

**AN EXPLORATION OF NEW INSTITUTIONAL ECONOMICS
FOR THE STRATEGIC ANALYSIS OF E-BUSINESS
WITH REFERENCE TO
TRANSFORMATIONAL CHANGE**

**A thesis submitted in partial fulfilment for the
Degree of Doctor of Business Administration**

by

Andy Ellis

Henley Management College / Brunel University

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ABSTRACT

This research applies institutional economics theory to management challenges arising in connection with e-business related transformational change. The research was carried out in response to widely recognised problems in managing IT-enabled change in complex organisations which the researcher had observed in an e-business context.

A cyclic approach builds researcher competence in both the chosen theory, New Institutional Economics (NIE), and its application through a series of four contrasting case studies. The case situations, which derive from the researcher's work as a technology management consultant, are treated as action research experiments which investigate e-business related transformational change in financial services, retail and government settings. A constructivist stance is adopted within the case situations with the researcher acting as a participant observer. Reflective practice is used to improve the experimental method for the case studies through the course of the research, leading to the use of participatory action research (PAR) for the final case.

A literature review of NIE shows it to be loosely defined as a theory, so an analytic NIE framework is created to provide a cognitive model. This model is then modified and extended to produce a final theoretical framework. In parallel, a conceptual map of NIE is created from the research as a practical aid to illustrate NIE concepts and linkages. These two models, the theoretical framework and the conceptual map, evolve through the four case situations which were selected from a range of e-business consulting opportunities available to the researcher over the period of the research. The second case study drives the main development of the two models and draws out the necessary and complementary contributions of both transaction cost economics (TCE) and agency theory (AT) as parts of NIE, neither of which is sufficient on its own. The final case study demonstrates application to practice. The overall sequence of case studies shows the researcher's cognitive growth from being a novice in the theory and its application in the first case through to a level of proficiency in applying NIE to the rigours of e-business practice in the final case.

The research makes several contributions to knowledge. It makes a significant methodological contribution by bringing research methods developed for other forms of professional practice to the management discipline. It also makes a significant contribution to theoretical knowledge. It develops two theoretical models of NIE – a

conceptual map and a theoretical framework – which present a way of linking NIE concepts in a meaningful way, and a structure by which NIE can be used in the analysis of highly complex organisational situations. These models clarify the complementary roles of TCE and AT, and indicate a reason why so many studies limited to TCE alone have been inconclusive. Applying NIE to the rigours of e-business management produces, in turn, a contribution to IT strategy formulation.

The research makes a practical contribution by showing how NIE can be applied to e-business practice, subject to a number of significant caveats. NIE, as a descriptive theory, is shown to provide a powerful conceptual framework when combined with PAR, although both require deep knowledge and skill. In particular, adopting PAR as a case study method depends on an experienced, skilled and committed practitioner for its effective use.

Finally, the research finds that NIE's strengths as a framework for strategic analysis of large scale and complex e-business situations involving transformational change, which make it unduly sophisticated for less challenging situations, mean that NIE is suited to use by highly skilled, specialist consultants rather than by general managers.

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“All good research is for me, for us, and for them: it speaks to three audiences and contributes to each of these three areas of knowing. It is *for them* to the extent that it produces some kind of generalisable ideas and outcomes that elicit the response ‘that’s interesting’. It is *for us* to the extent that it responds to concerns for our praxis, is relevant and timely and produces the response ‘that works’ from those who are struggling with problems in their field of action. It is *for me* to the extent that the process and outcomes respond directly to the individual researcher’s being-in-the-world, and so elicits the response ‘that’s exciting’.”

(Reason and Marshall, 1987)

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1 INTRODUCTION

1.1 Origins of the research

The idea for the research arose from my experiences on a major e-business project. In 1996 I had been asked to carry out a troubleshooting role on a large Public Finance Initiative (PFI) project to automate 19,700 UK Post Offices. This e-business project, which involved complex systems integration in transforming the existing business to provide electronic support and delivery for a wide range of financial and retail services, was raising serious management concerns, particularly from massive numbers of change requests resulting from ongoing changes in contractual requirements and its sheer scale and complexity.

The project, which later had to respond to a change in requirements associated with a change in government, subsequently went bankrupt and was wound down at considerable cost to the main parties involved. As reported in the UK national press –

“Most expensive of all was the collapse in 1999 of a £1 billion project between the Post Office, Benefits Agency and the computer firm ICL to create a computerised swipe-card system for benefit collection. When that went belly-up, the Post Office had to write off £571 million, ICL £127 million, and the Benefits Agency £127 million.” (Thomas, 2003)

The main problem that I had found as a consultant working for the supplier of this project was that I had been unable to find suitable management tools or management theory to investigate, analyse and interpret this complex situation in a robust enough way to convince the management team of what needed to be done. The need that I identified then to find a way of steering complex information technology (IT) projects like this away from such catastrophic failure is echoed by the recent report on the challenges of complex IT projects published by a working group from The Royal Academy of Engineering and The British Computer Society (Butler, 2004).

Over the next 3 years I became involved in further complex e-business projects and began to investigate proprietary management tools and theory in an attempt to find a solution. During the period 1997 to 1999 I broadened my search for suitable tools by taking an MBA at Henley Management College. I reviewed, informally, many of the

management tools and theories arising through the MBA and my associated dissertation on intellectual capital (Ellis, 1999) in the context of the IT and e-business projects that I was involved with. A diagram is included in Appendix D (figure 47) as a synthesis of the range of alternative management theories considered during the MBA. The synthesis provided a starting point for this research in terms of a reference point on management strategy. It draws on Harding and Long's (1998) presentation of 45 management models commonly found within MBA courses and Moore's (1992) outline of predominant management theories. Areas where this research initially appeared to have relevance are highlighted.

Of the many alternatives I considered, New Institutional Economics (NIE), which I discovered through Moore's (1992) reference to Williamson's work on TCE, appeared appropriate because it combines the economics of transactions with aspects of organisational theory and overlaps with contract law in its concern with institutional analysis. Furthermore, NIE pays attention to the economics of transactions through transaction cost economics (TCE) and, through agency theory (AT), the consequences of separating ownership from control. These were areas where I had repeatedly met issues in practice. However I found limited evidence of NIE's use in situations involving extensive use of information technology (IT), and little guidance on how it might practically be applied. Recognising this apparent gap in the literature led me to embark on this management research exploring whether NIE could usefully be applied to e-business related decisions.

1.2 E-business decision making and the need for a conceptual framework

In order to understand the development of this research project it helps to have an overview of the e-business context and the types of changes that can be achieved through wide use of IT .

There are many references to e-business in the management literature, both popular and academic. Many assume that existing business models remain appropriate to e-business but do not challenge or test this assumption. Some refer to analysis of transaction costs and TCE but until relatively recently (Stapleton et al, 2001) there has been little detailed discussion of how these might be applied, which is perhaps surprising since one of the generally recognised features of e-business is a change in the pattern of transaction

related costs. There does not appear to be consensus on a common theoretical foundation for advice about e-business although interest has been expressed about three related areas in information systems research and economics: internet economics, the business value of information technology, and advances in software engineering economics (Kauffman and Riggins, 1998). These themes were a focal point for the Ninth Workshop on Information Systems and Economics held in December 1997 (Kauffman and Riggins, 1998), and have since seen increasing attention.

Opinion was mixed during the DotCom boom as to whether the DotCom phenomenon represented a new business paradigm. Opinion since the DotCom slump appears to be that the familiar economic models still apply, but with an increased pace of change. In response, Eisenhardt and Brown (1998) discuss issues of competing in markets that are rapidly changing basing their assessment on “almost a decade of research into the drivers of success in high-velocity, intensively competitive industries” and contrast time pacing strategies with event pacing. They define time pacing as a strategy for competing in fast-changing, unpredictable markets by scheduling change at predictable time intervals, whereas for most managers, event pacing is the familiar and natural order with change being a response to events such as moves by the competition, shifts in technology, poor financial performance, or new customer demands. Eisenhardt and Brown (1998) claim that companies that manage change by time pacing learn to choreograph important transitions and shorten the time it takes to execute them. Eisenhardt and Brown’s (1998) conclusions are indicative of the importance of management judgement in e-business, an environment with technological and organisational change as well as variation in the economic environment.

