

**Strategy, flexibility and human resource
management:
*a study of the outsourcing of maintenance in UK
petrochemicals***

by

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Strategy, flexibility and human resource management:
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Abstract

The thesis develops themes around eight published works and as such the thesis encompasses a coherent caucus of work within the petrochemicals industry in the UK. The thesis provides evidence which confirms the widespread use of a strategy of flexibility but challenges the conception of strategy as a deliberate formal plan, and the rational economism of Transaction Cost Economics. It also casts doubt on the existence of distinct strategic levels. The multinationals in the industry have been exposed as not using a sophisticated rationale to underpin their strategy, relying instead on institutional ideologies or mimetic isomorphism. The thesis also challenges existing conceptions of the role of Human Resources in the pursuit of strategy by showing the importance of the generic HR function in line management as opposed to an HR department.

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Preface.

This submission comprises the thesis below and eight attached publications which are listed below, and described in Chapter 4: Results. These are listed in order of the date of publication. The text also contains references to other articles by Ritson where appropriate.

Published works

Ritson N H 1997 *Unbinding rationality: a single union agreement for contractors at a UK oil refinery* Journal of Managerial Psychology 12, 3 pp 155-176

Ritson N H 1999a *The real problem of competition in the UK petrol market: a reply to Cohen* Strategic Change 1999 8, 4, pp 235-241

Ritson N H 1999b *"Management recipes: an alternative to thinking?"* Management Accounting 1999 77, 3 pp 46-48
(International Federation of Accountants' Award of Merit article)

Ritson N H 1999c *Manufacturing strategy in a UK process plant: the importance of human resource management* Strategic Change 8, pp 349-357,

Ritson N H 1999d *Corporate strategy and the role of HRM: critical cases in oil and chemicals* " Employee Relations 21, 2 pp 159-175

Ritson N H 2001 *Close-coupled disasters: how oil majors are de-integrating and then managing contractors* in Mars G and Weir D H T (Eds.) 2001 *Risk Management Volume II Management and Control* Aldershot, Dartmouth/Ashgate, pp 105-113

Korczynski M D and Ritson N H 2000 *Derecognition of trade unions and the dualistic behaviour of oil and chemicals firms* Work, Employment and Society 14, 3, pp 419-437

Ritson N H 2007 *The Quest for Productivity revisited - or just derecognition by the back door?* In Dainty A, Bagilhole, B and Green S Eds. *People and Culture in Construction: A Reader* Taylor and Francis pp 260-279

Chapter 1 Introduction

1.1 Introductory Remarks

This chapter sets the scene for the research area and explains the thesis title

“Strategy, flexibility and human resource management:

a study of the outsourcing of maintenance in UK petrochemicals”

It represents the empirical investigation of flexibility within a given industry, that of petrochemicals.

The basis for the research is that the economic success of any business depends largely on the relative costs of production versus the revenues generated by sales. In the UK, former PM Tony Blair asserted at the CBI conference “*The [UK] productivity gap has to close*” (People Management 2001). One of the historical measures of productivity has been labour productivity: with increased competition, recent initiatives have resulted in a return to relating labour costs to output.

Productivity - with so-called ‘productivity deals’ with trade unions - has been a key feature of manufacturing in the petrochemicals industry (Nightingale 1980). These created more flexible working patterns, predominantly in maintenance, but also in the interface with production. These were not applied to external supply chains, which involved the use of unreliable contractors in construction and maintenance (NEDO 1970). However, the petrochemical industry and its productivity has not been the subject of much further research.

Meanwhile, the ideal of the ‘flexible firm’ (Atkinson 1984a) was developed as a strategy in firms with the principal aim of generating better returns by moving fixed costs to a more variable basis. This was by way of three types of flexibility: financial flexibility (such as performance related pay), numerical flexibility (often by outsourcing tasks to external agencies) and by functional flexibility, enhancing the internal ‘core competence’ of the firm (Prahalad and Hamel 1990). All three of these flexibilities could apply to the petrochemicals

industry. This concentration on flexibility gave rise to 'the flexibility debate' (Wood 1988). Evidence accrued piecemeal showing that flexibility arrangements occurred in service industries (Hunter et al (1993) used 32 service organisations out of a sample of 47 cases) but also most notably in manufacturing (Delbridge and Lowe 1998).

Human resource (HR) issues have not been followed up in the literature which debated higher level issues. Additionally, the flexible firm literature lacked a coherent theoretical underpinning and its claim to be strategic remained untested. As an indicator of the lack of progress, Peel and Boxall (2005) still asked: "when is contracting preferable to employment?"

These three areas – strategy, HR and theory are correlated and the major aim of the research illustrated in this thesis is their empirical investigation within petrochemicals.

1.2 Conceptualisation of the research

Smith (1989) in his criticism of the literature on flexibility suggests

'a grounded theoretical approach...is required'

Smith (1989:218)

Procter et al (1994) also called for "in-depth research" in this area.

The flexible firm model was criticised for a lack of theoretical rigour (e.g. Pollert 1987, 1988a, b, 1991) but new approaches in institutional research had produced the new institutional economics - 'transaction cost economics' (Williamson 1975 1981), which related to numerical flexibility. The development of linkages from external economic pressures to managerial actions would add to knowledge by grounding the research in a theoretical framework. There was therefore an opportunity to contribute to theoretical development in this broad area.

The research proposed to investigate the strategic (or other) rationale for any changes found and to place HR issues within such a framework. Using in-depth fieldwork, it sought to gather evidence from an empirical case study to counter the problem posed by anonymous postal surveys. To limit extraneous variables such as technology and function, the area of research was limited to one function, maintenance, and one industry, the petrochemical industry, in one country, the UK.

Strategic management research often did not acknowledge economics or HR theory: the state of theorising in strategic management is 'pre-paradigmatic' and composed of competing paradigms. Mintzberg et al (1998, 2001) for example claim that ten different schools of strategy exist.

In the HR field, much research was criticised for its descriptive nature (Willman 1986, Kelly, 1998) and use of anonymous postal survey methods such as in the case of WERS (the Workplace Employee Relations Survey): Ritson (1995, 1998a 1999) details the major criticisms. They also lack rigour: consequently, in the HR field, theory is also weak.

The research sought to answer questions about the implementation of the flexible firm model by empirical evidence in the petrochemical industry. Initial enquiries revealed a reluctance of firms to disclose those internal actions which were subsumed under the term 'functional flexibility' –i.e. maintenance craft work and trade union demarcations. However one firm, Mobil, at its Coryton Refinery, agreed to host research under 'numerical flexibility', based on the implementation of a new agreement for external contractors.

In order to engage in the fieldwork, necessary to investigate the issue in the depth required, ESRC funding was sought. This was formulated with the aim of adding theory to the area, and understanding the implementation of a strategy which involved human resources – a new productivity deal disguised as a single union agreement.

The Research Proposal agreed by ESRC was entitled “Transaction costs and industrial relations strategy: evidence from Mobil’s Coryton Agreement”. The detailed rationale was:

“A case study of the development of a single union agreement which links events to theories of transaction cost, strategic management and flexible firm literature and its implementation under Human Resource Management”

A grant of £27,667 awarded in March 1995 under project number R-000-22-1670

The research scope was broad, encompassing economic theory corporate strategy organisational structure in the guise of the flexible firm model, and particularly the link to HR. These areas constituted the broad research questions which needed to be answered in the publications

The structure of the thesis is as follows: in Chapter 2 the background literature is reviewed so as to complement the detail of works cited in the eight individual papers in Chapter 3 the basic methodology of case study and fieldwork is described. In Chapter 4 the results of the empirical work in the eight publications are related to the literature to demonstrate the contribution to knowledge of the thesis. In Chapter 5 the main elements of the thesis are summarised.

1.3 Summary

This thesis seeks to examine the status of the flexible firm model in an industry with a history of sophisticated management and deep concerns about productivity. Empirical and theoretical development at the level of the firm/plant will develop knowledge of the theoretical rationale, and the role of HR factors in strategy.

Accordingly, two broad questions have been posed:

what is the process of formulation of a strategy of flexibility and how has any strategy been implemented in the UK petrochemicals industry.

Chapter 2 Background Literature

2.1 Introductory Remarks

This Chapter will be divided into the major areas of literature in terms of the research questions: *what is the process of formulation of a strategy of flexibility and how has any strategy been implemented in the UK petrochemicals industry.* The first question deals with the idea of flexibility with appropriate theoretical frameworks. It then links this to the history of the petrochemicals industry in its pursuit of that goal and to the possibility of a strategic intent. In answer to the second question, its use of human resources in its achievement is investigated.

The literatures are detailed in the eight publications listed in the preface. The main background literatures below add to these and consolidate the area by outlining the issues relating to the two broad questions.

2.2 The research area: the UK petrochemicals industry

A key feature of petrochemicals is the pursuit of economies due to its precarious financing. The oil industry has historic and current low returns on capital. Watson and Vandervell state since 1991, annual returns averaged only 3.6% in the UK and 5.6 % in the USA as a result

'this has focussed companies on making their refining and marketing operations as efficient as possible.'

(Watson and Vandervell 2006:16)

Because of the need to maximise returns, and pressure from owners, the industry has historically been in the vanguard of innovation in management such as in marketing (Ritson 1999a).

This has especially been with regard to the flexibility of craft work (e.g. Wedderburn and Crompton 1972). Demarcation disputes had become a topic of media frenzy and subsequent discussion of 'half-time Britain' and 'the British Worker Question' (Nichols 1986)

The subsequent attempts at the removal of demarcations between trades resulted in flexibility and so more efficiency. These became famous as productivity agreements and were promoted by Flanders (1964), at Esso Fawley and by Oldfield (1966) at Mobil Coryton, whose book he titled '*New Look Industrial Relations*'. These deals focussed on the maintenance function because of evidence in the literature suggesting it was important. Ahlstrand (1990) showed the progressive moves by Esso Fawley managers over time to use de-recognition of different trade unions to promote internal *functional flexibility* by transfer of employees from annual to staff conditions of service where no artificial demarcations existed, these being based on skill alone. Young (1986) applauded the 'fully flexible craftsman' deal at Mobil Coryton, which was later reported in the HR press (IDS 1992). According to Cibin and Grant (1996), there was a global strategy across the petrochemicals industry. This was in order to reduce the scope and breadth of product offerings and, simultaneously, move to internal dynamic efficiency as opposed to the previous static efficiency. BP not only outsourced its accounting function to contractors, but also its IT function (Cross 1995).

Recently, the industry entered a new phase of overcapacity and economic problems, creating a real problem of competition in the UK petrol market (Cohen 1998, Ritson 1999a). Cutting costs was increasingly seen as necessary, and labour productivity became yet again a key driver of change. Recent evidence of productivity increases via cost-cutting led to safety issues within BP resulting in a large fatal accident at Texas City refinery killing 15 contractor personnel according to the US Chemical Safety and Hazard Board (www.csb.gov).

Garret and Silver concluded that in the USA

'there is a growing trend to contract out custodial work specialising in the area of maintenance repairs'.

Garret and Silver (1966: 468)

A situation commented on in the UK by NEDO (1970). Here there is risk and uncertainty: in maintenance work, *schedule* is far more important than the *direct cost* of the work. The clients' loss of production is vastly more excessive than

contractors' costs -some £20 million a day at pump prices for petrol (Cross 1989, 1990). Thus, any delays (strikes, work-to-rule, and managerial disagreements) do not hurt the contractors as much as the client. Here, oddly, the supplier market may be small: in maintenance it is often *unique* to one local contractor. The contractor becomes a 'specific asset' by virtue of his trade (electrics, scaffolding etc) and effectively this becomes 'small numbers exchange' and subject to 'hold up' tactics (Clark and Ball 1991).

Blyton and Turnbull (1995, 2004) regard the petrochemical industry as amongst the most innovative exemplars for UK firms especially in its flexible approach to labour. Its productivity deals for example set a standard for the rest of UK manufacturing and other industrial sectors (Nightingale (1980). Esso and Mobil were invited to present evidence to Government committees on industrial relations (Donovan 1968, House of Commons 1994), and were described as having a 'sophisticated modern' management style (Purcell and Sisson 1983). Dawson's (1995) study of HRM in Mobil's Adelaide refinery regarded the benchmarking global survey of refinery performance by the 'Solomons' consultancy as an example of Mobil management's rational approach.

Kelly (1998) highlighted trade union derecognitions at different petrochemical plants as evidence of a corporate strategy, relying on the evidence from the Transport and General Workers Union (in House of Commons 1994). His idea of strategy was not explained but in a similar vein, Tuckman (1998) surmised that the derecognition of craft trade unions within BP Chemicals by transferring craft workers to single status conditions was a *mediating strategy* as it promoted functional flexibility in that new terms and conditions of employment were designed to enable further subcontracting and release internal flexibilities. At the Norsk Hydro chemical plant, union derecognition has been seen to be a precursor to gaining corporate support for investment in competition with plants in other affiliates in other countries (Blyton and Turnbull 1995 2004). This was surely a strategic move on the part of managers, which was actually supported by the union, which feared closure.

The key issue for managers is that outsourcing maintenance is risky. This is because overruns on schedule or rework incur huge costs due to lost production and one significant maintenance failure can put the entire UK operation of the firm into deficit (Cross 1989, 1990). Baker (1990) commented that outsourcing of maintenance had led to annual costs due to waste and re-work approaching \$17 billion in the US. Given the risks we would expect a method of controlling contractors' opportunism: such as a system of bonds for good behaviour, and/or a development of a set of local contractors to enable switching so avoiding small numbers exchange as happens in Japanese firms (Wickens 1987, Sako 1992).

The risks can also be obviated to some extent by a managing contractor whose interests coincide with the client (Korczynski 1993), though Korczynski did not consider the interaction effect of the structural change from multi-contractor alliances with the onset of the NAECI - the National Agreement for Engineering Construction (Korczynski 1997). The idea of a managing contractor can be seen in some plants in the idea of management recipes (Ritson 1999b) as discussed in Chapter 4.

This background again leads us to hypothesise that the petrochemical firms, as sophisticated major multinationals, might adopt a rational TCE type of process to developing strategy, show evidence of conceptual thinking based on a systematic appraisal of costs and benefits sophisticated cost-accounting and a definition of firm specific skills as specific assets. After all, the major oil companies were

'among the closest real-world approximations to the 'managerial technostructures' of Galbraith's (1967) new industrial state'.

Cibin and Grant, (1996:283).

Thus the pilot study at Mobil needed to determine, if outsourcing had increased, whether the managers assessed the various transaction costs of internal versus external supply.

2.3 The Engineering Construction Industry

In numerical flexibility, where contractors have been prevalent, in what was to become the ECI – the ‘engineering construction industry’ (Garfit 1989) - there have been cultural and structural problems (NEDO 1970) and, as evidenced in *The Lagger’s Tale* (Keenoy (1979), damaging disputes between competing internal and external groups of craft workers.

However many studies paid little attention to the issue of outsourcing work to contractors, yet the Government’s ‘*Large Sites Report*’, (NEDO 1970) illustrated in the poor performance in terms of cost overruns and lack of delivery on time, as had Korczynski (1993). For example, there are only seven pages relating to contractors in Flanders, scattered though the book (Flanders 1964, pp. 22, 29, 56, 60, 147-8, 193), only one page in Gallie (1978, p. 84), and eight in Ahlstrand (1990, pp. 172-9). Young’s (1986) evaluation of flexibility and craft work at Mobil Coryton, mentions outsourcing only in passing. Claydon (1996) in contrast showed that managers used the threat and practice of work being transferred to contractors so as to provide an incentive to internal workers to agree to management’s proposals.

A National Agreement - the NAECI - the National Agreement for Engineering Construction - which NEDO had advocated, was only created in 1981 (Garfit 1989). It covered only capital projects and some large maintenance turnarounds: most maintenance work was omitted and contractors worked on numerous site-based agreements as maintenance project work shifted from one firm to another as they had always done (Korczynski 1997).

This is what makes a study of this industry one where managerial perceptions of risk and institutional economic issues are vital to understanding the question of ‘numerical flexibility’ fully.

2.4 The formulation of a strategy of flexibility

The original article on a flexible firm model (Atkinson 1984a) was entitled “Manpower *Strategies* for Flexible Organisations” (emphasis added) so the approach, as stated, was new, and strategic - and not ‘just another productivity

deal' as had happened in the past. The model proposed a structural split between tasks for core workers with firm-specific skills, called 'functional flexibility' and tasks for peripheral workers with limited firm-specific skills: a process of 'numerical flexibility' leading to the externalisation or 'outsourcing' of tasks. The role of human factors was not pursued as will be argued later, despite one of the main 'mediating variables' in the model was seen as weak trade unions (Tuckman 1998).

There was no strong evidence that this process was truly 'strategic', as much of the subsequent literature found the outsourcing only of ancillary activities (Strauss 1992). This was then debatable as an important strategic activity for a firm: however as we have seen in 2.2 above, there is an important UK industry in which major work has been outsourced: petrochemicals.

The related literature, such as the 'flexible specialisation' thesis of Piore and Sabel 1984) and work by Pollert (1991) tended to veer away from the level of the firm towards societal levels. Flexible specialisation was convincingly criticised by, among others, Smith (1989) and the lack of application to lower levels was then extensively criticised by Procter et al (1994). The literature has not added to the knowledge of whether the model is strategic, as 'constructed' by management, because it has not developed theory at the level of the firm, and so can be criticised as 'grand theory' (Wright Mills 1959: 26).

The confusion of levels shows that in research we need to operationalise terms such as 'flexibility'. This concept of operationalisation is considered later, but we need here to emphasise the problems, because, for example, Sayer (1989) identified seven different types of flexibility. These were 'numerical flexibility in output and employment', 'functional flexibility', 'flexible labour markets', 'flexible working practices', 'flexible machinery', 'flexibility in restructuring' and 'flexible organisational forms'. Watson (1995: 346-7) used the terms 'flexibility for predictability' and 'flexibility for adaptability'. There is also the issue of 'lateral and horizontal flexibility' in terms of skill (Young 1992). One needs to agree with Pollert who stated:

'in reality the word 'flexible' is a modifier applied to virtually any action or structure'

(Pollert 1991: 3).

In addition the literature has lacked a theoretical framework to support Atkinson's model in terms of a rationale for a potential strategy. No theory had been used in subsequent articles in order to counter the claims of the critics (see for example Atkinson and Meager 1986a, b, Atkinson 1988). Yet to develop theory is a goal of social science, and appropriate theory underpins empirical work. Some research has commented on the underlying theoretical basis for flexibility and its critical effect on jobs via outsourcing. Cross' (1989, 1990) survey suggested that the cause of numerical flexibility was due to 'simple economics' where contractors were cheaper. This was because productivity was set as "output per employee" or where multinational enterprises' terms and conditions of employment created a large 'labour burden'. As with Pollert's (1991) assertions, Cross saw the end result only: was simply a continuation of labour market segmentation, and exemplified only one of a wide repertoire of management strategies, including lowering labour costs. Such an omission of a theoretical discussion was typical of many 'abstracted empirical' surveys - and so the management's rationale and its perceptions of contractors' better efficiency, were issues left for others to investigate.

This is a prevalent problem, and even where theory is specifically introduced, such as in Ritson, (2007), the editors (Dainty et al 2007: 18) omit any reference to it, instead highlighting the descriptive content of the industrial relations issues. Of itself, this descriptive tendency was heavily criticised by Willman (1986) and Kelly (1998).

2.5 Flexibility and Theory

The question posed by the lack of theory of the flexibility literature is: what theory is appropriate? The use of market supply in numerical flexibility or outsourcing suggests economics as opposed to an institutional or sociological approach (Douma and Schreuder 1992), and so relates to the 'new institutional

economics' often called Transaction Cost Economics (TCE) by Williamson (1975, 1981).

TCE can be seen to provide a link to flexibility as the key differentiator as between tasks in the core and in the periphery was said to be 'firm-specific skills'. Atkinson stated:

'The firm is seeking to separate [firm specific skills] from a wider labour market' Atkinson (1984a: 29).

But these remained undefined and occasionally other terms were used (Pollert 1988b), yet the concept of 'firm specific skills' compares with TCE's concept of 'asset specificity'. Thus where there is no external labour market, work cannot be outsourced. Cross (1989 1990) concluded that outsourcing was a simple economic event, but he did not investigate whether, and how far, this 'economising' rationale had actually been applied in practice by managers, nor has it been investigated in the subsequent literature.

TCE theory attempted to address some process issues in the institutional environment, including what were termed "Human Factors". These were the 'bounded rationality' of the buyer (related to the lack of information) and the 'opportunism' ('self interest seeking with guile') of the seller or contractor. These managerial conceptions were then set against "Environmental Factors": the uncertainty/complexity of the industry, the existence of small numbers exchange, and the extent of asset specificity. (Douma and Schreuder 1992:107 fig 71; Ritson 1997, 2007).

Pitelis (1994) and Rowlinson (1997) are among many who criticise TCE for its inability to consider internal managerial interests in any systematic way. In an empirical study mentioned earlier, Clark and Ball (1991) found that TCE failed to explain the managerial processes within bidding consortia in construction.

Thus TCE is weak in this area and as the flexibility literature had also not addressed internal managerial processes, we must consider other theoretical approaches. The New Institutional Theory (NIT) is one such approach where

this issue has been taken up. Here Clegg (1990) and Whitley (1992a 1992b) stress the importance of opposing the 'undersocialised' view of economists and contingency theorists whereby contingent factors in the environment (e.g. transaction costs) determine structures and behaviour. Also rejected is an 'oversocialised' perception of organisations which Meyer and Rowan (1977) term a 'cognitive cultural tradition' which emphasises the influence of psychological factors in decision-making (e.g. in the work of Bartlett and Ghoshal 1993, Barr, Stimpert and Huff 1992, Vinning and Globberman 1999). This area developed as the 'new institutionalism' (Scott and Christensen 1995) and this presents a kind of mid-range theory as illustrated by Wright Mills (1959).

NIT determines that the success of organisations is not merely dependent on the economic efficiency of work processes (Granovetter 1985) and so 'organisations remain successful by social definition' (Meyer and Rowan 1977: 349). While organisational success is viewed as partly determined by the ability of organisations to adapt, this adaptation however is to institutionalised rules and procedures through which organisations gain legitimacy in the eyes of society, rather than economic factors *per se*.

This has been conceptualised by Lant and Baum (1995) as an attempt to define the comparators which firms want to emulate, and thus the search for solutions is not exhaustive, unlike the idea of 'benchmarking' (DTI 1992). Benchmarking is seen as an objective, measurable process based on rational decision-making. However, as well as data being freely available for comparator firms, to be successful a benchmarking exercise must show that some operations are more efficient in order for them to be copied as business or industry recipes (Grinyer and Spender 1979, Spender 1989).

The procedures formally adopted for the purpose of gaining cultural support or legitimacy might even lead to a *decrease in efficiency*, or in the extreme case, to the sell-out of the organisation's own rational or strategic goals (Perrow, 1986). This means that even if the outsourcing process is not working well, it could continue simply because it had become the norm. Gibbs and Jenkins' (1991)

study of the chemical industry saw increased outsourcing *despite* the lack of flexible customer demand suggesting it was a recipe mis-applied. Ernst and Young (1996) in the UK North Sea oil production area, reported that while four out of five of the respondent firms had increased outsourcing, only one third suggested it had been successful. The practice seemed to ignore rational economic evidence.

The new institutionalism literature revealed that in an attempt to decrease uncertainty and increase justification for their actions, firms use evidence from others to introduce change. This is operationalised as a processes termed 'isomorphism' by DiMaggio and Powell (1991), who distinguished three types - these are: coercive, normative and mimetic, as described in Ritson (2007).

Thus there may be an important institutional process underlying the strategic process of flexibility and outsourcing, but it may revolve round managerial uncertainty and basic norms and values, rather than a rational appraisal of economic measures of success as under TCE. The strategy process could include such strategic interventions as OD (Organisational Development) or scenario construction (Ritson 1997a, b, c) and so can be said to be 'emergent'. Young (1992) at Mobil Coryton and Ahlstrand (1990) at Esso Fawley found no specific rationale upon which managers based their strategy. We will see below why this might be so because of conceptions of strategy as a formal rather than as an emergent process.

2.6 *Strategy: the Process*

We saw that the initial work in this field was entitled '*Manpower Strategies for Flexible Organisations*' (Atkinson 1984a) and that this was seen a significant by commentators such as Wood (1988): but what was meant by '*strategic*'? This term is relatively recent, and refers to the Greek word *strategos* meaning 'the art of the general' (Legge 1995). The general chooses the place of attack, his battle formations and the make-up of his army, and as such has a plan which looks to the future and his potential enemies. But strategic management theory also

suggests a number of grand theory conceptions of strategy: Mintzberg et al (1998), as mentioned earlier, suggest there are as many as ten types.

In the strategy literature, and in the 'economising' framework of Williamson under TCE, strategy is seen as a forward-looking and deliberate, relatively long-term plan, objective, even scientific and rational, and so justifiable and legitimate (Quinn 1980:58). It is this *deliberate*, conscious version of strategy which is widely used, though often only implicitly. For example, Hunter et al (1993:386) required 'a statement or expression of objectives' or some 'awareness' or 'association' of HR issues in 'an holistic fashion' to provide evidence of a strategy. The idea of formal, deliberate planning was repeated by Legge in terms of HR strategy in her 1995 review and later by authors such as Deeks and Rasmussen (2002: 260-262). Thus Malloch (1991) found the actions of the petrochemical company Tioxide, in its decision to subcontract, to be 'opportunistic' and, as mentioned above, both Young (1992) at Mobil Coryton and Ahlstrand (1990) at Esso Fawley found no specific rationale upon which managers based their strategy, Young asserting management had no strategy at all.

However, the test of strategy as being a formal, written and deliberate plan, is a harder test than necessary, given the turbulence of environments. This turbulence and uncertainty casts doubt on the breadth of the *rationality* of the industry's management in terms of its gathering of information and the rationality of managers is 'bounded' (Simon 1957, Ritson 1997). If the flexible firm strategic model is about economising and is *rational* (as the strategic management theorists imply), outsourcing throws up curious inconsistencies, as mentioned earlier in the work of Ernst and Young (1996) and Baker (1990).

The dimension missing is one of *process* – the internal rationale within the firms – hence the referral to NIT earlier. Mintzberg and Waters (1985) suggest there is an alternative to *deliberate* formulation, an underpinning *emergent* strategy, based on a business ideology or belief in how things should be done, which is not often formalised but is still rational in management's terms. This approach might well therefore fit the actions of the firms better than an economising,

deliberate planning framework - yet still be entirely consistent with the underpinning theory of strategy as holistic and forward looking.

Ackroyd and Procter (1998) consider the emergent in an explicit manner, and they look towards the definition of a new flexible firm model. Butler (1990) adds support by considering HR as having a dual role: in a deliberate strategy, as a tool in implementation, (a distinction which might make the HR literature above understandable) but equally important is its role of generating emergent strategies as new opportunities arise. Atkinson (1984a) had asserted that *'There are both strong pressures to achieve a more flexible workforce and greater opportunity to do so now than in the past'*. (Atkinson 1984a: 28, emphasis added)

The operation of an emerging 'opportunity' is a significant element, related to an emergent strategy. Butler's conception fits with the 'opportunistic' actions seen above by Malloch (1991) and was echoed by Claydon (1996) in his terms 'reactive' as opposed to 'purposive' derecognition of trade unions.

The process of strategy formulation, in this conception, therefore relates to the institutional environment of the firm, and thence to what Barney (1991) and Boxall and Purcell (2002) call a 'resource-based view' of the firm. Marchington and Wilkinson (2002:230) suggest that the resource-based view is limited to the organisational level and stress the need to reflect the 'institutional arrangements at national and industry level beyond the workplace' which brings in the New Institutional Theory, especially its conception of isomorphic processes. Oliver (1997: 701) suggested combining this resource-based view with the new institutionalism to cope with *'deeply embedded norms and traditions'* in decision making – in particular he cites the work of Di Maggio and Powell (1983, 1991) which we have already considered above.

2.7 Levels of Strategy

Most commentators agree that there are *three basic levels* of strategy: corporate, business and lastly either functional or operational (Grant 2002, Marchington and Wilkinson 2002, Johnson and Scholes 2006, Campbell, Stonehouse and

Houston 2002). However, Purcell (1989) and Purcell and Ahlstrand (1994) suggest only two levels: 'upstream' representing *first-order decisions*; roughly equating to formulation/design and 'downstream' relating to *second-order decisions* at the level of action/implementation.

Flexibility, as the 'dynamic efficiency' Cibin and Grant (1996) remains a key strategic issue because it is a corporate goal. But this could only be achieved at the level of the individual plants in the businesses, and, in terms of direct action, at the level of the functions within the plants. This has an important impact on the definition of strategic level, as will become apparent in the discussion below.

The *corporate level* only deals with major questions: Daft (2002) suggests it is the '*raison d'être*' - or the means the selection of businesses in which the company should compete, and with the development and coordination of that portfolio of businesses. At this corporate level from the 'macro' or 'far' environment, competitive forces (Porter 1985) form the 'micro' or 'near' environment act on the firm, and result in managerial reactions which include major mergers and acquisitions, and these have an impact on the share price. In this way, if there is a corporate level strategy, it must be seen to relate overall productivity goals to localised flexibility of the kind described earlier.

The *business level* deals with aspects such as location, markets, and products. At this level, there have been major initiatives in the UK on labour productivity. The 'productivity gap' of the National Board for Prices and Incomes (1967) was addressed through productivity bargaining, and, in recent times, the introduction of essentially Japanese management practices. These comprise an attempt to transform the labour process in manufacturing and include initiatives such as TQM, JIT, supply-chain management, and Business Process Re-engineering (Wickens 1987, Oliver and Wilkinson 1988, 1992, Ackroyd et al 1998). These processes are primarily related not to HR issues as under the ambit of a Human Resources Department, but the new production methods aim to address productivity needs and are introduced by line managers (Womack Jones and Roos 1990). These include, for example, organising labour into multi-functional

teams, to match the new methods' demands: the 'functional flexibility' of Atkinson's model (Delbridge and Lowe 1998, McLoughlin 1999, Schonberger 1982). These types of manufacturing initiative were not found in the petrochemical industry (Marchington and Parker 1988).

The *functional or operational level* is the strategy of departments – marketing, accounting, finance, HR, manufacturing. Here we have a conceptual problem in that in Porter's (1985) terms, HR represents only an ancillary part of the 'value chain' of a business. This, as will be explained later, in 2.8, it is to confuse the *departmental structure* with the *wider HR function* which is within the ambit of line management.

Strategic management research has concentrated on data based on the classification of strategy into the three levels described above. The strategies at each level are seen as essentially separate but in reality are logically connected up to the previous level, and affect the next level down. In petrochemicals it is suggested that the global strategy of dynamic efficiency should be translated locally in maintenance, the biggest cost area, as craft flexibility (functional and numerical). As petrochemicals is a manufacturing industry, the insertion of a business level does not seem logical in this case: what appears more logical is to use Purcell's split into an upstream (design and formulation) stage, evidenced perhaps by a *deliberate* global strategy (Cibin and Grant 1996), followed by a more *emergent* stage of detailed formulation and implementation. This in effect means that there needs to be a dynamic interchange between levels and functions, yet such an interchange has not been the subject of much research.

As evidence for the applicability of this dynamic approach, in the 'core' CIPD text for Personnel Managers, Marchington and Wilkinson (2002) accepted Ritson's (1999d) suggestion that the dynamic between levels and functions had been underplayed:

"Drawing on research in the oil and chemical industries, Ritson (1999:170) argues that ...strategy is more dynamic than the classic models suggest..."
(Marchington and Wilkinson 2002:223)

So, concluding the above sections, there is evidence of a strategy in the sophisticated firms in the petrochemicals industry globally to introduce dynamic efficiency. This strategy has been implemented in the important maintenance function by way of derecognition of internal trade unions and by numerical flexibility – outsourcing to contractors. The strategy needs to be analysed in terms of its underpinning rationale: TCE and NIT are suggested as alternative frameworks. We next turn to the role of HR.

2.8 Human Resources

The flexible firm model had raised the role of manpower planning (sic) to a strategic level. The model also introduced the complex role of Industrial or Employee Relations:

'The current state of the labour market and a weakened trade union movement in the UK will help [firms] secure these aims [of flexibility]

(Atkinson 1984a: 28)

In the literature, the HR aspects have largely been down-played: yet the methods used to implement the strategy of flexibility, seemingly involving HR issues, need to be investigated. Considering the central role of trade unions in the conception of why the flexible firm was emerging in the 1980s, suggesting that the ability of firms to engage in such flexibility was due to weak trade unions, it is odd that no link is made to a functional level of theory either in the industrial relations, nor the strategic literature. Only Tuckman, who used the term 'meditating strategy' to describe the derecognition of craft maintenance unions in BP Chemicals, followed up this thread. Others had merely described the outcomes (e.g. Kelly 1998) or suggested new terms (Claydon 1993).

These internal relationships of a strategy of flexibility were not taken up by research into any detailed linkages to strategic management nor to HRM. In Guest et al's (2000b: 5) paper, the figure for modelling the link between HRM and performance simply has one box entitled "Business Strategy" with an arrow to "HR Strategy".

Manpower planning, part of the title of Atkinson's 1984a paper, was not evident in the literature, yet studies relating HR issues to the model would have added flesh to the bones of what was a very simplistic conception. This is because dynamic efficiency strategies, concentrated at the 'business level' are coincident with the flexible firm model and so with human resource issues: BP, for example, shed 25% of its head office staff (Cibin and Grant 1996).

In looking at this HRM literature, some clear problems emerge which point to a re-design of the approach and the methodology. A key issue is the ability of researchers to negotiate access and so garner the appropriate HR-based data. A recent large study for the Anglo-German Foundation (Müller-Camen, Tempel, Almond, Edwards, Ferner, and Wächter, 2004) produced a set of HR variables based only on what the few firms in the sample would allow the researchers to study.

There is also the problem of the operationalisation of terms: this surrounds the definition of the HR function and the operationalisation of variables.

The vague use of terms like '*personnel*' is evident in the literature: for example Jenkins (1973) asked '*Is personnel still underpowered?*' and Purcell (1985) asked '*Is Anyone Listening To the Corporate Personnel Department?*' Purcell (1989) also concentrated on the "personnel department", and rejoiced when '*Personnel Earns A Place on the Board*' (Purcell 1994).

Similarly, Gennard and Kelly (1994), concern themselves with the influence of *Personnel Directors*, and to the supposed unimportance of the labels appertaining to *Human Resource Management* (Gennard and Kelly 1997). Further, the Warwick company level survey used *personnel issues* (Legge, 1995: 119), Hickson et al (1986:80) and Batstone et al (1986) used *personnel managers*, Hunt and Lees (1987) used both *human assets* and *personnel managers*, and Purcell and Ahlstrand (1994) refer to *personnel specialists*. This inconsistent terminology leads to problems of identifying variables accurately and to issues of their subsequent measurement and to distortions in the literature, especially as Professor Gennard has been for many years the CIPD Chief

Examiner for Relations and more recently editor of the journal *Employee Relations*.

There is also an *a priori* listing of potential variables which attempts to develop theory too early - often on the basis of poor empirical designs and poorly actioned methodology. Subsumed under the higher level terms above are different sets of HR 'practices'. Pfeffer (1998) included *employee voice, employment security, sophisticated selection, extensive training, teamwork, high pay and status harmonisation* in his list. Berg (1999) refers to *high-performance work practices*, Applebaum et al (2000) to *high performance work systems*, Walton (1985) and Guest et al (2001) to *high-commitment HRM*, Wood 1999 to *high-involvement HRM*. Marchington and Wilkinson (2002: 202) conclude that 'practices' are ill-defined and Guest et al (2000a) found no consistency in 'bundles' of HRM 'practices' in the Workplace Employee Relations Survey and resorted to counting the number of 'practices' individually to 'find' *high commitment HRM*. Additionally, most results are from self-reports and cross-sectional studies which must, as Guest admits, be taken with caution (Guest et al 2000b).

The problems within HR research lead to 'abstracted empiricism' (Wright Mills 1959: 54-55) based on quantitative surveys rather than the exposition of the linkages and the posting of a more mid-range theoretical level, and authors in the HR literature are culpable of a lack of operational definitions: Purcell complained about *macho management* and the new-found *management prerogative* of line managers (Purcell 1982, 1991). Many authors are concerned not with personnel or HR as a concept or function across a business, but with a Department: this is not the same thing. It is therefore little wonder that many authors have commented on the lack of linkages between HR and strategy at whatever levels and any such links are not usually seen as important (e.g. Purcell 1995, Legge 1995).

