SHIFTING THE PARADIGM IN HUMAN RESOURCE MANAGEMENT: FROM THE RESOURCE-BASED VIEW TO COMPLEX ADAPTIVE SYSTEMS

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Abstract

The resource-based view (RBV) has been welcomed by researchers as a sound basis upon which to develop theory in the field of HRM. However, we argue that the RBV is overly rationalistic, unitarist and internally focused compared with what we know about organizations from sociological and institutionalist perspectives. The more recent complex adaptive systems perspective constitutes a more promising basis upon which to advance our knowledge in this area.

Scholars in the area of strategic human resource management (HRM) have increasingly drawn on the resource based view of the firm as a means of theorizing the interrelationship between HRM and firm performance: this theory provides a framework for viewing human resources as a pool of skills that can provide a resource to serve as a sustained competitive advantage (Wright and McMahan, 1992: 303). Indeed, resource based theory has been welcomed by some as providing a theoretical foundation for a subject previously lacking in one (Kamoche, 1996; Swiercz, 1995; Boxall, 1996).

Emanating originally from economics, and then applied in the field of strategy before being extended to HRM, resource based theory is built on the dual assumptions of firm resource heterogeneity and firm resource immobility (Penrose, 1959; Nelson, 1991). The argument is that firms consist of bundles of unique resources and that, if these resources meet the four criteria of value, rarity, inimitability and non-substitutability, then they can constitute a source of sustained competitive advantage to the firm (Boxall, 1996). Human resources, it has been argued, can constitute a particularly strong source of sustained competitive advantage, provided the firm is organized to exploit them (Youndt, Snell, Dean and Lepak, 1996; Becker, Huselid, Pickus and Spratt, 1997; Becker and Gerhart, 1996).

Although calls for the application of the resource based view (RBV) to HRM appear persuasive, our argument is that this approach fails to account fully for the particular nature of either individuals or human resource management and, therefore, that the resource based perspective may not

constitute the most appropriate framework for advancing theory in the field of HRM.

Our purpose is to bring together and extend reservations that have been expressed about the resource based view within the strategy literature, and to analyze how these apply in the field of HRM. We also present arguments developed from within the HRM and organizational behaviour literatures concerning the nature of organizations to indicate that the resource based view is founded on rationalistic and positivistic notions of organizational reality that neglect accepted ways of understanding both organizations and the way in which individuals within them are managed.

As an alternative, we introduce another framework that has been developed within the strategy literature, based on theories in the natural sciences, complex adaptive systems (CAS) theory (Stacey, 1996), and contrast this with the resource based perspective. Based on this analysis, we argue that CAS theory is more closely aligned both with what we know about the unique nature of human resources and with paradigms of organizational analysis that underpin HRM and, therefore, might constitute a more fruitful basis for advancing theory in HRM.

First, we discuss the fundamental assumptions of the RBV. Such analyses have been reasonably frequent in the strategy literature (see, for example, Barney, 1991; Wernerfelt, 1984; Conner, 1991), but have not often been explicitly articulated within the HRM literature (for some exceptions, see Kamoche, 1996; Boxall, 1996), although it is of the utmost importance that the precise meaning of the terminology of the RBV and its application to *human* resources is understood if theory is to be advanced in this field. We then

analyze how the RBV has been applied within the field of HRM, and how it differs from alternative theoretical frameworks that have been proposed. The limitations of the RBV in terms of its application to HRM are contrasted with the more recent complex adaptive systems approach.

THE RESOURCE BASED VIEW: FUNDAMENTAL ASSUMPTIONS

Historical Antecedents

The RBV has its roots in the organizational economics literature and the work of Ricardo (1817), Schumpeter (1934) and Penrose (1959). In common with other industrial organization economic theories, one of the fundamental assumptions of the resource based approach is that the ultimate purpose of the firm is to maximize rent (Conner, 1991; Barney, 1986; Wernerfelt, 1984; Foss, 1996).

Whereas the industrial organization approach adopted in much of the traditional business strategy literature assumes that firms competing in the same industry are homogeneous (Porter, 1980; 1985), and that the firm s adaptation to the characteristics of its product market is the major determinant of firm performance (Hagan, 1996; Barney, 1995; Wright and McMahan, 1992), the RBV is founded on the notion that individual firms are unique and composed of distinct bundles of resources (Barney,1991).

In the traditional strategy literature, relatively little attention is paid to internal firm resources, other than labor, capital and land, and extensive use is made of mathematical models to demonstrate the declining return of these resources over time (Hagan, 1996). In the RBV, on the other hand, internal firm resources are regarded as the ultimate source of sustained competitive

advantage (Barney, 1995; Hagan,1996; Conner, 1991; Lado, Boyd and Wright, 1992; Wernerfelt, 1984; Castanias and Helfat 1991). Strategy is, therefore, concerned with gaining the best degree of fit between the internal resources of the firm and external opportunities (Rumelt, 1974; Conner, 1991; Barnard, 1938; Selznick, 1957; Sloan, 1963; Chandler, 1962; 1977).

According to the RBV, then, the firm is regarded as a bundle of both tangible and intangible resources and capabilities (Amit and Shoemaker, 1993; Barney, 1991; Conner, 1991; Grant, 1991; Mahoney and Pandian, 1992; Rumelt, 1984; Wernerfelt, 1984). Sustained competitive advantage accrues to the firm through optimal resource endowments and deployments when these firm-specific resources yield benefits that cannot be duplicated or substituted (Lado and Wilson, 1994; Barney, 1991; Conner, 1991; Grant, 1991; Amit and Shoemaker, 1993; Barney, 1991; Dierickx and Cool, 1989; Reed and deFillippi, 1990):

Thus, in a resource-based view, the critical problem faced by the firm is how to maintain the distinctiveness of its product or, for identical products, its low cost position, while not investing so much in obtaining this difference as to destroy above-normal returns (Conner, 1991: 132). This implies that persistently high rents are possible, and that the firm is therefore a seeker of unique or inimitable inputs.

The Criteria for Resources

A critical factor in the RBV is how resources themselves are defined. Lado and Wilson (1994: 701) define resources as all the input factors, both tangible and intangible, that are owned or controlled by the firm . They regard

these as distinct from firm capabilities, which are defined as the dynamic, non-finite mechanisms that enable the firm to acquire, develop and deploy its resources to achieve superior performance relative to other firms (Lado and Wilson, 1994: 701), which includes culture, learning and routines. Together, they term these resources and capabilities organizational competencies .

