environment is discussed in terms of implications for HRM strategy.

**Implications for HRM**

Within the ER model two contradictory perspectives of labour have been noted. Working arrangements reflect the view that labour is a cost to be controlled and if possible lowered and the value of the firm human resources reflects the perspective of labour as a source of competitive advantage. These two perspectives of labour present a dilemma for management since, as observed by Griener, Giles and Belanger (1997), managers find themselves “in the contradictory position of trying to induce workers to make better use of their abilities while at the same time seeking to respond to unpredictable product demand by contracting and expanding the size of the work core on a short-term basis “(p.687). This managerial dilemma is particularly problematic for HRM since it is the major management discipline used to encourage high commitment of staff so that efforts to manage labour costs will negatively impact the motivation of human resources and undermine HRM aims.

On one hand, the view that people are seen as a source of competitive advantage requires a HRM strategy that utilises high performance human resource (HPHR) practices to attract, select, motivate and develop highly talented employees (Axelrod et al. 2001; Huselid 1995; Pfeffer 1998; Ulrich 1998). On the other hand, HPHR
practices can require considerable costs to the organisation (Godard and Delaney 2000), which is contrary to the desire to control costs inherent in the need for efficient internal operations.

The ER model provides insight into this calculus of costs and benefits with HRM strategy by drawing attention to the perceived value of human resources across peripheral and core work arrangements. By rescaling the dimension ‘value of HR to firm’ into a dichotomy of high and low value four ER categories can be formed that reflect different value propositions to the firm (figure 3). It is suggested that HR strategy should co-vary with these ER categories-high value core, high value periphery, low value core, and low value periphery. Specifically, it is proposed that HRM strategy should reflect the analysis of whether the value achieved by a firm’s HR strategy outweighs the costs of implementation.

For those employees within the periphery who are seen to provide relatively lower value to organisations, there is little economic incentive for the organisation to provide HPHR practices. These employees are likely to experience more overtly transactional relations with the firm coupled by a personnel focus in HR and attention to costs and control. For those employees within the core group of the organisation who are seen as providing high value to the organisation, the HR experience is likely
to reflect being targets of selective recruitment and selection practices and HR activities that seek to develop high motivational effects, engage commitment, and develop a relational connection with the firm. Thus these two ER categories reflect HR strategies that represent ‘personnel’ and ‘high-performance’ work practices (Garavan et al. 1998; Morris et al. 2000; Osterman 1994; Pfeffer 1998; Tsui et al. 1997) or hard and soft HRM (Legge 1995; Truss and Gratton 1997).

More problematic for organisations are the high value periphery employees, and lower value core employees. These groups are likely to be the target of substantial efforts to maintain commitment to the firm through HPHR but the HR strategy must also take into account the economic reality of providing these costly HR practices to a group who provide limited organisational value (lower value core employees) or to a group who have tenuous connection and loyalty to the organisation (higher value periphery employees). To deal with these contradictions, I propose that firms will engage in the use of rhetoric in managerial communication while carrying out actions that by seek limitation of costs pf labour and increase flexibility. HR rhetoric is likely to be used to reinterpret actions related to cost control of labour into commitment oriented practices supporting mutual interests of employees and employers (Keenoy and Anthony 1992; Legge 1995).

On the basis of these elements within the ER a number of research propositions can be developed. These propositions are couched in terms of differences between broad a ‘soft’ HPHR strategy and ‘hard’ cost-containment personnel strategy.

Specific research propositions regarding ‘core’ employees -:

1. We expect to see differing HRM practices for high value employees than for low value employees.
2. The higher the percentage of high value employees among the core employees, the more likely the HR strategy for the organisation will reflect HPHR practices.
3. The higher the interdependence between the high and low values employees then the more likely HR strategy for the organisation will reflect HPHR.
Specific research propositions for ‘periphery’ employees

1. HR practices for the high value periphery workforce will be less reflective of HPHR practices than for high value core employees.
2. If co-ordination and interdependence is high within the core, then periphery HR practices will more likely to reflect HPHR practices.

Specific research propositions concerning HRM rhetoric

1. HR Rhetoric will be pronounced in firms with a high percentage of employees in the high value periphery ER.
2. HR Rhetoric will be pronounced in firms with a high percentage of employees in the low value core ER. These two propositions reflect the need to deal with contradictions between labour commitment and labour costs.

Summary
The paper has presented a model of the ER based on the work arrangement and the value of human resources to the firm. These two dimensions have been examined in terms of the way that innovations of ICT can influence them. The model shows a complex interaction that promotes contradictory influences. HRM strategy has been examined to investigate the implications of the model. A number of research propositions have been developed.
References


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