In this thesis, the 'HR function' refers not to a department, job title, or other defined internal structure, but to the generic function of line management, augmented where necessary by HR departments, comprising data on practices

which provide the evidence of HR activity in resourcing (manpower planning) and employee/industrial relations. These data are detailed in Chapter 4.

2.9 Summary

We have constructed a rationale for the research questions under the appropriate literatures and questioned the problems in these. In particular, the issue of the conception and formulation of strategy is addressed. TCE is appropriate in its use of asset specificity, as well as other attributes: on the other hand, as an 'undersocialised' approach, it does not deal with internal managerial processes, thus the New Institutional Theory can be used to address institutionally-based ideologies of the management cadre, and it avoids an 'oversocialised' approach based on individual decision-making psychology.

For the issue of the conception and formulation of strategy, data from the petrochemical industry is key: it has a global strategy to counter the problems of low margins in its plants by way of a more flexible labour force and it has previous history of using contractors and by the reduction of the power of trade unions by derecognitions.

These considerations gave rise to two broad research questions:

what is the process of formulation of a strategy of flexibility?

and

how has any strategy been implemented in the UK petrochemicals industry.

Chapter 3 Methodology

3.1 Introductory Remarks

The methodology follows the criticisms of the literature and of Wright Mills (1959) in that it attempts a mid-range approach. Mills (1959) suggested that the 'sociological imagination' had been blunted by two extreme positions – 'grand theory' and 'abstracted empiricism'. This first he suggested was the association and dissociation of concepts (Wright Mills, 1959: 26), the second was research which was not based on substantive propositions or theory (Wright Mills 1959:54-55). Between the extreme approaches of *grand theory* and *abstracted empiricism* criticised by C Wright Mills lies a mid-range area of theory. It was thus an objective to correlate and integrate these aspects in an holistic approach based on empirical findings.

Methodology is in a dynamic interchange between the questions the research seeks to ask from the literature and the ability to obtain data sufficient to answer these questions. These questions were *what is the process of formulation of a strategy* and *how has any strategy been implemented in the UK petrochemicals industry.*

The methodology to obtain that data to answer these questions takes two forms: the initial choice of an area to investigate the research questions (the sample), and the detailed conduct of the empirical work (the methods). This split is suggested by various authors such as Bryman (1989) and Gill and Johnson (1991).

3.2 Access: the ability to obtain data

To pose a mid-range question on flexibility would necessitate having the data to answer it. However the data required are sensitive – commercially or in terms of industrial relations – and, as explained earlier, internal access to organisations is very difficult for researchers to obtain.

To answer the two research questions one requires sufficient reliable and relevant data. Secondary data to answer these fully is extremely rare in this area

of research: the *Solomons Refinery Efficiency Survey* mentioned by Dawson's (1995) in his paper on Mobil's Adelaide refinery is not published, though general industry statistics and individual company histories are available. More detailed data on the industry is held through oil industry analysts in financial institutions, but is too general except to provide background information. Access was obtained to a key respondent at the financial institution, Dresdner Kleinwort Benson, but the information on petrochemicals was generic and not useful to answer the questions except to confirm the global problems of the industry as Cibin and Grant had detailed. Other secondary data was obtained from other sources and published in Ritson (1999a) as a general survey of the problem of competition in the UK petrol market. Given access to internal information, data of a secondary nature can be obtained from analysing existing data such as from benchmarking (DTI 1992).

Primary data is at which is gathered for the purposes of the research, and To answer the research questions therefore, primary data was necessary. The problem is the access to such data is difficult (see Horn 1996 for a discussion) and this problem was illustrated by the lack of investigation into the decisional processes of management in the pursuit of flexibility. Hence, a common methodology is to use surveys usually anonymous postal variety on which much research in the literature is based. Chapter 2 contains several examples, and this approach had been found lacking (e.g. Ritson 1995), particularly because the causal links within the firms from external events to internal organisational actions remain hidden.

3.3 Fieldwork and the petrochemicals industry

That petrochemicals industry could provide data was outlined in Chapters 1 and 2. To answer the research questions therefore requires access to internal documents and staff who have specialist knowledge. Also access to figures to accommodate an economising cost/benefit rationale based on TCE would be necessary. In the case of Mobil we know (from Oldfield 1966 and Young 1986) that managers applied certain flexibility techniques to its craft maintenance labour force from the 1960s onwards including externalising some trades to contractors. However much of the institutional data is sensitive given internal

craft union derecognitions (House of Commons 1994) and the external data on contractors is commercially confidential. This research based its resultant papers on the ability of the researcher to gain considerable access to primary and confidential secondary data.

The main investigation was to seek evidence for an internal rationale to frame the decisions of managers. This might consist of applying a model such as the 'hierarchy versus market' approach of Transaction Cost Economics. Also, the concept of 'firm specific skills' could be defined further under the use of the term 'asset specificity' within TCE. This evidence could be found by investigating, through documents and interviews, whether management had used data so as to make a decision on the costs and benefits of internal versus external supply. Ideally evidence would comprise the setting up of a task, and its evaluation - from first costing internal supply and secondly by way of quotations from contractors to supply the work externally.

The question of whether the actions in the industry were strategic required evidence for formulation of strategy involving the appropriate level of decision: corporate business or functional. Also, in this case, the involvement of HR issues within such strategic formulation was a key area of investigation. These questions can be also be answered by gathering evidence via assessments of documents and the use of interviews, including trade unions respondents, and external bodies for the purposes of triangulation.

As the research questions require evidence of decisional processes, i.e. primary data, and as the data was sensitive, this was unlikely to be forthcoming from a postal survey, particularly as the firms might not see any benefits by participating. Thus, the use of a 'fieldwork' approach was necessary. This had been specifically recommended by Lord McCarthy (1995) as '*a return of [the] pioneering spirit*' of research. A significant problem with such a fieldwork approach is the cost – the time spent by the researcher in the field, and the travel and subsistence expenses incurred. This, as well as access difficulties, may be related to the rarity of this approach in the literature. The small number of cases is testament to the difficulty of acquiring in-depth access, and Gallie (1978),

even with the aid of research assistants, still took two years to gain access to BP – one firm.

The individual petrochemical plants' addresses were obtained from the Institute of Petroleum (Institute of Petroleum 1994, 1996a, b, 1999), now the Energy Institute, (www.energyinstitute.org), and as the flexible firm model was effectively a type of HR intervention, letters were written to the HR professionals in each plant. These letters described the research proposal, its design and methodology and included an ethical checklist based on Preedy and Riches (1985, and cited in Bell, 1995: 54-59). However, they frequently went unanswered and when a reply was received, it was to deny cooperation. Thus, access to a wider sample was not possible at this initial stage. The idea of a case study was therefore attractive. Such a case study was appropriate (see Yin 1994 for a theoretical justification) and necessary given the problems of access described above. A case study was successfully used by Gallie (1978) in his study of BP, and by Ahlstrand (1990) in his study of Esso Fawley refinery.

3.4 The Pilot Case: Mobil Coryton

Industrial experience on the part of the researcher who had been employed at Mobil Coryton assisted in gaining access and Young (1986) had illustrated a change to flexible labour at Mobil Coryton resulting in a 'fully flexible craftsman'. The HR Manager at Mobil's Coryton Refinery was contacted by telephone who granted an interview. However, Mobil craft trade unions had recently been derecognised, and, as this was still a sensitive area, access to internal employees to discuss inter-craft and craft-operator flexibility was denied. This is a key finding and links to the problems of developing theory referred to earlier.

Fortunately, the issue of flexibility was currently pertinent as Mobil had just introduced a new Agreement for maintenance contractors, and access to contractors was agreed. This meant that the research had to be concerned with numerical flexibility - the peripheral workforce of contractors. This created a problem: whether the research questions could be answered by using an operational definition of a strategy of flexibility to incorporate only 'numerical

flexibility'. This, it was argued, was still strategic, involved HR and was risky, thus implying the potential use of a sophisticated, competent and rational approach. The data could be quantified by counting the numbers of employees and types of work outsourced to contractors, which made the research more objective. This data is simple, transparent and accurate, able to be verified. It is contrary to the complexity of vague terms like 'HR' issues or 'flexibility' as used by others and detailed in Chapter 2. The research proposal was submitted to ESRC and funding granted on the basis of the Mobil case study.

A set of key respondents at Mobil was drawn up with the HR manager, who indicated which Mobil staff, and which contractors' managers, had been involved in the new contractors' Agreement. So as to remove bias and include a method of triangulation (Denzin 1970), the trade union officers at local and national level, and the Director of the National Joint Council of the ECI were included in the interview sample separately from the Mobil respondents. All of these respondents were telephoned to explain the research aims: none of the parties refused access and so formal access agreements (which included the ethical checklist so that they could be assured of confidentiality) were made with each party. . This list was added to as more details were revealed. A list of these respondents is detailed in Appendix 1.

The initial fieldwork at Mobil comprised six one-day visits, with interviews arranged in advance, and, with follow-up interviews, lasted from mid-1995 to end-2001. The interviews were based on a semi-structured approach with contemporaneous notes taken and sent back for confirmation: this was to reduce interviewers' errors and possible bias. Bryman (1987) calls this 'respondent validity'.

Documentary research provided basic new data and also triangulated respondents' oral evidence to reduce the possibility of reflexivity. This comprised access to extensive data sets within all of the files on the contractors (in maintenance and in capital projects) going back many years. These showed previous and current numbers of trades and employees within each category dates, contractors' names, in a time series based on records from annual trade

union negotiations. Detailed field notes were taken from these files and written up later, often providing further questions for respondents.

Other documents, revealed the role of the HR function. A former HR manager produced documents from the US parent one of which gave a ten-page verbatim account of a speech given by the Refinery Director at a Mobil Corporation Inc. conference on manufacturing strategy in the USA. The documents clearly stated the importance of HRM factors in strategic decision-making. Notably they did not single out the HR Department but used the term 'HR function' as a generic duty of line management.

The research was initially developed to ascertain whether there was a 'transaction cost reduction' rationale, and in its relation to strategy and industrial relations using the flexibility issue as the core area for empirical data. The answer to the issue of a theoretical rationale emerged only after consultation of a large number of documents and interviews of current and former Mobil and other staff. This finding was in the negative (Ritson 1997) and so a return to a wider study was required. This was coincident with another practical issue: contact with Mobil managers was becoming difficult following the asset swap with BP, which resulted in Coryton Refinery changing hands in 1999.

3.5 The Wider Study

A Wider Study of these plants was also desirable in case Mobil was an isolated case. Fortunately back-up data from other plants had been identified in the proposal to ERSC and travel and subsistence already had been costed out and agreed. A set of respondents was developed based on the Mobil files instead of the previous attempt at a census of major petrochemicals plants from the Institute of Petroleum mentioned in 3.3. Eventually it involved over 100 semi structured interviews and triangulation with documents and different parties to answer the research questions.

The data within the Mobil documents in the contractors' files revealed that Mobil managers had undertaken a survey of comparators firms and how they had handled the issue of contractors' work. These comparators included both oil

refineries, and chemical plants belonging to the multinationals, including processing plants in the 'upstream' or production part of the industry, and also ICI, a purely chemical firm. These are detailed in Appendix 1. Following the access agreed by Mobil in the initial pilot study, these plants were approached for access. Specific named line managers responsible for maintenance and/or contracts or engineering (as appropriate) from these firms were contacted directly by telephone and the study was explained to them. The researcher's credibility was established based on the experience in the pilot case with Mobil, whose managers agreed to act as referees in the event that confirmation of that credibility was needed. Given the access provided by Mobil as a reference point, all except Elf and Total agreed to interviews.

The study was then extended to their sister plants so as to try to encapsulate strategic plans at the level above the individual plant as discussed in Chapter 2: the corporate or business levels. This new set of respondents is detailed as Appendix 2. The subsequent interviews followed the practice of using an open question such as was used by Lawrence and Lorsch (1967), who asked *'Would you list for me the major kinds of problems an organisation encounters competing in industry?'* (Lawrence and Lorsch, 1967: n247).

The question posed was *'how has maintenance changed over the past few years?'* This key question was used to remove any suggestion of 'respondent reflexivity', in that contractors were not specifically mentioned so as not to prompt a response based on these. The managers emphasised labour relations in interviews and usually spontaneously used the link to contractors without any prompting. Subsequent 'prompt' questions were used to home in on the research questions only where necessary. As in the previous interviews, contemporaneous notes were taken, written up in Word documents, and returned to the respondents for checking. In some cases, these were altered for accuracy by the respondents, re-written by the researcher and returned for final confirmation to the respondents, thus establishing respondent validity.

Triangulation was required to remove bias such as either exaggeration or ‘sand-bagging’ by managers, and was achieved again by contacting the appropriate trade union officers, this time in the different regions the plants operated in. These officers (listed in Appendix 2) were interviewed in person or by telephone to establish their perspective of the facts. In nearly all of these cases, the dates, trades and numbers of employees were similar or identical to those given by the employers. Interestingly, there was a predominant opinion of the trade unionists that the changes were strategic, emanating from the multinational firms’ headquarters.

3.6 Summary

The research design was created so as to overcome the methodological problems in the literature. The methods used were designed to answer research questions and required access to sensitive secondary and primary data. Data collection was by triangulated interview of key respondents and discovery of documents initially from a pilot study so as to test the validity and robustness of the method and its ability to answer the questions from the data which were able to be generated. The method of semi structured interviews and the written feedback limited errors by interviewer, as did triangulation with trade union and industry sources. The wider study used a similar methodology: the methods are sound enough to reliably investigate the contracting out of maintenance in UK petrochemicals plants and to answer the research questions, so as to add to empirical knowledge and theoretical development.

Chapter 4 Results

4.1 Introductory Remarks

This chapter sets out the eight publications related to the literature review arranged under the two processes in the methodology – the initial search for secondary data and the data within the Pilot and then within the substantive project described as the Wider Study. In the different papers the underlying themes (a strategic/theoretical rationale, HR roles and evidential data) overlap as evidence was accrued. The papers were published as evidence accrued, often via initial conference papers.

4.1. Secondary Data

We saw in Chapter 3 that to answer the research questions by secondary data was difficult, and that it provided mainly a background picture. However, as the suggested global strategy of dynamic efficiency (Cibin and Grant 1996) required compliance, it may have differed as between countries or regions (such as the so-called Pacific Rim). The UK situation was therefore investigated as a starting point to check out the return on investment seen by the firms.

The relevant publication is:

Ritson N H 1999a *The real problem of competition in the UK petrol market: a reply to Cohen* Strategic Change 1999 8, 4, pp 235-241

Prior to the empirical research, secondary sources were used to set the UK context of the industry. The situation in the UK was highlighted by an article by a former marketing executive for Shell which suggested more service was necessary at the petrol pumps to attract customers and improve throughput and so profitability (Cohen 1998). However, this retail solution (a functional level, as a marketing strategy) suggested ‘augmented features of petrol dispensing’ and ‘re-positioning of petrol’ as a product (Cohen 1998: 203). This low-level response flew in the face of known facts in the wider industry, in that a higher, corporate strategy level was clearly being enacted. A response was written which described the petrochemicals’ basic strategic problem in the UK. The article used a large number of secondary sources – some thirty-five references as

against Cohen's ten, and traced the history of UK petrol retailing at the geopolitical level, concluding that

"The oil companies are trapped. They need more volume but this leads to lower prices in a downward spiral"

(Ritson 1999a: 238)

This meant that they must re-position themselves as suppliers of energy - not as retailers.

This was described in the publication

Ritson N H 1999a *The real problem of competition in the UK petrol market: a reply to Cohen* Strategic Change 1999 8, 4, pp 235-241

This paper sets the scene for intense competition and low profitability in the UK and showed the low returns in the market place and the intense competition from non-refiners, the supermarkets, who bought petrol at spot rates on the Rotterdam market. The refineries were under intense pressure, as they were dragging down the petrochemicals firms' overall performance in the UK and they had to react: the *business level* of strategy is therefore clearly seen as it involves different functions, and contradicts Cohen's functional level of analysis. The link upwards to *corporate level* was not pursued but the profits of the corporate groups clearly suffered in that the UK was an important market.

The obvious answer would have been to remove production capacity from the UK by shutting down plants, but the first firm to do so would instead give away market share and margin to competitors, as well as incurring large costs in the demolition and making safe the former plants. Rather than addressing the real problem, the firms made changes to relatively minor areas where they had control and where managers could demonstrate their expertise as Ahlstrand (1990) had determined at Esso Fawley. The rationale of managers from such secondary data was still not evident in the current climate however, and so the empirical research was used to provide answers.

4.3 Empirical Data I. The Pilot Study of Mobil Coryton

The in-depth Pilot case study was used to frame the proposal was to ESRC so as to gather evidence to test for a TCE rationale involving a strategic conception of the role of HR. This was linked to finding data to test the research questions as submitted to ESRC, and to the specific literature relating to numerical flexibility or outsourcing. The use of TCE could add to the status of the flexibility thesis generally, so the title of the proposal to ESRC therefore linked TCE with industrial relations, and introduced ideas of strategy and human resource management as examples of how it might be rationalised and introduced. This encompassed the contracting atmosphere of uncertainty and informational asymmetry contributing to the bounded rationality of the Mobil managers.

As mentioned in Chapter 3, an approach was successful in gaining access: this encompassed access to interviews of maintenance contractors and other staff and documents related to the new for contractors. Thus the conceptual framework of TCE was used at Mobil Coryton to track any themes within the documents and follow these in the interviews, as explained in Chapter 3

Three papers are relevant:

Ritson N H 1997 *Unbinding rationality: a single union agreement for contractors at a UK oil refinery* Journal of Managerial Psychology 12, 3 pp 155-176

Ritson N H 1999c *Manufacturing strategy in a UK process plant: the importance of human resource management* Strategic Change 8, pp 349-357,

Ritson N H 2007 *The Quest for Productivity revisited - or just derecognition by the back door?* In Dainty A, Bagilhole, B and Green S Eds. *People and Culture in Construction: A Reader* Taylor and Francis pp 260-279

Mobil Coryton management had over the end of 1992 and beginning of 1993 introduced a new Single Union Agreement for contractors. This was a good fit

with the theory of transaction costs as described in Chapter 2 as the transaction costs of monitoring were presumably reduced through the single-union agreement which Mobil instigated. Though the changes were costed in a “Value-for-Money” analysis, the savings for the single union deal amounted to only £1million per year and there were no data on contractors’ performance. While the files included various costings of contractors’ work such as employees rates of pay, there were no appropriate figures found for the measurement of work *in toto*: it was discovered that, due to the complexity of maintenance operations, only about 20% of work could be measured accurately enough to use as a bonus scheme (and initially as a costing for contract bidding by the contractor firms), and most work was done on a ‘time and materials’ basis. Thus there was no evidence for the economising of TCE in comparing costs of supply: no cost-benefit analysis of the extension of work contractors, even on a basic costing level as Cross (1989, 1990) had surmised.

Nor was any evidence found in these data that indicated that Mobil had used any TCE concepts, even implicitly. One premise derived from the model was that its firm specific skills could be placed in a theoretical setting within TCE’s conception of asset specificity. However, there was no formal evaluation of *firm specific skills* which was important to any rationale as these were supposedly the determining factor as to which tasks were subject to numerical or functional flexibility, and had thus far not been measured in any way. Managers did not spend time gathering *comparative information* on contractors, as TCE predicted, managers took the risk, of *opportunism* - a jump into the dark, into the arms of the six contractors and so did not avoid *small numbers exchange*. Indeed a single union agreement was itself an example of such a paradox, Mobil had opted for the very small numbers exchange that TCE stressed risked opportunistic behaviour by the single trade union.

There was however clear evidence that Mobil’s actions could be seen as adhering to a subset of TCE under human factors – the *bounded rationality* taken from Herbert Simon’s early work. The firm had made a significant set of changes: it became a leader to a follower; it used a type of agreement from another industry; and it imposed it, not on its own workforce but on its

contractors. All of these were a break with its previous traditional way of working. The result was written up as

Ritson N H 1997 *Unbinding rationality: a single union agreement for contractors at a UK oil refinery* Journal of Managerial Psychology 12, 3 pp 155-176

Thus there was no other evidence of TCE and the answer to the question '*what is the process of formulation of a strategy of flexibility*' was delayed until the later publication (Ritson 2007). In this much later paper, the details of the objectives and the method of handling the change became clear. Mobil Coryton had a clear deliberate strategy of attracting inward investment from its parent Mobil Corporation in much the same way as had Norsk Hydro (reported by Blyton and Turnbull 1995). The way to achieved it was the subject of an extensive consultation and communications exercise.

This was published as

Ritson N H 2007 *The Quest for Productivity revisited - or just derecognition by the back door?* In Dainty A, Bagilhole, B and Green S Eds. *People and Culture in Construction: A Reader* Taylor and Francis pp 260-279

Respondents in interviews did not hide the fact that they had not used any measurements or detailed planning. The results were isomorphic with two types of agreement being used to control the contractors: three plants used the single union deal, while the remainder used the National Agreement as amended by the Supplementary Agreement (NAECI-SA).

As mentioned in Chapter 2, DiMaggio and Powell (1991) distinguished three 'isomorphic' processes: but which ones applied? *Coercive isomorphism* is not applicable. Di Maggio and Powell suggest the use of contract and power is within buyer-supplier and other inter-institutional relationships, as seen by Clark and Ball (1991). Even though the imposition of the solutions on the contractors is coercive, the isomorphism is between the multinational firms not between these entities and the contractors. Further, Shell and BP affiliates produced

different local solutions to the contractor issue. So, even within the same company, where hierarchy could coerce lower level managers, this did not happen. In Shell UK Oil, the Essex plant Shellhaven used a single union agreement while its Shell UK Oil Cheshire facility at Stanlow used the NAECI-SA. BP Chemicals at Hull used contractors' own agreements while BP Chemicals Grangemouth used the NAECI-SA. There are no other organisations or societal rules, laws or sanctions to coerce these firms.

Normative isomorphism also is not applicable, as there are no extant professional bodies or employers' or trade associations from which to obtain the recipe. ICI had to engage the NJC for the ECI in lengthy negotiations to change the NAECI to create the option of the Supplementary Agreement, and a 'norm' was set only after ICI and then Shell implemented the new Agreement in 1994. Similarly there was no norm or standard for the Single Union Agreement introduced by Mobil, as it was copied from automotive and Japanese firms' UK manufacturing and was introduced uniquely to petrochemicals.

Ritson (2007) argued that *mimetic isomorphism* was applicable, as it takes place through the adoption of similar practices by organisations within the same field. These may be *deliberate* and objective - by use of benchmarking exercises for example - or they may be *intuitive* and taken-for granted. In the case of these firms, there was an initial survey or benchmarking exercise undertaken by Mobil in 1991, and one of the comparators was ICI. Given the enquiry from Mobil, it can be assumed that this awoke a latent interest in ICI as it was some four years after that exercise following lengthy discussions with the NJC that ICI eventually persuaded the NJC to agree to the new Agreement. Indeed it may well have stimulated the other firms to take some action. This suggests that the original intent was deliberate – to increase contractors' performance, but as there were no comparators who had done this already, managements had to discover an emergent strategy to deal with it. Evidence from Mobil showed that the managers had considered a variety of avenues, and involved a number of different participants in their 'away-days' to formulate a contractor strategy.

DiMaggio and Powell state that more often than not such copying needs to have *legitimacy* through 'culturally supported norms of behaviour'. This was evident in the public's support for the stance of the Conservative Government on industrial relations including its legislative programme over three elective terms and, by implication, its clear stance on enabling managerial prerogative: 'macho management' as Purcell had suggested. In other industries the wave of derecognitions (seen by Clayton in 1989) as well as the rise of the single union deals in Japanese transplants in the electronic and automotive sectors all added to the legitimacy felt by the managers of the firms. Given the poor state of finances due to supermarket competition (Ritson 1999a) and the cyclical nature of chemicals (Ritson 1999d) there was thus 'a window of opportunity', to enable the enactment of an *underlying ideology* which depended on location and technology and so included a variety of similar but distinct strategic activities which were revealed as firms took advantage of the opportunity across the industry.

Further evidence was meanwhile accruing, with interviews of staff and discovery of documents. Access to documents showed that the strategy within the refinery was *deliberate*: formal, written and openly discussed and linked to human resource issues. In terms of process, the literature indicated that some authors unearthed no evidence of a *deliberate* strategy, almost inevitably concluding that one did not exist (Young 1992) or that managerial action was 'opportunistic' (Malloch 1991). These studies lacked any theoretical analysis of the possibility of an *emergent* approach, and also specific evidence. Young did not have access to the later documentation at the Mobil refinery which clearly showed management's intention to encourage inward investment from the US parent. (Ritson 1999b, 2007). Had he had access to the current data, his analysis must have been different. This evidence was published as

Ritson N H 1999c *Manufacturing strategy in a UK process plant: the importance of human resource management* Strategic Change 8, pp 349-357,

The key was an industrial relations strategy which addressed the problems of maintenance flexibility (including production operators doing conditional

maintenance) and contractors' contribution and also more general issue such as Health and Safety (which had seemed to be 'owned ' by the unions) and the lack of teamwork generally. This evidence was forthcoming from a formal paper presented by the then Refinery Director to an international conference of Mobil managers. The strategy was labelled as at the manufacturing level, but the clear direction was from the corporate level.

This paper showed the details of a 'downstream' strategy as Purcell (1989) and Purcell and Ahlstrand (1994) had espoused: the emphasis of the paper was not on some distant global corporate level goal but on specific economic returns to manufacturing, and the role of teamwork in particular was highlighted as an essential precursor to any typically technical manufacturing initiatives such as TQM, as seen in the wider manufacturing industry. The clear intention of the changes in Mobil was seen as strategic, i.e. long term, whatever the level which can be applied: corporate funding was vital to retain competitive performance.

From these two papers there was also evidence under the second research question, related to *how strategy had been implemented*. Mobil had followed a mediating strategy (Tuckman 1998) with its derecognition of the internal craft trade unions and the outsourcing of the more basic trades in 1992. This created functional flexibility. It then addressed numerical flexibility and the outsourced work it had created by challenging the contractors' inefficiency: this was done not by a contractual or managerial structure but by a change to working practices over the heads of the contractor employers. In 1993 it had introduced a single union agreement with the AEEU to replace the old multi-union Site Agreement which had been based on the NAECI. In the process it also derecognised the contractors' unions not party to the single union deal.

These HR changes were noted as dangerous in the comment '*this carries an IR warning*' in one of the presentations to management made by the HR team tasked with the process of establishing the single union deal. Various efficiency elements were incorporated such as the harmonisation of start and finish times as between the contractors and the Mobil workforce, refreshment units and toilet and washing facilities placed around the large refinery site. This was to avoid

unnecessary travel during meal or comfort breaks. The set morning tea break was also abolished to be replaced by a break where work had stopped naturally. On the plus side Mobil introduced a skills 'passport' to enable contractors' employees to move from site to site and to other plants by way of an accredited record of tasks and skills acquired.

There was much evidence of the role of The HR department in the detail of the strategy, which implies, as the literature indicated, a second or third order implementation role – though this was extended to provide option to senior management rather than just following a given brief. More mundane were the HR based tactics used to persuade the internal blue collar maintenance craftsmen to change to staff status. These included an advert for a fully flexible craftsman in the local press, and the offer of a 17% salary increase with additional 'merit' payments to follow the move to staff status. The HR Department organised "Question and Answer" sessions and a ballot: in the end the craftsmen voted to accept the deal despite the resistance of their own FTOs.

Such detail tends to site the role of HR in two distinct levels: at the corporate level the issue of poor UK industrial relations impeded the inward investment needed, and the flexibility required of a dynamic efficiency strategy as indicated by Cibin and Grant. On the other hand the Department of HR tended to be involved in options for change but was more concerned with the detailed change management process than a high level role. This placed much of the HR activity, but not all, in the area of a functional level of strategy.

This question of levels corresponds to the discussion in Chapter 2, in determining whether two or three levels of strategy exist, and illustrates the need for a more dynamic approach as Marchington and Wilkinson (2002) recognised.

4.4 Empirical Data II: The Wider Study

In one area, the Mobil case pointed a way to answer the first question "*what is the process of formulation of a strategy of flexibility*" because, although it did not use any TCE rationale, it had used a benchmarking exercise to identify best practice amongst a varied collection of firms, similar to Lant and Baum's (1995)

contention that firms choose their own set of comparators. This process led to the consideration of the NIT as an underlying rationale for strategy formulation. Gradually the importance of these internal institutional factors emerged, resulting in a revisiting of the Pilot study material in Ritson (2007) as reported in the previous section.

The second question "*how has any strategy been implemented in the UK petrochemicals industry*" only partially emerged from the details of the Pilot, but one case was an insufficient sample - though Tuckman (1998) had only used BP to justify his article which purported to be about 'the chemical industry' as a whole.

The answers to both questions arose simultaneously as evidence accrued across the industry of similar practices, and interviews had not revealed a detailed rationale to develop strategy except for managements in Mobil and ICI, who developed the Single Union Agreement and the NAECI-SA respectively.

The ESRC grant had included strategy and human resources as part of the proposal, and the theoretical underpinning of the strategy was developed in stages. Other evidence arose concerning the role of HR factors in the development of a strategy of dynamic efficiency which included the outsourcing of maintenance to contractors. However, there was doubt as to whether this was opportunistic (Malloch 1991) or strategic: Young (1992) saw no strategy at Mobil Coryton. We saw in the previous section that this was not in fact the case at Mobil, but was there evidence elsewhere?

The wider study engendered four relevant papers:

Ritson N H 1999d *Corporate strategy and the role of HRM: critical cases in oil and chemicals* " Employee Relations 21, 2 pp 159-175

Ritson N H 1999b "*Management recipes: an alternative to thinking?*"

Management Accounting 1999 77, 3 pp 46-48

(International Federation of Accountants' Award of Merit article)

Korczynski M D and Ritson N H 2000 *Derecognition of trade unions and the dualistic behaviour of oil and chemicals firms* Work, Employment and Society 14, 3, pp 419-437

Ritson N H 2001 *Close-coupled disasters: how oil majors are de-integrating and then managing contractors* in Mars G and Weir D H T (Eds.) 2001 *Risk Management Volume II Management and Control* Aldershot, Dartmouth/ Ashgate, pp 105-113

4.4.1 Implementation: HR

The wider study initially began with two cases in the sample, ICI and BP, both of whom had corporate headquarters in the UK, as critical tests of the corporate level role of strategy. Both ICI and BP had concluded deals with their internal workforces to enable functional flexibility and then, to ensure numerical flexibility, had outsourced trades, transferring staff to contractors firms and guaranteeing them work for a period of five years. Here it was clear that ICI depended on the results of a human resources audit to decide on whether it could use 'differentiation' or 'cost leadership', (Porter's 1985 two 'generic' strategy forms) - or even achieve as sale of the plants. In a dynamic interchange between levels that is not evident with the strategic management literature, corporate strategy in these two firms could not even be *formulated* before the HR aspects had been assessed, and then changes made to accommodate the corporate level strategy. This influence of HR factors was related to skill and flexibility, and was considered at the corporate level.

In BP, the corporate decision was to implement an asset-based strategy, so that results would be more transparent across the different assets of the Group. This meant that scale economies had decreased and were supplanted by extensive inter-trade flexibility achieved by craft union derecognition and transfer to staff

status and the transfer of less-used trades (note: not lower-level trades) and the use of specialist contractors.

The published paper showed that the changes were part of a corporate level approach as both firms' Corporate Headquarters were in the UK, and that the changes applied to all of their different manufacturing plants, so that overall performance was enhanced: this gave rise in BP at least to an increase in its share price.

This was published as

Ritson N H 1999d *Corporate strategy and the role of HRM: critical cases in oil and chemicals* " Employee Relations 21, 2 pp 159-175

Human Resources

Marchington and Wilkinson, as mentioned in Chapter 2, endorsed this more complex view of strategy formulation:

Ritson (1999:170) argues that the relationship between HRM [human resource management] and strategy is more dynamic than the classic models suggest"

(Marchington and Wilkinson 2002:223)

The paper was also important as it explains how, in corporate level decision making, the role of HR management is not peripheral but central. Continuing the citation of the above paper, Marchington and Wilkinson state clearly that it is wrong to suppose

"that HRM is owned by and undertaken in specialist departments rather than being integrated into the line management of the organisation, and thus inseparable from all other managerial functions and activities".

Marchington and Wilkinson (2002:223).

This accepted the problem of the relationship of an HRM Department to strategy. This paper confirmed the suggestion, as explained in Chapter 2, of that

HR is a variable concept and is very often misconstrued. The result is that the role of human resources in corporate level strategy has been shown here, in fact, to be a key determinant.

We should not be surprised at this central HR role as industrial relations has taken up the time and effort of so many governments: it was the major plank of the Conservative Party's 1979 manifesto – a 'strike free Britain' as noted by Bassett (1989) in the title of his book *Strike Free*, and its encouragement of Japanese inward investment (Blyton and Turnbull 1995, 2005). That a whole series of HR researchers had missed this relationship (as evidenced in Chapter 2) is related to the fact that they had not perceived or in the case of Gennard and Kelly (1997) - disregarded – the difference between HR departments and their roles, which are specific, and the HR function, which is generic. The question of access (as discussed in Chapter 3) has also hindered posing the correct question to answer the theory.

Significantly, recent events have shown this analysis of the central role of HR to be correct. Both BP and ICI have sold the plants in the study based initially on the improved profitability which came from the HR changes described in the paper. BP sold Grangemouth to INEOS in 2005 and ICI sold its Runcorn plant to INEOS-Chlor in 2003 and its Wilton plant to Huntsman in 2004. Without the changes to the HR function – in BP derecognition and in ICI outsourcing – these sales would not have been possible as the changes resulted in productivity gains which were accounted for and which were auditable by buyers.

Thus we saw the emergence of a strategy around HR issues which interacted with the global strategy of dynamic efficiency, but which was interpreted differently by these two UK based firms. As such, it can be categorised as a corporate initiative, and actions taken affected all of the UK plants belonging to both BP and ICI petrochemicals divisions.

This answers the first research question by showing that formulation of strategy is concerned with the resource based view around HR factors, and the levels are not static but dynamic. These papers not only put HR at the heart of strategy –

in terms of de-recognising trade unions to remove demarcations and outsourcing trades to increase quality and timely interventions - but also to attract billion-dollar investment.

4.4.2 Implementation: complexity

As the research progressed, more evidence was accumulated from the other plants and revealed a coherent set of changes where outsourcing became the norm – the average reduction of the internal workforce was 50% but some plants had gone much further. The results were first published in the industry journal Petroleum Review as '*Maintaining production in the new millennium*' (Ritson 1998b).

These results were then progressed in draft during 1998 and were published as Ritson 1999b "*Management recipes: an alternative to thinking?*" in Management Accounting 77, 3 pp 46-48

Evidence was presented in the tabulated results (Table 1, p 47). Four plants did not give numbers due to confidentiality: as highlighted in Chapter 3, we knew this would be a problem. However, 12 plants did indeed provide numbers, types, and further details of organisational arrangements.

These showed:

1. A range of outsourcing - from plant number 9, Esso Fawley who reduced numbers from 550 to 120 - a 78% drop - to plant number 1, BP Grangemouth who reduced staffing from 212 to 185 - only a 12% drop. The average was 40%
2. The retention of high skilled trades such as instrument mechanics and stream analysers, who, as the literature reported in Chapter 2 (e.g. Kelly 1998), had generally been transferred to staff status after the derecognition of their trade unions.
3. Different bases for organising the new arrangements – there was no 'best way'. Plants 7 and 11 used a trade or functional basis, plants numbered 8, 13 and 15 used an area or divisional basis while, counter to TCE's insisting on the

dangers of small numbers exchange, most plants had severely reduced the numbers of contractors, and three plants 4, 10 and 12, used what were termed 'single source vendors' or 'managing contractors' referred to by Korczynski (1993). This use of different bases was true even of plants in the same company who seemed not to coordinate efforts between each other, nor as Ritson (2001) reports, with contractors in any meaningful sense.

4. Contingent changes included moving turnarounds out to longer intervals (periodicity) seen in the table and shorter schedules for these at plants 2 and 7.

These changes were said by managers to be the result of changing mind-sets and resulted in the saving of millions of pounds per annum.

This paper used a more academic framework, related to the notion of 'recipes' derived from the Grinyer and Spender (1979) and Spender (1989) work noted in Chapter 2. The discovery of extensive copying, as opposed to a detailed formulation of policy and strategy, was becoming clearer in the empirical evidence. .

The second question "*how has any strategy been implemented in the UK petrochemicals industry*" was further amplified in the accruing evidence. The evidence partially answered both of the major research questions, and began the process of using NIT as a framework partly by way of the apparent *legitimation* of strategy in the 1990s due to Government actions, mentioned earlier.