Wernerfelt (1984: 172) on the other hand, defines resources as: those (tangible and intangible) assets which are tied semi-permanently to the firm . Barney (1991: 101) extends this definition to include all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc., controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness . This latter definition would appear to be the most all-encompassing, and suggests that a resource is any feature of a firm over which it has control. We will return to this question of control later.

Three main types of resources have been identified: physical capital resources, including plant, technology, equipment; human capital resources, including individual knowledge, skills and abilities; and organizational capital resources, including the formal and informal relations among groups within and between firms, and the controlling and co-ordinating mechanisms within the firm (Wright, McMahan and McWilliams, 1994; Williamson, 1975; Barney, 1991; Barney, 1995; Barney and Wright, 1998).

These definitions, either implicitly or explicitly, are based on the assumption that firm resources are not neutral attributes, rather, they are features that add a positive value to the firm. Indeed, within the resource based perspective, *relevant* resources are firm attributes that are a source of

sustained competitive advantage (Barney, 1991; Conner, 1991). Other resources, therefore, are deemed not strategically relevant; some may actively prevent a firm from implementing valuable strategies, whilst others may simply have no impact (Barney, 1986b).

In this context, competitive advantage is described as occurring: when a firm is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors (Barney, 1991: 102). *Sustained* competitive advantage is distinctive because: a competitive advantage is not considered sustained until all efforts by competitors to duplicate the advantage have ceased (Lippman and Rumelt, 1982: 303). Barney (1991) argues that firms cannot achieve sustained competitive advantage when strategic resources are evenly distributed across all competing firms or when resources are mobile. According to Barney (1991) firms can only find competitive advantages in the resources already contained within the firm, they cannot purchase them outside.

Consequently, the resource based view is founded on the notion that resources are heterogeneous, or unevenly distributed, across firms in the same industry, and that resources are immobile (Barney, 1991; Scherer, 1980; Lado and Wilson, 1994; Wright and McMahan, 1992). In traditional strategic management models, resources are considered to be mobile; firms can therefore purchase or create resources held by competing firms, leading to firm resource homogeneity across an industry (Rumelt, 1991; Porter, 1980; 1985; Holmstrom and Tirole, 1989). Where this occurs, firms will all have the same amount and kinds of strategically relevant resources, and these could

not constitute a source of sustained competitive advantage for any one of them (Barney et al., 1989; Barney, 1991).

In order to constitute a potential source of sustained competitive advantage, according to the RBV, resources must meet four criteria; they must add positive value to the firm; they must be unique or rare among potential and current competitors; they must be imperfectly imitable; and they should not be substitutable with other resources by competing firms (Barney, 1991; 1995; Wright and McMahan, 1992; Wright et al., 1994; Priem and Butler, 2001).

Value. A resource should add value to the firm by enabling it to exploit opportunities or neutralize threats in the environment (Barney, 1995; Lado and Wilson, 1994; Barney and Wright, 1998). Barney (1995) also notes that sources of value change over time.

Rarity. A resource should be unique or rare among current and potential competitors; resources common among large numbers of firms can be a source of competitive parity (Barney, 1989a; Barney, 1991; Barney, 1995; Lado and Wilson, 1994; Barney and Wright, 1998).

Inimitability. If a resource itself, or its benefits, can be imitated across firms, then it can only be a source of competitive parity, not competitive advantage (Barney and Wright, 1998). Inimitability arises through several factors, or *isolation mechanisms* (Barney, 1991; Lado and Wilson, 1994). The first is *unique historical conditions*; firms are regarded as social entities whose ability to acquire and exploit resources depends on their place in time and space. The second is *causal ambiguity*; exactly how firms generate competitive advantage from their resource endowments or deployments is

unclear and, therefore difficult to imitate (Lippman and Rumelt, 1982; Lado and Wilson, 1994). The third is *social complexity*, which arises when it is beyond the ability of competing firms and, ultimately, the resource-endowed firm itself, to systematically manage and influence the resources, such as interpersonal relationships among managers, culture or reputation (Hambrick, 1987; Barney, 1986b; Klein, Crawford and Alchian, 1978; Klein and Leffler, 1981; Amit and Shoemaker, 1993; Reed and deFillippi, 1990; Nelson and Winter, 1982; Weigelt and Camerer, 1988).

Non-Substitutability. It should not be possible for the same, or strategically equivalent, resources, to be deployed by other firms (Barney, 1991; Dierickx and Cool, 1989; Lado and Wilson, 1994).

According to the definition of resources, all four criteria must be met for a resource to be considered a source of sustained competitive advantage (Barney and Wright, 1990). Resources are also viewed in a comparative context; they are only considered potential sources of sustained competitive advantage in comparison with those resources held and deployed by competing organizations (Collis, 1991).

When resources meet these criteria, they are *potential* sources of sustained competitive advantage; whether or not they are realized depends on the extent to which the firm is organized to exploit them (Barney, 1995). Another factor which impacts on the rent-generating potential of resources is the degree of specificity of the asset to the firm; Conner (1991) argues that the greater the degree of specificity of an asset to a firm, the greater its potential for generating rent for that firm. According to Conner (1991), intangible resources that cannot be purchased on the market such as

organizational culture are more likely to be firm-specific and therefore have greater potential to generate rent (Dierickx and Cool, 1989; Rumelt, 1974).

These arguments are the basic underpinning of the resource based view as it is presented in the strategy literature.

APPLICATION TO HUMAN RESOURCE MANAGEMENT

During the 1990s, resource based theory became an increasing focus of interest for HRM scholars, in view of what was regarded as a relative paucity of rigorous theoretical frameworks in the field (Wright and McMahan, 1992; Scwiercz, 1995; Mueller, 1996; Boxall, 1996). In particular, it was embraced as a theoretical perspective that could enable a greater understanding of the link between HRM and organizational performance (Mueller, 1996; Huselid, 1995).

Swiercz (1995) has described three alternative perspectives in the field of HRM, the first being the fit perspective, according to which organizations are regarded as analogous to organisms existing in a hostile and ever-changing environment in which success depends on achieving a good match between internal organizational characteristics and environmental contingencies. Drawn originally from evolutionary biology, the fit perspective, or the matching model (Baird and Meshoulam, 1988; Boxall, 1992; Schuler, 1988) suggests that optimal HRM combines both vertical integration between HR and business strategy, and horizontal integration between individual HR policy areas (Truss and Gratton, 1994). Some of the limitations of this approach include its adherence to a rationalist, planning model of both

strategy and HRM (Legge, 1995; Truss et al., 1997), and the implicit Taylorist separation of formulation and implementation (Swiercz, 1995).