It is plausible that the quality of management judgement needed depends on the scale of change. Nooteboom (2000) suggests that there are broadly two levels or orders of change, parametric change and architectural change. Parametric change involves incremental changes which do not require a change to the way of thinking.

Architectural change requires a change to the mental model. Learning theory describes them as single and double loop learning respectively (Argyris and Schon, 1974). The current research chooses architectural change and situations where IT can facilitate a significant and potentially radical change to the nature of the business.

The prevalence of radical change as found in e-business may mean that commonly used business theories are becoming less well aligned with current economic conditions and realities, and that economic theories which have not previously been dominant in this context may be more suited to the e-business paradigm. A question remains largely unanswered as to whether the rapidly increasing use of IT in relation to business relationships within and external to the firm, as is found in e-business, has implications for the choice of business model that should be adopted for predicting the economic behaviour of organisations and the consequences of strategic decisions. Some decisions, such as those involved in the auction and purchase of third generation mobile licences or to invest in DotCom technology firms, have already been judged, fairly or unfairly, by subsequent events. Such events include the decided weakening of the telecommunications industry and collapse in the share prices of technology firms, although these have since stabilised.

Cognitive theory suggests that management thinking within organisations, and offered by management advisers, may be constrained by the models and theories used, and that competitive benefit could be obtained by using more effective theories to inform management decisions and predict the consequences of management actions. Certainly it is unclear whether managers of e-businesses do in practice have a sufficient language for describing what they wish to achieve with the organisation and how best to achieve it. Current methods for creating business strategy appear to assume that the desired end state can be sufficiently well articulated and a rational plan created to achieve it. Yet if the conceptual models and theories which are used to articulate that desired end state are inadequate or incomplete it is plausible that the statement of that desired situation, and any business strategy based on it, will be flawed and introduce unnecessary risk.

It was from these origins, and against this business background, that the content and scope of this research crystallised.

1.3 Research objectives

The primary research objective is, therefore, to assess empirically whether NIE is applicable to e-business analysis and planning and whether it can realistically be used to support strategic decision-making in organisations where the use of IT has become critical to achieving substantial improvement in business performance.

This research arose from the observed need of complex organisations, such as central government departments, to improve their performance using IT. In this sense it is focused on IT-enabled change, but the research scope is limited to e-businesses where IT provides a significant element of the organisation's interactions with its business environment and of its business operations, for example through the use of the Internet. Through the progress of the research, and as a result of the initial field work, the scope was further restricted towards complex and challenging situations where traditional management tools are insufficient, and the organisation seeks to achieve transformational change.

The core motivation for the research arises from the researcher's wish to use research to improve practice. Traditionally, technology management consulting is based on delineating a specialist area of knowledge, and then finding multiple situations to which it can be applied, discarding those situations where the knowledge cannot be applied profitably. The researcher has more than 10 years of experience in technology management consulting where the ability to do this is critical to commercial success. This consulting process was used to identify cases involving transformational change where NIE might provide an appropriate theory. Some 20 case situations, which were taken forward as consulting assignments during the data collection period of this research, were considered as candidate case studies.

A filtering process was used to select the specific case studies for the research from these candidate cases. This process is similar to that adopted for professional practice in other fields, where multiple theories are considered in an attempt to find the most effective theory for tackling a particular clinical situation. Alternative theories are considered and then discarded in the process of matching a likely theory with the clinical situation. The reference model shown in Appendix D shows the strategic management theories which were considered as alternatives to NIE as an initial filter in the case selection process. Cases which could, in the researcher's considered opinion as an experienced consultant, be sufficiently tackled using these other theories were discarded from the research. Most continued as normal consulting assignments. Apparent change in transaction related costs was used as an initial distinction between NIE and these other models in selecting the specific cases for this research. As a final check the researcher considered whether the selected cases were relevant to the wider aims of the research, which were to contribute to the body of knowledge that can be

used by e-business managers and IT professionals when making strategic e-business decisions, and to contribute to academic IT-related research.

It is anticipated that the main audience for the study's conclusions will be senior business managers who have commercial and strategic responsibility for business success and who are using e-business techniques to achieve transformational change through IT. A further audience is those who advise these managers, and in particular strategic architects who have responsibility for designing potential future forms of the business, programme managers who have responsibility for making the transition happen, and academics carrying out research into e-business.

1.4 Structure and content

The structure, content and rationale of the remainder of the thesis are as follows.

Chapter 2 uses aspects of the practice context, which are relevant to the research, to formalise the research objective into a research question, and outlines the research approach which uses investigative case studies as action research (AR) intervention experiments.

Chapter 3 reviews the NIE literature, outlining and interpreting NIE in the context of technology-related change, before drawing on the empirical literature to derive an initial theoretical model. Specific examples are used to illustrate the wide range of ways in which NIE has previously been interpreted.

Chapter 4 describes the research philosophy adopted for the research, and discusses philosophical and methodological challenges that arise in testing the applicability of this theory. It describes the philosophical stance of constructivism that is adopted for the case studies, and methodological approach drawn from AR. The merits of alternative AR approaches are considered to establish a research position on AR relative to its existing established use in understanding and improving information systems practice.

Chapter 5 describes the overall research design, which is based on the scientific method as described by Greenwood and Levin (1998), but concentrates on the case study method used for four AR intervention experiments. The research process leads to the use of participatory action research (PAR) for the final case study. Participant observation and reflective practice are described as research tools.

Chapter 6 describes the case studies and provides case by case analysis. The case studies progress from a relatively straightforward consulting assignment through to a complex e-government transformation programme, looking in turn at e-business related change in a financial services organisation, a transformational outsourcing project in the retail sector, competitive bidding for a government contract, and transformation of school age education through IT in a UK local authority. A conceptual map of NIE concepts derived through the case studies is presented in Appendix B.

The results are analysed in Chapter 7 to produce the research findings.

Chapter 8 presents the research conclusions, along with an assessment of the research, its contribution to knowledge, and ideas for further research. This final chapter concludes with reflections on the research which point out its significance for contemporary management practice.

A summary of empirical studies, conceptual map of NIE, and evidence selected from the case studies are provided as appendices.

Acronyms and abbreviations are used extensively in this thesis to simplify the text and for reasons of confidentiality. A list of abbreviations and a glossary of NIE concepts are provided after the appendices, and before the list of references, to aid the reader.

2 THE RESEARCH QUESTION

The research objective, as described above, is to assess whether New Institutional Economics (NIE), as a theory, is applicable to e-business management practice. This chapter describes general business, technical and management aspects of the practice context which are relevant to the research before formalising the research objective as a detailed research question. The chapter finishes with a brief outline of the research approach which leads into the literature review.

2.1 E-business

Many have sought to define e-business and e-business transformation. Gloor (2000) suggests that an organisation is performing e-business transformation if it fully embraces the Internet based economy, questioning its current business strategy, and developing a new business model to take advantage of the digital economy where computers and digital communications are becoming ubiquitous. Using the distinction between incremental change and architectural change described in the Introduction, such change cannot be considered transformational unless the new business model represents architectural change with its associated change in the way of thinking about the organisation and its strategy.

Weill and Vitale (2001) take a more considered view of e-business:

“For us, e-business means doing business electronically by completing business processes over open networks, thereby substituting information for physical business processes. This definition is broad, encompassing business-to-business, business to consumer, and consumer to consumer interactions. Our working definition of e-business is:

‘Marketing, buying, selling, delivering, and paying for products, services, and information across (nonproprietary) networks linking an enterprise and its prospects, customers, agents, suppliers, competitors, allies, and complementors.’