This evidence however also pointed to the piecemeal implementation of a corporate/industry level strategy and the question was whether these big firms were 'sophisticated modern' (as in Purcell and Sisson's 1983 terms, described in Chapter 2), or just 'big'. Meyer and Rowan (1977) had developed the notion that even if a strategy it is not successful, if it assumes the role of a norm, it becomes embedded in an industry's field of firms - as we saw in the evidence in Chapter 2 from Ernst and Young (1996). Such a conception was further developed in Ritson (2001).

4.4.3 Implementation: Dualism

Marchington and Wilkinson 2002 had suggested

"Problems also arise if different factors external to the organisation suggest the adoption of different types of HR strategy, or if different parts of the business operate in different market circumstances"

(Marchington and Wilkinson 2002:223)

The changes to industrial relations processes had been seen to enact a flexible/dynamic efficiency outcome using a 'mediating strategy' (Tuckman 1998) of derecognition of internal craft trade unions (Claydon 1989, 1993). However there was no literature to suggest the opposite was also happening: i.e. that the power and status of contractors' trade unions was being enhanced.

The wider study confirmed that some 20 plants derecognised their internal craft trade unions by transferring employees to staff status. Yet the opposite was true for most contractors where the role of trade unions in the external crafts workforce was enhanced by introducing the National Agreement for construction (the NAECI) instead of a local site agreement which had increased their status. Although some external craft trade unions were derecognised by the three plants which used a single union arrangement, the single union left had "small numbers exchange" as its basis and so, as TCE had warned, also enhanced the status of the unions not least in terms of opportunism.

The paper was published as:

Korczynski M D and Ritson N H 2000 *Derecognition of trade unions and the dualistic behaviour of oil and chemicals firms* Work, Employment and Society 14, 3, pp 419-437

The results were incorporated into a discussion of two apparently conflicting HR strategies, so the paper developed more of an industrial relations theme, comparing the treatment of internal versus external workers in terms of their union representation. The description of this process, which was termed 'dualistic', espoused an efficiency motive, but the tabulated results showed that a 'recipe' was emerging – the contractors were subsumed under either a single union deal as in three sites or under the National Agreement (NAECI) in the remainder. The paper ended in a brief discussion (Korczynski and Ritson 2000: 433) of the similarity of actions taken across the industry using the Di Maggio and Powell (1991) notion of 'mimetic isomorphism'. This theoretical area related to the overall strategy of the Mobil managers, and to the establishment of the semi-rational basis of their moves to change the maintenance 'atmosphere'.

[Note: This was referred to earlier. Ritson (2007), on further consideration of the data from the wider study **and** the pilot, suggested that the most appropriate model should be NIT)

The use of institutional theory arose directly from the results: from the desperation of managers which led to the copying seen throughout the industry. Interviews with managers confirmed the desperate situation and the appropriateness of the NIT approach. The manager at Shellhaven stated that:

"We were in trouble .The plant looked like it was going to close so we had to be seen to be doing something. Anything would have done but next door [i.e. a nearby plant] had derecognised the crafts and gone for a single-union deal for contractors' crafts. It took them ages but we hadn't the time and did it all at one fell swoop. We had to show we were in control of the plant or it would have shut".

(Korczynski and Ritson 2000:433 emphasis added)

The paper was used in large part to document the changes in the UK petrochemicals industry within an official Sectoral Working Paper for the International Labour Organisation, contributed by Forde et al (2005) and was extensively cited therein.

Again, the paper was prophetic in that BP acquired Coryton in a Europe-wide assets swap with Mobil in 2000 clearly at the corporate level and of world-wide significance for both firms. Later in 2005 BP shut down the ageing Coryton lubricant operation as part of a global analysis after acquiring Castrol lubricants business, and as it was retreating from refining in the UK in 2007 BP sold the entire Coryton plant to Petroplus.

4.4.4 Implementation: Disasters

The rationale of the managers was discussed in Ritson (2007) evidencing and underlying the ideology of unitarism. Evidence of this piecemeal approach to implementation of the strategy (Ritson 1999b) in particular its applicability to only one part of maintenance, provided evidence of maintenance 'disasters'.

This was published as

Ritson N H 2001 *Close-coupled disasters: how oil majors are de-integrating and then managing contractors* in Mars G and Weir D H T (Eds.) 2001 *Risk Management Volume II Management and Control* Aldershot, Dartmouth/ Ashgate, pp 105-113

These ‘disasters’ happened despite the fact that maintenance failures, as discussed in Chapter 2, can ruin the profitability of an entire affiliate company, not just the plant concerned, due to the permanent loss of production and the subsequent possible switching of customer loyalty. Here, in this paper, several examples of maintenance disasters were blamed on the ‘close coupled’ refinery processes coming into contact with the ‘loosely-coupled’ maintenance activity especially that of contractors in planned maintenance shutdowns. These terms were based on Perrow’s (1986) book *Normal Accidents*.

The strategy of dynamic efficiency was ineffectual in nature as not only had it been piecemeal as between plants within the same firm - but also it had not been applied to all areas of contractor maintenance. It had been applied to remedial maintenance but not to planned maintenance during turnaround/shutdown projects.

This was evidence that the structures for control of the work – not only the new Agreements (NAECI or Single Union Agreement) but the way they were implemented by managers - were not adequate. While BP Grangemouth had created a kind of network or “alliance” with local contractors and introduced them in some detail to the site, this was not introduced elsewhere in BP, or in other maintenance functions and areas of the Grangemouth site, despite the training of contractor personnel having contributed to a record time for the Cracker unit’s turnaround

The ‘disasters’ involved on the whole poor planning, resulting in industrial action - strikes – (Ritson 2001 :108) which seriously delayed the re-commissioning of vital units of plant operation. These were Esso Fawley, Conoco Humber (which considered recognising unions for the first time) and Exxon Chemicals Fife.

The conclusion was that the management of the process (a caveat which Atkinson, 1984a, had specifically mentioned) was therefore flawed: managements were pragmatic and sought the most efficient solution whether

from de-recognition or re-recognition, depending on the particular micro environment where the craft unions operated.

Chapter 5 Discussion and Conclusions

5.1 Discussion

The research presents extremely sensitive data, gained from exclusive access to major petrochemical plants, their contractors, trade union officers and other key respondents, which raises several questions in an overview such as this thesis.

Firstly, a major issue has been the conceptions in the literature relating to core terms such as strategy (and its levels), HR and flexibility. These have been clarified in the research presented here, but a further problem remains: what constitutes *maintenance work*. The research area was defined by managers as craft work, comprising remedial repairs. However, Moubray (1991) explained that there are three different maintenance functions: planned, remedial and conditional.

While plant managements had consistently increased outsourcing of craft maintenance work to contractors, we saw the plants had not adequately considered *planned* maintenance work, variously termed ‘turnarounds’ or ‘shutdowns’ (Ritson 2001). Thus they had only included only the *remedial* variety of maintenance and so access was limited to this area and within it to the numerical flexibility of contractors rather than the functional flexibility of the internal workforces.

This issue concurs with Buckley and Chapman’s (1997) anthropological idea of the ‘native categories’ of respondents in management research: in this case, it concerns the incorrect naming of these roles by management: an historical accident, confusing a Department with a Function.

This also seems to apply to the researchers, whose terms were individually arrived at and inconsistently applied as explained in Chapter 2. The issue of a lack of definition of maintenance also is evident in the academic work of, for example, Lee Cooke (2003).

This is an important omission given the initial need to test for TCE rationale under the ESRC proposal. The notion of ‘firm-specific skills’ in the flexibility

literature was found not to be present in results within the research area as a managerial rationale for outsourcing. However access was not provided to investigate *conditional* work carried out by so-called *process operators*, the flexible firm model's "firm specific skills" criterion would apply, given nature of the tasks of the process operators. This is because these tasks and the respective skills were very site-specific, involving detailed monitoring of the conditions of the different production units from computer-operated control rooms sited at various places, and the conducting of *ad hoc* and regular surveys of the external conditions. Strange noises for example would be investigated, these being identified only from *long experience* on the particular unit.

These maintenance personnel were not outsourced – were not subject to 'numerical flexibility' - nor were their unions derecognised, though changes to collective bargaining were made. Unfortunately, they were not subject to the research as access was denied to internal employees.

Secondly, the theoretical development progressed throughout the different papers, beginning with TCE and ending with NIT. The pilot study did not accept that the TCE concepts were used even implicitly by managements, but the wider study however did suggest an economising framework based on skill in that 40% on average of the lower level trades were outsourced. This is a weak suggestion, however, as it was clear no calculations were made but an underlying ideology drove the process. While there was evidence for strategic intent 'upstream' this was not implemented 'downstream' in any objective, scientific manner and managers relied on being isomorphic with their competitors to maintain legitimacy with their firms and with the wider society, as per Meyer and Rowan (1977).

A criticism of the isomorphic approach is that it tended to suggest that copying is an end in itself: this may be true, but also the decision may be based on a successful 'recipe' which should be transferred across the economy as suggested in Donaldson's (1996) use of contingency theory. In this case, however, evidence showed there were some disasters due to the weak nature of the linkages as between the loosely coupled contractors' maintenance activity and

the closely coupled process units of the refinery and chemical plants. These two sets of activity, maintenance and production were uneasy bedfellows when contained within the same plant; when one was outsourced to contractors the situation often became uncontrollably chaotic – a system failure.

What is not clear is what theory can explain the initiative of Mobil and ICI – perhaps the new institutionalism, given a lack of comparators to copy, reverts to a more rational basis, with the cultures of the two companies coming into play. The single union deal was risky, especially as it involved the derecognition of the other unions, but this corresponded to Mobil's culture as the 'maverick' of the seven sisters (Sampson 1975). The Economist (1996) described '*Lucio Noto, head of America's Mobil, as 'The oil buccaneer'*'. On the other hand ICI had not derecognised its crafts and had decided on the NAECI, reflecting its more conservative bureaucratic culture (Gill 1978). Under NIT this could be used to show that at some point instead of mimetics some firm has to break with tradition, and the history of Mobil would have indicated it was the prime suspect, given its 'maverick' reputation.

Allied to this was a confusion over the nature and level of strategic formulation in the evidence presented. The nature of strategy as a 'deliberate' plan, as generally conceptualised in the literature, has been shown to be far more 'emergent' and dynamic and the existence of three levels is questioned. Moreover the literature's conception of these firms as 'sophisticated modern' or 'sophisticated consulting' style suggested by Purcell and Sisson is challenged by their lack of success in several areas of implementation, and by a confrontational style based on a unitarist ideology.

5.2 Conclusions

The thesis addressed the ESRC proposal "*A case study of the development of a single union agreement which links events to theories of transaction cost, strategic management and flexible firm literature and its implementation under Human Resource Management*"

This was condensed into two basic research questions: *what is the process of formulation of a strategy of flexibility and how has any strategy been implemented in the UK petrochemicals industry.* Below the answers are summarised, beginning with a reflection on the methodology.

5.2.1 Methodology

The case study was needed no secondary data was available except at higher level than necessary to answer the research questions. The primary data showed that problems of access limited and framed the questions that could be asked. The restriction on access meant that there could not be any detailed description of how the firms managed internal functional flexibility. In the past, as seen by Oldfield at Coryton in the 1960s, the firms managed this in a bureaucratic way, with numerous inter-craft 'task sheets' detailing all the agreed inter-craft flexibilities.

Thus the research area was limited to access to numerical flexibility and so to contractor relations, although some knowledge about internal issues was forthcoming in a piecemeal fashion through interviews.

Further, there was the problem of framing the major terms. This was discussed in Chapter 2 and the above discussion of the definition and framing of what maintenance work comprises demonstrates this issue yet again.

Nevertheless, access to sensitive data from a wide study the industry was a major feature, and allowed the advancement of theory. These data were confirmed through triangulation and by respondent validity as being reliable and accurate.

5.2.2 Formulation of Strategy

We have seen that the strategies of the firms were initially deliberate, corporate and often global, based on dynamic efficiency, in order to address the changing global economics of the industry. This dynamic was transferred to the plants but the role of theory – of TCE factors - was not evident in formulating the strategy of dynamism. Managers did not use an economising framework but

rather an intuitive ideological stance to stem immediate economic concerns. This ideological approach was legitimised by then-current norms and this corresponded to the theory of NIT, under which the behaviour of firms which responded to the action of others, particularly Mobil and ICI, was seen as mimetic isomorphism, i.e. copying.

Evidence from BP and ICI, confirmed the HR aspects as central to corporate strategy. Much additional information about how the role of HR in strategy cannot be over-simplified as a Department: it is generic, located in line management. This deeper knowledge was gained from the access gained to formulate the interview programme described in Chapter 3. This was because empirical evidence from the Wider Study showed an entirely different, indeed opposite, approach for contractors whose unions were re-recognised under NAECI though the three SUAs did de-recognise some unions at the expense of recognising and consolidating the role of the single union. The results confirmed and extended the evidence in the literature (such as Claydon, 1996 House of Commons, 1994 and Kelly, 1998) which showed that several of the firms had de-recognised their internal craft trade unions, and placed the craft workforce under a staff contract. This corresponded to Tuckman's (1998) view that derecognition was a 'mediating strategy' to create functional flexibility.

The new flexibility could be seen to be at the corporate level in terms of formulation but at the business level in terms of strategy implementation as the firms' business is manufacturing and so is dependent on return from the plants via good maintenance performance. Alternatively it can be seen as a functional, manufacturing strategy – this term was used in one publication because the issues it raised were concentrated within the management caucus of the plant and was used to facilitate change. These alternative explanations point to evidence of a move towards a dynamic interchange between levels than usually found in the literature.

5.2.3 Implementation of Strategy

Strategies of implementation emerged as piecemeal and poorly-devised resulting in disastrous problems with schedule on planned maintenance leading to high

costs, while remedial maintenance was said to have improved significantly. These differences are in line with Butler's 1990 thesis which allows an emergent role of HR to suit particular local requirements. The results confirmed strong evidence for flexibility of the numerical kind in a 40% average rate of outsourcing over nearly all of the plants in the sample. The lack of a rationale in implementation can be seen to support the problems of formulation and the conclusion is that these firms have not behaved in a sophisticated manner, against predictions from the literature.

5.3 Summary

The thesis points to difficulties in the literature regarding the adequacy of analysis within strategic management in terms of levels and the role of human resource factors in addressing productivity through flexibility. It refutes a role of transaction cost economics to explain the results, thus adding to the evidence of the appropriateness of the new institutional theory. Finally, it strongly suggests a requirement for a more definitive approach to concepts and a return to a methodology which adds to or tests out results from a survey methodology.

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Appendix 1

A list of respondents at the Mobil pilot case study

13 interviewees - 5 HR, 8 Maintenance/Engineering

Mobil	Coryton	
	Refinery	
	Jeremy Vallance	<i>former ER Adviser</i>
	Paul Lowndes	<i>Employee Relations Manager</i>
	Jeff House	<i>Senior ER Adviser</i>
	Jim Corlett	<i>Production Manager</i>
	David Chamberlin	<i>Technical Manager</i>
	Jeff Jones	<i>former Refinery TGWU Chairman</i>
	Mick Martin	<i>Solomons Survey co-ordinator</i>
	Mobil Europe	
	Ltd	
	David Kershaw	<i>former Refinery ER Manager</i>
	Kelvin Young	<i>former Refinery ER Superintendent</i>
Volker Meyweg	<i>former Refinery Director</i>	
Reinhardt Getz	<i>former Refinery Maintenance Mgr</i>	
Contractors		
Janus Engineering	David Pendrey	<i>Coryton Contractors Panel Chair</i>
CIMMS Ltd	Tony Cooper	<i>Coryton Contractors Panel Secretary</i>

Respondents from Trade Unions - 12 interviewees

AEEU	Geoff Garbutt	<i>National Officer</i>
MSF	Keith Sneddon	<i>National Officer</i>
AEEU	Gavin Laird	<i>National Officer</i>
AEEU Construction	Tom McLean	<i>National Officer -</i>

GMB	Dave Hewitt	<i>National Officer</i>
AEEU (EETPU)	Ken Biggs	<i>National Organiser</i>
T+G Essex	Brian Theobald	<i>FTO</i>
GMB Essex	Terry Stevens	<i>FTO</i>
MSF Essex	Martin Gould	<i>FTO</i>
AEEU (EETPU) Essex	John Ardron	<i>FTO</i>
AEEU (Construction)	Derek Wheaton	<i>London Div Organiser</i>
Thameside Construction Committee	Paul Street	<i>Local Organiser</i>

Appendix 2 Respondents from the Wider Study

2.1 Respondents from Mobil's 12 Comparators

(10); 16 interviewees, 4 HR 12 Maintenance/Engineering

Respondent Name	Interviewees	
BP Grangemouth	Chris Hutchinson	<i>Maintenance Managers</i>
	Jim Preston	
	Bill Long	<i>Contracts Manager</i>
BP Chemicals Hull	Dave Champion	<i>Maintenance Manager</i>
Conoco Humber	Ren Reed	<i>Employee Relations Manager</i>
Esso Fawley	Sandie Batho, Paul Adams	<i>Employee Relations Managers</i>
Elf Milford Haven*	did not respond	
Gulf Oil GB Milford Haven	Bob Symonds, Ron Nash	<i>Maintenance Managers</i>
ICI Teesside	Steve Waugh	<i>Engineering Manager</i>
Lindsey Oil Refinery	Ian Fowler	<i>Maintenance Manager</i>
Shell Expro	Bryan Cooper	<i>Maintenance Manager</i>
Shell Stanlow	Les Ball	<i>Maintenance Superintendent</i>
	Fiona Walsh	<i>E R Adviser</i>
Texaco Pembroke	Nigel Denton	<i>Maintenance Manager</i>
Total St Fergus*	did not respond	

Others

Esso UK Petroleum: Peter Lewis, Corporate Strategy Adviser

Shell International: Piet De Vlemings Corporate Strategy Manager

Shell UK Oil: John Dean, Corporate Strategy Manager -

2.2 Respondents from the wider industry

6 Maintenance/Engineering and one HR interviewee

Respondent Name	Interviewee
BP Chemicals Baglan Bay	Ron Fairfax <i>Engineering Manager</i>
BP Chemicals Grangemouth	Steve Kerkhofs <i>Maintenance Manager</i>
Exxon Chemicals Ltd Fawley	Colin Bell <i>Employee Relations Manager</i>
Exxon Chemicals Ltd Fife Ethylene Plant	Ken Francey <i>Maintenance Manager</i>
PIP North Tees	John Tyree <i>Engineering Manager</i>
Shell Chemicals Carrington	John Wilkinson <i>Maintenance Manager</i>
Shellhaven	Nick Blamphin <i>Maintenance Manager</i>

Full Time Trade Union Officers

Name	Interviewee	Plants covered
GMB Hull	Steve Featherstone	Hull
GMB South Humberside	Jon Parker	Lindsey, Conoco
AEEU Sheffield	Greg Douglas	ICI and PIP Teesside
AEEU Southampton	Tom Hardacre	
AEEU	Mick Benfield	Esso Exxon Fawley

Swansea Dave Bennett Milford Haven, Baglan Bay

AEEU = Amalgamated Engineering and Electrical Union

GMB - = General Municipal and Boilermakers union

Others

Paul Corbett: AEEU National Officer for Construction

Fred Higgs: T+G National Officer Oil and Chemicals

6 Respondents from Industry Bodies (

Name	Interviewee
DTI	Stephen Weatherly <i>Director of ACTIVE</i> Arthur McQuillan <i>Secretary of CRINE</i>
Engineering Construction Industry Association	Jeremy Goodchild <i>Western Area Secretary</i>
European Construction Institute	Ivor Williams <i>Director</i>
National Joint Council for the Engineering Construction Industry	Lewis Sampson <i>Director</i>
Petroleum Employers Council	Roger Colomb <i>Director</i>

Part 2 The Publications

Unbinding rationality: a single-union agreement for contractors at a UK oil refinery

Unbinding
rationality

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Neil Ritson

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Background

The process industry

There have been several major studies of employment practices in process manufacturing – Woodward's (1958) comparison with craft and mass production, Flanders' (1964) study of Esso's Fawley refinery, Oldfield's reporting of the Mobil Coryton agreements (1966), Goldthorpe and Lockwood's (1969) search for the affluent worker in Laporte, Gallie's (1978) testing of Blauner's theory of automation and integration in BP, Ahlstrand's (1990) quest for productivity in Fawley after Flanders, and Young's (1986; 1992) evaluation of flexibility and craft work at Coryton. None of these refers to management decision making and the studies have tried generally to understand the outcomes for employees arising from the nature of automated process plant technology.

Furthermore, little attention has been paid to the important issue of semi-permanent contractors in any of these sources: there is only one page in Gallie (1978, p. 84), none in Goldthorpe and Lockwood (1969), eight in Ahlstrand (1990, pp. 172-9), seven in Flanders (1964, pp. 22, 29, 56, 60, 147-8, 193). Despite its age, *The Large Sites Report* (National Economic Development Office, 1970) still comprises the most detailed description of capital expense projects in oil and chemicals in the UK. It criticized the large number of different agreements and advocated a National Agreement, which was created in 1981, for capital projects and large turnarounds.

The most recent research is Young's (1992) description of one refinery's internal agreement which ran in 1974 to 78 pages of detailed inter-craft flexibilities, or where later (Young, 1986) full flexibility was acquired internally by refineries based on a trend begun with Esso, Fawley as far back as the late 1950s (Flanders, 1964). A survey of maintenance subcontracting in UK industry demonstrated that, in oil and chemicals, in parallel to seeking internal flexibility, process plants were increasingly almost together as an industry, using the flexibility of outside contracting, which increased by 40 per cent from 1981 to 1988 (Cross, 1990). These moves were arguably down to simple

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economics where productivity was set as "output per employee" or where multinational enterprises' terms and conditions of employment created a large labour burden *per se* and so contractors were cheaper. The basis of management perceptions of contractors' better efficiency was not investigated, as the survey was large (more than 200 cases).

The literature on single-union agreements *per se* tends to concentrate on the power relations and the no-strike clauses (for example Bassett, 1986; Grant, 1993; Wickens, 1987) or on the industrial spread and employee coverage of the agreements (for example Beaumont 1990; Garraghan, 1986; Garraghan and Stewart, 1992). There is little evidence of how they arose or the philosophy of the main trade unions involved or management requirements for their efficiency as modes of legitimate authority within the plants. This data has, therefore, been of little use in analysing the reasons for choosing the single-union, new-style agreement in the present case.

Bounded rationality

While economists have always made extraordinary assumptions about "rational" or "economic" man (sic), the calculatedness of human social activity seemed to occupy much space from Machiavelli through to Crozier (1964, p. 194) who described "the active tendency [of man] to take advantage of all available means to further his own privileges", and it is this conception of "management" which fires the labour process research of Burawoy (1979) and others – a kind of conspiracy theory based on management rationality, within which exploitation of employees is seen as a conscious act (Harris, 1988).

In the study of human decision making, theories of supposedly riskless choice are used by psychologists. Even "risky" decisions only "attempt to maximise expected utility" (Edwards, 1954). Even then, Edwards agrees that, when we try to specify what to maximize, we might be wrong and, furthermore, there might be two opposing parts of the concept of rationality: there might be costly effort (and therefore negative utility) to maintain a weakly ordered preference field as required under a maximization principle. "Under such circumstances", he continues, "would it be 'rational' to have such a field?" (Edwards, 1954, p. 383).

Simon (1972) expressed the view that "economics has to export ... a very particular and special form of [rationality] – that of the utility maximiser". Even in psychology the ideas of decision making were imported from the economic studies of "rational choice" rather than a cognitive version which would have been more in keeping with the subject (see Edwards and Tversky 1967 for example). Hence the importance of the stance of the "Carnegie school", of which Chandler, March and Simon were a part, which developed essentially new ideas about the impossibility of the rational models which economists had developed to explain real-life decisions. Even the Theory of Games and its elegant experiments (von Neumann and Morgenstern, 1953) cannot replicate the tense and risky atmosphere of management work, and so its conclusions can be taken only so far and no further. It was the Carnegie school mainly which developed

a theory of organizational behaviour which promulgated the notion that rationality was not perfect or limitless but rather was bounded by individual experience. Simon coined the term "bounded rationality" which he defined rather loosely as behaviour which was "*intendedly* rational but only *limitedly* so" (Simon, 1957a, p. xxiv, original italics). Bounded rationality for Simon existed because "the capacity of the human mind for formulating and solving complex problems is very small compared with the size of problems whose solution is required for objectively rational behaviour in the real world" (Simon, 1957a, p. 198). He described organizations as important because "individual human beings are limited in knowledge, foresight, skill and time that organisations are useful instruments for the achievement of human purpose" (Simon, 1957a, p. 199).

The bounded rationality model also suggested *sequential* consideration of alternatives (motivated, simple-minded and ego-based according to Cyert and March, 1963, pp. 120-2), using heuristics or rules rather more complex than rule-of-thumb and *satisficing* – choosing the first acceptable solution. In these terms there is also the "implicit favourite" model whereby much of the foregoing description of a bounded rationality could be subsumed under such an approach which would bind the scope of the search, the treatment of alternatives and the criteria for selecting them and, of course, the weight attached to different solutions.

Though he refers to "capacity", what Simon surely means is more akin to a perceptual set, a predisposition to see things in a certain way and importantly to look for evidence and solutions in a similar direction[1]. The role of management was not considered very much by the authors cited in the studies at the oil refineries and chemical plants above, nor were the management decision-making processes investigated by them. Rather, the role of employees and their jobs was the subject of enquiry, and how far these became more productive or efficient and under what rules, regulations or circumstances such increases could be achieved. Their perspective was more sociological than psychological, though Ahlstrand (1990) may be said to have crossed the barrier between the two disciplines in his conclusion that semiotics (and from that, bounded rationality in careerist terms) was the ultimate driver for the quest for productivity improvements.

The current case offered a unique chance to fill the gap in management decision-making knowledge by an investigation of why the company had failed to follow the lead of others, as it had previously, why it then failed to involve employees but chose an adversarial tack, why it took an unusual type of union agreement to vet the terms of conditions for employment on its site and, finally, why it chose to impose those terms on its suppliers' (contractors') employees. It seemed as if, to an outsider, the scales had fallen suddenly from the eyes of management or, more probably a priori, that a strong individual held sway and by fiat rather than logic transformed the relationship with the contractors and their labour forces. The change was too quick, too drastic and too risky to be otherwise.

In searching for theoretical models of explanations for the phenomena, modern economists' use of psychology in their attempts to explain economizing structures and processes is impressive. Williamson (1996, pp. 42-3) describes just that contracting-out situation as exists in the refinery, where managements ("intentionally rational agents") are "attempting to cope effectively" but, as "all complex contracts are unavoidably incomplete", then bounded rationality must exist. Paradoxically, things get worse with the "economising on bounded rationality" which, Williamson says, is "a leading purpose of organisation". By this he means that client refinery managers rationally try to make contracts more complete, but the mass of paperwork and controls that have to be set up create yet more uncertainty and opportunity for misunderstandings, so, all other things being equal, a short contract is best; hence the "economy" on bounded rationality. We would expect, a priori, that a multinational oil major would behave bureaucratically and rationally. The process in question, however, involved a non-programmable decision, but with aspects of rational approach. This is discussed below. The new role for bounded rationality found indirectly within Williamson's work makes a snapshot of a complex contracting situation a test of its currency[2].

Previously, Archer (1980) and Blai (1986) determined rational decision making in stages, the latter author as a two-part approach involving four stages in each part. The first stage is problem identification and involves: monitoring the decision environment, defining the problem, specifying decision alternatives and diagnosing the problem. The second stage, the problem solution, is achieved via: developing alternatives, evaluating alternatives, choosing the best alternative and implementing the chosen alternative. This is familiar stuff, but it was actually this process which the refinery management embarked on, but, under the bounded rationality perspective, other features were incorporated which they were unaware of, because under ambiguous or new situations, such as, in this case, decision making happens under extreme uncertainty. Janis (1989) included not only bounded rationality (defined as limited time, information and resources) but also social constraints (such as the need for acceptance, social support, a shared perspective on what happens, and acceptance and agreement beyond the initial decision-making team to cope with existing culture and values clashing), and personal constraints (including the desire for prestige, maintenance of self-concept, coping with pressure and emotional needs including career advancement). This latter is a risky strategy for individuals - worthwhile if carried off successfully but disastrous if not.

Cyert and March (1963) suggested a slightly different angle in the notion of "problemistic" search, where, as the rationality is bounded, only the immediate task environment exerts sufficient pressure to influence alternative searches, while decisions are made to optimize consensus rather than objective criteria. Consequently, managers often settle for considerably less than they would like to have and, anyway, the ideal decision would strain resources and time in the search.

Oil refining

Oil refining has numerous, specialist, industry-wide bodies such as the Petroleum Employers' Council, the Institute of Petroleum, the National Joint Council for the Engineering Construction Industry, various regional clients' groups and strong contractor associations such as the Electrical Contractors' Association, the Thermal Insulation Contractors' Association, professional engineering institutes and so on. In contrast to factory production, refining creates profit only by scale economies gained by continuous 24-hour, 365-day production on truly massive sites several square miles in area. Each refinery has a requirement for critical specialist maintenance needing skills and equipment not found in the general market. Because of this, since their inception, all refineries have had their own direct crafts workforce, complemented by semi-permanent engineering and civil contractors for new capital expense work or for other new work of a maintenance and repair nature which is not continuous. Refineries, therefore, depend heavily on contractors. In factories, maintenance can be done during annual works' holidays but in refineries the cost of an annual shutdown would be astronomic and the cleaning and repair of major production units is done on a rotating basis because the plant has to be shut down and production goes off-stream. These episodes are called "shutdowns" or "turnarounds". To "turnaround" a major unit may often require a three-week period and 200,000 man-hours plus materials – into the £10 million bracket. If there are delays and product cannot be stored, loss of production and sales revenue amounts to a further paper loss of millions of pounds per day. Unlike factory production, of course, this loss cannot be made up by overtime or otherwise as plant is run at capacity continuously. One company recently extended the period between major shutdowns and so it retained a very large amount of cash which positively affected its rating by merchant bank analysts in the City of London, such is the scale of operation[3]. The vast scale, short length and thus the intensity of turnarounds, and the impact on profits and share price, therefore, are in stark contrast to the more modest needs of manufacturing and help to set it apart from the rest of the engineering industry.

Refinery management

Part of unbounding rationality is the openness to differing views and this can be achieved by rotation of managers, for example by surveys and benchmarking techniques and so on. Though this happens in the oil industry, it is generally only within that industry and, in refining, managers are generally grown from within, usually from chemical or mechanical engineering backgrounds[4].

In the terms of modern economists (Williamson, 1996), there is a great deal of human "asset-specificity" or firm-specific skills. This contributes to bounded rationality; though objectively, very few positions actually require firm-specific skills, this is ignored. Perhaps those relating to networks built up with government, local enforcement agencies (such as the Health and Safety

Executive), or requiring a historical perspective, would be required from within, but accepted practice and culture prove otherwise. Ironically, though serendipitously, one of the roles where this could be said to be essential, but was not available to the refinery, is the record of dealing with trade unions in engineering construction. The intimate knowledge of techniques such as "hold up" [5] by contractors or their trade unions, the knowledge of previous disputes and personalities in the industry are all vital bargaining tools in that they establish credibility for staff engaged in direct negotiations and indeed, more generally, about the company's competence.

Limited views from the environment

Similarly, the standard environment scanning by surveys is parochial, with Conoco in the UK conducting an annual survey of refining terms and conditions of employment and Solomons producing a worldwide refinery efficiency survey. There is generally no mechanism for formally accessing the wider horizons of manufacturing industry, though this has, in the UK, seen such wide-ranging changes (such as reported in Bassett, 1986; and Blyton and Turnbull, 1995). There are internal corporate comparisons, illustrated in part by the external Solomons whose survey showed up the weaknesses and so appropriate benchmarks had not therefore been sought *outside* the industry. Instead, attention focused on the fact that, since the 1973 and subsequent oil price instability, many refineries had been forced to make better returns in an era of over-capacity. Further, demand changes, such as diesel and unleaded fuels and gas for the new breed of small power stations, required more capital investment at a time when refineries are already losing money on sales and sales volume is down, much product being bought on the "spot" market in Rotterdam at less than refineries in the UK can make it. Manpower has been cut in slices since the profit drive of 1989/90, maintenance workforce being a prime target, reducing from 300 posts in the 1970s to some 95 today on staff conditions, and production operators moving to a 12-hour shift from eight hours, thus reducing the number of posts there, too, by two-thirds[6].

Since 1973, in the UK, Esso closed its Milford Haven refinery in the mid 1970s and in 1984 BP closed its Kent refinery and part of its Llandarcy refinery. However, until 1996, there were no other casualties in the UK refining (Elf/Murco have announced a merger with Gulf at Milford Haven, which will close, while BP has taken over Mobil's Coryton refinery)[7]. Attention spans, therefore, were understandably limited among the oil company managers, as Cyert and March (1963) suggest, determined on the immediate problem they understood.

This pressure on performance meant that companies were looking at various means of cutting all discretionary costs, a truly problemistic search. In the wider industry, one company outsourced its drivers and was followed by many; another outsourced its IT and accounts; and every company seemed to be outsourcing its refinery maintenance. Table I illustrates this in part by the concentration of derecognition of crafts trade unions and the hidden corollary -

the expansion of recognized contractors' unions replacing the direct labour forces in doing the same jobs. Maintenance is arguably a more risky area close to the very core of the manufacturing base and bottom-line profit performance. The pressures of the hostile environment had resulted, as Cross (1990) reported, in using more outsourcing across the entire industry, though this brought with it a lack of control, risk and uncertainty – suddenly, the activities considered outside the organizations, i.e. contracting generally, were beginning to become part and parcel of operating. However, in this case, though not in any other refinery at the time, the pressure inadvertently paved the way to unbinding existing rationality.

The possibility that refining could be just a branch of manufacturing had not been discussed, nor had techniques like total quality management been introduced with conviction anywhere in the industry except by Texaco (Grant, 1995), while no evidence for world class manufacturing was found in companies. Employee relations' records showed a coherence of derecognition strategies. This is evidenced by the submission to the House of Commons Select Committee on Employment (1993) by the Transport and General Workers' Union (T&GWU) based on trade union information, though uncorroborated by the employers, and illustrates just how bounded their rationality had become.

Operator	Location	Description of employees
BP Chemicals	Baglan Bay	Process operators and craft
BP Oil	Llandarcy	Process operators and craft
Esso	Fawley	Process operators and craft
Esso	Distribution	Drivers
Mobil	Coryton	Administrative and craft
Mobil	Birkenhead	Administrative and craft
Shell UK	Shellhaven	Process operators and craft
Shell UK	Stanlow	Administrative and craft
Shell	Distribution	Drivers

Source: House of Commons (1993)

Table I.
Derecognition in
major oil companies
in the UK to 1993

Rationality bounded by institutional agreement

A major problem in maintenance is the complexity of the work and the trade union demarcations and agreements. Thus, there is a rationality for derecognizing the crafts trade unions, as seen in Table I, and transferring the employees to more flexible staff conditions of service. As for outsourcing of work to contractors, this is far more difficult as the employees belong to refinery suppliers not to the refining company. In addition, there are national agreements – for example the Electrical Contractors' Association, the Thermal Insulation Contractors' Association and the National Agreement for the Engineering Construction Industry (NAECI) – as well as local site agreements which are typical construction agreements. These cover various ways of working, often for

different trades, and are complex and long – the NAECI is over 120 pages. This is because it has to deal with a number of circumstances which, in the past, uniquely affected construction sites. Commonly, the need for contractors to be brought in from their “home” bases means that travelling time and allowances and/or accommodation arrangements have been included, resulting in various radius allowances, and complicated by absences, holiday and shiftworking arrangements. Furthermore, the special nature of the sites has allowed the development of a series of other allowances called “conditions money” (referring to height and confined spaces) and welders’ allowances for difficult materials such as stainless steel or alloys[8]. Basic pay is complicated by the transfer of employees between different jobs with different allowances and by the different skills payments, or by temporary chargehand status. Added to these are the call-out, shift and overtime payments. Most sites also operate a bonus or incentive scheme of some sort for work which is able to be measured, while for other work there might be a “second tier” or general site bonus, backed by a guaranteed working week of, say, 40 hours, the last two hours being at overtime rates.