According to Swiercz (1995), the second perspective on HRM is the functional perspective , whereby HR is regarded as a staff function in an advisory and subordinate role, selling its services either implicitly or explicitly to other units and departments within the organization. Subsumed within this approach is Schuler and Jackson s (1987) needed role behaviors model, in which the primary role of the HR function is regarded as being to elicit appropriate behaviour from employees to underpin business strategic objectives (Schuler and Jackson, 1987; Schuler and MacMillan, 1984; Jackson, Schuler and Rivero, 1989; Mueller, 1996; Kamoche, 1996; Wright and McMahan, 1992; Youndt et al., 1996; Swiercz, 1995).

The third perspective identified is the typological perspective, whereby typologies of approaches to HRM are proposed. One example is the work of Dyer and Holder (1988) who present three ideal types of HR strategy, inducement, investment and involvement as a menu from which senior managers can choose when determining how best to manage human resources.

One criticism that has been made of all of these alternative approaches to the RBV is that they are overly unitarist; differences both between various segments of the workforce and between managerial and non-managerial staff are rarely addressed (Boxall, 1992; Snape, Redman and Wilkinson, 1993; Swiercz, 1995; Osterman, 1987; Purcell, 1987). Furthermore, they can more appropriately be regarded as frameworks for understanding HRM rather than rigorous theories of HRM. (For further discussion of alternative HRM

frameworks see Wright and McMahan, 1992; Jackson and Schuler, 1995; Truss, 2001). For these reasons, proponents have asserted that the resource-based perspective provides a new, theoretically-grounded, foundation for HRM, preferable to other paradigms that have been developed (Mueller, 1996; Kamoche, 1996; Boxall, 1996).

However, an analysis of the literature reveals a number of inconsistencies and tensions in the application of the RBV to HRM which have yet to be resolved (Kamoche, 1996). Not least of these is the uncertainty over the level of analysis. One question is of particular importance; is it the people themselves, or the HR system of the organization (or, perhaps, both) which constitutes the resource? If the former, then which aspect of people should we focus on, their individual knowledge, skills and abilities, their behavior, or their collective mindset, manifest in such artefacts as organizational culture or climate? If the latter, then are we concerned with individual HR interventions, bundles of HR practices (Huselid, 1995) or with the whole HR system? Different commentators provide different answers to these questions, revealing a lack of unified focus within the framework of the RBV.

This lack of unity is exacerbated by the specific responses provided within the RBV literature to the questions raised above. Our argument is constructed around two key areas. Firstly, we explore the fundamental assumptions about the nature of organizations that are implicit in the RBV, and use theories derived from HRM and organizational behavior, such as institutional theory and open systems theory, as well as traditional strategy theories, to highlight the problematic nature of these assumptions.

Secondly, we explore the implications of the dualism between human capital advantage and human process advantage (Boxall, 1996). We analyze the assumptions underlying both of these approaches, and argue that the RBV implies a far more narrow and one-dimensional perspective on both of these elements than the HRM and organizational behavior literatures would suggest is the case. Finally, we introduce the alternative theoretical framework provided by the complex adaptive systems literature as offering greater potential as a theoretical paradigm for HRM.

The Resource Based View and the Nature of Organizations

The most fundamental assumption of the RBV is that the ultimate goal of the organization is creating sustained competitive advantage (Conner, 1991; Barney, 1991). The firm is therefore regarded as a seeker of unique inputs, or resources, that will enable it to generate above-average rents (Lado and Wilson,1994; Grant, 1991). Factors only become *resources* when they contribute to generating sustained competitive advantage (Amit and Schoemaker, 1993).

However, the notion that all organizations are seeking sustained competitive advantage is highly problematic from the perspective of HRM. Firstly, it limits the applicability of the RBV; as has been pointed out, there are four types of organization, mutual benefit associations, business concerns, service organizations and commonweal associations (Blau and Scott, 1964). Only one of these is strictly concerned with generating rents. The management of people does not only occur in rent-generating organizations, but across the full spectrum. Building a theory of HRM on the fundamental

assumption that its primary concern is the generation of sustained competitive advantage limits the generalizability of any propositions made (Priem and Butler, 2001).

Regarding organizations as goal-seeking entities appears to be a reversion to the early twentieth-century mechanistic view of the potential link between formal organizational structures and organizational performance, typified by the scientific management movement (Burns, 1967). Scientific management was, ultimately, concerned with efficiency as its central problem, and proposed solutions focused on interventions into the formal organizational structure and the optimal utilization of human and mechanical resources. Regarding organizations as seekers of particular kinds of resources implies an economic, as opposed to a behavioral view of what an organization is. It is a view that fails to take account of the, often conflicting, attitudes, motivations and goals of the individuals who make up the organization (Silverman, 1970).

As Etzioni (1960; 1961a; 1961b) has suggested, organizations are more appropriately viewed as social systems, only one of whose needs is goal-attainment. The organizational behavior literature tells us that the goals of all types of organizations are contested (Silverman, 1970; Burns, 1967). As Silverman (1970:18) points out, there are five possible ways of determining who the prime beneficiary of an organization is: who is perceived by members of the organization to benefit most; who they think should legitimately benefit; who is perceived by the general public as benefiting or deserving to benefit; and who may be said by an observer to benefit most. Rationalistic approaches such as the RBV, constructed upon the fundamental belief that the correct focus for organizational activities is the generation of sustained

competitive advantage fly in the face of social conceptualizations of organization. There is a long history tracing the inherently pluralistic nature of the interests of organizational members, for example, Fox (1974).

This argument is extended by Kamoche (1996: 222), who argues that: a strict concern with bottom line analysis in SHRM falters on epistemological grounds because the intangible nature of the value of human resources and human resource outcomes does not easily lend itself to quantitative analysis . The suggestion is, therefore, that trying to establish a link between HRM in some form and bottom line performance metrics may be a hopeless task because of the very nature of the human resources themselves and the HR management system. This is a point that will be explored further below in the context of human capital and human process advantage.

In addition to the focus of the analysis in the RBV, we can also question the positivistic stance adopted in the RBV by focusing on organizational performance and individuals behavior as the unit of analysis, without seeking to understand the meanings attached to this behavior by individuals. In this sense, the RBV is based on a purely rationalistic, and economic, view of human nature.