The essence of our definition is the conduct of business and business processes over computer networks based on nonproprietary standards.”

Since the beginning of this research, the use of the Internet, and other non-proprietary access technologies such as wireless application protocol from mobile phones, has become much more widespread, and more generally adopted for business purposes, particularly within the western, developed economies. This makes it more difficult to distinguish e-businesses from organisations which are not e-businesses.

For the purposes of this research, e-business is assumed to represent a business structure where information systems pervade the organisation, provide a significant point of contact with such groups of the firm’s customers, employees, suppliers and trading partners, and as a result are also central to the organisation’s back-office operations.

With this description, e-business can still be distinguished from other forms of business. In those non-e-businesses, value is solely generated by parts of the business other than the information technology (IT) function with IT at most providing a supporting role, such as for purely administrative purposes, or where the organisation has an Internet presence but it merely provides a virtual shop window with orders being taken by other more traditional means.

In e-business, value is generated directly through the use of IT within the primary functions of the firm. This can be represented (figure 1) using Porter’s value system (1985):

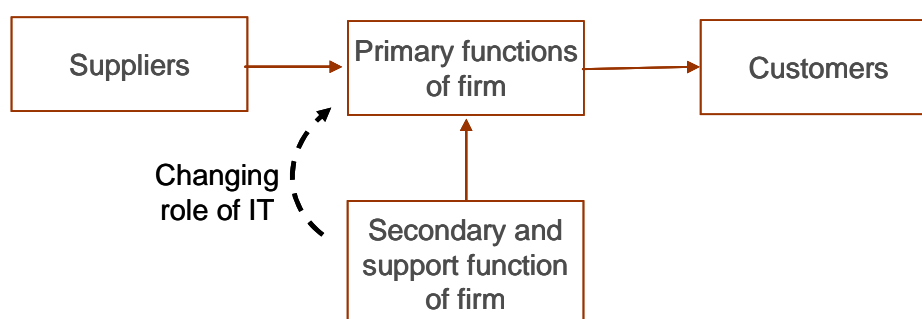


Figure 1: Porter’s (1985) value system

Making IT a primary function in e-business makes it visible from outside the firm, and almost inevitably makes any strengths and weaknesses equally visible. Many

management texts have appeared over the past few years exploring different ways in which IT can become a primary function of the firm, and provide a direct channel to the customer. Approaches which also appear in the research literature include:

- e-Business models (Rayport and Sviokla, 1995; Weill, 2001)
- e-Commerce (Wenninger, 1999; Yan and Paradi, 1999; Stapleton et al, 2001)
- e-Business transformation (Gloor, 2000)
- Online markets, and forward and reverse auctions (Kinney, 2000)
- Electronic markets and electronic hierarchies (Malone et al, 1987)
- Disintermediation (Giaglis et al, 1999; Nissen, 2000)

It is noteworthy that many of these appear to have applied existing cognitive models to e-business but few discuss whether these models remain applicable, or whether other models might be more effective. Tedlow (1996) does, discussing the phenomenon of interactive home shopping from a historical catalogue merchant point of view and pointing out that many of the consumer shopping issues are the same in the online environment as they were in the pre-internet days.

Rasheed and Geiger (2001) apply paradigms from strategic management, marketing and organisational economics literature to examine electronic commerce. They focus on market makers that act as intermediaries within the primary activities of procurement, through multi-party, interactive or dynamic pricing online markets, and sales through hubs, online auctions, use of competitive bidding, or the management of dynamic pricing systems. Their conclusions include support for the concept that human resources behave differently from investments in infrastructure because of the need to protect knowledge embedded in human skills that are vulnerable to inter-firm contracting. They find support for the view from transaction cost economics (TCE) that firms with more frequent exchanges justify internalisation by allowing for human asset specificity to develop and deepen through the transfer of tacit knowledge. Asset specificity is a TCE concept.

Downes and Mui (1998) as experienced practitioners discuss anecdotally the changes that arise in transforming a business into an e-business and suggest a twelve principle digital strategy based on “Moore’s Law, Metcalfe’s Law and Coase’s transaction cost

economics". Moore's Law (Moore, 1965) refers to the doubling of microchip cost performance every eighteen months which improves the cost-performance of digital technologies. Metcalfe's Law (Gilder, 1993) values the utility of a network as the square of its number of users.

Downes and Mui (1998) highlight transaction costs as one of the common efficiencies targeted in e-business, pointing out the importance of transactions, the significance of asset specificity in the form of specialised investments, and the need to understand them both. A transaction occurs when a good or service is transferred across a technologically separable interface (Williamson, 1981a). One stage terminates and another begins, and with an interface that is working well these transfers occur smoothly. Mechanical systems have friction, transaction cost is the counterpart of friction for economic systems (Williamson, 1996). Transactions have a number of dimensions. The critical dimensions for describing transactions are uncertainty, the frequency with which transactions recur, and the degree to which durable, transaction-specific investments are required to realise least cost supply. Transaction costs are affected by the extent to which specialised investments, which cannot be redeployed to alternative use without loss of productive value, have to be made to carry out those transactions. The main dimension for such specialised investments is asset specificity (Williamson, 1979).

It does appear, from the practice context, that the advent of the Internet and standardisation of inter-working protocols have dramatically reduced the need for specialised investments for some forms of on-line transaction. Asset specificity, although an important dimension in relation to transactions according to Williamson (1981a), is often ignored in analysing costs of economic behaviour in practice. Williamson (1981a) points out that the issue is not only about whether there are large fixed investments, even though this is important, but much more importantly about whether the investments are specialised to a particular transaction. When items are not specialised users can turn readily to alternative sources of supply, and suppliers can sell output intended for one buyer to another buyer without difficulty. Asset specificity is clearly a consideration for systems integration firms taking on responsibility for running the IT systems for large government departments where the combination of systems is unique to that department and the contracted supplier has to build and maintain significant department-specific understanding and IT systems knowledge. The situation

is similar where smaller firms take on an equivalent role for local government organisations but the firm is too small to achieve economies of scale by providing common services across multiple local authorities. Asset specificity may also be relevant in situations where software is highly specialised to particular purposes.

Downes and Mui (1998) suggest that significant reduction in transaction costs puts the role of middlemen under attack and changes the value propositions within the value system, potentially leading to disintermediation as is found with internet-based businesses using the world wide web to sell products directly to customers rather than going through traditional retail channels. Downes and Mui (1998) summarise six types of transaction cost, each of which has its own specific literature beyond the scope of this thesis:

- Search costs: buyers and sellers finding each other inside the increasingly broad and disorganised open market
- Information costs: for buyers, learning about the products and services of sellers and the basis for their cost, profit margins and quality; for sellers, learning about the legitimacy, financial condition, and need (which may lead to a higher or lower price) of the buyer
- Bargaining costs: buyers and sellers setting the terms of a sale or contract for services, which might include meetings, phone calls, letters, faxes, e-mails, exchanges of technical data, brochures, entertainment, and the legal and negotiating costs of contracts (Alston et al, 1984)
- Decision costs: for buyers, evaluating the terms of the seller compared with other potential sellers, and internal processes, such as purchasing approval, designed to ensure that purchases meet the policies of the organisation; for sellers, evaluating whether to sell to one buyer instead of another buyer or not at all
- Policing costs: buyers and sellers taking steps to ensure that the goods and services and the terms under which the sale was made, which may have been ambiguous or even unstated, are in fact translated into the real goods and services exchanged. This might include inspecting the goods and any negotiations having to do with late or inadequate delivery or payment

- Enforcement costs: buyers and sellers ensuring that unsatisfied terms are remedied. This could range from mutual agreement on a discount or other penalties to the often high cost of litigation, as with using an external tribunal to settle disputes associated with the transaction.