Also, because of the distances travelled to and from the site, and indeed within a large site, changing and washing up time at the beginning and end of the day was allowed, tea-breaks for the entire workforce meant winding up and winding down before and after them, while most employees had to travel to central catering areas, even for morning tea breaks. In refineries this was exacerbated by non-smoking outside of defined areas and employees needed to travel for a morning smoke. Employers then had to arrange the bussing of employees around the site; arrangements of first and second sittings for lunch; provide lockers, toilets and washrooms; and prefabricated cabins had to be erected on site for shelter from inclement weather. In manufacturing, as well as having a stable workforce with set pay rates and stable job regimes, with virtually no need for shiftwork or conditions pay, the payment-by-results or piecework (now much replaced by measured day work) has traditionally been “owned” by the employer with piecemeal negotiations on “poor” jobs. However, in construction, the scheme is generally the subject of intense pre-contract negotiations with the trade unions (see the reference to “hold-up” earlier) as the contracts are short and earnings have to be seen to reflect this insecurity. In manufacturing the utilization of working hours, even with set meal breaks, is vastly superior to that in construction, where the National Economic Development Office (1970) suggested “only 40 per cent of hours were fully-utilised” and “apathy was rife”.

Times are changing, however, and the large-scale expansions of the past era of high product demand are changing towards more maintenance and repair work, while simultaneously plant is getting older and more liable to breakdown or need thorough attention, particularly where safety, risks and environmental pollution are possible outcomes of plant breakdown. Thus, many more contract hours are “local” and the need for travelling and overnight stays becomes less

and less important. This situation helped put more pressure on the institutional framework and in the end led to the significant changes described below.

Unbinding
rationality

Bounded rationality in action: the case study

Methodology

The initial research question area was how manufacturing firms' managements are coping with increased levels of subcontracting identified by Cross (1990). A telephone survey of organizations which depend on contractors (oil refineries and chemical plants) revealed various changes to internal employee relations but that only one refinery had specifically and explicitly addressed the issue of institutionalizing a better contractor performance, which created a need to change the industrial relations agreement. Access was gained at this company, and as it was a "critical", that is a sole case, the study designed itself (as had the study by Gallie, 1978, p. 40). This design, therefore, and the qualitative nature of the data, meant that triangulation was necessary to reduce error from primary sources by checking against other primary sources and against the secondary (archival) sources provided by the company. Initially, notes were made from document files covering the entire period of the run-up to the changes, written up and chronology established, with themes and queries arising being noted separately to form prompts during the interviews.

Thereafter, a representative sample of over 20 people was identified and comprised officers at various levels from relevant trade unions, company managers from different departments, contractors, industry body officials and industry analysts. They were all interviewed and presented with the summary of the archival data for comment. These interviews were structured open response. Interviews were recorded in note form at the time, typed up later and sent back to the interviewees for verification/validation. Alterations were made if necessary and new points which were raised were noted for further investigation. Second and third interviews were arranged to develop themes raised during the initial interview.

Findings

The investigation revealed that the case study refinery had opened in 1953 and, like many others in the UK, had been developed progressively as the market demand for petroleum products increased in the post-war boom. Initially processing 50,000 barrels a day of crude oil, it now processes 190,000 barrels – this is 7 per cent of UK demand. Though the refinery had lost a new venture to affiliate companies and was losing money (not meeting its production budget) in 1990/1991, the attitude of employees, including many managers, was based on the history of many of them working since their teens or early 20s at the refinery, sometimes with brief spells abroad or in the UK headquarters, sometimes not. That there were only some 900 employees on site, with 90-odd on shift meant that the population knew each other very well and most lived locally. Contractors had been used for maintenance and construction work as

the refinery was being built and in concert with many others a dependence on contractors was established early on.

The ways of working in a tight labour market post-war were highly regulated by agreements such as the "Water Tube" and the "Outside Steelwork Erection" agreements where an employers' association negotiated with a trade union confederation through two local panels of negotiators[9]. In the 1950s this refinery, like some others, had broken away from these national arrangements and established its own agreement for its refinery site to cover construction and maintenance. The former was replaced in 1981 by the NAEI, but the latter remained in place, despite its terms and conditions being based on the earlier national agreements and it never having incorporated the productivity arrangements which the refinery had negotiated internally for its own crafts. The panel of employers remained in place, creating cost problems for the refinery managers who, in the end, had to foot the bill for any concessions made during the negotiations with the trade unions[10].

Even at the level of corporate strategy this was also happening in that all the oil majors use all the markets at their disposal and all are vertically integrated; unlike other industries, the market is not segmented such as into fuels and lubricants, though BP and Mobil are in 1996 attempting this, at least in Europe, by swapping markets (Cibin and Grant, 1996). Oil refining was still complacent and conservative – perhaps because of the costs of downtime on a refinery and the inability of management to assess the strength of union resistance without the possibility of incurring these huge costs[11]. Inward investment companies, mainly Japanese, had shifted the goalposts far enough away from traditional ways of working in other sectors of the UK economy by virtue of the different production methods, as well as their inherent "foreignness" which enabled this to happen in manufacturing. The new ways of working in engineering allowed change to happen in a quasi-legitimate fashion and the trade union recognition, often with employee participation, single status terms and conditions of employment, as well as flexibility and no-strike clauses (Bassett, 1986 Wickens 1987). Unlike the economic problems of the British car industry, which paved the way for a new approach in engineering, this challenge to tradition was absent from oil refining and the stringency of the economic downturn had not, at that time, closed a refinery. Thus, the existing traditional rationality was established more firmly in refining than in other areas of the economy, making any change exceptional.

Beginning to establish a new rationality

Change agents

The refinery had been planning for a ten-year programme of development worth a billion pounds. A new refinery manager was assigned from an affiliate company as the last major venture or expansion at the refinery had suffered a 13-week strike by contractors' employees and was an economic disaster. (At the time (1989-91) it had been the largest construction project in Europe[12].) He had seen a number of other operating practices throughout the global refining

industry and his appreciation of the UK situation was from an outsider's viewpoint – a different rationality from the insider's. His main preoccupation was the underlying culture. His reaction on arrival was that the refinery was "owned" by the blue-collar employees who lived locally and had been there up to 40 years. Managers and supervisors were either on rotation and career-minded or were from the ranks of the local area and sympathetic to the status quo ante. In the first case, there was no "ownership", and in the latter the managers and supervisors had the same attitudes as their subordinates. Changing the culture depended on management taking control – or at least the initiative[13].

A group of employee relations staff, several of whom were specialists in the engineering construction industry, were also appointed. This group was headhunted from outside the company as there were no available people within the company still with the relevant experience. These new people had their own bounded rationality, of course, but it was not clouded by memories of the company, unlike the new refinery director's, nor, in concert with him, was it affected by the present site or its culture. The new venture employee relations (ER) manager was formerly with oil and contractor companies and more recently British Airways. He complained about the isolation of the oil industry from engineering – it had its own industry bodies as described earlier and its managerial inadequacies were clearer to an outsider. The new venture ER manager also recruited internal employee relations staff with broad experience of managing change in other industry sectors. His team included the internal refinery employee relations manager who came from the nuclear industry, more allied to mechanical engineering than oil, and he had been exposed to the changes within the UK engineering sector, such as cellular manufacture, team working, etc.

The existing Chair of the Contractors' Panel and its Secretary were contractors themselves and were soon replaced by more external, seasoned professionals, rather than the previous practice of simply drawing such important positions from among the ranks of the existing contractors. The Secretary was experienced in contract audit work (some of which had taken place at the case study refinery) and the Chair had experienced similar change management as an industrial relations officer, then as a self-employed contractor at another refinery which had sought to change its contractors in a different way[14].

This group of managers, in the absence of the complete billion-pound venture programme, had good reason to show what they could achieve, if only for career reasons. Ahlstrand (1990, pp. 222-9) also mentions the need for senior managers in Esso to have concluded a major productivity deal at Fawley to progress their careers. Anyway, it created a pool of new ideas and a power élite prepared to chance its arm. The danger, of course, is that there is a large element of risk inherent in allowing such change agents loose; one is reminded of Janis' (1989) example of groupthink possibly occurring within the new, tightly-knit expert team. This may have been the reason why the exercise actually conducted attempted to be so methodical and objective, at least as far as it went, in order for these forces to be harnessed and controlled by the refinery.

Creating a new rationality

A cross-functional task force was set up to identify the dimensions of the problem, mirroring the managing change/just-in-time programmes of world-class manufacturing, though the mention of world-class manufacturing as a set of goals and accompanying techniques was mainly because of the worldwide experience and vision of the new refinery director. This task force consisted mainly of mechanical and chemical engineers who used the contractors and was chaired initially by the refinery director, latterly by the new venture ER manager under his new title of Manager, Contract Services Employee Relations, noting the loss of the venture and the new role he had created as servicing the contractors. Internal benchmarks obtained by the task force of the company against its own refineries were telling – the return on capital employed figures of the Far East were ten times higher than Western Europe, with the UK and Australia being among the poorest performers worldwide. Hence, it mirrored the situation described by a BP manager to Gallie (1978, p. 310), “[it takes] six weeks to complete a crude unit shutdown here but three weeks in France”. The task force then identified process, quality and safety improvements as key attributes in changing the environment for contractors to enable efficiency gains to be made. What was the reality which was to be changed in the refinery to achieve these goals?

First, the process of contractor work was exposed. It had not improved since the 1970s and, despite a 1990 NAECI agreement to introduce bell-to-bell working, this had not been forced through by employers. Demarcations between trades and between subcontractors were prevalent, bureaucracy stifling, and the organization was based on conservatism (just-in-case) not radical efficiency (just-in-time). The site agreement was based in the NAECI with most of its bureaucracy and also had a complex bonus scheme for measured work, though much work was so sporadic that decent “runs” at making bonus were infrequent and measurement was difficult.

Second, the refinery had followed industry practice only by progressive derecognition of its internal labour force (Table I). The recent derecognition of the craftsmen in house meant that the changes needed to the contractors’ agreement would be a sensitive area because of the local inter-relationship of craft trade unions with members employed both in refining and in contracting belonging to the same branch. As such, it carried a high risk for management and the refinery Contractors’ Panel therefore carefully benchmarked its own area of negotiation in a survey of other refineries in 1991/92 (see Table II). The key methodology, in hoping for a lead to follow, was “had the problem been addressed before?” and, if so, “had it been successful?” Note that bringing back maintenance work into the refinery’s own workshops was not considered; bounded rationality extended that far to limit the possibilities and only solutions to the identified problem were of course sought.

This benchmarking survey showed no lead standard, or indeed any standard agreement for maintenance and repair work, and no new forms of agreement which could be adopted to improve productivity. Most refineries seemed to rely

Owner and location	Major project	Minor project	Repair and maintenance
Gulf Milford Haven	Projected ISOM ^a NAECI nn	NAECI nn	No fixed approach
Total St Fergus	NAECI Nom	No official policy	In house agreement
Shell Mossmorran	NAECI Nom	In house agreement	In house agreement
Lindsey Killingholme	NAECI Nom	NAECI nn	Local agreement – contractors' own
Conoco Killingholm	NAECI nn	NAECI nn	Local agreement – contractors' own
ICI Teesside	NAECI Nom	NAECI nn	ICI personnel
BP Hull	NAECI Nom	NAECI Nom	BP agreement £6.50 per hour
BP Grangemouth	NAECI Nom	NAECI Nom	BP agreement £6.50 per hour
Shell Stanlow	NAECI Nom	NAECI Nom	Site agreement
ESSO Fawley	Fawley site agreement	Fawley site agreement	Fawley site agreement
Texaco Milford Haven	NAECI Nom	NAECI nn £1.07	NAECI nn
Elf Milford Haven	^a	NAECI nn £1.07	Whatever is cheapest

Table II.
Case study task
force survey:
construction,
turnaround
and maintenance
arrangements in
oil and chemical
plants 1991

Notes: This is a representative sample of some 20 sites

Nom = nominated by the client as following the terms and conditions under the NAECI
nn = non-nominated under NAECI; using its substantive conditions such as rates of pay but a
shorter procedure with fewer parties involved

ISOM = Isomerization plant, creating unleaded fuel

^a Unknown due to either the plant not having had a project of this type or the interviewee was
not aware of the way the project had been handled

on the NAECI for construction projects and a wide variety of different maintenance and repair arrangements[15].

This was not good news, either rationally from the point of view of content or from the point of view of an emotional "comfort factor". Rationally, the refinery management knew that the NAECI was cumbersome and using it meant an inefficient way of working. The NAECI and all the local site agreements (in house or local or contractors' own) for the different plants still enshrined the demarcations of earlier ages and none had created inter-craft flexibility for contractors' work. Contractors from outside the region let it be known that the case study refinery site agreement was tight enough to make it more difficult for them to make money on it. Thus, the refinery was actually ahead of the competition, making benchmarking useless and further gains even more difficult, as they would have to come from a higher base point. Hence, it might have to break with its long-established tradition of "following the leader" when it came to contractors.

The refinery Contractors' Panel therefore had a problem – their economic situation demanded change but no model agreements were readily available from within their own industry, unlike the trendsetting, new-style labour agreements in manufacturing, famous in the press for their "no-strike" clauses

(Bassett, 1986). International benchmarking had been possible in a multinational enterprise and showed what was possible elsewhere, while UK benchmarking in the industry revealed no better practices – what could they do?

The task force progressively came up with a list of changes which needed to be implemented to increase contractor efficiency, which in effect added to these problems but increased by this means the pressure to break from the existing mould. Their final report highlighted the saving of a good deal of money and would alleviate the refinery's economic situation, but it meant that contractors had to go further than any other of the process plant contractors included in the survey. One phrase frequently encountered in the documents was "fullest utilization of working hours" and the need to "make the construction site more like a factory". This constitutes a breakthrough in the boundedness of the previous rationality of viewing the oil refining business as totally different. The new rationality, if adopted, meant smoothing process work flow, preventing delays such as the washing and changing times and the tea break, planning jobs better, more flexibility of labour, providing better transport or relocation/duplication of facilities and so on. It clearly implied rejecting the demarcation and the procedural limitations of the NAECI on which maintenance and repair agreements were often based, and which their own site agreement piggy-backed or copied. It was also clear that the current set of trade unions officials would not go along with this; they had their own bounded rationality which consisted largely of assertions that big international oil companies could always pay up and the quest for productivity was a charade. (Support for this view would have come partially from Ahlstrand (1990) whose study of Esso showed few improvements despite years of productivity bargaining at Fawley.) They were approaching unknown territory. Risky as it would have been, continuing within the framework of the present agreement was one thing; risk turned to uncertainty as new agreements outside of it were considered, none of which were able to be pre-tested.

However, the stakes were high: the changes could allow investment from the parent as against other divisions internationally. A similar case – that of Norsk-Hydro, a fertilizer plant – bears a remarkable resemblance but was no earlier than the present case and so could not have been a model (Blyton and Turnbull, 1992).

Discussion

Why a new agreement?

What has a new labour agreement got to do with contractor efficiency? Could not the refinery just renegotiate the contracts, or renew them with better or cheaper contractors? In the time-span the management felt they had available, changing one thing at a time – sequential decision making – saved on bounded rationality, in the psychological sense, and also staff resources and enabled focus on goals. The recent successful derecognition of the refinery crafts had given the managers some hope of change being able to be achieved and in the

poor economic climate there was a perception that employees would vote for more job security than complain strongly about their union agreement being changed; particularly if it could be concealed within better earnings opportunities. The agreement was important in more direct ways, too; it formed the basis of how work was to be done on site – how many men of what trades were needed, how much they cost, what quality standards could be worked to and so on. Much of the work is labour-intensive and the costing of contracts and their viability for contractors depends heavily on accurate estimates of time and labour costs as well as materials. Profit was made legitimately on how effectively the labour force was used to complete jobs ahead of schedule and thus make more money each week as jobs turned over more frequently[16].

What were the alternatives?

In order to establish legitimacy, negotiations within the present site agreement were begun so that change could come from below and by established means in an established forum. It was soon evident to the rather impatient refinery managers, and to the panel, that these were proving fruitless, mainly because of the recent derecognition of refinery crafts unions by the refinery client and the consequent hostility of the local full-time officers (FTOs). These FTOs saw, in the T&GWU data in Table I, a conspiracy within the oil industry to collude in taking on the unions[17].

The National Joint Council of the Engineering Construction Industry was also approached about the prospect of using the NAECI instead of the site agreement for maintenance and repair – this would have added a certain legitimacy to the application of the National Agreement. This was rejected eventually on grounds of excessive bureaucracy and the amount of additional trade union representation required (the same FTOs would also be present) despite reassurances from the National Joint Council (NJC). From the data in Table II, it would anyway have been an unusual step for maintenance and repair work and, of course, a solution was being sought which had legitimacy from elsewhere.

Benchmarking was a method of obtaining this legitimacy and originally foundered on a lack of external competitor practices over a period of many years. The process of looking elsewhere had begun, however, and, though no obvious solutions were found, in the background may have been the “preferred solution” of complete derecognition of all the unions, which had happened within refineries and the larger ambit of UK engineering. So the boundaries of tradition had to be breached. Without benchmarks, various options were open. Deunionization of contractors’ employees was considered as well as derecognition of certain unions whose officials seemed the most opposed to the changes required. Simultaneously, informal benchmarking in engineering revealed the possibility of so-called new-style industrial relations, and visits were made to Rover and other companies. Of the internal documents studied, there were copious articles on single-union agreements revealing a desk-based programme of research into such alternatives. Books such as *The Road to*

Nissan and Strike Free had been read by the ER team in the past and there was an awareness of the role in such deals of the Electrical, Electronic, Telecommunications and Plumbing Union (EETPU) and the Amalgamated Union of Engineering Workers (AUEW), both of which were signatory to refinery, contractor and national agreements.

In its search for some kind of alternative, the task force had struck up on engineering more generally and could justify its new deal for productivity gains from the contractors as applying the same paradigm as in the rest of British industry. Most people had heard of single-union deals through the publicity attached to Nissan and many thought they were "a good thing". The EETPU seemed to think so, AEUW was also committed and deals of the type seen at NorskHydro with the T&GWU indicated that, despite official repugnance from headquarters, many unions at local level were becoming realistic about their lack of power.

The refinery's Contractors' Panel, after much internal discussion, then gave the site agreement trade union signatories three months' notice of termination of the agreement. This was, they emphasized, strictly within the procedural agreement, and current bounded rationality. It was, however, softened by asking for proposals for a new agreement which met the needs identified by the contractors with the client. This again seemed to be a benchmarked solution – the famed "beauty contest" (famed because of the loss of the proposed new Ford plant in Scotland where the unions refused to be involved in a competition for who got the single recognition; Ford cancelled the investment). However, this was outwith current oil industry practice and no proposals were forthcoming over the period. After informal discussions a new single-union deal was agreed with the national executives of one of the three unions. Site meetings explained the new terms to the contractors' workforce who accepted them in spirit, asking for various items to be clarified. There was no industrial action, despite the determined opposition of the officials[18], suggesting an instrumental orientation to trade unionism as evidenced by Goldthorpe and Lockwood (1969).

Rebinding rationality – a single-union agreement

The process led to an agreement which looks more like a manufacturing-style agreement than a construction agreement, though it still includes travelling time, radius allowances, etc. The entire agreement was only 12 pages long, with another ten pages of appendices, contrasting with the previous site agreement and the 120-page NAECI, and more like those in manufacturing. The various allowances, the contractors said, were to be replaced by basic rate increases in future negotiations, reflecting the anticipated decrease in capital expense projects in favour of more minor maintenance and repair jobs, and the consequent need to use local labour which was not eligible for the terms and conditions which applied to "travelling men". It required the "fullest utilisation of working hours", a phrase stolen from the National Agreement, and so employees came prepared for work, clocking on after changing into overalls

and clocking off before changing back into ordinary clothes. The morning mass tea break was abolished and "natural breaks in the flow of work" were used on individual jobs at the various places in the refinery where people were working. This was seen by many employees as "sensible". Harmonization with client refinery maintenance work hours was included to enable better team working – again copied from manufacturing and total quality management approaches, familiar to the union officials if not the employees, and adding to the legitimacy of the agreement. Toilets and canteen facilities were duplicated around the site and buses for transport improved – a cost item which showed management intentions were not all about "labour intensification".

Table III shows that the typical items identified by Bassett (1986) for "new-style" agreements in manufacturing were not applied; though it is a single-union agreement with full flexibility of labour, these are the only clauses retained in the new contractors' agreement. Thus, the refinery Contractors' Panel was again not following slavishly but has inserted key clauses to create the shortest time-span for efficiency improvements. Less important issues, though still outside the new rationality, have been left for later discussion. The new agreement on turnarounds was established and used later, and the various allowances are still being discussed, with a view to removing them. It may also become possible in the future to create more single-status terms and participation.

In typical single-union agreements, the main instigator, the EETPU, had had a policy of working with employers and their early single-union agreements enshrined a constant procedural structure of a board which made weekly decisions about working arrangements and about labour issues, including annual pay. This concept was not unlike many of the practices in Europe such as Works Councils. Its constitution placed it between an executive committee and a consultative committee with no negotiation as such but discussion

Old site agreement	New contractors agreement
Bonus scheme	Retained
Demarcations	Out
Multi-union representation	Out – single union
Multi-union recognition	Out – single union
Multi-union membership	Retained for individuals
Separate working hours	Aligned with client
Sunday overtime rates	Decreased
Wash and change times	Out
Set tea break	Out
Allowances for conditions	Retained temporarily
No skill standards	New passport for accreditation
No training scheme	Comprehensive scheme
Long grievance procedure	Short
Turnaround arrangements	New addendum
Travel allowances	Retained temporarily

Table III.
Contractors' bounded
rationality: the main
clauses of the old
and new agreements
compared

around a table. Some of these were successful others not (see Bassett, 1986 and Grant, 1993 for discussion). The AEEU, however, though incorporating the EETPU and its single-union approach, had no policy on employee involvement and participation, nor was staff status (a feature of some agreement with Japanese manufacturers) included, nor was there a no-strike clause or pendulum/binding arbitration - instead, a three-stage final offer procedure. Flexible working, and a commitment by client, contractor and employee to further training to allow this to happen, was inserted into the agreement, and seen by managers as an important statement of principle - the agreement was not "anti-union" but "pro-change". A new training centre was set up (copying the Rover Learning Business idea) to achieve this training under the auspices of the National Skills Development Scheme for the Engineering Construction Industry, which conferred legitimacy. Rates of pay were increased, the bonus scheme was kept intact, but overtime rates for weekends were lowered. Hence, a definitive move had been made to convert the reality from construction practices at least towards those of world-class manufacturing by way of a methodology of rules and regulations in a collective agreement, a document which enshrined the rituals of the past and still maintained a union presence and the power of the strike weapon if needed.

All craftsmen have a basic training certificate, though attempts to include scaffolding training have failed for various reasons, including the resistance from refinery engineers and arguments over safety. However, the main progress was felt to be the change from a negative to a positive trade union response and, as evidence of this, the Contractors' Panel is looking to improve the benefits package for contractors towards that of the client refinery's own workforce. A recent example of success is the conclusion of a turnaround addendum to the agreement. This provides for the special circumstances of a turnaround, which can be so large as to need the rules and regulations of the NAECI in other refineries.

Outcomes

There has been continued resistance from the derecognized unions which referred the matter to the TUC and still operate a local pressure group. The agreement costs 10 per cent more than the NAECI hourly rate, but the company argues that it gets more for its hour. The turnaround addendum and the flexibility in the original agreement allowed the extensive use of team working on the last cracking turnaround (using team-building ideas benchmarked from a shoe manufacturer!) which resulted in it halving the cost of previous turnarounds on that unit and lasting more than half the time taken by a competitor to turn round its similar unit some weeks later.

The softer aspects referred to by Janis (1989), such as coalition building and support from the corporation, were never formally or even informally considered according to documents and interviews, yet they were followed implicitly. Agreement was sought from the European manufacturing director who met the top union officials and the corporate labour relations adviser, while

meetings were held with groups of internal staff to reassure them. These tactics were all "taken-for granted" rules of thumb as the usual style and role of management within the company.

As highlighted throughout this article, the quest for standard solutions to problems continued after the implementation of the new agreement. Shortly afterwards, one refinery derecognized all of its internal unions and subcontracted out all of the maintenance work to a joint venture company, creating a copy-cat single-union agreement for the contractors. Two other plants also created site agreements with single-union representation and the NJC itself reoriented its approach to produce "NAECI supplementary agreements" for maintenance and repair work. These retained the recognition of all of the unions which were signatories to the National Agreement which, above all else, was the contentious issue of the single-union agreements, but allowed flexibilities within the local site arrangements.

Conclusion

Employee relations seems to be an area where newness is not highly-prized, where legitimacy of management actions seems to rely on tried and tested methods, national agreements, industry-wide practice and so on. Despite what is said in academic studies, the press or Parliament, the management in this case was not abusing its power; rather it was aware of its objective position below break-even and the probability of going out of business if improvements were not made. This was no empty threat; 150 refinery employees had been made redundant in 1990 and the £10 billion venture had been cancelled. From the data from interviews it is impossible to tell whether an implicit favourite solution was underlying the case, or indeed whose favourite would be adopted implicitly. There is far more straightforward evidence for bounded rationality, though one must bear in mind the strong views of the union full-time officers who insisted the solution was a charade and had been decided in advance. Using the lowest level of interpretation, we can conclude only that the managers were acting in an "intendedly rational" fashion.

More than the derecognition and negotiation of staff status for the crafts and derecognition of the process workers' union, which followed industry practice, the single-union agreement signalled both a move outside of the company's previous decision-making paradigm and the use of one directly (if only partially) borrowed from manufacturing. Subsequently, other refineries have also moved to the use of single-union agreements and forced the National Joint Council to review its National Agreement to allow extensive use of supplementary agreements to suit individual clients.

The evidence from this critical case is that established rationality within the oil refining and engineering construction industry generally is itself beginning to become unbounded.

Notes

1. De Bono's lateral thinking was an attempt to break out of habitual thought patterns, as was the ancient art of Zen Buddhism in its use of non-rational *koans* such as the sound of

- one hand clapping to free the mind of past preconceptions and allow in the light of *satori* – enlightenment. Though this anti-rational agenda seems now to have a continuous thread throughout history, the views of Simon and others are still not accepted by many labour process theorists or, on the opposite bank, by formal economists.
2. There is insufficient space to detail the wide use to which Williamson puts the concept and reading of his work is recommended, for example "The modern corporation", in Ash and Bowman (1990).
 3. Interview with Kleinwort-Benson oil analyst, 1995.
 4. Interview with venture ER manager, 1994.
 5. "Hold-up" is a term used by economists to describe the pre-arrangement negotiation situation where a key though small manufacturer with "asset specificity" can hold up the start of the project by insisting on inequitable distribution of profits. Trade unions also have used this ability to "up the ante", i.e. to bid up wages.
 6. Internal documents and interviews with line managers.
 7. Interviews with staff from the Institute of Petroleum.
 8. These latter are usually paid on the successful passing of on-site welding tests, welding being a safety-critical operation in the process industry with large volumes of high-pressure, high-temperature liquids and gases being transported by pipework at high speed.
 9. Interview with former Construction Engineering Union officer (now the AEEU), December 1995.
 10. Internal documents listed scores of concessionary changes to the unions over many years.
 11. Opinion of several managers interviewed.
 12. Revealed in a company engineering publication designed to highlight successful projects. According to interviewees, the article did not go on to admit that the design was also flawed and caused production difficulties later. It served, however, as a "monolith" for the rest of the corporation and prevented further investment in the refinery for ten years afterwards.
 13. Taken from note of a confidential speech to corporate annual conference on manufacturing, Chicago, IL, 1993.
 14. Interview with venture ER manager, July 1994.
 15. Task force details were taken from copious documents and supported by various interviews.
 16. Interviewees' opinions.
 17. Trade union views on oil industry collusion, their ability to pay and the unions' own hostility were taken from interviews with full-time national and local officers, April 1995, December 1995 and 1996.
 18. Data taken from internal company reports, memos, letters and faxes to and from trade unions.

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The *real* problem of competition in the UK petrol market: a reply to Cohen

- *This article is a response to an article by Marcel Cohen, published in the June-July 1998 (Vol 7, No 6) issue.*
- *A reply by Cohen will be published in issue no. 5.*

The article by Cohen (Cohen Marcel, The problem of competition in the UK petrol market, *Strategic Change*, Vol 7, pp.203-212) is interesting as far as it goes, relying on well-tryed theoretical positions on the marketing of consumer goods (Hay and Morris, 1991; Kotler, 1997). However, Cohen does not seem to have the problems of the industry fully under his belt and has tended to apply a set of marketing formulae to petrol, ignoring the wider picture of geo-political factors and the internal 'bounded rationality' (Simon, 1957; Ritson, 1997; Marchinton and Parker, 1995) of its managerial cadre, which is responsible for much of the refusal to look the retailing problems squarely in the face. To limit his analysis to the physical environment of petrol retailing entirely misses the strategic point; it is just one of the 'four Ps'¹ of marketing theory—that of place. Even his discussion on product ignores the profit contribution of other products and indeed the internal com-

petition against petrol retailing divisions for internal investment.

Methodologically, the exposition is weak, deriving from only seven articles or newspaper stories, some of which are not even about the UK. The assertion that ergonomic factors related to petrol dispensing would increase competitive advantage is highly questionable, and needs to be accompanied by empirical research on consumer choice and the reasons for switching from one product delivery mode such as hypermarkets (who could anyway quickly copy the new technology) to another: i.e. to the local service station. As it stands, this remains an untested hypothesis.

In this reply, I would like to widen the issue of strategic change in retailing to take into account the work of Robert Grant (Grant, 1993, 1994, 1995; Cibin and Grant, 1997) on oil company strategies at the global level, which are, I will argue, the direct cause of the UK problem. This level of analysis is supported, even if implicitly, by Cohen as he agrees that there is also a deeper problem of

¹Product, price, promotion, place.

petrol retailing. In France where 'the majority of petrol [is] sold through ... non-traditional outlets' (Cohen, 1998, p. 204) he admits that the problem is not at all limited to the UK and therefore the minutiae of pump and forecourt design (Cohen, 1998, p. 208) is hardly applicable as a solution to a global problem.

Cohen sees the recent attempts to reinvigorate petrol branding as a one-off reaction rather than part of a continuous process, and even considers that 'petroleum has been marketed for over sixty years' (p. 208) instead of almost one hundred years—it was in fact first marketed as a lighting fuel (Yergin, 1991). The use of augmented benefits (Kotler, 1997) to sell petrol, which Cohen regards as recent, has always in fact been a feature of petrol retailing. Whereas Cohen states that promotions were introduced in the UK 'since February 1984 when Shell launched its promotion 'Make Money with Shell' (p. 206), it does not accord with the facts. This aberration may be forgiven in a non-academic paper, as Cohen was responsible for Shell's marketing,² but not in *Strategic Change*; the Cohen analysis turns on the fact that there has been a sudden reaction to retailing problems, too early for some or too late for others, so timing is seen as a distinct issue. However, Mobil introduced Green Shield Stamps (GSS) from the US in the 1960s, which involved considerable administration and a strategic alliance between both companies, coinciding with GSS's foray into other areas of UK retailing. However, no other oil companies at the time took up a similar venture as there were no other partners except GSS, tied to Mobil, and no 'smart-card' technology for the oil companies to 'go it alone'. Furthermore, Mobil also added to the industry and its own product reputation by the Mobil Economy Run until 1972. This car rally was widely reported in the popular press as it took over a week of motoring to achieve unbelievable (but accurate) fuel consumption figures for ordinary cars driven on Mobil petrol (some cars according to Nash and Keegan, 1985, achieved over

70 mpg). In a classic case of serendipity, Total Oil bought the marketing product from Mobil just before the 1973 oil crisis; the name 'Total Economy Run' at this time was supremely attractive but the firm failed to capitalize on the idea of the attraction of 'total economy' and the run disappeared into obscurity.

Other US companies as well as Mobil appreciated the precise point raised by Cohen's article: that petrol is a 'distress purchase' and

Petrol is a 'distress purchase'

has to be sold on the basis of a competitive advantage based on augmented features such as location and service, not mainly on core features or product features (as Cohen does note) or even benefits like economy. If consumers are rational they would all buy cars with diesel engines which run for hundreds of thousands of miles at, nowadays, a 70 mpg average. If Governments were rational they would encourage this cheap fuel which needs no huge refining capital investment. But they don't.

In the 1950s and 1960s, garages mainly sold petrol in the UK but their marketing was insufficiently professional for US companies who wanted to apply the slick selling methods that they used along the US state highways to the UK. Many garages became converted to gaudy 'service stations' and hundreds of new service stations, without the encumbrance of repair shops, were built as the market expanded dramatically post-war. Whereas the companies did indeed advertise travel, it was not for reasons of defeating the competition in the expanding market, where there seemed room for everyone. To increase consumption was the goal, accepting that advertising might just about contribute to single competitive advantage. However, the advertisements were general enough to apply across the board to other makes of petrol, which were not differentiated by the oil companies by product features, as Cohen claims. It is certainly true

²According to the autobiographical note at the end of the article.

that consumers *thought* that the brands were different right up until 1973 when Mobil

*Consumers thought that
the brands were different
until 1973*

supplied cheap petrol to ASDA in the wake of an oil crisis and the exchange system used by petrol companies began to be exposed in the subsequent row which was fuelled by the press. It can hardly be said nowadays with current traffic levels that car travel is pleasurable, especially in the UK, and so retailing had changed, but (as Cohen says) not by enough, and mainly by hypermarkets. Yet here again there is evidence that the oil companies—or some of them—realized the future of retailing some time ago. In the early 1970s Mobil was introducing its mini-markets concept as convenience stores to augment the service stations's appeal to the driver, as well as introducing traditional car-orientated products—discounted garage items like tyres, batteries and accessories—to broaden the appeal of the local garage. However, sales figures were disappointing and later market research revealed that people did not want to hang around at petrol stations shopping, and so these moves were abandoned. Today, Evans (1995) reports, Shell estimate that cigarettes are the main augmented purchase at their stations in the UK at 40%, followed by Mars Bars, Kit Kat, Coke and crisps. In the US, tobacco (28%) is followed by beer (13%), fast food, soft drinks, milk products and sweets. But these are not often attractions except to motorists on longer journeys, perhaps with children in the back.

Hypermarket petrol retailing, paradoxically, relies on the fuelling of cars after shopping not before it: Mobil's research revealed the smell of petrol was not conducive to promoting the need for extensive food shopping in their mini-marts. The existing huge hypermarket car parks ensure few delays, unlike the smaller service stations which are often crowded at

weekends, especially with power-washing and valeting services designed to attract customers. As Cohen rightly points out, the frequency of purchase and convenience of having both petrol and extensive stocks of food and groceries make hypermarkets more attractive than mini-markets could ever have been. At a more strategic level, which is the basis of this article, these chains do not have refineries or a distribution system to support, or wells to drill, and they can use the low-margin petrol retailing as a loss-leader or break-even activity to attract customers to high-margin food products. That fuel is a marginal, distress purchase, is being recognized by the hypermarkets and is the essential trap of petrol retailing for oil companies, which I will argue has no longer a place in the oil companies' portfolio.

The oil industry and its problems

The strategic position of the oil companies is significantly different from that of hypermar-

*The strategic position of the
oil companies is different
from hypermarkets*

kets for historical and geo-political reasons. These are important to understand in attempting to assess the 'boundedness' of the oil companies' managerial rationality. According to Yergin (1991) the 'major' oil companies were formed in the late nineteenth century as the nascent industry grappled with the problem of a vastly fluctuating price of oil—a problem which still pervades the industry to a lesser but important extent today. Fluctuations occurred because the US law on property and mineral rights effectively encouraged the immediate and over-production of wells and these gluts decreased the price by many hundreds of percent. (For this reason, Rockefeller concentrated on the more stable businesses of refining and transportation of oil.) Later, changes were made to the

legislation which encouraged slower exploitation which stabilized the prices somewhat and Rockefeller moved into production with his vertically-integrated Standard Oil. In Europe oil was discovered in the colonies of the imperial powers, hence the rise of Anglo-Iranian oil company (BP), and the Royal-Dutch company in the East Indies which merged with the UK transport company, Shell. In the early years of the industry there were very few US Independents to rise against Standard Oil because of the risks of obtaining supply and the need for vertical integration to avoid being exploited by Rockefeller with his strategic holdings in refining and transportation. Gulf and Texaco were formed in the teeth of competition, but in the state of Texas, which was more protective of its own wells. In 1911 Standard Oil was ordered by the US Supreme court to break up, but the rise of other independents for the same reason of the need for extensive initial capital investment has been very slow, and often sponsored by governments. Even so, politics affected many oil companies' production functions: the Gulf nations invited in US firms to compete with the British for the rights to drill wells, in order to bring about some commercial competition and consequently a driving up of prices by the auction of concessions for drilling rights. First to be hit by nationalization of these concessions was Shell in Mexico, then Libya and the Gulf nations followed and most producers were affected. Collusion by the companies in secret meetings (such as the one held in Scotland in the 1930s) to join together to defeat the producing states' national interests was fraught by the classic 'prisoner's dilemma' decision the companies had of 'cooperate or compete'. Libya relied on Occidental's need for crude (it had no other interests abroad) to break the will of the majors and later OPEC at Geneva gave the companies the ultimatum in 1973 which trebled oil prices.