The first fundamental issue we have then identified as problematic within the resource based view from the HRM perspective is the underlying assumption about the nature of organizations upon which it is based.

Human Capital Advantage or Human Process Advantage?

Within the HRM literature, a distinction has been made between *human capital advantage*, according to which the firm s resource is the people it

employs, and *human process advantage*, whereby it is the HRM system that constitutes the source of advantage (Boxall, 1996). Some have argued that firm resources in both areas are required in order to give rise to *human resource advantage* for the firm (Kamoche, 1996).

Human Capital Advantage. There are a number of assumptions upon which the RBV draws in order to argue that human capital can be a source of sustained competitive advantage to the firm. The first is that both the supply and the demand for human resources are heterogeneous, rather than homogeneous across firms, and that human resources are not freely mobile (Lado and Wilson, 1994; Wright and McMahan, 1992; Steffy and Maurer, 1988; Wright et al., 1994; Kamoche, 1996; Barney, 1991). In other words, firms have jobs that require differing kinds of skills, and people vary in the skill levels they have. The assumption is that skills are normally distributed in the workforce and, therefore, those with high-level skills are, by definition, rare, and those organizations with high levels of ability, most specifically cognitive skills, possess more valuable human resources than their competitors (Wright and Snell, 1991; Wright, McMahan and McWilliams, 1994; Wright and McMahan, 1992; Hunter and Hunter, 1984; Schmidt, Hunter and Pearlman, 1979; Kamoche, 1996).

According to the RBV, if the labor market were purely competitive, and human resources were freely mobile across firms, then a market-determined wage rate would be sufficient to attract, retain or replace human resources and, therefore, investment in firm-specific human capital would not necessarily be worthwhile (Joll, McKenna, McNabb and Shorey, 1983; Steffy and Maurer, 1988). Similarly, firms would all have the same amount and

kinds of strategically relevant resources, and any strategy could be duplicated across organizations, meaning that human resources could not constitute a source of sustained competitive advantage for any individual firm (Barney et al., 1989; Barney, 1991).

However, it is argued that, because people have varying levels of skills, investment in firm-specific human capital is valuable because it potentially enhances the productive capacity of human resources (Becker, 1975; Parnes, 1984). Firm-specific human capital is not widely available in the labour market and it cannot be readily substituted by other resources without having to incur heavy replacement costs (Becker, 1975; Parnes, 1984; Dierickx and Cool, 1989; Doeringer and Piore, 1971). In this way, human resources themselves, or human capital, are said to constitute a source of sustained competitive advantage (Castanias and Helfat, 1991). General skills that are available to all firms are, it is argued, a potential source of competitive parity, whereas firm-specific skills, such as knowledge of particular systems or culture, are more likely to constitute a resource (Flamholtz and Lacey, 1981; Barney and Wright, 1998).

One important feature of this argument is the assumption that human resources are imperfectly mobile because of the transaction costs associated with moving from one employer to another (Abelson and Baysinger, 1984). Human resources are also regarded as non-substitutable and unlikely to become obsolete; whilst other resources may be substituted in the short term, Wright et al (1994) argue that it is unlikely such substitution could result in sustained competitive advantage.

Human resources are also regarded as meeting the criterion of inimitability, because they are socially complex, causally ambiguous and depend on unique historical conditions (Dierickx and Cool, 1989; Reed and de Fillippi, 1990). Thus, the link between a firm s competitive advantage and its human resources is only imperfectly understood by both competitors and the organization itself due to their complexity, rendering them very hard to imitate.

However, it is not clear which aspects of human resources constitute the competence. Wright, McMahan and McWilliams (1994) argue that individual knowledge, skills and abilities are necessary but not sufficient, and that employee behaviour needs to be in line with firm goals as well. Others have argued that inherent ability, dexterity, ability to learn or cognition may be the most significant (Boudreau, 1983; Kamoche, 1996). However, the argument has also been put forward that it is the nature of the top management pool that is the critical aspect (Gerstein and Reisman, 1983; Gupta, 1984; Kerr, 1982, Olian and Rynes, 1984). Others have argued that the total human capital pool is the determinant of competitive advantage because the top management team is highly visible and, therefore, potentially imitable and mobile, being able to command higher salaries and also consuming rents that would otherwise accrue to the firm (Wright et al., 1994; 1995).

This lack of agreement over which what does, or at least could potentially, constitute a human resource is quite significant. Almost all organizations have a highly heterogeneous workforce comprising both higher and lower skilled workers. Should one group be counted as a source of sustained competitive advantage, whilst another is excluded? How can the

resource based view account for the complexity of interactions and interdependencies between individuals and groups within the firm? One example would be secretarial workers, who are commonly regarded as part of the clerical workforce and, by definition, of a lower skill level than the executives they support. Yet, research has shown that secretaries often perform highly complex and skilled tasks, and possess a high degree of tacit knowledge about the operation of their organizations that is of great value, yet remains hidden from the formal organization (Truss, 1993; Truss, Goffee and Jones, 1995).

Within the branch of the RBV literature that regards individuals firm-specific competencies as the resource , or which holds that the whole workforce is the source of value, then this tacit organizational knowledge held by secretaries would mark them out as a resource for the firm. By those scholars who regard high levels of cognitive skills, or just the senior management team as the resource , then secretaries would probably be excluded. If the RBV cannot provide a clear answer, then it would appear to be unhelpful both at a theoretical and an empirical level in understanding and interpreting organizational phenomena.

Barney and Wright (1998) go so far as to argue that those aspects of human resources that do not provide value to the firm should be discarded. Yet, how can we discard that part of a human resource that may not be considered valuable to the firm, whilst retaining, say, that individual s valuable cognitive skills? How can we evaluate every individual s unique place within the social architecture of the firm and predict what effect their

removal would have? In any event, human resources are not expendable assets to be freely traded in and out of the firm at will.

One important element of this argument is that the more firm-specific human resource competencies are, the greater their potential to generate rents (Barney, 1991; Kamoche, 1996). This argument lies at the heart of the RBV s stance on human resources, but its implications have not been fully explored within the literature. The essence of the argument is that *general* skills are of less importance in terms of value-added than firm-specific skills. Some examples of firm-specific skills include knowledge of internal processes and systems, people, habitual ways of working, culture, norms and values. In order to remain within the framework of analysis of the RBV, which holds that any commodity generally available to *all* firms in the same product market *cannot* be a resource because they do not meet the criteria of inimitability and rarity, it is only skills such as these that are regarded as resources . The problem with this is that highly significant, generic skills that may be contained within the firm are discounted. Without these generic skills, for instance, general cognitive abilities, ICT or leadership skills, firms will be unable to gain value from more narrowly-based, firm-specific skills.