Such transaction costs are particularly significant where organisations seek to transform themselves through mechanisms such as transformational outsourcing of IT. Gloor (2000) identifies outsourcing in general as one of the mechanisms that companies use to achieve e-business transformation. Transformational outsourcing has in particular been used where organisations are complex (Mazzawi, 2002), as seen by the so called “mega deals” of the late 1980’s, most notably that of Eastman Kodak, that sparked the trend towards outsourcing that was witnessed through the 1990’s and has developed into a range of forms, including total outsourcing, selective sourcing, multi-sourcing, off-shoring and a variety of partnership models (Lacity and Willcocks, 2001).

2.2 Transformational IT outsourcing

Transformational outsourcing, otherwise known as business transformation outsourcing (Dillon, 2004), is about using outsourcing strategically as a way of making transformational business change and managing uncertainty, rather than tactically with an operational focus to reduce costs and risks. Linder et al (2001) describe business transformation outsourcing as ‘a program to transform the way a business works, enabled by outsourcing, to achieve a rapid, sustainable, step-change improvement in enterprise-level performance’. Although outsourcing was initially viewed as a tool for reducing IT costs it has evolved to encompass a strategic focus, including comprehensive management of critical business processes and the transformation of legacy systems and applications to support new business initiatives (IBM, 2001; Tallon, 2003). Transformational outsourcing has to take into account both present and future requirements, and assumes that the service provider can achieve near-term results as well as delivering longer-term business benefits.

Henry (2002) describes transformational outsourcing as a model where an IT services provider assumes leadership of all or of a substantial part of an IT operation on a transitional basis. IT staff and assets may become part of the services provider's organisation during the transition period, but at the end of a successful transformation period leadership of the IT organisation transfers back to internal control. Henry

suggests that the organisation's IT leadership team often decides to continue using outsourcing services for components of the organisation's IT on a more selective basis as part of a more permanent and focused outsourcing strategy following the transformation period. This may indicate that transformational outsourcing is relevant when there are both a high degree of business change, such as mergers and acquisitions, and high IT infrastructure complexity.

The industry analyst IDC and the consulting firm CapGemini (Goepfert, 2002) contrast traditional and transformational outsourcing (table 1). Their study suggested that transformational outsourcing is intended to enhance a business' value and reduce risk by enabling the company to focus on core competencies, helping to bring about business transformation, and providing greater flexibility and adaptability. They suggest that developing the right supplier relationships are a key factor in making the transformation, using emerging trends in deal structures as evidence of the progression towards a transformational or more strategic outsourcing relationship. Their study considered enterprise preferences across four types of vendor relationships for strategic outsourcing – trusted, strategic relationship with outsourcer (51%), joint relationship where the outsourcer has a stake in the business (14%), prime contractor as single point of contact (17%), tactical buyer-supplier relationship (18%).

Traditional outsourcing	Transformational outsourcing
Tactical	Strategic
Operational focus	Business focus
Focus on cutting costs	Focus on creating value
Impose control	Manage uncertainty
Objective is to offload non-core functions	Objective is business change

Table 1: Comparison of traditional and transformational outsourcing

A number of consulting organisations deliver transformational outsourcing services. Goepfert (2002) explains that successful transition to an 'adaptive enterprise' is "a major, and inescapable, challenge for every enterprise, impacting on its structure, its processes, its technology, and even its culture." He contends that execution of such a process sits at the heart of the Chief Executive Officer's (CEO) biggest dilemma which is to find a way to deliver simultaneously both short-term performance and longer-term change despite having limited skills and resources, and restricted access to capital. New, and more demanding, customer expectations and an increasingly complex infrastructure environment compound the problem. In this view, traditional outsourcing

is about using skills, access to technology and economies of scale as a means to cut costs. Outsourcing contracts to deliver enhanced service levels generally assume long-term stability, and so assume that it will be possible to deliver the same things better, and at lower cost. Transformational outsourcing is seen as fundamentally different, being about helping to create a new business model and a new management approach, changing the paradigm to something smarter, more flexible and more streamlined, and predicated on continuing change. Goepfert (2002) identifies four key elements:

- Commercial leverage which helps companies to manage the costs and risks of major change while preventing serious adverse impacts on either the balance sheet or profit and loss statement
- Technology exploitation, changing the technology paradigm for the organisation and its wider 'economic web' without wholesale technology replacement
- Business transformation, transforming the way the business operates and is structured, to take advantage of the wider 'economic web'
- Operational efficiency, and ensuring that robust, effective and efficient processes and systems provide both a stable platform for change and a controlled environment into which change is managed.

2.3 Web services

Business changes like transformational outsourcing are influenced by changes in IT. A number of IT companies and standards organisations are promoting web services as a new technology model. The web services model, which exposes IT application functionality in the form of a service, may or may not represent a new technology paradigm when compared with previous conceptual models of IT.

Hagel and Brown (2001) suggest that a shift to web services for corporate computing is not only a matter of adopting new technology, but will also require broad organisational and managerial changes as well as the development of new kinds of capabilities. They suggest that IT departments will need to integrate new sets of skills, and that Chief Information Officers (CIOs) will become relationship managers pulling together expertise from within and outside their companies, co-ordinating the efforts of an array of companies while moving their management style from command-and-control to persuade-and-influence. They conclude that:

“over time, the location of particular capabilities – whether inside or outside the walls of any given company – will become less important than the ability to discover and orchestrate distinctive capabilities across enterprises in order to deliver greater value to customers. In the process, many companies will find themselves turned inside out, with their formerly well-guarded core capabilities visible and accessible to all.” (Hagel and Brown, 2001)

These are governance questions taking the boundaries between organisations as decision variables, not constraints determined a priori.

2.4 E-business related change

Choice of governance mechanism and organisational boundary is a repeating issue where organisations seek to transform themselves through IT, for example by using transformational outsourcing. One decision that arises in practice is whether, and to what degree, technical services should be developed in-house, by using commercial partners, or by buying commercial off-the-shelf packages. Such choice of governance structure is central to TCE (Williamson, 1975).

The concept of bounded rationality, which appears in both TCE and AT, is of interest in this context. Knowledge about the potential uses of technology is often incomplete, and subject to practical limitations of managerial time, and ability to understand the implications of the technology. Redmond (2004), discussing modes of institutional rationality, highlights three inter-related facts of limitation – limited attention, limited processing capacity and limited problem-solving ability. He then describes two modes of rationality: pre-scripted rationality is based largely on recall of previously internalised habits, norms, customs, laws or past actions; planning rationality involves attention and problem solving. Redmond suggests that one of the most readily apparent differences in these two modes of institutional rationality is the amount of cognitive effort involved. Behaviour directed by pre-scripted rationality requires little cognitive effort while the reverse is true for planning rationality.

Commercial organisations repeatedly create conceptual models to offset the cognitive challenges of managing business, IT and their inter-relationship in transformational change. The researcher has used several proprietary models, including a systems integration methodology created by the computer firm ICL, a project management

framework from DMR Consulting, the Compaq services architecture method, and various Microsoft frameworks and methods in the course of his consulting work. The researcher's impression is that these draw on longstanding models such as the McFarlan grid (McFarlan, 1984) to analyse the strategic impact of IT. Published models include the Carnegie Mellon University Software Engineering Institute capability maturity models (Bate, 1995; Paulk, 1995), architectural models, such as the work of Zachmann which is used by parts of the US Federal Government (Zachmann, 2005), and operational models such as the IT Infrastructure Library (Cartlidge, 2004). These all assume a rational planning approach to management which seeks to articulate a desired state and a strategy for achieving it that can be determined a priori and followed rationally to conclusion. Further discussion of rational planning, which has its own body of literature, is outside the scope of the current study.

2.5 Research-based models for e-business strategy

These proprietary models, which focus on IT, are generally limited in their support for creating joint business and IT strategy, even though research-based models do exist. Elliot and Melhuish (1995) identify a number of models and frameworks which consider assessment and adoption of IT at a strategic level, and offer an analytic methodology based on a gap analysis between the current and desired business situations. They make many assumptions about the knowledge and capabilities of those who might use the approach, but describe what should be done without articulating how.