Despite these problems, the value of a worldwide oil supply was politically strategic. On an economic level, vertical integration secured supplies, enabled efficient crude runs throughout refineries, allowed cross-subsidization on production drilling from profits in other areas,

and, crucially, it enabled the companies to develop their transfer-pricing between affiliates in different countries. Companies were therefore not very interested simply in retailing profits until the 1973 price hike cut the 'offshore' profitability. Previously the companies were able to use transfer pricing to offset any local profits, say in the UK, by setting a very high internal transfer price for crude oil supplied from their own wells in, say, Saudi Arabia, and the profit made was declared in the country such as Liberia or Panama where the shipping company was registered, and taxed at 1% or so, thus creating 'offshore profits'.

Nationalization and the revitalized OPEC changed the economics of vertical integration for the oil companies and showed up their inflexibility. Inefficiencies in each part of the value-chain became visible directly as profits and losses, which then became local issues for an affiliate, and were not hidden by corporate tax-reporting. Shell was the first to break with tradition in 1984. Rather than buy crude from the firm's own upstream operation, the Rotterdam 'spot market' was used. This was because despite deals with Saudi Arabia to ensure crude supply in the wake of the 1973 oil shock, the price paid internally for this crude was greater than that on the spot market, which was now being supplied by Iran, Iraq and others in excess of their OPEC quotas.

It is this production overcapacity (after the years of economies being made by consumers due to the high price of oil) which has re-introduced instability into supply and prices. The oil companies had geared-up to create massive static efficiencies (Cibin and Grant, 1996) through large production facilities, very large crude carriers, huge refineries and a huge distribution system. As Cohen says, this is to increase volume, as the 'margin-times-volume equals profit' formula requires yet more volume as margin (offshore profit) declines. Thus the oil companies are trapped. They need more volume but this leads to lower prices in a downward spiral. Evans (1995) reports that the biggest suppliers to the spot market are probably Gulf and Texaco who effectively supply their competitors: the hypermarkets and the independents. There is no escape from

this scenario unless the initial economics or the politics change, and there are no signs of that. Olins (1995) reports the redundancy 'axe' being wielded at Shell International as a desperate effort to change the culture as well as to reduce overhead costs.

Solutions

Rather than rearranging the deckchairs on the Titanic, or the pumps on the forecourt, the oil companies must face the inevitable conclusion that their strategic position in terms of barriers to entry (Porter, 1980, 1985) has now been eroded so far that head-to-head competition on price is only self-destructive.

Head-to-head competition on price is only self-destructive

Its current capital intensity is unnecessary and ultimately unsustainable. Lorenz (1997) reported the surprising announcement by Unilever, which decided to sell off its profitable speciality chemicals division. This was because it could not afford to be a leader in all of its markets: the need for capital spending would be too great. Refineries are also gobblers of cash, spending hundreds of millions of pounds on maintenance and improvements each year (ACTIVE, 1996), yet only three have closed in the UK post-1973. Companies in the UK apart from Burmah-Castrol (and that was by accident) compete with each other on all forms of oil product.

The solution is market specialization, and segmentation (Ansoff, 1968) but this is happening only gradually. In 1996 two majors agreed to cut out this direct competition throughout Europe by asset-swapping. Mobil now does not compete on fuel and BP does not compete on lubricants. Each can then develop comparative competitive advantage in its own sphere. Already we have seen the rise of extensive advertising in Formula 1 for the 'Mobil 1' synthetic lubricant, and as now all

Mobil petrol stations are badged BP, savings accrue across the board (£450 million per year according to Noto, 1997). Mobil's Coryton Refinery has been allocated to BP and BP's Llandarcy Refinery to Mobil, which is closing it and rationalizing all of its lubricant production throughout Europe, and closing refineries in Germany. In 1997 Shell took over Gulf Oil GB and closed its refinery. Soon all Gulf stations will be badged as Shell. In 1998 BP announced a global merger with Amoco (Jackson, 1997; Jay, 1998), though this was not to avoid competition in product markets but to create scale economies, and has therefore been criticized by analysts who want to see a fall in over-capacity (*Economist*, 1998). On the chemicals side, similar events have taken place in response to economic and market pressures; Du Pont took over Conoco and sold part of it to ICI; ICI's Wilton plant cracking complex was sold to BP and many other alliances and mergers have characterized the chemicals sector to create scale economies, reduce capacity and avoid direct competition in market niches which depress prices.

Summary—Strategic position

Oil companies do not need to retail their strategic product and cannot compete with hypermarkets which do not have to support the entire value-chain. The companies must re-position themselves as finders of energy products. Texaco's 1997 acquisition of Monterey Resources aims to increase production (from 1.1 mbbbl oil and gas/day to 1.7 by 2001, increasing its spend to \$23.4 billion over 1997-2001), and to bring this to the market. No other companies except the integrated majors can play this 'finders and marketers' role, as it is often fraught with competing priorities and goals as well as international political problems. Despite the managers who are immersed in the oil business believing otherwise, refining and distribution are not complex activities, nor is producing oil from wells. It is not 'rocket science': though it may be challenging and dangerous, the technology is fairly simple. The operating activities

are anyway often subcontracted nowadays, (Cross, 1995; Lane, 1997), especially in the UK continental shelf, which is producing 30% savings (CRINE, 1993).

As customers seem to prefer to buy petrol after their grocery purchases the supermarkets have consumer preference as well as economics on their side. When these two factors work together there can be no escape—Esso already is the major retailer of Mars Bars in the UK! These products are not separate, as Cohen argues, but what his analysis misses is the strategic dimension and the begged question of whether changes to service stations will bring about a change in consumer attitudes. Only direct, empirical research is going to shed any light in this area.

Biographical note

Neil Ritson, MBPS, MIPD, MInstP, obtained his B.Sc. (first class) in psychology at the University of Leicester in 1972 and then pursued a career in strategic industrial relations with Mobil Oil, the Engineering Employers' Federation and Urwick, Orr and Partners. He is senior lecturer at the Newcastle Business School in the University of Northumbria at Newcastle.

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MANAGEMENT RECIPES

an alternative to thinking?

by Neil Ritson, Newcastle Business School, University of Northumbria at Newcastle

it may seem odd that so many of the 15 major oil-refining firms surveyed for this article have been involved in detailed changes to their maintenance operations during the last few years. Maintenance of production, however, can be seen to be the most important function in a refinery or petrochemical plant whose profits are based on product volume above all else. Indeed, nearly all the management functions are concerned with maintenance. Only jetty operations, intermediate storage and tanker-filling are truly non-maintenance activities. The term 'process industry' by definition means that even production operators are effecting 'conditional maintenance'. This goes for engineering, stores and senior management too. There is no marketing or product development in a process plant—maintenance of production is the overriding consideration. We would therefore expect that among these sophisticated companies, some of the largest in the world in terms of market capitalisation, there would be a best-practice model.

Change in a hostile environment

This feeling is accentuated by the environment demanding change. Over-capacity in oil refining in the UK and Europe has been estimated at around 20% and recently in the UK we have seen the demise of Gulf Oil GB's Milford Haven refinery with Shell UK taking over the downstream and retail operations, BP taking over the management of the former Mobil refinery at Coryton and Mobil's forthcoming closure of the former BP refinery at Llandarcy. Worldwide, more joint ventures are on the cards, with the recent BP-Amoco merger announcement the first, probably, of many. With the inevitable pressure on margins in a time of over-capacity there is also the threat to retail profits of the loss-leading status of petrol on the forecourts of major UK

supermarkets whose share has leapt to 20% this year.

Having identified the problem the classic OD (organisational development) approach is then to determine the effects on the organisation, and then to react. In reality, rather than theory, options are often limited—both by management's own 'bounded rationality' of what might be possible and by economic and financial constraints. In terms of immediate action, renewed capital investment by these majors is not an option, as it takes years to design and build a more efficient plant, and the eventual payback lies many years in the future. Effectively this leaves a 'recipe' of cost-neutral or cost-saving measures as the only viable options open. This may include closure of plant, but efficiency calculations suggest that running at capacity is mandatory—hence the choice of non-added-value activities as prime targets for management action—but which ones?

Measurement and benchmarks

It is almost an axiom of management that you can only manage what you can measure. Externally, the refinery efficiency survey provided by Solomons is a guide for companies to measure their performance against others on a number of criteria, a luxury many other industries do not have. However, the overall industry pattern is somewhat disguised as quartile bands of performance are used in the reports, and auditing of refinery data which is input into the survey does not happen. This makes some managers suspicious of possible 'sandbagging' by competitors. Far better comparisons are available internally to major companies who have affiliates and subsidiaries in most countries, and these reveal that maintenance in the UK is far more expensive than in other parts of the world. The history of the way maintenance

work has been organised, controlled and implemented, and which so greatly affect its expense, is at the root of managements' inability to see alternatives. In the first survey in the present research (reported in Ritson, 1997) only one plant's management had grasped the fact that refining oil or making chemicals was just part of manufacturing; there was nothing special about oil. Released from their historical framework the managers thought the unthinkable and proceeded to derrecognise maintenance trade unions (as early as 1990) and reorganise maintenance internally and relate it to changes in external contracting. In subsequent years, other major companies followed the recipe (the final piece of the jigsaw occurred in 1998) but with rather different end results. One of the major reasons for the pressure on these firms to follow the leader was a new measure of maintenance efficiency. Not only was the cost of the maintenance budget per capital employed used, but also the duration of the shutdowns of major production units for statutory maintenance. These led, of course, to unrecoverable production losses but also to the additional costs of intermediate storage—ultimately lost revenue ran into millions of pounds a day. Companies had always been aware of the duration of shutdowns varying between countries but now this was becoming highlighted as a measure of management's capability.

Options

The sample of plants all had different methods of solving the shutdown problem, albeit with a fairly common core recipe—the reduction of the maintenance workforce and increased use of contractors, and the transfer of the retained skilled maintenance employees onto staff status. This not only reduced artificial demarcations, but also allowed for a change from the band of history

to a more involved, progressive culture (BP's slogan was 'all together better') more like the idea of 'human resource management' than 'industrial' or 'employee relations'. The subsequent ability of management to introduce changes became easier, though what to change, when to change it and who needed to be involved were still open questions and there were no benchmarks—every plant management was learning from square one about the new arena of involvement of contractors on a large scale. This was felt to be necessary from efficiency and cost-saving grounds. John Cross had outlined BP Exploration's decision to outsource its IT function in a *Harvard Business Review* article in 1995. This decision was taken from a business viewpoint rather than cost-saving, on the basis that outsourcing left managers time for a higher level of operating their business, relegating IT to a support function, leaving managers to reconsider new systems without internal constraints such as sunk costs or even interdepartmental politics and conflicts.

Interestingly, two companies had never followed the original recipe of an internal maintenance function. They had been built in the same area during the late 1950s and early 1960s and had always relied on contractors for maintenance, while having a bare shift maintenance crew of two or three at technician level for emergency cover. These, however, were apparently too extreme an example to follow and all the other plants simply reduced internal maintenance workforces by around 50%. Very few managements had a formal rationale for this selection, and it was based on the 'criticality' of the maintenance function affecting production. For others it was more informal and even involved maintenance craft employees in defining areas for savings and more efficient routines; for others instant, difficult top-down decisions had to be made.

Management decisions

These developments were linked to internal company style, plant location, perceived contractor competence and plant technology. Technology is assisting management in the quest for efficiency, but has required a gradual approach—shutdowns are beginning to be staged at longer intervals due to the ability of new materials to withstand production rigours for longer (see right).

Where contractors are part of the essential money-saving operation, there are a wide number of options. BP had gone for a consortium of IT suppliers,

Plant	1991	1997
5	every year	every 48 months
1	every 24 months	every 36 or 48 months
7 (fluid catalytic cracker)	every 24 months	every 36 months
15		every 48 months

There is also increasingly a move to pre-plan in greater detail and prefabricate work off site.

but much Japanese management and TQM theory suggested 'single source vendors'.

At the other extreme was the new possibility of using the market as a supermarket of suppliers, playing one off against the other for best process practices and, if

possible, joint funding possibilities.

However, Michael Cross's 1989-90 survey concluded that, despite the rush to outsource activities, there was no coherent way of managing contractors.

The eventual decisions arrived

at show a wide variety: from single-source vendors, through 'key' contractors numbering usually about five, to a preferred-list grouping of around ten, to a more market-led approach of using from 25/30 to 90 contractors. No benchmarks, no recipes to follow here!

Even at the level of 'functional' versus 'divisional' grouping of tasks, there were differences between essentially very similar technologies in different plants.

Some managements had used a functional or 'trade based' grouping for contractors, even where a 'divisional' or product/asset-based organisation existed within the plant itself. This gave economies of scale.

Others divided their plant up into areas and appointed a contractor for each, and thus included specific contractors for major units, giving continuity of work on technical aspects of the plant. One plant used only one contractor for all of its turnarounds, combining the advantages of both the former approaches but leaving itself open to criticism by the Michael Porter school of strategic management in allowing itself to be in a position of too much supplier-power.

Results

More than one plant manager said the rationalisation, whether efficient or not, had unblocked the mindset, and by subsequently thinking afresh, often doing less in absolute terms, millions of pounds had been shaved off the annual maintenance budgets. Reputation effects in a smaller slack market, and in some cases incentivised contracts both put brakes on the opportunistic behaviour which was the scourge of the engineering contracting industry in the post-war years. Even today however there have been several major strikes by contractor workforces, despite the presence of new union agreements. These have been a cornerstone of new working arrangements for integration of contractors and internal maintenance staffs and, with one or two exceptions, the 1996-97 round of Cracker and other major shutdowns had been of world-class performance levels in terms of shortness of duration.

Examples include:

- Plant 2 *Hydm Cracker* 17 days
- Plant 7 *Fluid Catalytic Cracker* 21 days

Again this represents considerable overhead and lost revenue savings

Table 1 Survey results

Plant No.	Year	Workforce employees	Number of contractor firms	Number of contractor employees	Supply arrangements	Cost/turnover
1	1989-1996	213-185	14-7	1,500-500		
2	1985-1996	400-140	140-50-49		10 firms	1991-1996
3	1993-1994	170-20		20		
4	1994-1996	120-75	7	50 firms	1 firm for major contractors of employees	1 firm for 25 employees
5	1991-1997	122-20	25-1	25	Various	1991-1997
6	1991-2000	8	1991: 1 firm 1994: 3 firms		Various	
7	1990-1996	100-75		114-60-60	Various	1990-1996 1996-1997 1997-1998
8	1991-4	4				1991-1998 1997-1998
9	1990-1996-1997	304-230-180-120	70 firms 40 firms 40 firms	2,500 employees 500-200 employees 400 employees	Various	1990-1998 turnover specific
10			1990-1998 firms 1994-1 firm		Various	
11			1990-1998 firms 1994-5 firms			
12	1985-1993	200-700			1 firm for turnarounds	1 firm for 100-1500
13	1991-1994	200-140			Various for major contractors	1991-1993 1992-1993
14	1993-1996	100-80			1 firm	1993-1996 1996-1997 1997-1998
15	1993-1996	80-60	50 firms			1993-1996

Functional basis for contractors 7, 11
Area basis for contractors 8, 11, 15
Single source vendors 4, 10, 12

for the hard-pressed refiners and in the process is re-establishing managerial pride.

Summary

Despite the same operating environment in the UK, with similar remote locations, and also despite being a part of a larger international group, UK oil and chemical companies have not co-ordinated their approach to the employment of outsourcing of what is a major functional influence on their bottom-line performance.

Even similar technologies do not apparently allow for benchmarking of the process of contracting. Recipes are followed only where the measures are tangible. Where there is no set formula for costing functional versus divisional groupings these appear to be random, as do single-source vendors.

This is essentially down to management intuition, preference, perhaps even to local relationships. Research by Aoki (1993) suggests that in Japan a formal relationship exists between major firms and subcontractors, but in the UK there is no co-ordination between parts of the same firm, let alone transfer of technology internally from the North Sea operations, which use alliances, joint ventures and partnerships to explore and produce oil.

Refiners will argue that their technology is far more complex, and they are right. But what they lack is the ability to see common connections across disciplines; maybe that very technology compresses their insight and hinders the development of a joint approach to maintenance involving contractors and clients on an equal footing. One wonders if skill shortages and an expanding economy will damage the essentially pragmatic arrangements these major firms have made.

At a higher level of abstraction, one has to wonder whether a big firm is sophisticated, as Larry Greiner (1973) asserted in his theory of the stages of the growth of a firm, or whether they are after all just big.

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Nothing changes...or does it?

The January TEN Video contains a mixture of quite radical changes and areas where, although laws have changed and more and more business models abound in the market place, the result is no change...or chaos as usual.

The order of play on the video starts off with the usual News Review which covers:

- the worry that UK Ltd is still unprepared for the euro. The government's Euro Awareness Campaign has found the greatest interest in the South East and East Midlands and the least interest in the North East, North West and London. There was a good one-page write-up of the perils if EMU is ignored in *Management Accounting*, December 1998, page 18;
- the guidance from the Auditing Practices Board where organisations seek to limit the scope of audits;
- corporate governance: in the form of a new publication from CIMA (*Corporate Governance and Control*) and the news that corporate governance in the USA is about to influence that in the UK in the form of an alliance between Hermes and Calpers;
- working families and disabled persons tax credits, their impact on employers as the government seeks to action them through the PAYE system;
- brief details on the SME research database set up by the DTI and findings of the ICAS Research Committee on the disclosure of profits for forecasts during takeovers.

The main programme consists of

- An in depth look at FRS12 and a brief resumé of FRS13 and 14;
- Managing business within an economic downturn;
- Changes in discrimination law;
- Health at work.

An in depth look at FRS12 and a brief resumé of FRS13 and 14 FRS12: This is where accountants will need to change radically some of their thinking in relation to when is a provision not a provision? As the finance director of Unigate stated, accountants will have to think less of prudence and more about disclosure. This standard was introduced to stop

the so-called 'big bath provisions', where organisations provided very large sums in the accounts for events that might happen and then in future years released the provisions to give the appearance of improvement in the results.

The standard will challenge the view previously taken by accountants in providing for future expenditure relating to existing or anticipated legislation and the treatment of 'repairs and maintenance' expenditure. Isobel Sharp from Arthur Andersen makes a good job as usual of explaining the potential and practical problems of implementing the standard.

Managing business within an economic downturn

The strategies given by Alan Baines and Raj Sinhal of BDO Stoy Hayward are not new and are, in fact, food and drink to the management accountant.

- Watch your cash: cash is king. How many years ago was that phrase first coined...
- Have effective management information: which products, customers or distribution channels are most profitable, use your performance measures and benchmark to measure how competitive you are.
- Do a marketing audit.
- Review costs and overheads, cut-out non-value added activities.
- Use consultants where they are paid only as a percentage of savings in areas such as energy and telecommunications.
- Monitor stocks and debtors.
- Look for opportunities, particularly in acquiring companies going cheap in the downturn which have great potential but short-term funding problems.

This is the language of management accountants: has the eye been taken off the ball, has complacency crept back into our organisations? Nothing new but perhaps a timely reminder to check that these strategies are being addressed.

Changes in discrimination law

This programme looks at the

- Disability Discrimination Act;
- Pregnancy and maternity rights;

- Victimisation;
- Sexual orientation discrimination;
- Age discrimination.

A plethora of laws, cases, findings from tribunals, the European Court of Justice (ECJ) and Codes of Practice with no teeth.

Georgina Keane from Richards Butler and James Davies from Lewis Silkin review the findings from case law, tribunals, and the ECJ. Have new laws made it easier for employees and employers to know their rights? Apparently not.

There is a great need for a small booklet to be compiled to explain clearly those rights. The only winners at the moment are the legal profession, cases are taking longer and costing more—the growing use of expert-witnesses is only adding to both time and cost. How expert are those witnesses? An expert witness can always be found who has different beliefs from your expert witness's. An interesting but, I warn you, frustrating programme.

Health at work

Most organisations have carefully abided by the Safety part of the Health and Safety at Work Act but what about the health aspect? This programme looks at ways being pioneered by the Health Education Authority to reduce the £10bn cost to business from bad health: 80 million days are lost annually from stress-related illnesses, so if this could be reduced profitability should increase, as should the motivation and morale of the workforce. The Workplace Health Advisory Team (WHAT) is there to help SMEs to tackle this issue. The programme and accompanying notes cover a large number of case studies and as we enter 1999 perhaps health of the workforce and consequently the balance sheet should be a New Year's resolution.

If you need more information about TEN (Television Education Network) and the way the videos can be used for CPPD, please contact me, Joan Toon, on +44 (0)1453 757268 or e-mail jtoon@cima.org.uk. Alternatively you can contact TEN direct on freephone 0500 826764 or Michael Angelo for TEN on +44 (0)171 670 3917.



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Manufacturing strategy in a UK process plant: the importance of human resource management

- *This article provides a case history of strategic change in the manufacturing activities of a UK company.*
 - *The background and history of the plant are described in relation to the UK context.*
 - *Strategic actions taken in quality, safety, cost and HR are discussed, with the emphasis on implementation.*
 - *Some general conclusions are drawn about strategic change in the UK.*
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Introduction

This paper is based on documentary evidence and interviews with maintenance and engineering managers at a UK process manufacturing plant—called 'Riverside' to preserve anonymity. The managers co-authored a paper presented to the main board describing the manufacturing strategy of the plant. This plant was the company's

only UK facility though the company owned a distribution and retailing system, parts of which were joint ventures with other similar companies. The UK had been singled-out for large-scale investment on a global strategic basis because of its proximity to European markets and the ability to supply these from almost anywhere in the UK by ship. The problem was the main board's perception that even in the 1990s, the UK's culture was below

par internationally while low productivity and questionable employee relations were still issues. The proposed investment programme was halted in the 1992 recession by the main board and the paper was later written to convince the board that the progress made at the plant meant that future investments could and should still be made in the UK, for the original strategic reasons. The board had sub-optimized the performance of the plant by failure to invest over the previous ten years, and an analysis of the progress since 1992 was the basis of the argument for investment.

The paper was noteworthy because of the concentration on people issues, despite this being a highly capital-intensive plant where only 10% of costs labour represented. Oliver and Wilkinson quote Soichiro Toyoda explaining Toyota's view that 'the most critical area [of using Japanese production methods into the USA] is labour-management relations' (Toyoda, 1992). However, this was in a mass-production industry and the perception is that automated process manufacture is somehow labour-free. Yet a key aspect according to the Riverside authors was their assessment of the perception by the employees that 'Management are only passing through on a career path and Riverside "belongs" to the blue collar and supervisors'.

This paper describes and analyses the major elements of strategy taken over a period of four years by the plant management. It is divided into four parts. The first describes the structure and history of the plant and its UK context; the second deals with the major strategies such as quality, safety, cost and manpower reduction and employee relations. Part three deals with the perceived outlook for the future and part four details some more general conclusions about strategic change in the UK.

Part 1: history and context

1.1. Structure

Riverside is a complex consisting of over 42 different process units, with utilities including partial power generation, a large tank farm, water treating facilities and five

jetties. Total feedstock comes in entirely by sea. Products are shipped via sea, pipeline, rail and road. About 60% of total production is for inland consumption, the rest is exported in batches of up to 30,000 tons. The total number of products with different specifications is over 100 per year.

The organization followed the conventional structure falling into production, technical and maintenance but with some variations. At superintendent (assistant manager) level the plant operated on a zone base, with four zones, a remnant from earlier reorganizations. Central groups handled plant-wide and longer-term issues. The Operations Support Group for instance handled all capital expense projects as well as major maintenance overhauls.

There were five and six levels of supervision respectively between the Refinery Manager and the lowest levels in maintenance and production. In production, the shift line was historically the official line of responsibility. Day supervision was understaffed and only responsible for unit performance, not for personnel issues. First line supervisors in both production and in maintenance were normally recruited from the blue collar pool with limited upwards promotion potential and therefore tended to have stronger relationships with the workforce than with management.

Riverside was able to attract good people due to high salary and training expectations. The graduate recruitment and development system was first-class and Riverside was losing people into the corporate system or to smaller companies who paid a premium for the training they had obtained. Graduate entrants were seldom lost to big multi-nationals.

The plant was built over 45 years ago and grew haphazardly, resulting in major infrastructure and environmental compliance deficiencies. The managers' assessment was detailed in a development programme and identified 'all the skeletons in the closets' and through this initial 'scoping' process, all of the plant managers knew what engineering work had to be done to meet future legislative and market requirements.

Like every other manufacturer, manpower numbers were a key target as they are an inter-

nal efficiency measure, and Riverside had made exceptional efforts to reduce numbers but retain the workload. Two areas may exemplify this.

1.2. Manufacturing manpower: a reduction strategy

The production department reduced from 63 positions to 56 by changing from an eight-hour shift system to a 'bare bones' five shift 12 hour roster with no spare men. With a 37.5 hour week, this shift roster had a basic 4% overtime requirement. Sickness, training, special assignments etc. had to be covered on overtime, which averaged 16%. With this structure it was very difficult to have any continuity and to implement changes.

Maintenance started with 360 people throughout the 1950s and 1970s but from 1986 following rationalizations this was reduced to 92 craftsmen on daywork, supported by 'seconded personnel' (contracted via an agency) working to Riverside supervision and contractors working to the contract company's supervision. The maintenance flexibility was established in 1984 but contractors continued to work with strict demarcation. With very stringent manpower targets, overtime was the only safety valve. This generated a culture where time spent at the plant was rewarded by overtime payments with little encouragement for job efficiency during normal working hours. This emphasized rewards for inefficiency during normal work time in order to generate overtime. It also required overtime working by supervision and staff.

With less and less Riverside employees and more and more contractors, the plant became increasingly dependent on contractor work and contractor efficiency. A site agreement 'piggybacked' a national construction agreement which determined terms and conditions of work, pay etc. and the contractor employees had an incentive to beat a specific established target in order to earn more money. It needed a tremendous amount of bureaucracy to make it work and eventually it depended on the honesty and commitment of the first line supervisors to determine that the bonus was

actually earned. In time, it virtually became a given level of payment, but still the bureaucracy to support its administration was being maintained.

1.3. Management-employee relations

Riverside was virtually a 'closed shop' with everybody up to a certain position joining a union. Production was represented by the T&GWU, (Transport & General Workers' Union), maintenance crafts by a joint agreement with five separate mechanical and electrical unions. 'Union attitude' (as determined by the management) extended into staff areas especially in the laboratory and the secretarial section where a staff union, ACTS, (the white collar section of the T&G) was recognized by the company.

Union power was very strong especially in the production area where the top operator was a T&G union member and as he was in charge of the unit: without him the units could not be kept in operation. Riverside did not have enough experience in white collar areas to operate the plant in the event of a strike (of which there had only been three in the plant's history, though these were very damaging economically). T&G support to other unions was assumed to be high but as any strike could be very expensive and very damaging to the business, this assumption was never really tested.

1.4. Change

The natural tendency was for management to avoid any confrontation, and as a result,

'The tendency was for management to avoid confrontation'

concessions for change had to be bought dearly from the union and only after a long and hard battle. Moreover, first line supervision was normally selected from union ranks

and was neither trained nor committed to challenge the situation. The progressive reductions in managerial levels meant that adequate time to reflect was a rarity. Thus, job-control strategies by the unions, often using the threat of restrictions on overtime, were enough to derive concessions. For management, it was a difficult situation and they were never really in charge. However the company viewed the Thatcher era as legitimizing a change in the power balance in Britain between management and unions by making the unions potentially liable in law for any industrial action which did not follow the newly established legal framework (called 'the new industrial relations' by Bassett, 1989). Economic performance deteriorated in the UK and globally in Riverside's markets, incurring losses. These two factors—economics and legislation—created the environment and therefore the opportunity for management to make efficiency changes to ensure the survival of Riverside and in so doing to challenge the role of unions.

Part 2: major strategies

The overall policy was to make capital investments from the corporation as cheap as anywhere in the world. It was a long-term strategy and broadly there were three main constraints which had to be addressed:

- lack of leadership and vision [poor management]
- lack of fundamental processes for implementing change [quality, reliability, technology]
- lack of teamwork at all levels [trade unionism]

2.1. Leadership and vision

The managers concluded that unless strong leadership was shown they had no chance to implement changes or improve things. A change in organization away from zone management back to conventional functional organization with new people in key positions

had to be established. Luckily, opportunities for the new team were good: a major capital expense project was completed successfully on time and on budget, giving early success. At the same time, poor economic performance of the company in total forced Riverside to implement sweeping changes, and reduce manpower by 10%. This enabled people who were not committed to change to be counselled or selected for redundancy.

Crucially, major concessions were obtained from the unions: due to the deteriorating financial situation, there were no negotiations at all, just information on what management intended to do. The change worked by strong vision statements and a real commitment in a stated determination to manage, and save jobs, rather than by real power. The unions could not generate strong support and the workforce was more concerned with current earning power than future organizational power. However, the change away from negotiating was only structural. The new lean structure meant that the traditional productivity improvement methods had been exhausted. Teamwork and trust were worse than before, morale was down and management had not committed themselves to which processes should be used for continuing improvement. The process for identifying systematic improvement to plant reliability had died because the organization and team players had changed and it had not obtained enough commitment from management to survive such a change.

Management's new role was to generate a vision and some broad, long-term objectives describing where Riverside wanted to be in three to five years. It took the management team quite some time to generate the overall vision, and to create detailed goals in eight areas: safety, environment, operational efficiency, reliability, quality improvement, public affairs, investment and human resources. It took even longer to develop specific department targets for the year from these overall goals, and then to obtain the 'buy-in' from supervision and to explain, communicate and promote these goals so that everybody was aware of the overall programme. However, even setting out such a broad programme does

not mean success. Priorities had to be set and the commitment to such a programme had to be constantly and consistently shown.

2.2. Fundamental processes for achieving change

2.2.1. Safety, health and the environment

Moss Kanter (1986) advocates using a 'vehicle' as an approach to managing a change process. The management team implicitly adopted this approach by selecting safety as top priority for a number of important reasons. Historically, safety at Riverside was quite often regarded as the unions' strongest prerogative: management was apparently only interested in profits and cared little about safety. It was felt therefore if management could take the lead on safety it would emphasize the new climate, and prove that respect for the plant and its people was management's underlying moral stance. Furthermore, safety benefits everybody in the organization and can only be accomplished by teamwork, including the contractors. It requires thinking, planning and organization before action is taken. It requires following established and agreed procedures. It needs training. It cannot be improved with a crisis management system. So all those things which are identified as good management practice could be shown and used by everybody in order to improve the safety record.

2.2.2. Operational reliability efficiency through quality

One of the most difficult problems in operating a manufacturing entity is how to implement change but also how to have sufficient stability so that management is not constantly 're-inventing the wheel'. How to ensure that the good established procedures are being kept alive but still create an environment where constant improvement is part of the culture? What kind of process do you use to be certain that changes are being worked on at the lowest organizational level but anticipating the effect on other departments or the overall refinery? These are questions which cannot easily be answered, otherwise management would not be necessary! But a process

to make this change as efficient as possible is essential. Total quality management was decided on as the best process to make these changes: a structured approach was crucial, given previous experience of short-termism at the plant, and the Crosby approach was identified as ideal for the plant environment.

2.3. Human resources—teamwork

The following goal was established:

To create an environment in which all individual employees can contribute to the success of the plant, develop themselves and receive appropriate recognitions (reward)

A clear focus for all 'people initiatives' was to concentrate on the individual, whose contribution could then be harnessed within teamwork. With this kind of focus, the plant could not improve unless there was a fundamental change in attitude by the unions and their members. In the unions' view, their team came first and they had to protect the individual. The individual historically had no personal responsibility, only as a team member. The focus in a union environment was on the collective, not the individual, and the lowest level of performance became the norm against which the group defended change or negotiated improvement.

2.3.1. Supervision

With union power diminishing, a failure to maintain good supervision and management at all levels would have had disastrous consequences and really could revert any future improvements back to failure. The biggest ongoing challenge was to fill the communications gap usually filled by the union and ensure that effort was input daily, not just for the specific areas targeted. Therefore, it was absolutely necessary to improve supervisory

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management before the union role was diminished as the union had a function to operate as a safety valve in case front line supervision did not properly take care of the individual's needs. Harris (1988) noted this in her study of two ammonia plants where supervisors had a negative role and kept information to themselves. In order to progress, the management had to establish supervision standards, train accordingly and monitor progress.

Based on these principles a questionnaire for upward appraisal was established which was then taken into account in determining each supervisor's annual performance increment. 'Needs for improvement' were analysed to determine training requirements. Considerable training was carried out to train supervisors in appraising people and how to give honest feedback summarizing positive and negative accomplishments but also focusing on such items as commitment, dedication and taking responsibility. Front line leadership training modules were used together to revise and in many cases learn for the first time the basic principles of management. These involved all levels of management so that a quality-circle-like approach enabled the giving and taking of advice and assistance. This made the experience more a 'problem-solving' activity, more open and less threatening to supervision. Similarly, there were informal methods: executive lunches with management, direct communication during walkabouts and briefings.

2.3.2. *Teamwork and trade unions*

Before any changes were possible, a pay and career system had to be in place which would eventually absorb union members in a staff environment, so that there needed to be a progression in jobs from the lowest levels. This meant a completely new staff structure for unionized employees and junior white collar staff. Having a long-term interest and progression, at the gift of management, was seen to break the mould of dead-end production jobs and align with the *nenko-juretsu* or service-related pay prominent in Japanese companies (Oliver and Wilkinson, 1988).

2.3.2.1 *Crafts initiative.* Craftwork, with its skill-based demarcations and traditions and its job-control strategy had always posed a problem for management-driven change, especially in large process plants requiring exceptional maintenance. Process manufacture can be regarded as 'just-in-time' with low stocks, a fragile stage-to-stage relationship and lack of internal flexibility. However, the craft union power to control jobs was spread between several unions and their sections and was less than in the production area. Flexibility to choose between using the internal workforce or contractors had been achieved in earlier negotiations and this reduced the risk of industrial action. This led to a tactic of not hiring new craftsmen but rather working more with contractors. Although at a higher cost and with less quality, this move put pressure on the craft workforce. It was constantly kept alive with hints during discussions with individual employees that things had to change, the 'status quo' was not an option and improvements in individual work effort were important. Using contract workers was neutral to the union officials who represented both groups of workers.

Simultaneously, groups were targeted who might relish a move to staff conditions, where demarcations were non-existent. In the maintenance stores area people were represented by the T&GWU, whose prime focus was production. Storekeepers were offered and took up staff status, were then treated well, like every other member of staff, and this showed that the tactic could work. The next step was to segregate a group which was closest to a staff environment—instrument mechanics. These highly skilled technicians were shown the potential to improve status, work interest and their pay on an individual basis and eventually they themselves came forward to ask for staff employment. Again, proper management of this group, attention to the individual, training and the recruitment of new staff showed to the other maintenance groups that the end of the world would not come by 'going on the staff', rather the opposite. The economic climate in Britain had resulted in pay increases at or below

inflation and so new money was only going to be available within a staff environment.

The unions responded by strong words and threats but the management team communicated with the total workforce and had the determination not to move away from the plan, its principles or its vision. A two-year deal with both crafts and T&G got away from the annual pay ritual and gave the space to concentrate on fundamental change to relations with the unions. Eventually, management presented a new employment contract to all maintenance craftsmen. A feeling of fairness was helped by paying an increase of 4% to transfer the individual to full staff contracts. All craftsmen signed to fully agree to the changes, a real measure of the breakthrough.

2.3.2ii T&G initiative. There was little possibility to put a wedge between the T&GWU and the production workforce. Firstly with the T&G, the local branch is the plant and therefore there was no way of splitting union and plant workforce. Secondly, the power to affect plant performance was much stronger with production people and there was no opportunity to refer to contractors. Thirdly, and most importantly, a stronger team approach was needed from them and confrontation would have left a legacy of resentment. Three key targets for change were identified:

1. The establishment of the top operator as a true supervisor (and therefore the reduction of shift supervision headcount).
2. No collective pay bargaining but appraisal of all individuals and pay for performance as an incentive for the individual.
3. Flexibility for increased safety and maintenance responsibilities.