Further issues arise when we consider the nature of the movement of people between organizations. It is argued within the RBV that resources are factors that are held *within* the organization, they cannot be purchased in the open market. This raises the question, in relation to human resources, of what happens when people leave, which they inevitably do, taking their human capital with them, and are replaced by other individuals. According to the RBV, this would diminish the firm s overall human capital advantage.

What if the new recruits were more qualified, had higher levels of cognitive abilities than those who left? Surely, they would potentially bring with them greater human capital? The RBV does not appear to be able to account for this.

Priem and Butler (2001) have also queried the emphasis placed within the RBV on the importance of tacit knowledge , or unconscious experiential understanding, as a key resource. They argue that it is impossible for practitioners to knowingly manipulate a factor that is, by its nature, unknowable and that, consequently, the RBV can tell us little about issues of the *process* of managing resources. Why do some resources generate value, whereas others do not? The overly inclusive nature of the definition of resources makes it difficult to draw boundaries, and causality remains unclear.

We also need to consider the nature of the contract between firm and individual. If it is true that resources only occur within organizations, how are subcontractors, temporary workers, part-time workers, secondees, and consultants to be accounted for? Such individuals may bring with them vital skills for the organization and yet not be a part of it in the same way as full-time, permanent employees (Truss, 2001). The RBV does not appear to be able to account for them either.

Other potential differences between individuals within the workforce also remain unaccounted for under the RBV, which tends to treat employees as a homogeneous cohort (Truss, 1999). Little or no allowance is made for the differential impact of HR policies and practices on employees on the basis of, for instance, gender, age, ethnic origin, status or job.

Finally, we need to consider the special nature of *human* resources. People come into organizations as full personalities, and are embedded in broader social systems than just their employing organizations, such as their family, community, informal networks, and ethnic and national groups. Whilst some aspects of these individuals, such as their cognitive abilities, may be a resource for the organization, it is certain that no one individual will be able to function optimally all the time. Physical resources, such as machinery, do not come to work with a hangover. They do not suffer bereavements, physical or mental illness or ask to move to another section because they do not like their section leader. They do not have to combine work with caring responsibilities at home. As Coff (1997: 374) has argued: like human assets, an oil field may be a strategic asset. However, once acquired, an oil field: cannot quit and move to a competing firm; cannot demand higher or more equitable wages; cannot reject the firm s authority or be unmotivated; need not be satisfied with supervision, co-workers or advancement opportunities .

Ultimately, it should also not be forgotten that people, unlike other resources, can *choose* whether or not to allow the firm to benefit from their labor; at best, an organization can have only partial or limited control over its human resources (Kamoche, 1996; Coff, 1997; Cascio, 1991; Chiang and Chiang, 1990; Steffy and Maurer, 1988; Wright et al., 1994). The RBV, in adopting an essentially unitarist perspective on the employment relationship by assuming that people will choose to behave in a way that makes economic sense for their employing firm, denies alternative, pluralist views of the nature of the contract between individuals and organizations (Fox, 1974).

Some more specific issues are raised when we consider the assumptions within the RBV surrounding labour market heterogeneity and firm resource immobility. It has been argued that the RBV simplifies the nature of labor markets (Priem and Butler, 2001). Bennett et al. (1988) have shown that labor markets can be characterized either by munificence or scarcity. Consequently, not all skill levels are normally distributed across all labour markets. There have been examples of firms setting up greenfield sites, only to discover that their required skills were not present in the local labour market.

Human Process Advantage. In addition to the arguments surrounding human capital advantage, the HRM literature also draws on the notion of human process advantage to argue that the potential of human capital can only be realized through effective human resource management systems (Boxall, 1996; Kamoche, 1996; Amit and Schoemaker, 1993; Coff, 1997). Some go so far as to argue that it is not the people employed by the organization, but the HRM system itself that fulfils the criteria to constitute a resource (Cappelli and Singh, 1992; Lado and Wilson, 1994).

HRM systems have been defined as: a set of distinct but interrelated activities, functions and processes that are directed at attracting, developing and maintaining (or disposing of) a firm s human resources (Lado and Wilson, 1994: 701). Firstly, it has been argued that an HR system can be a source of value through facilitating the development of competencies that are firm-specific, produce complex social relationships, are embedded in a firm s history and culture, and generate tacit, organizational knowledge (Lado and Wilson, 1994: 699).

Rarity, it has been argued, emanates from the fact that an HR system is peculiar to the individual organization (Becker, Huselid et al., 1997; Lado and Wilson, 1994). Where there is alignment among individual HR practices and between HR practices and business strategy, it has the potential to be a source of sustained competitive advantage (Becker, Huselid et al., 1997). The work of Huselid has sought to illustrate the way in which a so-called High Performance Work System can directly lead to higher levels of firm performance (Becker, Huselid et al., 1997; Huselid, 1995; Huselid and Becker, 1995). Barney and Wright (1998) argue that individual HR practices on their own may be relatively easy to imitate and therefore do not individually constitute a resource (Lado and Wilson, 1994). HR systems, on the other hand, can create a synergistic effect and thus generate sustained competitive advantage (Wright and Snell, 1991; Wright and McMahan, 1992; Lado and Wilson, 1994; MacDuffie, 1995).

Causal ambiguity, unique historical conditions, social complexity and path dependency are said to render an organization s HR system difficult to replicate; ultimately an HR system is generated through complex social interactions within the organization, and is, therefore unique to that organization (Boxall,1996; Rumelt, 1984; Barney, 1991; Schuler and MacMillan, 1984; Ulrich 1991; Becker and Gerhart,1996; Lado and Wilson, 1994; Amit and Schoemaker, 1993; Youndt et al., 1996). The HR system of a firm is also regarded as ultimately non-substitutable (Amit and Schoemaker, 1993; Barney, 1991; Williamson, 1981).

As Lado and Wilson (1994: 699) argue:

the resource based view suggests that human resource systems can contribute to sustained competitive advantage through facilitating the development of competencies that are firm specific, produce complex social relationships, are embedded in a firm s history and culture, and generate tacit, organizational knowledge.

Human process advantage can, therefore, be summarised as follows:

in resource based thinking, HRM can be valued not only for its role in implementing a given competitive scenario, but for its role in generating strategic capability, for its potential to create firms which are more intelligent and flexible than their competitors over the long haul, firms which exhibit superior levels of co-ordination and co-operation (Boxall, 1996: 66).