The body of research which considers strategic alignment between business and IT has produced a number of conceptual models aimed at achieving strategic alignment between business and IT which are necessarily predicated on the separate existence of business and IT paradigms, and an assumption that these paradigms can, in some sense, be aligned. Pyburn's (1983) early exploratory study, using a comparative case study approach with pre-interview questionnaires, into how organisations link their IT strategic planning to their corporate strategy identified a number of factors influencing success or failure of IT planning. The factors were the perceived status of the IT manager as described by senior managers, the volatility of the business in comparison to other organisations studied, the complexity of the IT environment, the senior managers' personal styles which ranged from very formal to very informal, and the physical proximity of the IT manager to the senior managers. Since the time of that study the

relationship between business and IT has become far more complex (Burn, 1993).

Pyburn (1983) makes no reference to managerial competence.

Burn (1993) investigates the relationship between ‘organizational configurations’ and alternative patterns of IT development. She concentrates on the IT strategic process, and concludes, from a study on 56 organisations, that different stages of growth in the use and development of IT require different approaches to strategy, and that different approaches to strategy are favoured by different ‘organizational configurations’. She notes the progression of the phases of strategy formulation and draws comparisons with IT strategy formulation. Her typology of approaches to strategy is summarised in figure 2. She suggests an ‘organizational cultural audit’ model for the management of organisational change which will identify appropriate approaches to IT strategy formulation. She does not provide an IT strategy phase 6.

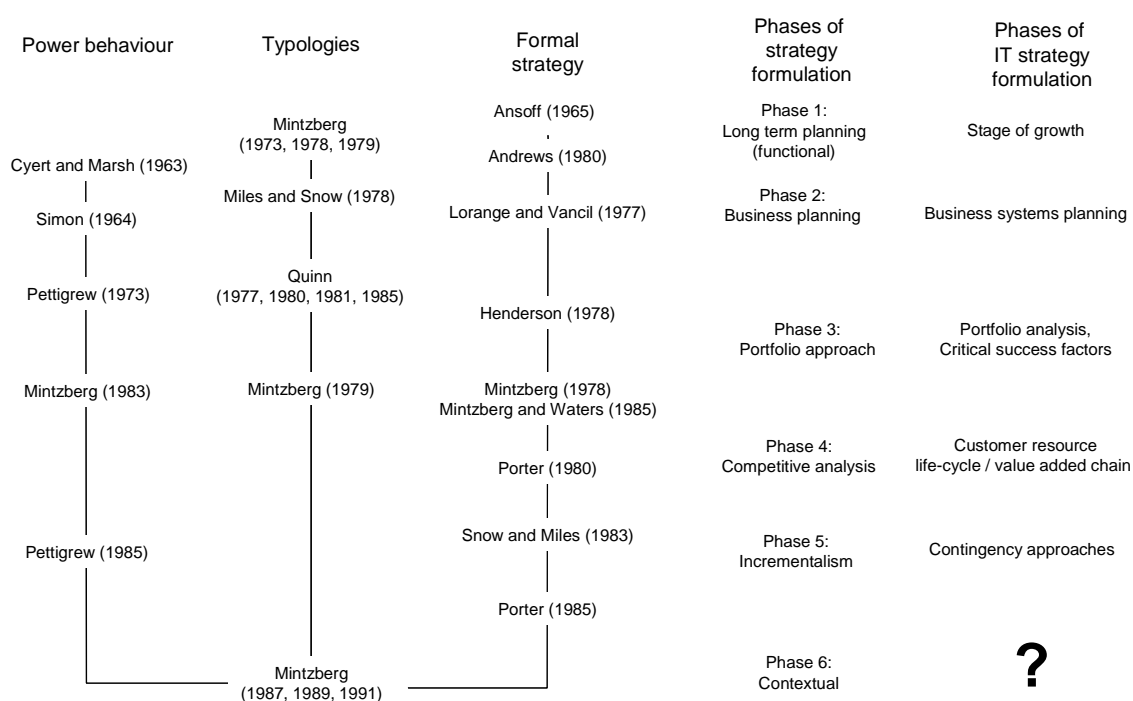


Figure 2: Typology of approaches to strategy (after Burn, 1993)

Earl (1992), who discusses ways of integrating business and IT, concludes that a holistic management approach is appropriate, arguing that IT is but one of many resources in the organisation that will require investment to support business change.

Other professional disciplines have considered holistic approaches to understand the workings of complex systems. Neuman (1994) for example draws on systems theory for her nursing model, identifying that guidelines for system enhancement and expansion

are inherent within the use of the systems concept. Neuman identifies that this feature is particularly significant to that particular professional discipline, ‘which is becoming an increasingly complex system’. She finds advantages in the integration of systems concepts with professional phenomena, leading to new perspectives, and the clarification and definition of professional knowledge related to the social sciences. Neuman (1994) describes the basic task, using holistic perspectives, as the systematic study of the abstract characteristics of the client, the family, and the community, with precise, comprehensive analysis of the relations in space and time on which they largely depend. Neuman introduces concepts of normal line of defence and flexible line of defence in this context. Neuman appears to assume that the boundaries between these different perspectives are clear, and does not question whether these define the most efficient boundaries. Further exploration of Neuman’s work is outside the scope of the study but may be worthy of future investigation.

These were all models which had been considered in the consultant’s quest, which eventually led to this research, to find suitable management tools or theory to investigate, analyse and interpret complex e-business situations.

Incidentally, whereas strategic alignment assumes separate business and IT inputs into strategic planning, this research, which extends research into NIE and its potential application to practice, leads towards an integrative framework that can relate strategic decisions concurrently to both business and IT domains, whilst complementing existing theories (figure 3).

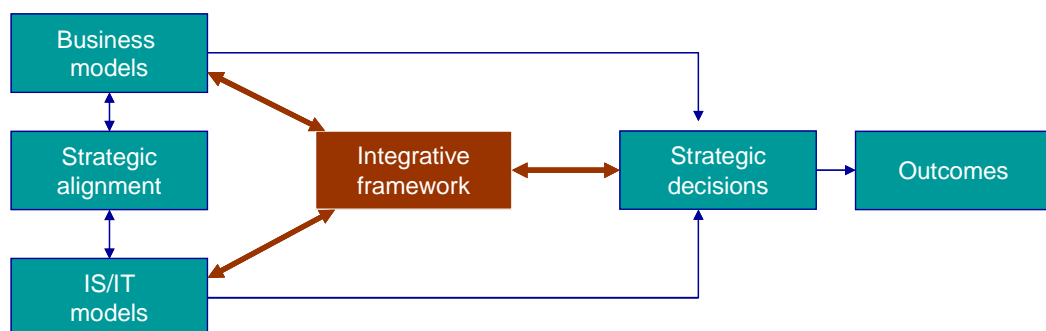


Figure 3: Diagram showing positioning of integrative framework

2.6 The research question

There is a prima facie case for extending research in NIE and testing any limitations. In particular, Williamson (1999), the key theoretician in TCE, argues for more empirical research to be done.

This current research originates in the idea that NIE might be appropriate for strategic analysis of e-business. E-business is a very broad field so the research scope was narrowed through an initial informal IT industry review to focus specifically on situations involving transformational IT enabled change. For clarity, subsequent references to IT enabled change in this thesis refer to transformational change. The scope was reduced further by considering case situations representing a limited number of specific technology paradigms that go beyond the now well-rehearsed e-business paradigm in which organisations primarily use the internet as a sales and marketing tool to connect with their customers. Technology-related business paradigms appearing in this study, such as transformational outsourcing which has been described earlier in this chapter, centre the research as an exploration of NIE for e-business analysis in the context of IT-enabled business transformation. An example of such a transformation is illustrated by e-government policy in the UK towards having a high proportion of government services delivered online.