The union responded quite positively and requested involvement in the process of change rather than building towards a confrontation, gave advice and information on reorganization and work assignments and management slightly changed the original plan. Again, constant information about the poor financial situation in Riverside gave ample

justification for these discussions. Eventually, the three aforementioned targets were presented to the total workforce, voted on and finally approved by the workforce without any pay increase. This was seen as a major win/win victory on both sides and therefore an ideal opportunity for real teamwork and progress. The union representatives, based on the changes in recent years, believed that the new management was prepared to manage in the interests of the total business. As a result, discussions with the unions began in a 'co-operative approach' helped by the space created by the two-year pay deal.

2.3.2.iii Contractor initiative. Improving contractor efficiency is a key strategy for any process plant due to exceptional and infrequent major maintenance requirements and it focuses not just on expense reduction in the ongoing operation but also on minimizing the cost for future capital expense projects. This took a long time as the interests of the large and small contractors were different as were their levels of sophistication. It was necessary to renegotiate the local site agreement but this was met with union opposition which could not be challenged as the contractors were not Riverside employees. The unions were asked to revise the agreement themselves to create flexibility and productivity improvements and given three months' notice of termination of the old one. Management then devised a new model agreement, incorporating flexible working for the first time, by discussing with engineers what changes were needed and eventually this was implemented after gaining assurances from the national level officials of the union most sympathetic to change—the AEEU—who signed the agreement on behalf of all the contractor employees.

Part 3: outlook

There had been no backlash or resentment but an underlying respect that management was taking its responsibility seriously. The organizational changes and the initial training have been completed, starting with safety and

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maintenance work training so that the operators can start signing work permits and use maintenance tools. Ongoing training of the top operators will continue for the near future and their appraisal without pay programme received positive feedback in general. The link to pay comes into effect shortly as does the first appraisal round of the operators. There is at all levels more open communication and teamwork than there was ever before.

The principles of total quality management have been introduced but it is not yet strongly ingrained in the culture of Riverside and it can be easily reversed. It is a long-term strategy which needs total commitment, by everybody, especially the management, to prosper. Quality is the cheapest way to make improvements and the identified benefits will eventually hit the bottom line. However, the gap between expectation and reality has to be properly managed. They have started to develop and estimate PONC, the price of non conformance, to established requirements. Based on these, several departmental or inter-departmental corrective action teams have been established, to look at means to reduce those areas with the highest PONC.

Teamwork improved at all levels. Again, it will only last with commitment by management and the workforce to work together for the overall benefits of the company. This can only be achieved with clear objectives and improved communication. However, as in all other areas, communication hits the dilemma of diminished return for efforts which go above a certain level. Riverside has not reached this level, yet. Trust in management will have to balance any lack in communication.

Improved communication can be achieved by having a central control room as many plants now have a central office location where

face to face communication could be improved. Neither are available at Riverside and half the staff will move half a mile away into rented office accommodation to make space for new capital projects. With the current tightness of capital funds, to change the situation and bring people closer together physically can only be part of a longer term plan. However, new information technologies, specifically the local area network, and email, may enable improved communication at a distance.

Safety achievement turned out to be a quality process: overall there are more established procedures than before and adherence has improved. This is supported by outside audits (achieving ISO 9000 accreditation). As a sign that quality really can work there are now established standards for meetings: preparation, execution, follow up and action items. Everybody strongly supports this since it reduces time for meetings and its efficiency of getting things across or agreed. A major boost to efficiency was introducing a practice at the end of regular meetings whereby the efficiency of the meeting is discussed and rated. This closes the loop for constant feedback for improvement and it had marked results. This feedback requires honesty, openness and that managers are prepared to take feedback without 'shooting the messenger'. The managers ended by emphasizing just one quality process where they believe they had the most long lasting impact: human resources, the industrial relations area, with the establishment of better teamwork. Organizational improvements are a never-ending task. Everybody is now aware that management is in full control and union power is greatly diminished. Such power brings with it a substantial amount of responsibility. The power of management is only to be used for the overall long term benefit of the plant and has to be seen as being fair and honest.

Part 4: general conclusions

The many initiatives which had already been started once before at Riverside had withered

on the vine and a flavour of the month syndrome was rampant. Interest motivated by managers' own personal career, cynicism within the blue collar area and 'retirement on the job' were all evident to some degree. Ahlstrand's (1990) study of Esso's Fawley refinery and chemicals complex also noted the degree to which managers' perception of what could be done rested on their own careers and historical 'recipes of success' (as described by Grinyer and Spender 1979).

Riverside's experience is that manufacturing strategy is doomed to failure if particular UK cultural factors in the process of managing are not taken into account. Short-termism, illustrated by the flavour-of-the-month approach to new managerial techniques, is a particular feature, and Riverside was only beginning to see the first bottom line impacts after two years of pretty dramatic changes. A key to its success was the realization that top-down attempts at introducing fundamental change result in a considerable gap between expectation and reality which can strain management's commitment to the process. The democratic, legal and constitutional systems in Britain have been built up over centuries, and strongly support lengthy debate as a way of making decisions in order to get a solution which managers and supervisors are prepared to own and be 'bought into' except in a crisis situation. Gallie's (1978) contrasting of BP's UK and French plants also showed that the UK manufacturing plants generated better relationships but the downside was that this had the effect that procedures were normally regarded as optional. Even on environmental issues specific individual deals could be made with authorities and there were no firm or consistent standards.

Riverside was fortunate in the appointment of a new director from another part of the group who was able to see the existing 'recipe' and break its grip by introducing a new, more successful one. This process of recipe adoption was illustrated by Grinyer and Spender's (1979) research, but is seldom realized in the UK, where few companies are truly multi-national

and where recipes survive long past their sell-by date. Employing consultants in the role of 'recipe-busting' can never be as successful as a committed internal change agent, who is prepared to fail in the short term, because his reputation carries itself forward into a longer timescale.

As the feature of short time horizons and limited vision aims seems still to be particularly strong in UK manufacturing, even in automated process plants owned by multinationals, it represents a part of management culture which threatens and constrains the development of appropriate manufacturing strategy. This currently affects other industries in the UK which have not yet come to terms with the need for a strategic human resource audit to underpin manufacturing targets which Riverside exemplifies.

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Corporate strategy and the role of HRM: critical cases in oil and chemicals

Corporate
strategy and the
role of HRM

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Abstract Human Resource Management in the literature has been considered a second- or third-order strategy largely related to implementation. Argues that the process of strategy formulation and evaluation has not been correctly conceptualised. The evidence that HR issues are fundamental to business is compelling at the level of unit labour costs, but whether they are fundamental to the strategy process has remained highly questionable. The paper suggests that a favourable HR environment has to be established before the various strategic choices can be analysed. Empirical research in two UK oil and chemical companies provides evidence that the effect of HR issues on corporate strategy is understated. The assumption of a top-down, linear model of strategy formulation, whether positionally- or resource-based, is questioned and an alternative conception is discussed.

Corporate strategy and human resources

Miller (1989, p. 49) defines strategy as "essentially market-related". This demands *inter alia* managerial control of the organisation's direction, especially its costs. These are important even if the organisation is pursuing a strategy of "differentiation" as opposed to "cost-leadership" (Porter, 1985). The importance of costs is highlighted by the threat to businesses such as automobiles and the question of labour costs looms large when labour is an important contributor to company productivity performance. Other authors (such as Chandler, 1962; Purcell, 1989) follow the line of argument that there is a separation of structure and strategy, and that this can be divided into three levels. The links of HR policies to strategy are, in this conception, essentially second- or third-order, or more "downstream", whereas corporate strategy is "upstream" (Purcell and Ahlstrand, 1994). This stratification approach puts HR issues into a "business strategy" level and a "functional" role.

At this functional level, Blyton and Turnbull (1994) argue that changes in ownership have often led to downsizing, unbundling and increased subcontracting, and vertical de-integration. The HRM changes such as flexible forms of working which affect working practices, are only modest and most firms have pursued "numerical flexibility" – part-time and temporary labour –

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rather than extending the skills and versatility of the workforce. Thus, HRM is reactive rather than proactive. They cite Batstone *et al.*'s (1986, p. 41) assertion that production problems – i.e. management deficiencies – lead to poor labour relations and low productivity not vice versa, thus reinforcing the claim of a downstream or second-order role. Even here, Nichols (1986) concluded that “it does seem that British managements have not been doing their jobs very well” and the role of HRM has been categorised as “fragile, unstable and difficult to sustain” (Whipp, 1992), involved in acquisitions only in peripheral aspects like pension rights (Hunt and Lees, 1987), or asked to “play a very marginal role in the introduction of technical change, and then at the implementation stage, rather than the decision-making stage” (Legge, 1995, p. 119). Indeed the role is classified as one of “fringe lightweights, [with] infrequent involvement and infrequently influential” (Hickson *et al.*, 1986, p. 80).

The definitions of the role, affecting the conception of HR, have often been set unrealistically severe tests. Sisson and Scollion (1985) complained that only (sic) 55 percent of firms in the Warwick company level survey had “a written, formal policy on HR, [and only] “22 percent gave it to employees”. This rigorous approach of course might well be the same figures for corporate strategy. Legge (1995) asks for “evidence ... that senior managers ... have explicit, *well-formulated* and *consistent* HRM policies” (Legge, 1995, p. 96 emphasis added). These require a “deliberate” approach to strategy formulation rather than an “emergent” one (Mintzberg and Walters, 1985).

There is further inconsistency in the literature over what constitutes human resource roles, outcomes and processes. The 1985 Warwick company level survey used “personnel issues” (Legge, 1995, p. 119), Hickson *et al.* (1986, p. 80) and Batstone *et al.* (1986) use “personnel managers” as distinct from “personnel directors” (Gennard and Kelly, 1994). Hunt and Lees (1987) use both “human assets” and “personnel managers”. While Jenkins (1973) and Purcell (1989) use the “personnel department”, Purcell and Ahlstrand (1994) refer to “personnel specialists”. Clearly, these are not the same thing, and Marginson *et al.* (1993 Table 4.148 pp. 36-7) showed that once the terms “personnel issues” and “personnel function”, were separated, 70 percent of firms took “issues” into account, while the personnel function (ambiguous, but in fact, the personnel department) was not involved in 70-82 percent of cases. This illustrates the conflation of variables which previous authors had, probably wrongly, attested as measures of HR being taken into account in strategy formulation. This makes a considerable difference to the conceptualisation of HR as a “downstream” *post hoc* event.

There are further complications: as mentioned above, “personnel function” should not be confused with “personnel department”. If HRM exists in the integrated form suggested by Guest (1987, 1989) then personnel issues and functions will have been integrated into line management and only specialist issues like pension arrangements would be expected to remain in a personnel department. In other words, we would expect a priori less involvement of personnel departments under HRM, rather than more. Furthermore, in

divisionalised firms as against functionally-organised ones the role of the personnel department can be very different. Whether a personnel manager or department is involved on a particular issue depends on the company structure, which results from strategy (Chandler, 1962) and produces a certain management style (Purcell, 1987) which becomes the independent variable. Here, the argument seems to revolve around the post-Thatcher period where the hegemony of capital over labour resulted in a unitaristic and authoritarian management style, described by Purcell (1982) and Mackay (1986) as "macho management". The hypothesis is that within this increasingly common style of management, labour is treated as a commodity.

There is substantial evidence that this kind of HR strategy, related to unit-labour-costs, elevates HR (issues, function and people) to a more strategic level. This is because labour can be one of the main constituents of both the "position audit" and the "environment" in the classic six-stage positioning school of strategy (CIMA, 1991, p. 38, cited in Marsden, 1998). For example, in the US, Caterpillar's labour had a "summer victory" which cost the company dearly (*Economist*, 1997). At a higher level Woodhead (1998, p. 10) asserts that "Germany's powerful unions [are] determined to resist Americanisation, and fusing the Daimler and Chrysler operations could be a struggle" indicating a clash of cultures where the works councils of Daimler will prevent changes that merger sought to introduce. Stelzer (1997, p. 7) went so far as to claim that, due to the UPS strike in the USA, "bolder unions [were] striking fear in boardrooms" and that there was a perception of a resurgence of union militancy in the US generally (corroborated by Rothstein, 1997; and the *Economist*, 1998). The impact of organised labour on the "bottom line" has been detailed by Kochan *et al.* (1986) who demonstrated that firms moved plants to regions where union strength was low, in order specifically to avoid unions. It is worth noting that in the automotive industry, while non-union shops pay as little as \$10 per hour, jobs covered by union agreements average \$45 per hour, a 450 percent higher pay level (*Economist*, 1996). In a mass-production industry where labour is a high content of total unit costs, then there is a strong incentive for "macho management" to use outsourcing to reduce costs – precisely as Blyton and Turnbull (1994) and others had noted. Clearly unit labour costs, in threatening their very existence, were strategic for these firms, but such a strategy was only couched in a defensive mode.

Evidence for more positive, if macho, HR strategy comes from Smith (1995) who details the fragmentation of social relations at work by the impact of subcontract and call-centre cultures in the North, while Tuckman (1998) asserts that in BP "all together better" just means single status as a means for derecognition of unions. Critical studies (e.g. Kelly and Kelly, 1991; Kelly, 1996) also emphasise the apparent dominance of a managerialist power framework, which is often engaged in derecognising unions in an opportunistic fashion, rather than developing people and the business (Malloch, 1991; Claydon, 1996). Ursell (1991, p. 312) typifies what could be termed the strategic-cost-approach of macho management by stating "a major goal implicit in the idea of flexible

labour is to render HRM as a strategic, rather than a merely tactical activity . . . It is not however invariably the case that HRM must figure centrally in such strategic behaviour . . . only where labour's contribution to the production-valorisation process is crucial will it also be central" she continues (p. 326) "the status of HRM may be more or less high contingent on such matters as capital: labour ratio, condition of labour markets, condition of product markets etc" (Ursell, 1991, pp. 312, 326).

Another way in which HRM issues (though possibly not the personnel department or its managers) may be seen as more proactive is the strategic issue not of labour costs *per se* but of productivity, and of production increases through control over working practices. Joint control was espoused by Flanders (1964) and formed part of "the new IR" in the EETPU single-union agreements (Bassett, 1986). Several case studies reveal the continued and more positive importance of HR factors in strategic decisions related to control. For example, Starkey and McKinlay (1989) charted a number of initiatives related to the strategic choice policies of labour relations in Ford UK. Rover's pay deal in return for stability was widely regarded as a strategic move (*People Management*, 1997). Wilkinson and Oliver (1990) discovered "obstacles to Japanisation" in analysing the decision by Ford not to invest in Scotland as a new-style single-union deal could not be brokered by the unions, and this was a critical factor in Ford's corporate strategy, related not to costs *per se* but to control via a "slimline bureaucracy" of a single-union agreement (see Grant, 1994, 1996 for a discussion of such deals). This strategy had emerged far earlier in UK car firms at Vauxhall, which had in the 1970s only three main unions and relative industrial peace (Lyddon, 1995). Bowley (1998) describes the differences between BMW and Rover in terms of factory output: whereas BMW were able to lift the plant capacity from 80 hours per week to 108 hours, Rover workers were still reluctant to accept even a change to flexible shifts. Hence, some strategic HR issues may become hidden within overall policy decisions promulgated not by HR departments but by line managers intent on control of costs.

In conclusion, most of the literature emphasises only the strategic role of labour as a cost-driver for businesses, especially in current competitive product markets, despite some evidence that a more proactive role may be taken. In capital-intensive industries which Malloch (1991) suggested had labour costs of 15 percent or less, the opposite should be true. A swingeing 20 percent cut in these would therefore only have a negligible 3 percent impact overall. The present study aims to test this hypothesis.

The research study

The study uses the oil and chemical industry to test the hypothesis that management in general has in fact created an HR strategy based on cost-cutting. This industry is a test case: it has a well-documented history of proactive strategic HR interventions, and if these have been cast aside then the negative views of the strategic role of human resources only as a commodity should prevail. From individual plant bargaining in a collaborative fashion in

Esso and Mobil respectively (Flanders, 1964; Oldfield, 1966) through to Hill's (1971) description of the company development of Shell UK, studies placed much emphasis on the role of HR issues especially within the manufacturing plants. Indeed it was argued (Blackler and Brown, 1986) that Shell's Teesport refinery was organised on the basis of a new HR philosophy. The acid test of the "macho" managerial style theory is thus that these organisations may well be reverting to "macho" attitudes in their strategic choices as described by Kochan *et al.* (1986), and in this industry by Malloch (1992) and Tuckman (1998). The question is, why did Shell axe 3,000 jobs (Olins, 1995) if labour costs are not so important in capital-intensive industries?

Gallie's (1978, p. 40) test of Blauner's (1964) general theory of alienation and automation used BP as a "critical case" and his findings could be generalised by dint of the generic hypothesis. BP was not a case study *per se* using an inductive method, but a hypothetico-deductive approach deriving a test case from theory. As a methodology it has been applied implicitly to empirical research into new approaches to employee relations. Flanders' (1964) use of Esso, Fawley, represented, for him, a sea-change in the strategic management of industrial relations, through joint regulation by the use of productivity bargaining. This change was complemented by Oldfield's (1966) study of Mobil's Coryton Agreements, which was significantly entitled "New-look industrial relations". This paper relies on just such an approach. Kelly (1996, p. 89) makes a similar point about the recent changes in the history of the oil and chemicals industry, reported by the TGWU (House of Commons, 1994), but for him, it is the alleged widespread derecognition which of itself represents a strategy. The literature on HR roles within corporate strategy is on closer inspection seen to rely largely on necessarily superficial survey evidence, and so a semi-structured interview technique was used instead in the design for this research. The use of case studies often poses problems of generalisation (Yin, 1994), but as the hypotheses presented in the literature are generic, the test can also be designed to assess evidence at that level of abstraction.

Nevertheless, the design not only used triangulation (Denzin, 1970) but also used case data from two entirely different companies (one oil and one chemical), with plants in different locations, in order to increase both the generalisability and validity of the results. The data collected was corroborated in the triangulation process, as second and third interviews were arranged with the interviewees to highlight and rectify any inconsistencies. Triangulation was designed with appropriate checks at local and national level both between documents and interviewees and between interviewees and other interviewees. Thus, in Hutching's, the recollections of the maintenance manager were triangulated against documents and against the recollections of the capital projects manager, the overhauls manager and the contracts manager; similar triangulation occurred at Warr-Co. Both cases were also simultaneously triangulated by interviews with National Trade Union officials responsible for oil and chemicals in three unions (GMB, MSF and AEEU), and against interviews and documents from representatives within industry bodies (ECLA, NJC for ECI)

and financial institutions (Dresdner Kleinwort Benson). The data were largely factual – dates, actions, numbers, actors, (as opposed to opinions) and they proved to have a high level of consistency. The interviews, and documentary evidence where it was provided, were typed up, and then sent back to the respondents for checking. Any changes were incorporated and the final version of the interview was then sent back for their corroboration and reference.

Case 1: "Warr-Co"

The corporation's strategic analysis was undertaken continuously at a global level, and had to address the issue of how the corporation could manage its entire business world-wide, and how best manufacturing could be operated in future to deliver products to those businesses. Manufacturing has been the core competence of the business and manufacturing capability depends on how plant is operated and maintained as much as by the capital equipment. Harris (1988) for example showed that the differing performance of two ammonia plants under automated process control was ultimately due to HR factors. Analysis by Warr-Co of its position as a supplier into the commodity-market of bulk chemicals revealed that competition was so severe that differentiation (Porter's (1985), alternative generic strategy to cost-leadership) was essential.

A move to speciality chemicals production required Warr-Co either to shift between priorities dictated by end-user customers rather than bulk supply to storage, or to enable a variety of subsequent marketing choices to be available to niche market of different customers. Both scenarios would entail fast response, require smaller-batch processes, and fast switching between them. Operating flexibility then demanded far more functional and numerical flexibility, and an ability to handle more complex tasks and so the skill level of employees would have to be raised. To enable the plant to achieve this, focus was necessary. The progressive transfer of lower-level work (and the semi-skilled and unskilled employees who carried it out) to existing contractors was an essential element: Warr-Co was implicitly attempting to use the original flexible firm model (Atkinson, 1984; Ackroyd and Procter, 1998a) to reduce its "core" activities in order to be able to shift quickly into different product markets, and increase its core competence. The holding company in the UK planned an entire national strategy for all of its production units on this basis. The time taken – four years – and effort expended suggests that the reasons why Blyton and Turnbull (1994) had not seen much evidence of functional flexibility was because various British managements were not expert enough to enact the strategy (Nichols, 1986) not because it was not needed. In evaluating the differentiation strategy, it became apparent that it would be limited by the existing managerial and craft/technical skills profile of the people employed (the overall competence of the corporation according to Prahalad and Hamel, 1990), and by the lack of availability of these skills in the external labour markets. The issue of the availability of appropriate skills and competences had to be addressed first in order to enable intended corporate strategy to be adequately formulated. It was, if not first-order, then of prime

importance, and not as Legge (1995) viewed it as a follow-on from a previously determined, or "deliberate" strategy. Certain elements had to remain "emergent". If the HR analysis revealed that the differentiation could not be achieved with the present workforce, the plants would have to be sold. If it were possible, new capital investment would be necessary on a massive scale.

The UK strategy then moved towards objectives. A key aspect of differentiation was whether the plants could maintain the availability of production units, to improve the ability to react to customer emergencies. This meant reducing their "downtime" to keep them up and running and required better skills and managerial competence in maintenance, a medium-term objective, but required immediate changes in flexibility, shift and call-in arrangements. The concentration on high-skill work internally "won the minds of the Trade Unions" according to one manager, as the workforce would in future be required to be "high skill, high availability and low risk" which translated as high marketability, and long-term employment.

Changes to contracts included annual reviews to reduce costs progressively and these became performance based, with targets on quality, and in fact safety improved immediately. Warr-Co agreed a flexibility package with the unions to use contractors in integrated teams, and to grow the contractors' skill-base. The number of contractors was reduced to assist in increasing focus and commitment, and this directly reduced the labour and contractor turnover. Also, because each contractor had to do more Warr-Co work, their employees were on-site more-or-less continually and effectiveness increased by the resulting "experience curves" (McKiernan, 1992, p. 3) of the contractors.

To capitalise on flexibility and experience meant the giving up of trade ownership. This would allow an increase in the use of teams composed of different trades and increase problem-solving and preventative methodologies within maintenance. The company used the good offices of the NJC for the Engineering Construction Industry and its members to be able to negotiate an important national deal for all of its on-site contractors in the UK. The National Agreement for the Engineering Construction Industry (NAECI) was used as a basis for a new supplementary agreement. For craft skills which Warr-Co estimated would become scarce, an apprenticeship scheme was created for the contractors by Warr-Co. The company had planned to pay for far more production operator/craft flexibility than it was able to achieve in national negotiations. One major problem was not anticipated: in transferring lower-level work to contractors, it gradually became clear that with new levels of activity, two of the five contractors, which were selected as high-performing, needed management development more than they needed functional flexibility from the craftworkers. Warr-Co then initiated a kind of "placement" scheme to put its own engineers into the contractors' offices. They provided not only additional technical skills but also brought with them attitudes and concepts which were transferred to the recipient contractor staff. (This is not unlike Japanese practice reported by Sako (1993).)

There is overall strong evidence that a strategy of cutting labour costs was not part of corporate strategy issue, neither was derecognition. Strategic evaluation depended on achieving more flexibility between employees and thus better productivity on the plants. Thus, although the use of peripheral workers, the contractors, may be a "limiting factor" or a resource constraint on strategy, it was not an objective of strategic cost-cutting. To progress in strategic terms by moving its businesses up-market, the company invested millions of pounds in training, consulted and negotiated with its unions, was given the flexibility to use contractors alongside internal employees, and then and only then could it begin to address what might become the key success factors in its manufacturing plants. This could not have been achieved without the employee relations groundwork and inter-firm co-operation. Thus HR turns out to be not a second- or third-order factor, but a necessary underlying requirement which then enables the evaluation of corporate strategy. The role of personnel was not investigated *per se* but line managers interviewed had consulted senior legal sources (perhaps within personnel) early on the use of the transfer of undertakings legislation. Certainly the department was fully engaged in implementation, as would be expected from the literature. Without the employee relations groundwork, none of the higher-level strategies could be considered; as such, broad and significant HR issues were part of the original strategic evaluation process, rather than a technical add-on as had been suggested in the literature.

Case 2 "Hutchings" 1260

Product market competition provided a similar driver for change within this oil company whose main concern was a deteriorating oil price and the need for cost-effectiveness. It could not move petrol or other products upmarket, in the way that chemicals could add value through further processing, and could only improve the output of higher-margin products such as its gases, or improve the marketing of products like road asphalt. This is where the hypothesis of a cost-cutting HR strategy can be tested. The company first needed, as did Warr-Co, the ability to assess how it could evaluate its performance, how to measure added-value for each plant, how to decide whether to reinvest or to cease production. The organisation did not adequately attend to market demands, to efficiency of production, or to the margins on products, because of the structure of management responsibilities within the plants. Corporate strategy determined, as a first move, to increase managerial responsibility for profit, and so a product/asset-based structure was proposed in order to subsequently evaluate each product and its market potential separately. This would enable positioning into cash cow, star, problem child or dog businesses as under the BGC matrix or a strategy of non-growth (see McKiernan (1992) for a discussion). Irrespective of the use of contractors, which was key to Warr-Co's strategy, Hutchings had to evaluate the possibility of achieving adequate measures of performance using the internal workforce. As with Warr-Co, however, manufacturing output and effectiveness required a major rationalisation of its maintenance support. Changes to craftwork began in 1985 in a productivity agreement with the unions

for a reduction to four core trades. Trades with low utilisation, not necessarily low skill, such as plumbers, joiners, gas welders, and painters were outsourced to contractors. After this rationalisation Hutchings still experienced what its managers called "the usual restrictions" and the "usual pattern of events": constant disagreements with the craft trade unions about organising and manning up maintenance work. This happened on a daily basis as maintenance priorities were changed by the production department's problems, which often emerged overnight. As the managers of the production units were responsible only for normal, day-to-day operation and were not required to assess long-term development and maintenance needs, there was little pressure on them to solve the inherent HR problems.

However, this short-sightedness problem remains when organising on an assets basis: common problems are not seen as common and so not shared between units, thus leaving some gaps in information and a predilection for "reinventing the wheel". Additionally, the process often suboptimises because of lower scale economies. To circumvent this tendency, a broader strategy, encompassing HR, required flexibility between units and a matrix approach to communication. To counter lower scale effects, labour had to become more available, to move flexibly between units on demand. This required a change of employee relations strategy to involve all levels of employees across the large site. Traditional productivity bargaining had worked thus far but still left the "us and them" attitude, and collective bargaining took up almost the whole year in repositioning tactics and manoeuvring for power. These were described above as "the usual" issues and so were taken for granted by production managers. In a flexible situation however it was felt more important to remove the stigma attached to the manual workers – who were called "the bears" on this site – and move, as had Warr-Co, to diagnostic, preventative and problem-solving maintenance techniques. These required involvement and commitment and the company decided to negotiate an end to collective bargaining, moving to single-status to reduce inter-trade demarcations, but retaining union recognition for individuals and a collective system of site representatives. In 1991 a new agreement established a new grade of composite workers (fork-lift truck drivers with rigging and scaffolding skills added) and gave management the freedom to choose between contractors or in-house provision. Through simple efficiency measures across the site, 66 percent of the maintenance budget was saved, and service quality remained high because internal provision was topped-up by contracting-out or leasing.

This could be described as "macho management" but not as a great saving on labour costs, as some of these were simply replaced by contractor costs, nor was it an intensification of labour, nor has the result disenfranchised the workforce, only the unions as a recognised collective force. Whatever the judgement, it is clear that the new asset-based policy could not have been implemented without the flexibility of labour to counteract loss of scale economies. Subsequently, the maintenance department has been able to circumvent some of the scale inefficiencies by processing all Hutchings

contracts centrally instead of production units generating contracts mainly in emergency situations. Given the wider scope allowed for by the changes to flexibility generally, a more strategic evaluation was taken by maintenance managers of what added-value they should create. They decided to out-source non-essential work and further discussions revealed that they felt their forte was in two areas: overhauls of rotating equipment (in essence, the pumps used to transfer all the products around the refinery) and relief valves (large metal "stoppers" which rise up under pressure and release gases which otherwise would form dangerous blockages). These activities were not only strategic, or had high-integrity (high criticality) in that repairs entailed significant "downtime" but they also constituted a high cost if outsourced to contractors. The managers felt they had both the equipment and the skills to transform the processes in terms of quality assurance and quality control. Before the new agreement enabled this change, production management did not believe that internal maintenance personnel were capable of taking on more work, nor would the capital projects department use maintenance resources for new construction work. The maintenance workshops have subsequently been able to involve all levels of staff to document their competence and the first tender for internal work was successful on a competitive, objective basis. The effect on the employees has reportedly been highly motivating and this is an unintended outcome of a deliberate strategy.

Contracting-out enabled the streamlining of work and both saved management time: this created time to investigate a strategic alliance for synergy with a neighbouring plant to actually bring-in additional work into Hutchings from other contractors operating locally. The manufacturers of the pumps which Hutchings uses to repair their equipment are now seen as direct competitors for work. Hutchings workshops are able to compete for this work, extend the skills of the workforce and expand the business. This will enable scale economies on capital purchases, with better rates of return.

The framework of employee relations changes has also enabled the company to enact a further set of management changes. These have required re-framing of traditional attitudes and a new rationality based on outputs rather than inputs. In this case, the importance of maintenance to Hutchings' assets could hardly be clearer: Hutchings has been able to extend the period between major maintenance overhauls from 36 to 48 months and complete these in record time, and so hundreds of millions of pounds of "downtime" losses have been avoided. According to the oil industry analyst at Kleinwort Benson, this enormous cash saving was a major factor in improving the company's share price. Recently, renewed corporate confidence in the site has resulted in a new major investment programme. Investment would have gone elsewhere had the HR atmosphere not been conducive to achieve world-class returns on investment, as was noted in the case of Norsk-Hydro (Blyton and Turnbull, 1992), and so, whether involving a specific HR function or not, HR issues have been vital in Hutchings' turnaround performance.

Discussion

If employee flexibility creates a maintenance performance in process plants which can affect the share price of the companies it is hardly a "third-order affair" and represents the eventual aim of all corporate strategy, in that it adds shareholder value. Human resource management itself may have become a functional term, but this is more difficult to justify and to unbundle from non-functional strategies. HR strategy may even be a separate entity within some firms, encompassing routines such as recruitment procedures, training plans etc. (as suggested by Devanna *et al.*, 1984). This paper however raises the issue of whether such a narrow formulation is advisable.

Turning to the links with corporate strategy, the use of positioning models of strategy in particular tend to be externally-focussed (Miller, 1989): these are therefore less able to evaluate the importance of internal factors. Much of the literature cited earlier seems to rely on this approach to assess the impact of HR. Johnson and Scholes (1997, p. 24, Figures 1.4) posit only three concepts: Strategic Analysis, Strategic Choice and Strategic Implementation, which are taken further (Johnson and Scholes, 1997, p. 139, Figure 4) in a linear, step-by-step or causative model, yet there is evidence of the problems within the positioning approach where managers are using models from other industries as a starting-point (Ritson, 1997) and this gives credence to the idea of the importing of "recipes" noted by Grinyer and Spender (1979, 1989) whose serendipity does not readily fit the forced rationality of the positioning analysis. The evidence to support this contention lies within the major texts which do not consider HR factors to any degree (e.g. Mercer, 1992; Asch and Bowman, 1992; Johnson and Scholes, 1997; Porter, 1985).

At various points this paper provides more evidence of the importance of an internal approach to the analysis and evaluation of strategy. The concern with costs, labour and a unit-based level strategic analysis based on efficiency and effective product delivery lends itself more to an analysis from a resource-based perspective (Marsden, 1998). Yet if manufacturing is a core activity, efficiency savings though people in the reduction of production "outages" or losses of product are of vital importance. Effectiveness in manufacturing firms, independent of industry sector, depends on internal efficiencies, as Ackroyd and Procter (1998a) confirm. They suggest that UK manufacturing does not need highly-skilled functionally flexible labour within what they term the HSF (the high-surveillance firm) which adopts Japanese methods of control. Warr-Co and Hutchings are not HSFs, yet they too are looking more to "motivational flexibility", adaptability and team work than an attempt at fully-fledged functional flexibility, which Ackroyd and Procter limit to KIFs (knowledge-intensive firms) which are typically hi-tech.

Even though the resource-based theory of the firm seems better to fit these cases, again little space is specifically devoted to HRM or employee relations within it. Grant (1997, pp. 114, 116-7, 166-7, 377, 378, 409) provides only eight pages out of 443 in mentioning human assets, which he describes as "intangible", and subdivides into "training and expertise" (competence also

appears on p. 117), "adaptability" and "commitment and loyalty" (Grant, 1997, p. 114 Table 5.1). They are not derived from empirical data, suggesting scope for future HR research, as Grant (1997 p. 118) notes that they represent "the productive services" of the firm, and its competitive advantage must have them interact and collaborate with other resources to produce the "organisational capability" of that firm. More work is needed to show how: he fails to take the logical next step and suggest a more dynamic model of strategy. The resource-based approach still requires a linear step by step approach as first detailed by Grant (1991). Even recent HR texts do not take this route: Mabey *et al.* (1998) do not refer to the link with the resource based approach except to mention Prahalad and Hamel and then to discuss competency.

This research suggests a far more interactive approach to strategy than either the positioning school used by earlier writers on HRM, or the more recent resource-based approach. Perhaps this problem is due to the separation, *ad hoc*, of HR within both schools as a set of functional strategies, where HRM is still thought of as comprising a "fit" between key personnel systems such as selection, appraisal, rewards and development (Mabey *et al.*, 1998, p. 61) which ignores the general non-functional and strategic nature of labour costs and the allocation of employees as productive resources. There have been attempts to categorise strategy and relate specific, functional HR strategies to each type of management strategy (Schuler and Jackson, 1987; Storey and Sisson, 1993). This rather compounds a set of two errors based on what Ryle (1953) termed a category mistake: the untested suggestion that HR issues can and should be separated from other resources available to the firm.

This paper presents strong evidence that HR strategies can be integral to corporate strategy and not stand-alone aspects owned by the personnel department or its members. As such the role of the HR department was not mentioned by interviewees. This may be surprising to some who have expressed a desire for personnel departments to be seen as strategic (Purcell, 1985, 1994), but not perhaps to other more pragmatic authors (Ackroyd and Procter, 1998a). Quite explicitly, the need for industrial relations groundwork is clearly demonstrated. Yet this has happened at a time when there is much discussion of the loss of trade unions' power and influence (Smith and Morton, 1993) especially in this industry (Kelly, 1996; Tuckman, 1998). This debate however tends to confuse "trade unions" with the broader definition of "employee relations" which should be the relationship of the employer with all of its human resources – including staff on contracts of service rather than contracts of employment. Thus, though the role of the unions has been marginalised, that of employees, and contractors' employees, has proved pivotal.

The test of the hypothesis that HR was strategic only if related to cost-cutting must be rejected. In assessing whether this is specific to the industry, support for a wider interpretation and the generalisability of the dynamic approach to HR within strategy, comes from authors such as Ackroyd and Procter (1998a, b). While the cases provide evidence of increasing employer power to enact significant change from employees and their organisations, they do not indicate a

“commodity” or cost-based approach to HR. Though the outsourcing of tasks may save money in the short-term, such savings are trivial in terms of contribution to overall costs as Malloch (1991) observed. The concentration on core tasks, those most critical to the business, has been the internal mechanism by which the firms have adapted to changes in the external environment, and this is typical of manufacturing generally (Ingersoll Engineers, 1990, 1994).

The process is generic and not specific to the oil and chemical industry in the UK, and many firms have created strategic management time and the ability to introduce and pilot changes. Outsourcing itself has been held to be strategic rather than (or even) cost-effective (Cross, 1995). Because of industry-wide restructuring, most of the companies have leant towards more subcontracting (Cross, 1990; Cibin and Grant, 1996). Increased numerical flexibility by this means has necessitated further changes in ways of working: the essential HR task.

Conclusions

HR issues of flexibility and competence are critical to the evaluation of first-order strategies, of which some parts may be “deliberate” or have “strategic intent” while other aspects must remain “emergent” (Mintzberg and Walters, 1985). Much as a critical path analysis links a project series, so HR strategy informs and even precedes analysis of corporate goals. Some of the subsequent outcomes, such as the marketing of maintenance services, better safety, better morale, the assistance with human resource planning of contractors, could not have been anticipated at the outset and so the strategy is emergent. However, even then the analysis of “emergence” does not go far enough. A more detailed view of strategic choice in industrial relations was expressed by Kochan *et al.* (1984) but the notion of a single, one-off, strategic choice decision also lacks the dynamism of strategic formulation in real time. It would seem from the evidence presented in this paper that strategy depends on a dynamic and changing interaction between levels and functions, that it can be heuristic trial-and-error, and that HR factors may be changed in order simply to allow for a reappraisal of the strategic choices open to business. This conception is opposed to the idea that they must, in a functional manner, operate directly in a linear pattern as a part of the “fit” to a certain predetermined corporate strategy in order to be considered “strategic”. The evidence presented in other cases in the literature of supposed cost-led flexibility may not hold up to more detailed scrutiny.