Where an HR system achieves this, it is regarded as competence enhancing ; in instances where the HR system actively inhibits the development of new competencies within the firm, then it is regarded as competence destroying (Lado and Wilson, 1994). Human capital advantage can be squandered through, for example, opposing collective representation and diminishing employee trust, or failing to offer people opportunities to develop their talent (Boxall, 1996).

However, there are many problems associated with viewing HRM systems as resources . Barney (1991) has argued that only assets tied permanently or semi-permanently to the firm, that are under the control of the firm, may be resources. In this way, a firm s HRM system might appear to satisfy the criteria required, since it is contained within the firm. Earlier, we mentioned the fact that a firm cannot retain within its direct control all the human resources required to generate rent, and that subcontractors,

contractors, outsourced activities, consultants and others only temporarily or partially attached to the firm may play an important role in achieve competitive advantage. This means that, at any given moment in time, a firm is relying on a proportion of its workforce to generate advantage who are not subject to the organization s own HRM system.

Another, equally important point, is that the RBV does not appear to allow for any discrepancy which might arise between HR policy and practice (Truss et al., 1997; Gratton et al., 1999). The assumption appears to be that HR policies, once developed, are implemented as intended and produce the results that were predicted. For instance, the argument might be made under the RBV that a firm would introduce performance-related pay as part of an HR strategy to improve performance. However, the introduction of such a policy might well have unintended side-effects, such as a decrease in team work that might be detrimental to the long-term survival of the organization. Furthermore, case-based research carried out in the UK has shown that simply having a written set of HR policies does not mean that these policies are necessarily implemented uniformly across the organization; much depends on the individual interpretations and priorities of line managers (Truss, 2001; Truss et al., 1997; McGovern et al., 1997).

The Institutional Perspective and the RBV. Overall, we have seen that arguments based in organizational theory challenge many of the fundamental assumptions contained within the RBV. Similarly, institutional theory provides us with a range of concepts and ideas that suggest that the resource based perspective is founded on a set of contested assumptions. For instance, with regard to the assumptions of firm resource heterogeneity

and firm resource immobility, Oliver (1997) argues that the RBV explains heterogeneity and immobility of resources through the assumption that firms always make optimal and rational resource choices in order to maximize rent. However, the institutional perspective suggests that social influences on the firm can lead to inappropriate resource selection decisions. Consequently, instead of observing heterogeneity among firms, the institutional perspective leads to the view that there is a strong degree of homogeneity of organizational forms and practices, because organizations in the same industry or population tend towards similarity over time (DiMaggio and Powell, 1983).

These isomorphic pressures arise from social and economic interrelations among firms, together with a common dependency on external factors, such as government or other institutions that prescribe socially acceptable behaviour (Scott, 1995; Jepperson and Meyer, 1991; Meyer and Rowan, 1977). Five drivers of homogeneity are identified: regulatory pressures, strategic alliances, human capital transfers, social and professional regulations, and competency blueprints. Thus, firms within the same industry are exposed to common social influences which circumscribe the resources that they are allowed to acquire and deploy. The primary determinant of firm effectiveness therefore becomes managing the social context of these resources and capabilities (Oliver, 1997: 711), rather than the acquisition and internal deployment of the resources themselves, as suggested by the RBV.

The institutional perspective therefore reintroduces us to the notion that organizations are part of a broader social system. Thus, actors within firms are both subject to, and are themselves embedded within, social institutions

such as government and professional associations which actively circumscribe the behaviour that is considered to be socially acceptable (Scott, 1995; Truss, 2000). Firms, therefore, are in relations with other institutions that reduce firm heterogeneity and affect the distribution and mobility of resources across firms.

The value of institutional theory as applied to this aspect of the RBV is that it provides a sound basis for arguing that firm resource heterogeneity and immobility cannot be assumed. Instead, it allow for the impact of external social relations as an isomorphic force.

This argument has been taken up by researchers in the HRM field. For instance, Hendry and Pettigrew (1992: 138) argue: we cannot account for HRM simply through an internal perspective on the growth needs of the firm: HRM is driven by factors in the firm s external environment .

Institutional theory and organization theory both, therefore, point to different ways in which behaviour within organizations may be non-rationally determined, rather than being subject to the economic rationality assumed within the RBV (Oliver, 1997). For instance, it has been argued that human rationality is inevitably bounded and may therefore result in non-rational behaviour, with a tendency to satisfice rather than maximise (Silverman, 1970; Simon, 1957).

The institutional framework suggests that firms operate within a social framework of norms, values and taken-for-granted assumptions about what constitutes appropriate or acceptable economic behaviour. Thus, economic choices are constrained by socially constructed limits, such as norms, habits and customs. Human behaviour is motivated by social justification and social

obligation (Zukin and DiMaggio, 1990). Individuals and organizations are regarded as approval-seeking, subject to social influence and are relatively intractable (Scott, 1995; Zucker, 1987). Thus, some firm activities become institutionalised over time and these tend to be enduring, socially accepted, resistant to change and not directly reliant on rewards or monitoring for their persistence (Oliver, 1992). One example would be retaining an unreliable supplier out of habit, although rational justifications might be used.

In the context of HRM, then, institutional theory would tend to suggest that, in addition to some rational, strategic determinants of HRM practices, there co-exist a range of non-strategic determinants that may lead to sub-optimal decisions (Wright and McMahan, 1992). These arise as a result of social pressures to conform exerted on the organization from external, as well as internal, sources. In this way, the institutional perspective adopts a more open approach to the interrelationship between the organization and its environment than is permitted under the RBV.

Instead of regarding organizations as relatively isolated entities, whose internal workings remain uninfluenced by external factors, as suggested by the RBV, the institutional framework leads us to view organizations as located within a socially constructed environment, which carries just as much weight in determining organizational decisions as matters of economic efficiency (Huselid, Jackson and Schuler, 1997). As Foss (1996) argues, the most appropriate way forward in research in this area is through acknowledging the importance of both internal firm resources and external product market features. We can, therefore, regard the RBV as overly concerned with internal firm-specific factors (Porter, 1990).