The research problem is expressed as an exploration of the question:

Is New Institutional Economics (NIE) applicable to e-business related change?

leading to null propositions that:

New Institutional Economics (NIE) cannot be used as a conceptual framework for managers making decisions in the context of e-business related change, and

New Institutional Economics (NIE) does not expose new insights when used to inform such decisions.

The research question and propositions are investigated in this research through a series of case study 'experiments' guided by the scientific method as described by Greenwood and Levin (1998), and using participant observation and reflective practice. Action research (AR) provides methodological guidance within the case studies. The overall research design (figure 4) is described in chapter 5. As can be seen from figure 4, which

relates the structure of this thesis to the structure of the research, the main research process starts in the next chapter with a literature review of NIE and the derivation of an initial theoretical model.

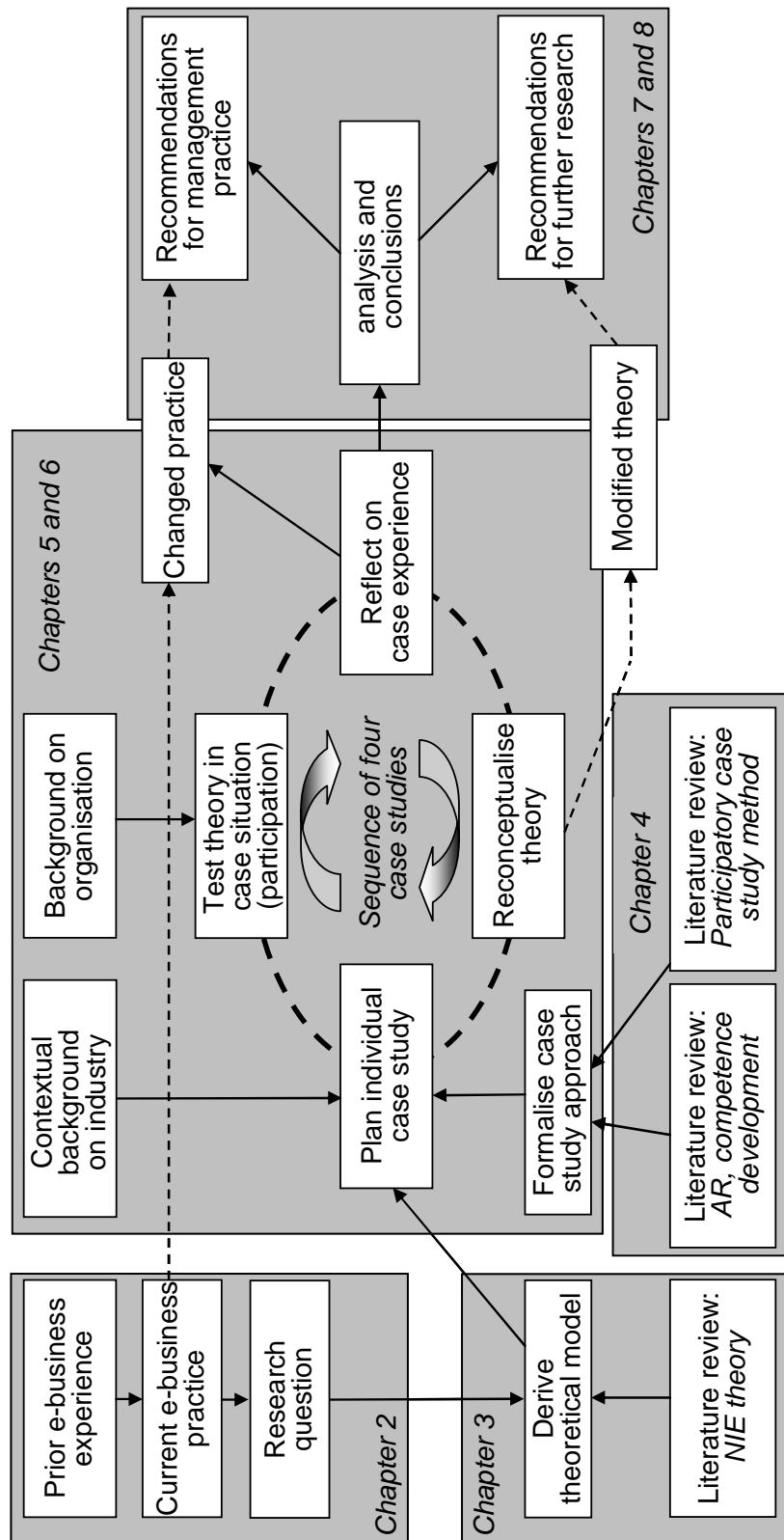


Figure 4: The research design

3 LITERATURE REVIEW

This chapter, and Appendix A, detail the literature review which provided the foundation for the research. The chapter starts with a theoretical review of New Institutional Economics (NIE), then details ways in which NIE has been interpreted, before reviewing empirical studies which use NIE (see Appendix A). These are discussed in respect of NIE's relevance to technology-related change. Finally, this discussion and a short examination of theoretical models drawn from the literature are used in constructing an initial theoretical framework for use within the research. The chapter closes with some overall conclusions from the review.

It should be noted that a wide range of studies was considered in the course of this review. Only those which were found to be most relevant to the research form part of this literature review.

3.1 New Institutional Economics

The development of the micro-economic theory of the firm has recently undergone a 'quiet revolution' (Demsetz, 1997). Attempts to provide economics with a satisfactory theory of the firm have pointed to the important role of uncertainty, and recognition of the existence and consequences of an uncertain environment have played their part in the development of transaction costs theory. Coase (1937) argued that the firm exists because of its capacity to economise on the costs of market-oriented production and that firms arise voluntarily because they represent a more efficient method of organising production. In his view, long-term contracts will be preferred unless the costs of negotiation and enforcement of separate short-term market contracts are low. Naturally, the problem of forecasting the future is more pronounced where contracts operate over an extended period.

NIE originated with Ronald Coase's paper on the nature of the firm in 1937 (Coase, 1937), although according to Coase (1998) the name was coined much later by Williamson. NIE combines two theoretical approaches to economic organisation. These approaches are TCE, which approaches the study of economic organisations in terms of alternative governance structures for managing transactions, and AT which addresses the agency problem caused by separation of ownership from execution, the principal-agent distinction. Jensen and Meckling (1976) define positive agency costs as

the sum of monitoring expenditures by the principal, the bonding expenditures by the agent and the residual loss. Mahoney (1992) takes positive agency costs as a subset of transaction costs. While the basic unit of analysis of AT concerns the incentive and measurement problems of the individual, transaction cost analysis stresses the attributes of the transaction. NIE extends this to include the attributes of the legal, environmental and organisational context within which transactions occur.

Williamson (1981b; 1985; 1998; Williamson and Winter, 1993) developed Commons' (1934) original proposition of the transaction as the basic unit of economic analysis, and Coase's (1937) suggestion that the boundary of the firm should be a decision variable, into transaction cost economics (TCE), a theory of the firm as governance structure (Stapleton et al, 2001). Carroll and Teece (1999) present a collection of papers concentrating on markets, firms and hierarchies as governance forms in a range of contexts 'written by leading economists, sociologists, and political scientists' examining TCE. Their collection shows how far the theory has since developed.

In his presidential address to the Royal Economic Society in 1986, RCO Matthews described NIE as a body of thinking based in two propositions – that institutions matter, and that institutions are susceptible to analysis (Williamson, 1996c). The first proposition is fundamental to all forms of institutional economics. NIE is distinguished by the proposition that institutions are susceptible to analysis. Matthews commented that NIE has developed a comparative institutional logic of organisations to which many applications and refutable implications accrue, and in relation to which many empirical tests have been conducted (Joskow, 1991; Shelanski and Klein, 1995; Lyons, 1996; Crocker and Masten, 1996) which are broadly corroborative.