The strategic approach of firms is more accurately described as “crafting” strategy (Mintzberg, 1987) and formulation occurs where different strategies link together in a web or network. This is particularly true when the routines of the past have recently been disturbed and actual events cannot be neatly described under approaches with neat boxes and double-headed arrows. Rather, the paper then essentially argues that HR is at least a necessary precondition for action, and that in some cases unfavourable environments will be a sufficient reason for a change of strategy. Built into strategic management thinking is a need to get the preconditions right, to do the groundwork, and this is where employee relations remains vitally important. This seemed a very

clear first-order objective, because affiliates of any Multi-National Enterprise in the UK must compete with other affiliates in different global regions. Industrial relations strategy (a "strike-free" Britain) was even the main plank of the manifesto by which the first Thatcher government came to power in the UK in 1979, and the success of Japanese transplants with their single-union deals became a focus for much research. This again cannot be regarded, especially at a national level, as a "second-order" affair. These cases thus have strong implications for how strategy is theorised about and where causation lies.

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**CLOSE-COUPLED DISASTERS HOW OIL MAJORS ARE DE-INTEGRATING
AND THEN MANAGING CONTRACTORS'**

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ABSTRACT

This paper concerns the effects of the search for dynamic efficiency via 'flexibilisation' by major oil and chemical firms under corporate strategy constraints, specifically in the area of the subcontracting of plant maintenance, a high-risk, high-value activity in process manufacture. The study aimed to discover the effects of increased subcontracting of maintenance services on the viability of integrated manufacturing within the corporate strategy of the major oil and chemical companies. Data comprised interviews with maintenance managers in ten major oil refineries, five chemical plants, three maintenance contractors and with officials of three trade unions. It revealed a variety of weak governance structures to control contractors: such as employer panels, lead-contractor hierarchies, alliances and integrated teamworking, and processural structures such as labour contracts (site or national agreements), performance-related, fixed-price, fixed-term and contracts. The paper argues that strategic outsourcing has not been a success, and the data provides no direct evidence of the extensive use of competitive market forces in controlling contractor quality, price or delivery.

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Introduction

It is important to study the links between refineries and chemical plants and their maintenance contractors because this can illustrate how corporate strategies of multinational enterprises can adversely affect the operating of their affiliates. To produce dynamic efficiency gains resulting in increased profitability this means actually controlling overall activities by investment and manpower decisions which has the effect of creating flexible firms in the Atkinson (1985) sense. Penrose (1959) suggested that all administrative activities of a firm should be conceptualised as part of that firm, that is, a 'firm as

administrative system', but extensive use of subcontracting may make the market may require a different analysis such as Williamson's (1981) transaction cost approach.

The risks which Williamson says are minimised by internalisation may not be simply avoided however. Perrow (1984: 84-88) assesses the nature of many manufacturing situations as both complex and close-coupled systems. Particularly where the transformation is greatest, in changing the inner form of materials rather than assembly work, the system, he argues, is more complex, and suggests that key roles in each do not often complement each other at a recognisable boundary. He notes the lack of interchangeability in a closely-coupled system between jobs, between systems and between materials. One could argue from this that oil and chemical production involves quite obvious transformations, and that the plants are very closely-coupled, and so one failure inevitably leads to another along the process. This may at first appear a linear process but Perrow shows that linear systems have spatial segregation, easy substitutions, single purpose controls, direct information and extensive understanding. Also this depends on governance of the systems (Reason et al 1995). Complex systems have proximity between production processes, feedback loops, multiple and interacting controls, indirect information and limited understanding. Perrow's description of the Three Mile Island accident in 1979 forecast another more serious one (Chernobyl) and raised doubts about the ability of operator in complex systems to see the whole picture; rather, accidents tended to be 'system accidents' or as the term was changed, 'normal accidents'.

Where the oil and chemicals production process comes into contact with a loosely-coupled system is in maintenance and especially in maintenance carried out by contractors. This is because the relevant managers, employees and managerial systems are not readily suited to connect with production work of a highly-coupled nature. For example, maintenance often has to be done in a limited time-period of a few weeks, at heights, often in foul weather (winter stocks and demand is lower, limiting downtime losses) and part of the time in the dark, while the employees are engaged on ten-hour-seven-day-shiftwork, rather than their normal daywork Monday to Friday routine. In refineries and chemical plants planned off-stream projects are called 'major events', 'turnarounds', 'shutdowns' 'turnarounds and inspections' or 'overhauls' depending on the company. Cross (1989) reports one plant where 'maintenance failures' in a single year cost £6.7 million, or 29 per cent of the total cost of non-conformance. This relates to issue of 'designism' (see Royal Society 1992, and Hood and Jones 1996)

Despite the Cullen Report into Piper Alpha which identified gaps in knowledge and procedures by two sets of (contract) workers, (Wolfson, Foster and Beck 1996) and the long history of failure in the engineering construction industry (NEDO 1970), the companies concerned are all attempting more outsourcing of maintenance work in their 'downstream' operations.. This is despite the fact that in process manufacture, quality can be literally invisible

The companies concerned are some of the biggest, indeed some are the biggest, in the world in terms of income and/or assets, (Mobil's annual sales turnover for example was bigger than Norway's annual GDP, according to Morgan, 1986)

The external environment of the oil and chemical processors is becoming highly competitive as they are in a wholesale, commodity market where margins are made by continuous processing, and which is showing both signs of shifting priorities and of lower volumes while simultaneously safety, health and environmental issues are enforcing other changes (Yergin 1991). The capital employed in the vertical integration of these companies is similarly high, and with few exceptions all of the major companies compete head-to-head with each other and many of 'the independents' in nearly all of the markets which oil

and chemical products have created. The marketing and corporate strategy changes have been described by Cibin and Grant (1996) and by Michael Cross (Cross M., 1990) who presented data on maintenance outsourcing across a large number (238) of UK manufacturing sites, of which 12 sites were chemical and allied products and 4 sites coal and

petroleum products. He concluded that strategic governance was absent, contrasting with the careful analysis and strategy employed by BP internationally (Cross J., 1995)

The largest fixed but yet controllable cost in process manufacture is maintenance - on a typical site, sales would be £300 million, operating costs would approximate £80 million and a further £20 million would be due to maintenance activity. Flanders (1966) noted this aspect of Esso's operation at Fawley through the use of productivity bargaining. Although the costs were low in absolute terms, they were controllable by management and represented a kind of additional 'semiotic' or socio-psychological meaning, affecting subsequent managerial promotions (Ahlstrand 1990). This could also be a major source of risk since if managerial promotions are reliant on management maintenance cost this will introduce enormous negative bias into decision-making (Brazerman 1994) and might be prone to a danger of 'escalation' to a poor course of action. The other major costs of energy and crude oil supply are not amenable to reduction, and having over decades addressed the *internal* maintenance issues, the refineries and chemical plants researched by Cross were attempting cost-reduction through increased *contractor* usage.

While the use of contractors was increasing, the risks were still apparent: not only for 'conditional' or 'remedial' maintenance, but the 'planned maintenance' of production units called shutdowns or 'turnarounds'. These are critical to a plant's viability, as Cross M (1990) reports:- that a typical plant loses \$50-60,000 per hour [at 1998 prices] in profit if shut down. In both 1986 and 1987 two oil refineries wrote-off their "profits" (failed to satisfy their manufacturing margins) for the year as a direct result of poor planned maintenance performance (Whiston, 1988).

Theoretical Considerations

Williamson's (1981) 'new institutional economics' or 'transaction cost economics, TCE, is an extension of agency Theory (Alchian and Demsetz, 1992) which provides a theoretical framework for the institutional, micro-economic forces shaping individual firms' behaviour. It relies on a combination of economics and psychology to explain organisational structures. This is clearly relevant in the 1990s with more flexible labour markets. TCE is a contractual approach to the study of economic organisation, which regards firms as *governance structures* in opposition to control via the price mechanism in the market. An internal hierarchy, governance structure or firm, reduces risks. This is because internal contractual interfaces which are internalised via a governance structure, such as a firm, operate more effectively than interfaces between market partners or subcontractors because hierarchy has authority, enshrined in common law as the 'duty of obedience' whereas the civil law appertaining to contractors cannot provide for 'specific performance', though if nearly all of one's supply or income comes from one source - i.e. in small numbers exchange - then this is not feasible.

To use contractors for maintenance will save costs in the short-term because contractors pay less employees than oil majors do, and they are not present all of the time thus seasonality can be built in to cost savings, making labour more of a variable than a fixed cost. While it saves costs, it is also possible to outsource the blame when things go wrong, and despite questionable quality, and knowledge passing out of the firm, it is an attractive solution for managers. Whereas before it was a function of the internal management team to take responsibility if a turnaround was late, if it is outsourced on a 'turnkey' basis then the contractor can be blamed. Indeed, Bower (1996) suggested one reason why oil majors

operating in the UK Continental Shelf wanted their contractors to acquire others and become bigger was to enable them to be sued for millions rather than thousands in the event of a disaster. Grant (personal communication, 1997) suggests that some outsourcing is strategic, allowing for world-class performance along the entire value-chain, by using whatever agency, internal or external, can do the best job (the best value-for-money).

According to Phillips, (1988) uncertainty can be market-based or event-based. Market-based uncertainty arises as a consequence of dealing with other agents (for example, other contractors and subcontractors) who may not perform as they 'promise', contracts being a 'promise' under neoclassical economics. Whereas, uncertainty which is event-based results from any instability inherent in a particular industry. Operations in petrochemical plant maintenance contracting are risky as it essential that the work is completed effectively and on time. A subcontractor, or a trade union, or group of workers, who controls an asset-specific input such as a particular welding technique could conceivably hold up the overall contractual delivery, because more specific assets require greater amounts of monitoring as they entail greater degrees of dependency. In these situations it is clearly preferable to internalise the acquisition of such services. However, infrequent use of the asset means that this is often not feasible for clients; the result is 'ownership' of the asset by the contractor. As this tends towards small-numbers or bilateral exchange, opportunism may result. Neoclassical economics relies on large numbers of exchange transactions in the market; TCE recognises that sometimes the small contractor has power over the large multinational client due to 'asset-specificity'.

Governance: co-operation and hierarchy

The types of contract vary between the types of maintenance and repair operations required by the Client. Most important is Planned Maintenance or 'turnarounds' which require the shutting down of production units and loss of product, carried out by major contractors together with smaller Remedial maintenance contractors and client employees from maintenance and production. Some of the turnarounds are so large as to require co-operation of different clients, so that labour and product shortages in the UK are not a limiting factor on the speed and efficiency of the turnaround. For example, in 1996 the South East Clients Group negotiated the back-to-back turnaround of two Fluid Catalytic Crackers (FCCs) in refineries as far apart as Essex and Hampshire. Some refineries are so constructed (single-train plants with only one Crude distillation unit) as to necessitate the shutdown of the entire set of units and their turnaround over an extended period of six to eight weeks.

In engineering construction, the National agreement formed the basis of *local Site Agreements* or of *in-company agreements*. These have often incorporated a local Employers' Panel of contractors, to negotiate with a local Trade Union Committee as a partner to the agreement. The Panel was usually very closely linked to the client, sharing office accommodation, secretarial duties, and frequent informal communications and so derives some of the benefits of internalisation (defined as removing the management and some associated costs and risks from the market) which would normally accrue only to the Client. In some cases this quasi-integration is termed by the managers as an 'alliance' or 'partnership' of client and contractors, but these terms are held for different situations than Employer Panels. An employers panel is a peer-group structure similar to a partnership of professionals but without any pecuniary rents. These are not intended to negotiate with the client, (as they are formed post-hoc, unlike the bidding consortia in construction projects), but with the trade unions and each other to monitor the performance of the work on site. They are thus ex-post costs of contracting.

The Study Results

In two firms where there had always existed external sourcing of maintenance, and in one firm where there had been no maintenance trade unions, there was no governance structure for contractors whatever. There were no employers' panels, but a meeting was held *chaired by the client*, occasionally, to discuss work in progress. There was no site agreement but an

imposed client rate of pay, based on NAECI, and any trade union arrangements were handled within the contractor firms without reference to the clients. Although one of these firms had previously engaged a single site service contractor, an SSC, because all of the SSC employees had gone on strike at once, and the refinery had had to shut down entirely, the current method was to use large-numbers exchange to obviate opportunism of this sort. However, the other firm in a similar position had at the time of interview reverted to an SSC arrangement. Key informants suggest that it considered a Supplementary Agreement to the NAECI in order to regulate its contractors in future. This suggests strongly that trade union agreements can assist in regulating contracts (not just contracts employment) and stabilising the contractors site, rather than just being about establishing wage rates. The fact that the non-union site which had internal maintenance workers and yet did not have an agreement seems to suggest that the agreement was a way of separating out the competing claims of two groups of employees - i.e. a rhetorical device, rather than having a simply substantive role

There is more use of the market now in firms where there was previously extensive vertical integration. All of these have reduced their internal maintenance workforces on average by half or more, retaining asset-specific skills such as instrument mechanics and electricians and out-sourcing construction trades such as scaffolders. In these firms, there were employers panels of some note, sometimes called Councils or Contractors Associations, but since the oil refinery clients had recently derecognised their internal crafts trade unions - with one exception - there seemed less to discuss. Simultaneously the clients had reduced the numbers of contractors significantly - from hundreds down to tens or less - in most cases, so the panels became smaller, and because the contractors were on site more often - almost continually - the issues were able to be dealt with on an informal basis.

To replace the panels, two related firms had specifically moved towards Alliances; two other refineries and one related chemical plant had moved to an integrated teams approach, a quasi-alliance controlled by the client rather than jointly. Several had moved even further, towards Partnership, in appointing SSCs. The plants where contracting-out of maintenance had been *in situ* for many years posted no changes to structures. These comprise two sites where there was no internal maintenance, one where there were no trade unions recognised, and a fourth site which recognised trade unions but had not changed its policy in recent times, though increased performance was of concern and ongoing changes to contracts the norm.

Where there had been a change *from hierarchy to market*, however, a number of new contractual arrangements, structures and organisational changes externally and internally had occurred, but these were shown to be inadequate to counter opportunism. Two Fluid Catalytic Cracker turnarounds (in February/March 1966), and one full refinery shutdown involving several turnarounds on different units in 1997 were subjected to strikes of subcontractor workforces, and in two cases, the shutdown had to be extended. One refinery came back on stream for gasoline production four weeks late, at a cost of hundreds of millions of pounds, the other refinery was three weeks late getting all of its production on stream, incurring a far larger cost

However, another plant completed its FCC turnaround sixteen days ahead of schedule, due in part to an 'alliancing' arrangement, which extended the organisational structure more towards the 'incorporation' end of the spectrum. Hence, the essential difference between panel-based or 'allianced' contracting and simple prime and subcontracting is in the degree of commitment and incorporation which the various partners undertake. This is designed to economise on transaction costs by the sharing of competitive proprietary information and ideas, which reduce the bounded rationality. Similarly, by way of creating a commonality of goals, it will help to confine opportunism on the part of subcontractors. By concentrating

responsibility and sharing ideas the involvement of the contractors managers and employees is a significant feature in ensuring the earnings expectations of the employees are managed by the contractors and the client.

These findings suggest transaction cost theory, whilst espousing efficiency, whereas risk is the real issue

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Derecognising Unions and Centralising Bargaining: analysing dualism in the oil and chemicals industries

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ABSTRACT There has been a recent rise in employers derecognising unions. The oil and chemical industries have been identified as critical for the analysis and practice of derecognition. This paper presents data showing that major oil and chemical firms have, on the one hand, derecognised unions for key internal staff, but on the other hand, have enforced a centralised bargaining framework for their on-site contractors engaged in the out-sourced repair, maintenance and construction work. This centralised bargaining framework has strengthened the institutional position of trade unions. The paper analyses the key factors which have pushed the same employers to act in very different ways for the two sets of workers. It finds little evidence to support arguments that a strong anti-union culture in the industries underlay employers' actions. Rather the evidence suggests that management have acted pragmatically in response to pressing short-term economic pressures. The different approaches to unions for the two sets of workers have been guided by the different economic objectives facing employers and by the different historical position of unions in helping or hindering to secure those objectives. The conclusion considers the implications of these findings for the future of derecognition in the UK.

The last two decades have seen the birth of a trend of union derecognition by employers in the UK. This has contributed to what Towers (1997) has called the 'representation gap' – the phenomenon in UK industrial relations where workers are increasingly left without an adequate independent collective voice mechanism. Studies suggest that while union derecognition has remained limited in its incidence and scope, there appears to be little doubt that it has become more widespread since the mid-1980s. Claydon (1989) was the first to note the rise of derecognition. His research suggested that derecognition was of relatively peripheral importance. Smith and Morton's (1990) study of the newspaper industry suggested the possibility that derecognition might be of more widespread importance but concluded that the newspaper industry was likely to be the exception rather than the rule for the UK

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economy. Since then, however, a number of other studies by (e.g. Gregg and Yates 1991; Millward 1994; Claydon 1996) have produced data to suggest that derecognition may be becoming an important current of contemporary industrial relations.

While there is a broad consensus on the extent of derecognition, interpretations of derecognition and analyses of its future have become key issues of debate. On the one hand the rise of derecognition and the fall in union density may suggest that the UK could be following the trajectory of USA industrial relations, albeit with a twenty to thirty year time lag. The argument here is that employers pursue derecognition because unions limit employers' discretion in determining the terms of the employment relationship. There is a central role here for management ideology and frames of reference (Fox 1974). Under a unitarist frame of reference, union interference in the employment relationship becomes something to be resisted, regardless of the effects of unions on economic objectives. Kochan *et al.* (1986: 56) argue that for the USA strong anti-union values of management were a decisive factor in the growth of non-union industrial relations.

For the UK, Kelly argues that the evidence on derecognition suggests employer antagonism to trade unions *per se*: 'what employers object to is not a particular form of trade unionism but the very fact of its existence' (1996:89). Indeed, a number of individual case studies (Bacon 1999; Malloch 1992) suggest an important role for anti-union values. Woolfson *et al.* (1996) also relate the anti-union policies of multinational corporations (MNCs) in the North Sea to the macho, anti-union philosophy of management personnel, many of whom came from the USA (1996: 47). Higgs (House of Commons 1994), a national officer for the TGWU, also suggests that the union derecognition by oil and chemical MNCs is related to an imported anti-union culture and a conspiracy in the industries. Proponents of this interpretation of derecognition can also point to the potential future impact of the growing managerial unitarism in the UK flowing from the rise in the (unitarist) rhetoric of human resource management.

An alternative interpretation of derecognition is to see it as the latest example of the well-documented pragmatism of UK employers (Purcell and Sisson 1983). Within reactive, pragmatic derecognition (Claydon 1996) employers are likely to be motivated less by a strong unitarist ideology and more by a perception that unions are standing in the way of important short term economic objectives. The increased power of employers gives them the opportunity to act on this perception. Within this interpretation, there is a possibility that the limited derecognition that has taken place may have been highly context-specific to the conditions of the 1980s and 1990s, and so may wane over time. Thus Smith and Morton (1990) highlight the key contextual factors that must be met before employers can confidently embark on campaigns of derecognition. They suggest that these contextual factors are unlikely to be commonplace in UK industry. Further, within this interpretation it is not assumed that managers will universally perceive unions as barriers to improved economic

performance. Rather where unions are seen as having a neutral effect on, or even supporting, employers' economic objectives then the institutional position of unions will not be challenged.

From the above, at one end of a continuum there is a unitarist-driven, purposive derecognition, and at the other end is a pragmatist derecognition driven by perceptions of unions as short-term barriers to better economic performance. However, it may also be that these motivations behind derecognition could be intertwined in practice. For instance, it may be that a growing prevalence of implicit unitarist assumptions among managers may in turn increase the likelihood that these same managers could *see* unions as barriers to better economic performance. Similarly, perceptions of unions as barriers to improved performance could underlay a growth in unitarism. For instance, in the USA it has been noted that a growth in the overt anti-union stance of many corporations coincided with the period when the union/non-union wage differential was at its historical high-point (Kochan *et al.* 1986: 70).

Beyond the individual case studies discussed above, the evidence on why employers have derecognised unions in the UK is scarce. Gall and McKay (1994) have provided a breakdown of 'known reasons for derecognition' in 154 cases from union sources and the industrial press. Important listed reasons include 'low levels of union membership', 'moves to performance related pay', 'moves to single union/fewer unions', and 'part of a wider dispute on pay, jobs and conditions'. Unfortunately, it is hard to interpret these reasons in terms of the rival interpretative analyses of derecognition drawn out above. Some clear support for the pragmatist interpretation, however, comes from Gall and McKay's statement that 'in a number of cases derecognition was threatened in response to what the employers saw as "union intransigence"' (p. 441). However, in general the evidence is relatively weak, because as Gall and McKay admit, 'the employers have been quite reluctant to speak openly about their reasons for derecognition' (p. 441).

In part to address this gap in the literature, this paper provides an analysis of a major restructuring of the status and role of unions within an important area of the economy – the oil and chemical industries. The industries are dominated by a small number of very large MNCs which act on a global scale. The industries often have been seen as emblematic of wider developments in UK industrial relations (Flanders 1964; Purcell and Sisson 1983; Nichols and Beynon 1977). In addition, Ahlstrand (1989), Kelly (1996), Claydon (1996), and Tuckman (1998) have all identified the oil and chemical industries as critical ones for the analysis of union derecognition.

This paper focuses on two employment groups in the oil and chemical industries whose job tasks overlap considerably and who occasionally work side-by-side. Both groups are involved in the planned and remedial maintenance of the oil and chemical plants. The first group, the internal craft workers, are directly employed by the MNCs. The second group, the external craft workers, are not directly employed by the MNCs. They are employees of mainly small, local contractor firms hired by

the MNCs. The MNC clients, however, centrally influence the nature of industrial relations of these workers. This point is elaborated below. These internal and external jobs typically include 'support' trades such as scaffolders, riggers, steel erectors, crane drivers, ladders, painters and joiners. They also include the 'black' trades of boiler-making, welding, fabrication and pipefitting, and the 'light' trades of calibration, rectification and repair of on-line instrumentation, and electrical and electronic equipment. Most external contractor staff are employed by single-skill contractors who use support trades from other specialist contractors.

The following section of the paper details the research methods. The findings of widespread derecognition of unions for internal craft workers, and of widespread centralisation of bargaining for the contracted-out craft workers are presented in the third section. The fourth section provides an analysis of this dualism. The paper concludes by considering the implications of our analysis for the future of derecognition.

Research Methods

The research sample consisted of fifteen of the twenty plants belonging to the major oil and chemical companies in the UK. Given that research access was secured through a guarantee of confidentiality, the identity of the firms and plants cannot be revealed in this paper. Therefore, the identities of firms are hidden by a code. An upper case letter refers to the corporation, and the second, lower case, letter refers to differing plants owned by the same corporation. Ten oil refineries were included in the study, representing the major part of the oil industry. Only three refineries did not participate in the study. Five plants that were mainly associated parts of the oil majors represent the chemical industry.

At the research sites interviews took place with maintenance managers. Documents, such as the contractors' trade unions agreements, were examined as well as more general documents describing the technology, site production units and facilities. In two cases, maintenance contracts were examined and in one case, extensive notes were made from several years of files relating to maintenance workers' industrial relations. Interviews were also undertaken with trade union officials – national and local level officers of trade unions that had experienced derecognition. The unions which participated were the TGWU, GMB, MSF and AEEU (Construction, Engineering and Electrical Sections separately). Two visits were made to a trade group representing all three unions. Finally, the Director of the National Joint Council for the Engineering Construction Industry and managers of three maintenance contracting firms were also interviewed. In all cases, typed interview notes were returned to respondents as a check on validity. Any changes the respondents wished to make were incorporated into the final notes. In five cases out of forty, interviewees requested changes – minor in nature relating to small factual

issues such as dates, periods of time and monetary amounts. Once the research data had been accumulated, the data was coded to allow an overall picture to emerge of the nature of changes undertaken by management, and the reasons for these changes.

Findings on Derecognition and Centralisation

Before presenting the findings some elaboration on the division between an internal and an external repair and maintenance workforce is required. It should be noted that the internal/external division of this workforce is not a new one. Oil and chemical firms have traditionally maintained an internal workforce which is engaged in ongoing remedial maintenance work (Gallie 1978). At the same time they have also relied on the workforces of specialist contractors to undertake large planned repair and maintenance events. In the 1980s and 1990s the absolute size of both workforces has shrunk, while the external workforce has grown in proportion to that of the internal workforce. Typically, rigging, lagging, scaffolding, and crane-driving work have been out sourced. At Mobil Coryton this occurred as early as 1984 (Young 1986). The final major outsourcing was undertaken in 1994 by firm G where management transferred several hundred workers to a single-site services contractor. This shrinking of the core and increased use of outsourcing exactly mirrored the wider corporate restructuring by the MNCs in this period (Cibin and Grant 1996).

Derecognition of unions for internal craft workers

A large majority of the oil and chemical MNCs have derecognised unions for their internal craft maintenance workers. Ahlstrand (1990) has shown that in 1970 Esso Fawley managers were seeking a strategic shift in industrial relations towards a non-union basis. Central to this aim was the tactic of shifting occupational groupings into staff status gradually over time, beginning with store workers in 1974. Although this process was stalled for some years it was concluded in 1993 when the TGWU's bargaining rights on behalf of 700 process operators were withdrawn (Claydon 1996). Malloch (1992) has also detailed a long-term process of derecognition in action at Tioxide which began in 1980.

While Ahlstrand and Malloch provide illuminating glimpses into derecognition by two major firms over a longer time period, Claydon (1996) has focused on developments in the early 1990s in a wider number of oil and chemical firms. He provides evidence that 'step-by-step dismantling of collective bargaining has been carried out by management at Esso, BP, Shell, and Mobil, and at Tioxide UK, Scottish Agricultural Industries, and Pfizer' (1996: 163). Claydon's convincing picture of a wider process of derecognition relies primarily upon secondary sources although he also makes use of primary evidence from the late 1980s. We seek to build on Claydon's

Table 1
Status of unions with regard to internal craft
maintenance workers

Site	Union role in collective bargaining
A:a	Derecognised 1993
A:b	Derecognised 1992/93
B	Derecognised 1990
C	Non-union site since inception
D*	No union recognition since 1993
E	Non-union site since inception
F	Non-union site since inception
G	Craft unions nationally recognised
H:a	Derecognised 1991
H:b	Derecognised 1991
I:a	Derecognised 1993
I:b	Derecognised 1993
J	Derecognised 1993
K	Derecognised 1997
L	Craft unions nationally recognised

Note

* In 1993 redundancies left in employment only staff technicians, for whom there is no union recognition.

work by using contemporary primary evidence to create a more complete and up-to-date picture of derecognition in the oil and chemical industries. Table 1 portrays the cumulative picture by 1998 of the impact of derecognition for the MNCs' internal craft maintenance workers. The table gives data on the union role with regard to collective bargaining.

The 'new wave' of derecognition of the remaining internal craft trade unions began with plant B's 1990 mass derecognition. The strategy of derecognition was, according to documents and interviews, only enacted after the failure of local negotiations with the three craft unions. Plant B managers by-passed the local officials and directed their staff-status suggestions to the craft workers. These workers eventually took up the offer, to the dismay of their officials. Another refinery in the same area derecognised the craft workforce at a single stroke, simultaneously transferring them to a joint venture partner. The transfer of the craft workers to staff status automatically meant that there was no role for unions because by 1990 no refinery recognised unions for workers in staff grades. Only two of the plants had ever recognised unions for staff workers – at plant A:a the MSF had had recognition, and at plant B, the staff section of the TGWU had had recognition. In both cases derecognition of the staff unions had occurred a number of years before the transfer

of craft workers to staff status. In sum, the findings in Table 1 augment Claydon's evidence to show that by the mid-1990s unions' collective bargaining role had been all but swept away for internal craft workers.

Centralisation of bargaining in external repair and maintenance work

At the same time as many MNCs were derecognising unions for their internal craft workers, they were changing bargaining arrangements for the contracted-out repair and maintenance work. Where change occurred, the MNCs either moved towards centralised collective bargaining arrangements, or introduced single-union agreements. In no case did change lead to an attack on the collective bargaining role of trade unions *per se*.

The changes are detailed in Table 2. The first thing to note is the extent of change. In ten of the fifteen plants studied there was a major change in collective bargaining in the period. The second thing to note is the nature of change. Managers in over half of the plants had placed their contractor work under the jurisdiction of the National Agreement for the Engineering Construction Industry (NAECI). The NAECI is

Table 2
Collective bargaining arrangements for contractor work

Site	Collective bargaining arrangements 1991	Collective bargaining arrangements 1998
A:a	Site agreement	NAECI-SA*
A:b	Site agreement	Single union agreement
B	Site agreement	Single union agreement
C	Non-union site	Non-union site
D	Client-wide agreement	Client-wide agreement
E	Contractors' own agreements	Contractors' own agreements
F	Contractors' own agreements	Contractors' own agreements
G	Work undertaken internally, under union agreement	NAECI-SA (after contracting out)
H:a	Client-wide agreement	NAECI-SA
H:b	Client-wide agreement	NAECI-SA
I: a	NAECI	NAECI-SA**
I:b	Site agreement	NAECI-SA
J	Site agreement	NAECI-SA
K	NAECI	NAECI-SA
L	Site agreement	NAECI-SA

Notes

* NAECI-SA stands for National Agreement for the Engineering Construction Industry – Supplementary Agreement

** In 1993 at this site, a single union agreement was signed with the AEEU. The client moved to the NAECI-SA in March 1997.

negotiated by the National Joint Council for the Engineering Construction Industry which comprises multiple unions and employer associations. It is a form of centralised collective bargaining (Korczynski 1997). The Supplementary Agreement to the NAECI allows for narrow site-specific deviations within the overall structure of the national agreement. The site deviations must first of all be approved by a committee of the NJC, which plays an active role in the policing and enforcing of the agreement. Authority, thus, rests at the national level.

Within the NAECI there is a strong institutional position for the official unions. Not only are national union officials accorded a role in the NJC and its many committees, but there is also a legitimate role accorded to local officials and stewards to sit on site-based project joint councils. Further, the agreement has tended to militate against the use of labour-only sub-contractors. This is important for trade unionism because labour-only sub-contractors tend to be non-unionised (Ball 1988). As Korczynski (1997) has shown, the NAECI is much more than the sort of 'paper' procedural form of national agreement that used to characterise British industrial relations in the 1960s and 1970s. As such, adoption of the NAECI should be interpreted as strengthening the institutional position of trade unions.

The oil and chemical MNCs, as clients, played the decisive role in transforming these collective bargaining arrangements. Korczynski (1997) has shown that historically, these firms have been central in determining the collective bargaining arrangements for external construction and maintenance work of their plants. In the research, interviewees uniformly stated that the clients were the instigators of the changes detailed in Table 2. On sites, contractor firms come together in collective bargaining forums that rely on ratification by the client. Further, the contractor repair and maintenance industry is characterised by a large numbers of small contractors. The small and unorganised contractor firms have little option but to follow the dictates of the MNC clients in the determination of industrial relations arrangements.

Accounting for Dualism

Taken together, the findings constitute evidence of industrial relations policies in the oil and chemical industries pulling in apparently opposite directions. We would expect that if management's approach to the status of unions was guided by an anti-union culture then management should have derecognised and/or marginalised unions for both sets of workers. Given that this was not the case the evidence so far makes a *prima facie* case against interpreting management actions as primarily informed by an anti-union culture. To make a stronger case for this and to really understand the dualism of the MNCs, four further questions need to be addressed. First, why have the MNCs derecognised unions representing their internal workers? Second, why have they consolidated the institutional position of

unions organising workers in external maintenance work? Third, can the changes in industrial relations for the external work be interpreted as a staging post towards derecognition? Finally, why has there been such similarity in the approach of these MNCs?

Why derecognise unions for internal craft workers?

Here we find greater support for the idea that employers were primarily acting pragmatically in response to a perception that unions stood in the way of pressing economic objectives. The firms that led the way on derecognition were Esso at Fawley and firm B. Ahlstrand (1990) has shown how Fawley management's desire for derecognition followed the failure of productivity agreements to deliver what management wanted in the 1960s. Ahlstrand (p. 170) argues that 'Fawley managers came ... to believe that productivity improvements could really only be made in a union-free environment.' This supports the pragmatist thesis that management was motivated not by the presence of trade unions *per se*, but rather by their perceptions of the economic effects of trade unions.

Plant B is a vital case for the new wave of derecognition in the 1990s because it was the first to act to derecognise unions for their craft workers. Plant B managers derecognised unions because they saw them as barriers to important economic objectives. In both 1965 and 1984 management had sought to increase efficiency by concluding flexibility agreements with the craft trade unions. These agreements sought to eradicate demarcations, but both failed to deliver their aims. Young (1986) shows how the 1965 agreement was eroded over time through active shop steward defence of traditional trade areas, with the aid of management pragmatism in the context of a buoyant product market. Similarly, while the 1984 agreement promised on paper that 'craftsmen will undertake refinery maintenance work in a fully flexible manner without any demarcations and restrictions' (Young 1986: 377), practice turned out to be very different. Young's follow-up research (1992) showed that management at the end of the 1980s perceived that strong demarcations still existed. At the same time, product market pressure began to be more keenly felt.

At plant B, one manager said that pressure was being put on the UK's over-capacity refineries to make money, and that it had been noted that maintenance costs were very high in the UK compared with the Pacific Rim refineries. He stated that the Pacific Rim refineries could apparently achieve 20 per cent return on capital employed while UK affiliates struggled with 2–10 per cent. The pressures were such that at another plant a manager stated that it was imperative that management was seen to be attempting to take any kind of initiative, almost regardless of the content of that initiative. At plant B, management, having twice tried to increase efficiency by agreement with trade unions, and having twice failed, tried once again. Management called meetings with the officials of the craft unions and demanded that the flexibilities of the 1984 agreement be honoured. According to management

interviewees, the union officials were obstructive. Some of these officials had been former militant construction stewards and trust on both sides was low. Both management and union officials reported that at this meeting the officials had called the (German) refinery manager, a 'Nazi' and a 'Fascist'. After this meeting the manager decided that 'these people are not good for my business'. After two failed agreements and clear difficulties in moving towards a third, it was perhaps not surprising that management saw unions as barriers to pressing economic objectives.

Other plants followed a similar pattern to company H where a mid-1980s agreement on flexibility was concluded with the craft unions, and was perceived by management at the end of the decade to have been a failure. Unions were seen as key barriers to pressing economic objectives. At plant A:a, a manager stated that a key factor in this perception was the 'internecine squabbles' that took place between unions. These 'squabbles' had led him to think of unions on the site as 'antediluvian dinosaurs'. In addition, Tuckman (1998: 142) has noted that BP Hull management's desire to derecognise unions stemmed from their perception of unions as barriers to better performance: 'they [managers] saw one of the principal objectives ... as "freeing up individuals to make the maximum contribution"... for which the main constraint was trade union demarcation'. The cases where there was no derecognition were also consistent with the pragmatist thesis. At plants G and L management stated that sufficient flexibility had already been obtained in earlier agreements with the unions. Where unions were not perceived as barriers to immediate economic objectives they were not derecognised.

These points support the pragmatist thesis and, indeed, arguments of an anti-union culture driving derecognition are hard to sustain in the light of Young's description of Mobil's management as recently as the mid-1980s: 'the company fully accepted the legitimacy of the union role' (p. 364). Crucially, also, evidence from firm B that management in the early 1990s tried to work with trade unions to increase flexibility runs counter to the idea of a strong anti-union culture. Further, the chain reaction of other firms following firm B owed less to a latent anti-union culture than to a bandwagon process in which highly pressurised managers stumbled for initiatives which were informed by benchmarking and a lack of alternatives. This point is elaborated below. In addition, the decision to derecognise unions was taken by local refinery management and was not dictated to them by corporate management as part of a company-wide anti-union approach. Files inspected at plant B showed that while corporate headquarters were kept in touch regarding developments, there was no decisive intervention from the corporate level to determine the substantive outcome of local management deliberations. This is in line with Cibin and Grant's (1996) characterisation of the MNCs restructuring towards decentralised decision-making.