The value of the institutional perspective is that it reminds us of the importance of taking account of the external environment within which the firm is situated (Grimshaw et al., 2001). This is particularly important when considering the behaviour of human resources since, as we have argued, individuals are members of multiple social and community networks. In this sense, the institutional perspective might appear to constitute a preferable framework for theorizing on human resource management. However, one limitation of the institutional perspective is that it is overly focused on the external environment and its influences on the organization and the individuals within it. It can, therefore, be regarded as somewhat deterministic, and as failing to account for individuals own actions and interpretations. As Grimshaw et al. (2001: 29) argue: fragmentation and deregulation have allowed managers, even within a single organisation, to consider and adopt different employment policies and practices as solutions for different groups of workers and in different areas of work . Thus, even within one firm, multiple solutions to any given problem are likely to be found. It is important not only to consider external forces towards homogeneity and non-rational strategic determinants as suggested by the institutional perspective, and internal factors, as suggested by the resource-based view, but also the actions and behaviours of individuals within organizations.

Summary. We have seen that arguments drawn from organizational behaviour, sociology, and, particularly, institutional theory, all highlight the problems associated with using the resource based view as a theoretical standpoint in human resource management. In particular, concerns have been raised about the assumptions within the RBV concerning rationality,

determinants of individual behaviour, the definition of resources and their application to human resources, and the importance attached to internal firm characteristics. Alternative arguments have shown that human behaviour is frequently non-strategically determined, that human resources and the human resource management system do not neatly fit the criteria for resources, and, crucially, that firms are situated within an external environment which can influence both the organization itself and the individuals within it in highly complex ways.

However, if the resource-based view, which is commonly regarded as the most helpful theoretical framework in human resource management (Huselid, 1995; Kamoche, 1996; Mueller, 1996), is so lacking in insights, where can HRM scholars find a theoretical basis upon which to advance their thinking? One approach that is gaining increasing interest in the field of strategy, but has yet to be applied to HRM is complex adaptive systems (CAS) theory. Our argument here is that a CAS approach has much more in common with theories in the field of OB from which HRM is derived, and offers considerable potential for advancing theory-making in the area of HRM.

COMPLEX ADAPTIVE SYSTEMS: AN ALTERNATIVE APPROACH

The Theory of Complex Systems

An interest in complex structures originally began to emerge in physics and chemistry where the phenomenon of self-organization, ie the endogenous tendency for both complexity and organization to increase, was identified in dissipative structures, ie, structures capable of importing free energy and exporting high entropy waste (Quinn, Spreitzer and Brown, 2000; Ashmos, Duchon and McDaniel, 2000; Foster, 2000). In biology, the complexity

sciences have transformed the way that evolution is understood (Kauffman, 1993), and the more holistic method of enquiry represented by CAS has allowed weather systems, cells in the body and DNA systems to be investigated (Peiperl and Arthur, 2000).

Mathews, White and Long (1999a: 18) explain that the complexity sciences question the belief that all events are potentially predictable and controllable. They are a historically recent coalescence of theories developed in the natural and physical sciences that focus on developing novel explanations of the developmental and evolutionary behaviors of systems . According to Coveney and Highfield (1995: 7), the focus of study is: the behavior of macroscopic collections of such units that are endowed with the potential to evolve in time . Under the CAS approach, predictability and control are regarded as theoretically impossible, because such systems contain inherent nonlinearities, although predictability may be possible in the short-term because of the time it takes for small changes to escalate within the system (Stacey, 1996; Smith, 1995; Mathews et al., 1999a; Cannella and Paetzold, 1994). In this way, they are more allied with qualitative methods of enquiry and phenomenological approaches to understanding the world and the interrelationship between phenomena (Burrell and Morgan, 1979). The purpose of enquiry with such a framework therefore becomes increased depth of understanding.

To qualify as a complex adaptive system, an entity must meet four criteria; firstly, it must be comprised of many agents acting in parallel; secondly, it must shuffle these agents continuously; thirdly, it is subject to the third law of thermodynamics, exhibiting entropy and winding down over time

unless replenished with energy and, fourthly, it must show the capacity for pattern recognition, and be capable of anticipation and learning (Pascale, 1999).

Organizations have been conceptualized as complex adaptive systems, actively searching for appropriate energy sources to create and maintain the complexity they need to produce goods and services, and also searching for knowledge both inside the organization and outside; the greater the diversity present in the environment, the more opportunities there are for such diversity to be organized into productive structures (Foster, 2000). In complex systems, innovation is essential to generate new ways of working.

Thus, under complexity theory, we are faced with a world far from equilibrium, that evolves in unpredictable ways according to four key principles. Firstly, they are at risk of death when in equilibrium; secondly, they are self-organizing and contain emergent complexity due to the intelligence they contain in their nodes, so that what are initially simple structures are capable of generating an infinite number of complex and unpredictable patterns; thirdly they tend to move towards chaos when provoked by a complex task, once they have reached high levels of performance, their performance worsens until they are pulled far enough away from their usual arrangements that they can generate new forms. Finally, they cannot be directed, only disturbed, since cause-and-effect linkages are weak in such systems and one small variation can cause substantial effects, whilst large changes may have relatively small effects (Pascale, 1999).

One of the most important features of CASs is that they cannot remain in a state of equilibrium. This is based on the law of cybernetics which states

that, for a system to survive, it must cultivate internal variety or it will fail to cope well with externally imposed variety. Therefore, organizations with an inherent tendency towards homeostasis through having a strong internal culture would find it difficult to survive (Pascale, 1999).

Another important feature of complexity theory is that system intelligence is seen to be contained in the nodes, rather than at the top, as is assumed in traditional strategy models of organization (Mathews, White and Long, 1999b). This would suggest that the role of strategy and, indeed, HR strategy, is to find ways of harnessing the intelligence within the nodes and developing supporting mechanisms to underpin it, rather than seeking to drive change down from top to bottom (Pascale, 1999).

In some respects, CAS theory is similar to open systems theory, however, the difference lies in the conceptualization of the systems. Under open systems theory, the external environment and the organization are viewed as separate entities, with exchange taking place through the open boundaries of the organization. Under CAS theory, however, they are regarded as enmeshed together, so that the system is both strongly self-determining and, at the same time, dependent on its environment. As such, organizations are viewed as extremely unstable, dissipative structures, and their survival depends on interchange with the environment (Foster, 1993; Mathews et al., 1999). The law of entropy means that any system closed off from its environment will disintegrate into disorder and randomness (Georgescu-Roegan, 1970). Order and predictability can occur within the dissipative structure, but they occur without warning and are transitory.