Coase (1998) opines that it is inappropriate to confine analysis of the economic behaviour of organisations to what happens within a single firm without considering its external relationships with others. The costs of co-ordination within a firm and the level of transaction costs that it faces are affected by its ability to purchase inputs from other firms. Their ability to supply these inputs depends in part on their costs of co-ordination and the level of transaction costs that they face. This is a complex and inter-related structure. Add the influence of laws, the social system and culture as well as the effects of technological changes such as the digital revolution with its dramatic fall in

information costs and one gets a complicated set of inter-relationships, the nature of which 'will take much dedicated work over a long period to discover' (Coase, 1998).

The institutions of principal interest to NIE are firstly the institutional environment, in effect the rules of the game such as the polity, judiciary and laws of contract and property (North, 1991), and secondly the institutions of governance, in effect the play of the game such as the use of markets, hybrids, firms or bureaus (Williamson, 1996a). Williamson's discussion makes interesting reference to the 'inhospitality tradition' in anti-trust that could change the way competition between organisations is viewed. Joskow, in his numerous papers relating to competition and public policy expresses a similar opinion (Joskow, 1985, 1988a, 1988b, 1990, 1991).

So NIE focuses on principal-agent conflicts, information asymmetries, path dependency, problems of assigning property rights, and many other areas which directly address existing, real, institutional problems of fully developed and transitional market economies. It suggests ways of thinking about informal routines that strongly imply that agents are not fully rational, independent actors. At times NIE comes close to fully embracing the conception of economic systems as open, evolving, path dependent systems which develop and change in real time. However, it still needs to address the systemic and ontological nature of uncertainty. NIE retains the premise that risk is calculable and knowable, and that there is an inherent future that is potentially knowable. In and of itself, NIE does not explain how particular paths emerge or how real change comes about as it considers relationships rather than causality (Poirot, 2002). Nonetheless, as this research shows, NIE can play a strong role in informing change-related decisions.

NIE is one of many variants within the field of institutional economics as a whole, and it is difficult to characterise NIE without some appreciation of how institutional economics is distinguished from other forms of economic theory.

Institutional economics looks at economic behaviour within institutions' boundaries. This contrasts with neoclassical economics, which assumes the firm as a 'production function' in which inputs such as labour and capital are transformed into outputs in the form of goods and/or services. The firm is typically assigned an objective function, such as profit maximisation under described market conditions, sets prices and output levels, and decides how to respond to opportunities such as changes in demand or input

prices (Williamson, 1996b). The notion of ‘perfect competition’ in an ‘efficient market’ that underpins the production function view provides the foundation for the premise that firms earn above average returns primarily by exercising monopoly powers which are supported by barriers to entry that restrict competitive forces. Company strategies which are aimed at achieving above average returns would, therefore, be aimed at limiting competition, a view which is challenged by Soros (1994) in his theory of reflexivity. Public policies often strive to promote competition in line with institutional approaches to economics which have developed as in the ‘Austrian’ school of strategy with its emphasis on this ‘market process’ and entrepreneurial discovery (Jacobson, 1992). Concepts such as marginalism, opportunity cost, and diminishing marginal utility are tied closely to the founders of the Austrian school.

The production function approach of neoclassical economics does not obviously help in understanding the size, shape and purposes served by the modern corporation and other forms of complex economic organisation where there are exchanges and interchanges between different parts of the organisation, and between the organisation and others. It does not readily help to determine where firms’ boundaries should lie. If firms are mainly technological entities then it may be appropriate to determine their natural boundaries primarily to achieve technological economies of scale and scope (Williamson, 1996c).

As a brief aside, some have explored questions relating to firms’ boundaries. Casson and Wadeson (1998) analyse the communications that occur there and the attendant costs. Mosakowski and Zaheer (1999), also desiring to understand firms’ boundaries, investigate concepts from the theories of information economics and corporate governance. Their model, which characterises two information types they call discovery and foreknowledge, offers predictions based on transaction cost hypotheses. Their paper is a challenging discussion of how organisational forms might affect foreign exchange traders’ speculative abilities.

Among the many variants of institutional economics, NIE was until recently viewed as distinctive in its focus on institutions as constraints while ‘the main thrust of old institutional economics is the modelling of institutions as determinants of the agent’s cognitive ability’ (Khalil, 1995). Dequech (2002) suggests that this is no longer the case citing the views of Denzau and North (1994) who highlight the deeper cognitive

function of culturally shared mental models in ‘facilitating communication between people and transferring perceptions between generations’, and conceive of institutions as ‘rules of the game’ which are used to structure and order the external environment.

Dequech (2002, 1998) identifies three types of influence that institutions have on this economic behaviour. These help in distinguishing between different variants of institutional economics. The first, a restrictive function, describes institutions’ role as constraints on economic behaviour. The second refers to institutions’ cognitive function in the information that institutions provide to the individual, including the likely actions of other people, and in the influence that institutions have on the perception that people have of reality, particularly in the way that people select, organise and interpret information. The third function, the institution’s motivational or teleological role, is on the ends that people pursue. This third function can be recognised in Fusfeld’s (2000) opinion that ‘the future of institutional economics lies within a humanistic political economy based on understanding institutional change and its widespread impact on the social order, on concepts and research supported by empirical reality, and on social policies designed to control and direct the path of institutional change’. This research builds on the more recent interpretation of NIE as articulated by Dequech (2002).

Recent contributions to the *Journal of Economic Issues* have distinguished the Veblen-Commons variety of institutionalism from NIE (Dequech, 2002) by drawing out the deeper cognitive function of the institution. For example, Streit et al (1997) maintain that institutions not only facilitate cognitive processes but, being a part of the cultural environment, also influence the individual’s perception of information. Finally, Mayhew (2000) defines institutionalism as ‘an analysis that treats encultured individuals in cultural settings (firms, agencies, households, etc.) as they seek culturally patterned goals and change’, and interprets Hodgson (2000) as saying that ‘what is distinctive and attractive about institutional economics is the emphasis on seeing people as cultural animals’.

It was apparent from the literature review that NIE is nowhere clearly, fully and succinctly defined. However, the literature does explore a number of themes related to NIE and its application. The following sections extract and detail some of those themes which have a direct or indirect bearing on this research.

3.1.1 Concepts and assumptions within NIE

Williamson (1991a) combines institutional economics with aspects of contract law and economic theory to identify and explain key differences that distinguish three generic forms of economic organisation, namely market, hybrid and hierarchy. Figueiredo and Teece (1999) extend this list of organisational options to five in their study of mitigating procurement hazards in the context of innovation. They use the market form as 'buy', and the hierarchy form as 'internal development'. They segment the hybrid form into 'joint venture', 'strategic alliance' and 'long term purchase agreement'. These five forms are assumed to be differentially effective in limiting the costs of carrying out transactions.

Masten (1999) identifies four forms of relationship specific investments as different types of asset specificity. Physical asset specificity involves investments in equipment such as tooling specially designed to serve a particular customer. Site or location specificity occurs when a supplier locates facilities next to the customer to economise on transportation costs. Human asset specificity arises when one or both parties develop knowledge or skills which are valuable only when dealing with the other. Dedicated assets are investments made to support exchange with a particular customer that would result in substantial excess capacity were the customer to discontinue purchases even though the investments are not specific to that customer.

A fifth type, temporal specificity, is identified by Shelanski and Klein (1999), drawing on studies by Joskow (1985, 1987, 1988a, 1990), by Masten et al (1991) and by Pirrong (1993). Shelanski and Klein (1999) found that integrated governance structures can dominate spot trading in the presence of 'temporal specificities'. They use a study of bulk shipping as an example. When a processing plant or refinery contracts with a particular bulk carrier the capacities of both plant and carrier become specific assets. Small delays in delivery can result in large losses of quasi-rents for the plant, just as a plant's refusal to take full delivery can impose substantial losses on the carrier. Quasi-rents are the economic returns from productive use of a specific asset that exceed the returns that could be achieved in best alternative use of the asset. A similar effect can occur with private finance initiative contracts to outsource IT and was observed with the project to automate UK post offices described in the introduction to this thesis. Pirrong (1993, cited by Shelanski and Klein 1999), concludes that spatial/temporal proximity is

a form of relationship-specific capital. Rindfleisch and Heide (1997) add brand name capital as a further form of asset specificity.