While the balance of the evidence lends greater support to the 'pragmatist' explanation of derecognition, this is not to deny any role for management and wider

societal values as an important background factor. Indeed, at one plant a manager pointed to the influence of the Conservative governments as an important legitimator of anti-union action. He noted that suddenly, 'Thatcher made it alright to take on the unions'. In this way pragmatism and a shift in values became intertwined in informing management actions. Further local management actions must be placed in the context of wider corporate HRM/cultural initiatives within the firms which can be seen as congruent with union marginalisation and derecognition. As Cibin and Grant (1996) note, a corollary of these MNCs decentralising was the growth of 'cultural change' programmes to provide the glue to maintain the wider corporation as a social as well as a financial unit. Such initiatives, while never explicitly anti-union, were consistently informed by unitarist language and metaphors, variously centring on the 'empowerment' of *individual* staff members, 'flexibility', 'entrepreneurship', 'teamwork', the firm as a 'family', and the shared commitment between workers and management to achieve standards of 'excellence' in meeting customer needs.

In addition some corporate-wide HRM initiatives progressively marginalised unions through the establishment of forms of consultation and participation which did not involve a role for the unions. While all local management in the plants had had exposure of some level to these corporate-level initiatives, only at firm H did respondents state that such initiatives had informed their actions regarding the role of unions. When we asked our line-manager respondents why their firm had acted as it had, we were struck by the way in which managers consistently stressed their individual plant's pressing economic objectives and the way in which they did not allude to the wider corporate HR initiatives. While such initiatives may have subtly affected the background assumptions, or 'lifeworlds' (Giorgi 1970), of these managers, the managers did not perceive them as having directly informed their actions. Indeed, there was evidence of considerable cynicism regarding such initiatives, with one manager at plant B stating that 'there is nothing to distinguish one programme of cuts from another', except the title given to them by the corporate headquarters. The exception was at firm H where the Chief Executive Officer had outlined a number of areas of the business to be examined by local management to see if barriers to efficiency could be removed. One area involved the topic of trade union agreements. It was discussions on this topic within this corporate-wide initiative which led to renegotiations of the craft agreements and finally to derecognition.

Our explanation of derecognition, taking a historical perspective, also intriguingly suggests that just as earlier flexibility agreements have failed, so it may be that the current flexibility arrangements may not deliver all that management are aiming for. This would echo other research into the relative deficiencies of UK management (Nichols 1986). Additionally, it should not necessarily be assumed that derecognition has wiped away all forms of shopfloor organisation. Clearly, further research is

needed on this question, but fragmentary evidence from one plant suggests that there is still a quasi-union presence on the shopfloor. At this plant, management still used the previous shop-steward organisation as an important tool for communication and consultation. Before a recent re-organisation of work, management consulted with the craft workers and in doing so used the ex-shop stewards as the representatives of the workforce (Ritson 1999a). Further, Higgs, national officer of the TGWU, has stated that his union has maintained, and in some areas, increased, membership levels (quoted in *The Independent* 15 April 98). Tuckman (1998) also notes that at a number of BP sites shop stewards have maintained a presence around newly constructed consultation procedures, and around health and safety. As is discussed in the conclusion, the recent legislation on union recognition may also inspire management to actively reconstitute union representation in fear of it being imposed on them via the legislation. Indeed at firm H, having derecognised unions, management has begun preliminary discussions on establishing a 'partnership' arrangement with the same unions.

Why consolidate the institutional position of unions in contracted-out work?

Our analysis suggests that the centralisation of bargaining for the external workers has also been driven by management pragmatically responding to immediately pressing economic objectives. Crucially, however, there are different economic considerations at stake for the external group than for the internal workforce, and there is a different history regarding the role of unions in securing efficiencies. For the external workforce, management has aimed to cut hold-ups caused by unofficial strikes in critical maintenance/construction phases. In pursuing this aim, management has sought to work with official union structures, knowing that in the past, during construction of plants, these official structures have minimised hold-ups.

The MNCs have begun to favour centralised bargaining because of a number of recent costly unofficial strikes. The strikes occurred at the critical time of unit 'turnaround' when a unit is shut down for a period. The lack of production in this period represents lost revenue that cannot be recouped by the firms because at other times plants are run at full capacity. Cross (1989) has estimated that the lost profit can amount to \$60–90,000 per hour of lost production. At three major plant turnarounds there have been unofficial strikes. Two of these strikes were very costly to the MNC clients. The minor strike involved 43 staff at plant B. Three thousand workers were involved in the strike at plant F that caused a stoppage of production in other units at the plant. The unofficial strike at plant J, though lasting only one week, delayed the start-up of the production unit by four weeks. One of the key potential and actual causes of disputes at the time of turnarounds has been leapfrog bargaining, in which a contractor workforce demands more money on the basis of comparison with

contractors either on the same site, or on another site. The potential for leapfrog bargaining is minimised through an effective national agreement such as the NAECI.

The NAECI has appeared doubly attractive to the MNC clients because it has a track record of helping to cut local unofficial leapfrog militancy. The NAECI originally was to cover the construction sites in the engineering construction industry which in the 1960s and 1970s had experienced very high levels of local unofficial militancy (NEDO 1970, 1976). The 1981 NAECI contributed to a dramatic fall-away in militancy in the industry (Korczyński 1997) and this has ensured continued employer support for the national framework. When, in 1993, the NJC for the industry specifically devised the Supplementary Agreement to cater for repair and maintenance work, a large number of the major MNC clients seized the opportunity to centralise bargaining for their external maintenance work.

For the external work, MNCs wanted to cut the threat of costly hold-ups and perceived that official union structures were a mechanism for delivering this. For the internal work, management perceived unions to be an obstruction to achieving increased flexibility. In these pragmatic terms there is little surprise that MNCs have acted so differently regarding the role of unions for the two sets of workers.

Is centralisation of bargaining a staging post to derecognition?

It may be argued that the contrasting approaches to unions is the product of a time-lag – that the change in industrial relations for the contractor workforces is but a staging post in a longer term strategy of seeking non-unionised status for the external work. Thus it is necessary to consider the evidence on whether the changes in the 1990s can be seen as a precursor of derecognition to come. Ostensibly, the staging post argument may be supported by the emergence of single-union agreements at two sites, because such agreements are congruent with an overall union exclusion approach (Smith and Morton 1993). It can also be argued that contracted-out work has been spared from derecognition purely for tactical reasons in that it is inadvisable for the MNCs to fight on two fronts at once. Indeed, notably, the MNCs have used the option of contracting-out as a key tool of coercion in dealing with their internal staff. At plant B, the refinery manager stated that the threat of using more contracted-out work gave them greater power over the internal craft workers. It is no great surprise that workers voted 'freely' for staff status and the derecognition of unions on many sites, not only when a pay increase was dependent on the vote, but also when the threat of contracting-out was so apparent.

Despite these points, overall our analysis suggests that, at present, the developments in the 1990s cannot be seen as a staging post to derecognition. First, the very factors that pushed the majority of MNCs towards a centralised bargaining system – the threat of unofficial action and the high costs of that – remain pressing issues. Second, from the interview and documentary research, it is clear that management have not acted with derecognition as the strategic goal. While it may be that in

interviews management would not seek to advertise derecognition as a strategic intention, the further documentary research and follow-up related interviews that were possible – at firm B – confirmed that there was no clearly formulated strategy aimed at ultimate derecognition. Documents which put forward the options for change presented a range of options – from NAECI, to single-union agreements, to partial derecognition, to complete derecognition. There was no suggestion in the documents or related interviews that derecognition should be the ultimate end goal. Eventually, the firm chose the option of a single-union agreement, having been persuaded by national officials of the AEEU of the benefits of the union's 'commitment to change', and its desire for 'prosperity for its members through embracing the future'.

Other factors which militate against the option of derecognition are the generally low level of trust between MNC clients and their contractors (Korczynski 1994, 1996, 1999), and the MNCs' perception of a lack of professionalism in contractor management (Ritson 1999b). Where there is less than full confidence in the abilities of management to implement policies, this will weigh heavily against pursuing derecognition. Significantly, at plant G the refinery manager expressed concern regarding the HRM capability of contractor management. Young (1986) similarly notes that management at Mobil perceived a lack of professionalism in the managers of contracting firms. He also points out that among many contractor managers there is a latent union sympathy in that many had served their time in craft trades in union membership. Further, given the high levels of casualisation in the contractor sector it is extremely difficult to see how derecognition could be presented as part of an increase in organisational citizenship, as it was for the MNC internal staff.

Finally, an analysis of the changes made to collective bargaining in the 1990s shows that the single-union agreements that were adopted were concluded in the early 1990s, while changes in the mid-1990s (once the NAECI-SA became available) have been towards the NAECI. Indeed, plant I: a adopted a single-union agreement in 1993, but switched to the NAECI-SA in 1997. In addition, changes were considered in 1997 at Plant F that continue to work under contractors' own agreements. The only option seriously considered was not derecognition but adoption of the NAECI-SA. This is especially noteworthy because plant F had never recognised unions for its internal workforce, and had actively sought to maintain this status, but had been close to enforcing a strong position for unions with regard to external work.

Analysing similarities in MNCs' approaches

The wave of derecognition that occurred between 1990 and 1993 was detailed above. In this period, nine plants derecognised unions for craft workers, leaving a situation where only two of the plants had union recognition. The paper also detailed how between 1991 and 1997 ten of the fifteen plants underwent a major

change in the collective bargaining arrangements of the external work, leaving a situation where only six of the plants did not come under the NAECI jurisdiction. Why has there been so much similarity in the approach of the MNCs?

A key factor to consider is that these oligopolistic firms act in a shared product market and hence are faced by the same pressures. Notwithstanding the opportunities for strategic choice, contingency theory (Donaldson 1985) would suggest that firms will tend to react in broadly similar ways when faced with similar environmental changes. Indeed, given that the MNCs have acted very similarly on a global corporate scale (Cibin and Grant 1996), we might expect them to follow this pattern with regard to industrial relations arrangements domestically. In addition, research has shown that these MNCs frequently undertake informal information-sharing. For instance, Rainbird (1991: 116) detailed managers from other plants being given informal information on developments at Shell Carrington. Ritson (1997) shows that in 1990 managers at one plant undertook a survey of industrial arrangements among contracted-out repair and maintenance work in the major UK oil and chemical plants. This survey gained a 100 per cent response rate and the findings were shared among participants. A number of the managers interviewed stated that they had on occasion contacted the managers of other firms in the industry to collect updated information on the latest industrial relations developments. Tuckman (1998) also notes that BP sites undertook benchmarking exercises in the early 1990s to compare their own forms of work organisation with other plants in and outside the industries. More formally, the MNCs are members of the Petroleum Employers Council which meets not for collective bargaining purposes, but for information-sharing. In addition, the MNCs are members of the Capital Projects Client Group, a relatively loose association of clients concerned with construction in which the primary purpose is information sharing. While there clearly has been significant information-sharing among the MNCs' managers, there is no clear evidence to support Higgs' assertion that the MNCs have bound together covertly and agreed to act in similar ways (Higgs in House of Commons 1994).

Finally and crucially, the similarity of MNC behaviour has arisen from the mimetic behaviour of managers (DiMaggio and Powell 1991) under pressure and driven by short term financial considerations (Ritson 1997). A manager at plant A:b stated that,

we were in trouble. The plant looked like it was going to close so we had to be seen to be doing something. Anything would have done but next door [i.e. a nearby plant] had derecognised the crafts and gone for a single-union deal for contractors' crafts ... It took them ages but we hadn't the time and did it all at one fell swoop We had to show we were in control of the plant or it would have shut.

In sum, the similarity of MNC approaches appears to be the outcome of a 'bandwagon' process (Labour Research Department 1992), rather than the product of a deliberate, conscious, co-operative strategy.

Conclusion

The paper has provided evidence that the oil and chemical MNCs have created a segmented repair and maintenance workforce – one internally employed, and one externally. For the internal staff they have derecognised unions, and for the external staff they have enforced centralised bargaining arrangements. Management actions have been informed primarily by pragmatic concerns relating to immediately pressing economic objectives rather than by entrenched anti-union values. That their policies have flown in different directions for the two groups relates, first, to the qualitatively different economic objectives facing management and, second, to the different historical record of the unions in aiding the achievement of the respective economic objectives. For external workers, management perceived that unions were capable of aiding their objectives, while for internal workers, management had come to see unions as barriers to economic objectives.

What implications does this analysis hold for the future of derecognition? We can say that if these industries are indicative of wider trends then derecognition in the UK appears not to parallel derecognition in the USA. In the USA a decisive factor underpinning derecognition and union avoidance has been the deeply held anti-union values of management. Our data showed little evidence of such values. Moreover, it can be argued that if UK management were to hold strong anti-union values then the USA-owned MNCs featured in this study would be the place to find them. Indeed, in the USA many oil and chemical MNCs were the pioneers of union avoidance and derecognition (Kochan *et al.* 1986). Their absence makes the case against interpreting derecognition as primarily value-driven all the stronger. However, this does not mean that we can assume that because derecognition is not a value-driven phenomenon then it will fade away. Our data supports the pragmatist interpretation of derecognition such that managers have derecognised unions when they perceived them as barriers to pressing economic objectives, and when they had the ability to act on this perception. To consider the likely future of derecognition, therefore, we need to consider both management perception of unions as barriers to better performance, and management ability to act on this perception.

On management perception, our analysis has some reassurance for unions. In our study, management, for the external work, actually perceived unions as helping economic objectives. For internal craftwork, it was the strong and persistent craft demarcations that led to the perception of unions as barriers to better performance. Such craft demarcations are far from an economy-wide phenomenon at the end of the 1990s. Indeed most research suggests that management's perception of unions as barriers to efficiency is generally the exception rather than the rule. This is true even in engineering and manufacturing establishments where the existence of multiple craft unions is not uncommon. For instance, Willey's Engineering Employers' Federation study of union recognition and representation in engineering showed

that many managers (about two thirds) thought unions helped rather than hindered with changing work rules (Willey, 1986: 36). Further, Dobson's (1997) study of the effects of multi-unionism in large manufacturing establishments showed that management generally did not perceive that multi-unionism harmed competitiveness.

On the issue of management's ability to act on their perceptions, current legislation would generally preclude derecognition as a management option where unions have over 50 per cent of the workers in membership (*Employment Relations Act 1999*). If this legislation had been in place in the early 1990s it is highly unlikely that management would have attempted derecognition because of the very high levels of union membership in the plants. A number of commentators have suggested that the legislation will curb derecognition in the UK for this very reason (Wood 1997). Indeed, the plants in our study are likely to be key arenas where unions will seek to use the new legislation to regain collective bargaining rights. As such, the industries will remain a key arena for examining the future of British industrial relations.

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15 The quest for productivity revisited, or just 'derecognition by the back door'?

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Abstract

While the oil and chemicals plants' productivity objectives are a distinct, well-documented feature in the various oil refinery studies, any mention of contractors is only in passing and without any coherent theme (Flanders, 1964; Oldfield 1966; Gallie, 1978; Young, 1986; Ahlstrand, 1990), the problems of management by the clients of the contracted work are seldom mentioned in the literature despite the prevalence of contracting out of maintenance in UK industry. This chapter uncovers the employee relations implications for contractors in the engineering construction industry engaged in the repair and maintenance operations of a large UK oil refinery.

This process of contracting-out was controlled by means of a change in the industrial relations arrangements. The contracting firms benefited from their client's strategy of increasing productivity through 'numerical flexibility', which culminated in the transfer of more work and of many of the client's maintenance workers to the contractor firms.

To increase managerial control of this work, a 'single union agreement' (SUA) was devised for the contractors' workforces, by which route the other unions were derecognised. This agreement was imported from other industries, re-written by the client management and then imposed on the contractors in an attempt to change the endemic culture on the refinery site. The National Agreement for Engineering Construction (NAECI) was considered and rejected, as it did not serve this purpose. The client refinery thus created a controversial industry 'first', which was copied by two other refiners, and which indirectly led to changes in the NAECI.

This change is analysed under the frameworks of transaction cost economics (TCE), and institutional theory, with its notions of 'isomorphism' or 'industry recipes'.

The critical discourse of efficiency, it will be argued, is based in the first instance on managerial ideology, followed by, where possible, measurable data. In its absence, under conditions of uncertainty and complexity, firms

seek to copy the strategies of others, creating 'isomorphism' or 'industry recipes'.

Implications for the wider construction industry are then discussed.

Keywords: engineering, contracting, efficiency and ideology.

15.1 Introduction

The chapter is organised under seven sections. First, the engineering construction industry is introduced and explained in relation to the broader construction industry. The low-productivity culture of contracting is then discussed. The next section addresses the shortcomings of the literature on the industry by reference to two major theoretical approaches: transaction cost economics and institutional theory. The following section combines the earlier discussions to discuss the nature of ideology and its role in creating isomorphism or recipes for productivity. The research study is then described, followed by discussion and analysis of the contribution of economic and institutional factors to its results. The chapter concludes with some general issues for construction.

15.2 The Engineering Construction Industry

The construction industry contains a wide spread of task and skills, and in its wider definition it incorporates the engineering construction industry sector (ECI). Work in this sector is based on the use and manipulation of metal, usually on the sites of large clients. The ECI is different from the wider construction industry in this important respect: it is based on narrow, capital-intensive industry markets, where specialist clients buy from specialist contractors. There is no wholesale or retail segment as there is in house building, for example. The ECI's clients are very large enterprises: owners of power stations, offshore platforms and rigs and, of particular importance for our discussion, oil and chemical installations.

The Engineering Construction Industry Training Board's sector development plan states:

The engineering construction industry has a big impact on the UK economy, directly contributing around 1.5 per cent of GDP. The importance goes beyond direct GDP contribution, because engineering construction underpins the UK production of crucial products such as oil, gas, chemicals and power generation. Around 50,000 people are employed in the industry in both site and offsite (design and procurement) work. The type of site work has changed in the last decade as fewer new build projects have been undertaken. Repair and maintenance work now makes up the majority of work in the sector.

(ECITB, 2005: 1)

The ECI itself is therefore split into two distinct spheres: construction of plant - 'new builds', clearly forming part of the construction sector - and the repair and maintenance (R&M) of existing plant. In R&M, the work relates to construction in two ways. First, and most importantly, the short-term nature of contracting work and its 'atmosphere' or culture is identical. Indeed, large maintenance projects - 'shutdowns' or 'turnarounds' - closely resemble construction projects. Secondly, the ECI firms involved in repair and maintenance also operate in wider construction activity. Hence this chapter has implications beyond its initial context, as will become apparent.

The industry originated in construction works undertaken by a number of separate firms from widely differing backgrounds. These firms had different employer associations, and each had its own set of relationships and its particular employee relations policies and agreements. Tasks involved relatively simple sheet steelwork (using the 'Outside Steelwork Erection Agreement', for example) and more complex projects involving boiler-making (using the 'Water Tube Agreement'). These and other agreements, though detailed in terms of 'works rules' (as Salamon, 2000 describes them), were not necessarily about efficiency. They were more about systematically separating out spheres of influence, predominantly not only between client and contractor workforces, but also between the different groups within the ECI firms, which were usually single trade (e.g. scaffolding, lagging, and welding). This separation related to a discourse about the various employer power-bases and their ability to get work and, given the insecurity of the contracting environment, this in turn gave rise to multi-unionism.

This diversity was problematic as it led to huge delays in the UK's major construction projects, particularly power stations. Accordingly, the government commissioned the National Economic Development Office to investigate and make recommendations. Its report 'Large Industrial Sites' was finally published in 1970 (NEDO, 1970). The separation of the firms' competences and single trade working was not highlighted; instead, the labour issues were considered significant.

The report suggested that 50 per cent of hours in the ECI were unproductive. Three quarters of the labour force was composed of a temporary, drifting mass, often paid 'on the lump'. By this means - popular with employees - income tax and National Insurance was not paid and employees often used aliases to avoid detection by the authorities (Austrin, 1980). Such arrangements contributed to a low-quality/low-pay culture which featured inter-craft 'demarcation disputes' and 'leapfrogging claims'. This latter occurred where unions on one site copied the negotiated agreement of another - and this then in turn was copied by others. The Report recommended a National Agreement (NAECI) and a National Joint Council (NJC) to oversee it. This Agreement was not finally signed-off until 1981, ten years later, when its importance was politically recognised: the Labour government actively pushed for its establishment (Korczynski, 1996).

According to Garfit (1989), with this new structure and its processes the ECI then became an entity. The NAECI, he suggested, initiated a new era and led to a more coherent industry. Negotiated by disparate and competing employers and

unions, the NAECI formed some kind of normative consensus, though very long and complex with 120 pages (National Joint Council, 1994). Williams (1989) the NJC chair at the time, wrote an article for *Personnel Management* magazine in which he described the subsequent increase in engineering construction industry productivity over the period 1980-89 as 'Construction's miracle'. However, the ECI's clients, who all had their own parochial site agreements, rejected the NAECI for Repair and Maintenance work. There is little in the literature concerning these agreements despite the fact that maintenance costs have a considerable indirect effect on overall costs: Whiston (1988) presented evidence that even minor maintenance failures, consolidated over the year, ensured that no profits for the year were declared by two plants.

There is a widespread use of contracting to lower costs in the UK generally (Atkinson, 1984), particularly in the oil and chemicals sector (Cross, 1989). Keenoy (1979) in his 'Lagger's Tale', describes how contracted-in employees in the repair and maintenance area are paid considerably less than client employees, creating conflict.

The general lack of capital investment in the UK has also featured in the literature (Blyton and Turnbull, 1998), and the use of contractors avoids extensive capital costs by their clients. This avoidance reinforces the strategy of using contractors, with their low labour costs. Cibin and Grant (1996) argue that in the oil and chemicals sector, over a considerable period of time, there had developed a focus on internal 'static' efficiency, which was in the process of being replaced by its 'dynamic' cousin. But there is a relative dearth of information in the literature on 'dynamic efficiency' - on the crucial link between contractors, craft industrial relations and maintenance on the one hand, and plant productivity on the other. Contracting and supply-chain issues are generally ignored, and vertical-integration is taken as a given (e.g. Sampson, 1975; Yergin, 1991). Yet the key issue in maintenance is not budget (unlike the wider construction activities in the ECI) but schedule. Plants are run at capacity and 'downtime' cannot be made up later through overtime.

Ahlstrand's intensive study (1990) demonstrated how at Esso's Fawley refinery, as early as 1975, 'static' efficiency needs resulted in a change to the structure of the internal craft workforce by the removal of craft demarcations through derecognition of the relevant unions. This strategy has extended across the client firms. Table 15.1 shows the results of more widespread craft derecognitions within the internal labour forces of the client firms in recent times.

Table 15.1 arguably shows the effect of the strategy of increasing 'static efficiency' by removing craft demarcations of the internal maintenance workforce through derecognitions. With a new concern for 'dynamic efficiency' the question is, how were the client's plants to increase the efficiency of contractors in R&M? The clients already used construction firms because they were cheaper than in-house provision, but these ECI firms were apparently only 50 per cent efficient according to NEDO. Was further action necessary? Were the craft unions to be derecognised as they had been in the client firms? What were the alternatives? Could the NAECI act as a coordinating device?

Table 15.1 Trade Union derecognition in major UK oil companies

BP Chemicals (Baglan Bay)	Craft and process operators,
BP Oil (Llandarcy)	Craft and process operators
Esso (Fawley)	Craft and process operators
Mobil (Coryton)	Craft and administrative
Mobil (Birkenhead)	Craft and administrative
Shell UK (Shellhaven)	Craft and process operators
Shell UK (Stanlow)	Craft and administrative

Source: Adapted from the House of Commons' Select Committee report 'The future of Trade Unions' evidence from the TGWU (House of Commons, 1994).

15.3 Contracting and its low-productivity culture

There is an employer discourse around the idea, if not the exact nature, of productivity and efficiency, which is often based (wrongly, according to Goldratt and Cox, 1993) on input (labour) and output ratios. This is a key concept in unravelling the culture of the work of contractors. The survey evidence of Cross (1989) showed increasing subcontracting and decreasing direct labour, caused by the economics of the 'production function' where, in the short run, only labour can be cut and where efficiency equates to productivity. Where this is set as 'output per employee', the internal loss of jobs does not have to mean loss of tasks or expertise, as these can be made up for by using contractors. Though such a crude, neo-classical idea of efficiency has been extensively criticised (e.g. by Marginson, 1993), it may still be a driving force for managements.

The ECI needed to address this problem, and it was a large one. It required a change in the culture of the construction industry as it affected the clients - from under-utilisation of labour to the short-term goals of the ECI firms themselves as well as their employees. This culture had resulted in the infamous inter-trade 'demarcation disputes' mentioned above. There was no NAECI in R&M, the predominant branch of the industry: no coordination mechanism except the local site agreements. Thus, the sites had none of the advantages ascribed to the ECI in construction of 'new build' projects. In contrast to Williams' assertion that the NAECI played an important role, Korczynski (1993) argued that only the emergence of the coordinating managing contractor solved the inherent weaknesses of the employment situation. Of course, it could be a joint achievement. Nevertheless, this culture of low pay, insecurity and low productivity had led to a situation where Lloyd (1990) in his *History of The EETPU* described the contracting culture or atmosphere as follows:

Like much of the rest of the construction industry, contracting was a rough tough young man's game, with more than its fair share of sharks and tearaways among both employers and workpeople. With the opening and closing

guile'. This happens because, with less redundancy and with smaller numbers of agents, the contractor and his employees now have more power (porter, 1985). Thus, any change to small-numbers exchange should be managed carefully within constraints - in the case of single-union deals, this has often been accompanied by a 'no-strike clause' (Beaumont, 1990).

Hence, TCE can provide a framework for analysis as it can encompass the process of management of contracts via industrial relations agreements.

15.6 Institutional theory and isomorphism

As an alternative to TCE, and given 'bounded rationality', an institutional theory framework might suggest (as did Grinyer and Spender (1979a, b, 1985) in their research into 'business recipes') that institutions might simply copy each other. Spender (1989) extended the idea of the business recipe (such as efficiency and productivity, as mentioned above) to a wider discussion of 'industry recipes'. These might result, for example, from adopting concepts such as 'world class manufacturing' or 'strategic management' resulting in the so-called 'benchmarking' surveys among a group of firms. This 'industry recipe' would need to be shown to have originated as a method of avoiding blame and uncertainty, according to the literature, and not by some back-to-basics analysis of the economics of contracting to ECI firms, as suggested under TCE.

This notion of recipes has been usefully analysed as 'isomorphism'. The latter word replaces the more mundane idea of a 'recipe' and derives from the Greek meaning 'similarity in unrelated forms' (Macdonald, 1977). Coined by DiMaggio and Powell (1983, 1991) within the framework of institutional theory, it extends the idea of recipes to identify three types of similarity based on causative factors - coercive, normative and mimetic isomorphism - which allude to the origin of the existing 'industry recipe'.

Coercive isomorphism is exercised formally or informally by other organisations or by society via rules, laws or sanctions, including the use of contract and power within buyer-supplier and other inter-institutional relationships.

Normative isomorphism is a process by which organisations adopt certain procedures, policies and structures advocated by professional bodies such as trade associations, universities or consultancies, and as such is more deeply hidden.

Mimetic isomorphism takes place at a cognitive level through the adoption of similar practices by organisations within the same field. These may be deliberate and objective - by use of benchmarking exercises, for example - or they may be intuitive and taken for granted. More often than not they need to be culturally supported norms of behaviour.

Table 15.1 showed an industry recipe of internal craft derecognition, but the evidence of causative factor(s) is not there: the similarity between the actions of the different firms may be a result of economic factors or of ideology. This is discussed below.

15.7 Ideology and recipes for productivity

Origins of ideology

Ideology can be defined as a set of inter-related belief systems which underpin behaviour. Salamon (2000) describes three paradigms which represent points of managerial and employee ideology within the employee relations cognate area: unitarism, pluralism and Marxism or conflict theory. Unitarism relates to the original paternalism of the capitalist employer, whether nurturing or not. Pluralism accounted for the rise to power of different interest groups where conflict was inevitable and reduced by a system of rules, such as those within Trade Union Agreements. Marxism or critical theory only accepts the idea of class conflict on a larger scale, and thereby rejects the conflict of pluralism within the rules established by capitalism. Pluralism is accused of dividing the general power of workers into separate interest groups (i.e. the trade unions).

It has been suggested that the current managerial ideology across most sectors in the UK should be seen as a move from pluralism back to unitarism. This move is heralded by the arrival of the idea of a 'new industrial relations' (Grant D, 1993, 1994, 1996) and of human resource management (HRM), a set of supposedly new policies and process (Keenoy, 1979; Guest, 1987, 1989; Legge, 1996; Storey, 1992). HRM has also been termed 'macho management' (Purcell, 1982; Mackay, 1986). Thus, ideology may underlie the attempt by firms to provide an 'appropriate' recipe – managements may only look in certain favourable directions when seeking corroboration of their position by other firms.

Whereas the client firms formerly recognised unions at a level of almost 100 per cent, and so had a pluralistic ideology, the derecognitions seen in Table 15.1 suggest a dramatic change to unitarism. However, as all of the firms are subject to similar environmental pressures, a degree of similarity is to be expected. As the change has been dramatic - set as it is against almost 100 per cent unionisation of manual workers in the petrochemicals industries (Kelly, 1998) - and recent, this change would point to an economic motive.

On the other hand, the clients are different from the UK industry norms. Many are American and have been through what Kochan *et al.* (1989) call 'the transformation of American industrial relations'. These authors point to the relocation of factories in non-union areas as part of a union-avoidance strategy. Mobil was singled out among such firms for its new, explicitly non-union Joliet refinery in Chicago. Furthermore, in the UK, Wolfson *et al.* (1996) demonstrate the resistance of all these major firms to collectivisation in their 'upstream' functions, perhaps also deriving from a transatlantic influence.

Thus, the question which must be addressed by TCE and institutional theory is whether the cause of the isomorphism seen in the craft derecognitions in Table 15.1 is indeed a recipe, perhaps based on a managerial ideology or, as identified by Cibin and Grant, an economic rationality in support of the focus on efficiency.

This evidence provided by the House of Commons' Select Committee in Table 15.1 illustrates that the derecognition of the clients' craft unions is a unifying feature. However, neither in the Select Committee's separate reports nor elsewhere is there evidence given of the industrial relations issues of the large contractors' workforces on oil and chemical plants, nor are the arrangements for their collective bargaining described.

There is an important link here between the internal and the external workforces. Gallie (1978) noted the fear of BP's internal maintenance employees that contractors might take their jobs in the future. This concern turned out to be well-founded: the crucial mechanism for the preponderance of internal craft derecognition was the substitution of available contractor labour, which provided leverage and subsequent exploitation of the weakness of the internal crafts trade unions (Claydon, 1989, 1996). Thus, the ECI firms substituted labour rather than adding to it when demand arose, as they had in the past. The question is why? This question was addressed in the research study on which this chapter is based.

15.8 The research study

The research set out to explore the basic propositions identified above regarding management motivations in the organisation of construction work at various plants. The evidence of a move to unitarism was hypothesised as the cause of the derecognitions in Table 15.1, but equally these might have been economically based due to the similar environment of the firms and the need for static efficiency by way of removal of craft demarcations. In this study, the client firm attempted to improve its dynamic efficiency - that is, the contractors' performance - and in so doing it had to manage the economic exchanges as described under TCE.

The study began with a survey of the R&M function in the oil and chemical industry in the UK. This study revealed that one refinery had rejected the NAECI in favour of a single union agreement (SUA). This agreement was taken up by a neighbouring plant and subsequently by one some hundreds of miles away. The question raised by this isomorphism is whether the spread of the SUA idea would endanger the role of the NAECI in other plants by its substitution by this much simpler arrangement. Should the trend of SUAs continue, the Joint Council would lose both status and the money charged for the NAECI administration when it is adopted on sites.

As discussed earlier, a deeper analysis of possible causative factors should give a better picture of the way in which ECI firms might be managed in other locations - would a 'recipe' be adopted, or would an economic calculus be rigorously applied instead? Data is needed at the level of the plant to assess the relative merits of these two alternatives: in particular is there evidence of extensive calculations of the costs and benefits of alternative strategies? Or, alternatively, is there evidence of 'benchmarking' against the end results of others

The following case study is based on interviews with line managers and HR specialists, triangulated with the officers of the relevant trade unions and the industry bodies within the construction industry.

15.9 The refinery's internal maintenance craftwork

Productivity deals were continually introduced in the refinery during the 1960s (Oldfield, 1966) and 1970s and into the 1980s (Young, 1986, 1992). Management negotiated hundreds of inter-craft flexibilities for maintenance tasks (and some operator-craft flexibilities). It was difficult, however, for both managers and trade unions to manage all these transactions effectively via 78 pages of individual 'tasksheets', and gradually demarcations began to reappear in the late 1970s through different interpretations of the wording and context (Young, 1992).

This development led to a new craft agreement in 1984 which swept away all the detailed inter-craft flexibilities described in the task-sheets, and rationalised the craft workforce by outsourcing the lower level trades to contractors (Young, 1986). This did not work: demarcations began to reappear and the refinery managers felt able to ask the unions to honour the agreement or to devise a new 'flexible' approach. The local craft union's full-time officers (FTOs) were rigidly opposed to this proposition. As a result, management put more and more work out to contract, and advertisements for 'fully flexible craft technicians' appeared anonymously in the local press. This action led to the derecognition of the craft unions on the instigation of the craft workforce.

However, given the success of the various tactical moves to outsource work to contractors, management deemed that the days of static efficiency gains were over, and that continual wars of attrition with the craft maintenance workforce, as in the recent past, were no longer an option. Economic performance problems, and government initiatives (McInnes, 1987) illustrated by BP's substantial de-layering and downsizing (Cibin and Grant, 1996), led them to consider dynamic efficiency.

Subcontractors

Previously, the refinery's own site agreement, like most others in the sector, predated the NAECI and followed the general principles of the existing National Agreement (the 'Black Book') between the Engineering Employers Federation and the 16 Confederation of Shipbuilding and Engineering Unions. However, its detail was written and controlled locally by the refinery. This agreement was not subject to the transforming productivity agreements in the refinery. While production operators were already flexible, as they all performed a broadly similar function, maintenance craftwork was managed under inter-trade demarcation arrangements (described as 'professionalism' by Stinchcombe, 1959). This arrangement was due partly to the difficulty of coordinating many contractors and the 16 trade union signatories, and the lack of economic incentive given the lower cost of contractor craftwork.

those inter-group relativities that unions usually manage (Walton and McKersie, 1965). In construction, an SUA solves this problem. It exists in Germany, for example, with Industry Group unions, and in Japanese enterprises in the UK. It is effectively a management device, which gives some legitimacy to change and yet reduces transaction costs.

15.11 Conclusions

Given the fact that in this case the refiner created an industry 'first', there are implications for other oil and chemical sites. The case could be used as a basis for 'mimetic' isomorphism. It is important to remember that the starting point for the refinery management was a search for an agreement that it could emulate, as seen in Tables 15.1 and 15.2. We might therefore see further SUAs and derecognitions on other sites; after the conclusion of the research study, two new SUAs were reported to the NJC. Thus, isomorphism is a present and continuing rationale for management.

If the role of economic necessity is paramount, instead of legitimacy through isomorphism, it may have implications for the wider engineering construction industry. The aims of the new agreement were basic and related to efficiency. The alignment with refinery working times, and the various tactical changes made for working in teams - a more efficient method than single-trade working and the loss of the washing-up and tea-break times were an example of this approach despite the risk of upsetting previous established practices like the afternoon tea-break. This latter item was highlighted in the documents as it 'carried an IR warning'.

We already know from Garfit (1989) that the NAECI contained inefficient practices and its procedure was long and complex. Subsequent to the research study, according to the NJC, the economism of the SUAs led to a move to change the NAECI by using a local site Addendum to make the conditions and practices more efficient. The savings on transaction costs would then match those of the SUAs. This is 'stage 1' of the change, based on economics.

This new 'product' is now available to R&M operations which had previously rejected the full NAECI terms; using it to progress economic change is not as risky as an SUA as it is part of a set of legitimate National negotiations. On this basis, a new survey would reveal that, according to the NJC, this NAECI-SA (Supplementary Agreement) has been adopted in a mimetic fashion in a number of client firms - that is, without extensive internal economic calculations or justification. This is 'stage 2' of the change process.

These analyses indicate a complex inter-relationship between economic needs and ideology, resulting in isomorphism, or common practices. In terms of its isomorphic extension to the wider construction industry, which has a similar 'atmosphere' and efficiency problems, there are significant barriers. There is an important difference between the ECI's clients and those of the wider industry, as discussed earlier: contractors in R&M have a relatively stable existence on the site, and a single local solution to local issues is therefore possible. The same is

not the case for construction in the wider sense, as sites are temporary and geographically dispersed, making the contractors and their labour force far more mobile. Accordingly, in coordinating these differences, a National Agreement is more efficient than a series of single site agreements.

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