These dissipative structures are non-linear, which, again, differentiates them from traditional open systems, which are regarded as linear (Matthews, 2000; Prigorgine, 1980; Prigorgine and Stengers, 1984). Within linear systems, small forces can produce small effects that can be adjusted. However, non-linear systems are characterized by increasing disequilibrium within the system, although they can be quite stable for long periods of time (Foster, 2000; Foster and Wilde, 1999a; 1999b). These non-linearities lead to positive or negative feedback within the system which can cause the system to evolve into new structures or sink into decline (Matthews, 2000) This leads to a point of bifurcation, at which stage the organization can either rely on existing mechanisms and, ultimately, dissolve into disorder as it becomes increasingly misaligned with its environment, or engage in transformation through a process of experimentation. It is at this point of bifurcation that inertia can enter the system, causing it to die. The alternative is for the system to embrace a qualitatively different way of working. This process is repeated, as the new equilibrium also becomes misaligned with its environment, creating new internal arrangements better able to deal with complexity (Leifer, 1989). This turbulence can be either internally or externally generated, but the argument is that the leap to a new state is non-deterministic and random, so that the resulting state is unpredictable, but will represent a total break from the past and an abandonment of old methods of working.

During this transition phase, systems will typically experiment and trial new ways of working, involving the generation of alternatives from which the

system can choose. This is associated with increased internal activity and a need for more resources (Leifer, 1989).

The preferred configuration that is chosen from amongst the alternatives generated is likely to be one that maintains a high degree of energy throughput and openness to other systems in its environment. This will lead to a new stable state where entropy production increases and the system stabilizes around a configuration that is loosely coupled with the new environment. In this way, change builds upon change, allowing the system to cope better with the next change (Mathews et al., 1999a).

Few empirical studies, and no analyses of the application of the framework to the specific field of SHRM have been carried out which might enable us to assess better its potential contribution to this field. However, it has been argued that the CAS framework can be used to explore individuals career experiences through individual relationship networks within and outside organizations (Peiperl and Arthur, 2000; Parker and Arthur, 2000).

Ashmos et al. (2000) have carried out one study within a hospital setting using the CAS framework. They found out that hospitals with more complex internal arrangements and stakeholder group participation performed better on a range of financial performance measures than those with less complex arrangements. They also argue that allowing maximum participation in strategic decision making (thus capitalizing on the knowledge contained within the system nodes), and ensuring few mechanistic constraints on activity, coupled with encouraging people to work collaboratively on problem-solving, encouraging variety and allowing people to explore options was the

most successful change management approach (Ashmos et al., 2000; Brown and Eisenhardt, 1998).

Complex Systems and RBV Compared.

What, then, are the main points of difference between the Complex Systems approach and the RBV, and what are the advantages of the former as a theoretical framework for advancing our understanding of HRM? We will focus here on differences between the two perspectives in terms of their fundamental assumptions about the nature of organizations, and their focus of analysis.

The Nature of Organizations. As we saw earlier, the assumption underpinning the resource based view is that organizations are objective, profit-maximizing, entities, that the internal resources of the organization are the most important determinants of sustained competitive advantage, and that these resources are manageable according to rationalistic principles. However, as we have argued based on the organizational and institutional literatures, generalizable theories of human resource management need to be built on more broadly-based assumptions that recognize multiple organizational outcomes; they need to take into account the inherently pluralistic nature of organizations and the non-rational, as well as the rational, determinants of organizational phenomena. Finally, they need to build on the systemic nature of organizations situated within an environment that has some influence over what happens within the organization.

The CAS approach would appear to hold a great deal of promise in its potential application to HRM compared with the RBV in terms of the way that

it accounts for the nature of organizations. Firstly, within a CAS framework, organizations are viewed as systems; as such, they exist both spatially and temporally, and they are complex (Mathews et al., 1999b). This pluralistic view is much more in keeping with what we know about organizations from the organization theory and sociology literatures than the unitarist RBV perspective. Secondly, the CAS framework suggests that systems can only be partially directed and controlled; they are largely self-organizing. This stands in contrast to the importance attached within the RBV to top-down management and direction. Under the CAS perspective, much more significance is attached to the network nodes , ie the individuals and groups placed at points of intersection within the system. This, again, is much more in keeping with what we know about socio-political and cultural processes within organizations.

Where the CAS framework goes beyond the boundaries of current thinking in the field is in its focus on non-linearities and complex interactions. As Mathews et al (1999b) argue, complexity theory challenges the assumptions of the Newtonian perspectives of equilibrium, negative feedback loops, levels of activity, and linear relationships that have dominated social science. The CAS approach gives us a framework for focusing on the unpredictable, chaotic, inexplicable features of the system.

Focus of Analysis. Within the framework of the resource based view, the focus of analysis in human resource management has been on determining which elements of a firm s human resources, or HRM system, constitute a source of sustained competitive advantage for the organization. The ultimate purpose of analysis is, therefore, to establish a demonstrable

cause-effect linkage between firm resources, or firm resource deployment, and financial performance. As such, this focus of analysis fits firmly within Mathew et al. s (1999b) traditional linear social science perspective.

Within the complex adaptive systems framework, however, the focus of analysis cannot be to understand and predict cause-effect relationships, firstly because causality cannot be attributed in a linear fashion within a complex system and, secondly, because the nature of complex systems is such that prediction is impossible due to the multiplicity of interrelationships within the system. The problematic nature of predictability both fits within pluralistic sociological organization theory, and, at the same time, goes beyond it by suggesting that understanding, rather than prediction, should be the ultimate goal of research.

In this sense, complex adaptive systems approaches would appear more appropriate than the RBV for advancing theory in HRM within a sociological framework of organizations. However, at the same time, CAS transcends our existing knowledge base and notions of the fundamental purpose of research.

CONCLUSIONS

Complex adaptive systems theory is still in its infancy in its application to the business literature, and this is particularly true of its application to human resource management, where little has been written at either a theoretical or an empirical level about how CASs could be applied. The advantages it has as a theoretical framework over the resource based view are that it acknowledges the importance of environmental factors, as well as

internal, firm-specific configurations, it is more qualitative and phenomenological in its suggested methodology, which enables more in-depth analysis of the interrelationships between variables to take place, it is more holistic, and it is less static than the RBV. However, the empirical implications of the framework have yet to be fully articulated, and there will, inevitably, be problems of operationalization and interpretation.

As Mathews et al (1999b) have argued, the adoption of complex adaptive systems perspectives into the social sciences may well constitute a paradigm shift. The theoretical and empirical implications of this will be debated for a long time to come. It is hoped that this paper has contributed to this debate by analyzing how the CAS approach can be applied to the domain of human resource management at a theoretical level.

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