As well as these dimensioned concepts, Williamson (1981a) introduced within TCE two behavioural assumptions to introduce some aspects of human behaviour into the economic discussion of organisations. These behavioural assumptions are that human agents are subject to bounded rationality and that at least some agents are given to opportunism. These assumptions have subsequently been the subject of sometimes heated debate, so it is worth exploring them in more detail.

Bounded rationality must be distinguished from both hyper-rationality and irrationality (Simon, 1978). In economic theory, 'economic man' is often attributed with hyper-rationality in terms of an ability to know and understand everything available, and effectively 'know the un-knowable'. 'Organisation man' has less powerful abilities to use and analyse information, and is recognised as having competence that has limits. This limited competence does not imply irrationality. Boundedly rational agents remain 'intendedly rational' even when they experience limits in formulating and solving complex problems and in receiving, processing, storing, retrieving and transmitting information. Bounded rationality is consistent with Simon's (1978) suggestion that an emphasis on satisficing is more appropriate than the usually stated objective of maximising economic efficiency. In practical terms, maximisation may be a more realistic approach through being easier to implement (Williamson, 1993, cited by Pratten, 1997).

Conlisk (1996) depicts bounded rationality as primarily connected with cognitive problems whereas Foster (2000) suggests that economic rationality is also bounded by emotional considerations. Yates (1990), in a contrasting view, argues that in defined contexts there can be a level of emotional intensity that yields optimum performance. This is illustrated by comparing the bored worker facing low rewards and low penalties, the worker who feels integrated into the firm and is satisfied that both the incentives and sanctions faced are fair, and the worker who is alienated, insecure and, in the face of perceived unfairness, preoccupied with strategic considerations. They illustrate this by considering an individual entering an economic organisation. Initially, the individual's limited understanding of the specific functioning of that organisation and their role leads to uncertainty. The behavioural complexity faced, which is not understood, is not

necessarily a threatening state but rather one involving opportunities. The individual discovers and adopts the prevailing institutions. Once the institutional environment has been absorbed and adopted the individual may engage in co-operative or creative activities in specialist areas. This is rational in that the aspirations of the individual and the organisation become aligned, and it secures ongoing employment for the individual. For the organisation it is transaction cost reducing. This behaviour can be viewed as constructive opportunism because the individual chooses to adopt novel institutions within which he will operate, in contrast to the exploitative opportunism commonly interpreted from TCE (Foster, 2000).

These concepts, and other NIE concepts collected during the course of the research, are mapped out in Appendix B.

3.1.2 *Transaction costs*

NIE encompasses both transaction-cost-centric and principal-agent-centric concerns. The transaction-cost-centric approach, TCE, relates to three relatively independent bodies of literature (Williamson, 1981a). It draws on economics in its concern with economising, organizational theory to address issues of internal organisation, and on contract law literature in treating contract as a governance issue. Its origins lie in the desire to understand where firms' boundaries lie and why. Williamson (1999) suggests that firms and markets are alternative modes of organisation, and that the boundary of the firm needs to be derived rather than taken as given by technology. This is particularly relevant to those who adopt Abell's view (1980) that defining the firm and its boundaries should be the starting point of strategic planning or, like Penrose (1995), are concerned with growth of the firm. In TCE, firms exist as organisational forms because of the conjunction of bounded rationality, opportunism, and asset specificity. The core hypothesis underlying transaction cost analyses of organisational form is that transactors choose organisational arrangements to minimise the expected costs of governing the transaction over the life of the relationship (Masten et al, 1991).

The proposition of the transaction as a basic unit of economic analysis was originally advanced by Commons (1934) who recognised that there were various governance structures with which to mediate the exchange of goods or services between technologically separable entities. Central to the study of institutional economics, as Commons saw it, was assessing the capacities of different governance structures to

harmonise relations between different parties. Coase (1937) posed the problem more sharply observing that the production of final goods and services involves a succession of early stage processing and assembly activities. Where others took the boundary of the firm as given and examined how well markets mediated exchange in intermediate and final goods markets, Coase held that the boundary of the firm was a decision variable for which an economic assessment was needed to determine when a firm should integrate and when it should rely on the market. This is in some degree supported by Chandler's *Strategy and Structure* (1962) which fundamentally challenged the view that economic efficiency was substantially independent of internal organisation. The transaction costs approach to industrial organisation departs sharply from the neoclassical tradition in its shift of emphasis from the market to the individual transaction. Behaviours such as vertical integration and long-term contracting, previously viewed as anti-competitive, become an efficient response to small numbers bargaining problems.

There have been some strong views on the relationship between TCE and competing traditions, particularly mainstream economics (McCloskey, 1998). The debate in 1996 collected in the *Academy of Management Review*, exemplified by Ghoshal and Moran (1996), contrasted views for and against transaction cost theory. Ghoshal and Moran (1996) argued that TCE as developed by Williamson fails to recognise that organisations are not mere substitutes for structuring efficient transactions when markets fail, but that they possess unique advantages for governing certain types of economic activity through a logic that is very different from that of a market. They further argued that a very different theory was needed that would be more attuned to the realities of what Simon (1991) has called the 'organizational economy'.

Pratten (1997) also discusses issues within TCE that bear on the relationship between TCE and competing traditions, although this wide-ranging discussion concentrates more on commenting on Williamson's work in relation to other traditions than it does on providing an independent view. Poppo and Zenger (1995) compare TCE and resource-based explanations for make or buy decisions in an empirical study; Lepak and Snell (1999) draw on the resource based view (RBV) of the firm, human capital theory, and TCE to develop a human resource architecture of four different employment modes – internal development, acquisition, contracting and alliance. It may be appropriate to use

such modes in the context of information systems as service, as in the case of web services.

3.1.3 *Firms, markets and regulation*

One of NIE's practical economic concerns is in the regulation of firms and markets. The 'Carnegie School' of economic thought which developed the organisation theory view, and which is represented by March and Simon (1958) and Cyert and March (1963), developed through the 1950s and 1960s the idea of a 'purposive organization' while recognising the limits of human actors in terms of bounded rationality. This was a coherent body of theoretical and empirical knowledge that represented a new scientific way of understanding the organisation of economic activity within firms and across markets (Joskow, 1991). Uncertainty and bounded rationality were featured by Thompson (1967) in his classic statement of the organisational problem. This compares with Hayek (1945) who observed that the economic problem is relatively uninteresting except when economic events are changing and sequential adaptations to these changes are needed. He suggested that what distinguishes a high performance economy is its capacity to adapt efficiently to uncertainty.

NIE was further developed during regulatory debates in the 1960s and 1970s to set out detailed comparative analyses of the roles and limitations of markets and regulation as alternative institutions for the governance of public utility transactions (Crocker and Masten, 1996). The path of institutional change is constrained by the regulatory environment. For many years, policymakers designed regulatory schemes on the implicit assumption that contracting within an industry is of the classical type, consisting of exchanges of discrete promises between parties who have no other relationships. Many transactions are actually far more complex than the classical model of contracts supposes, so regulations based on classical contracting are apt to provide an inappropriate regulatory governance structure. This can inhibit efficient contracting, encouraging parties to find ways around the rules (Palay, 1985). Palay highlights three common ways that parties can get around the rules: mounting a campaign to have the legislature alter the regulatory scheme, use litigation to gain the appropriate changes, or take their case directly to a commission. He then discusses a fourth method: the use of informal, unenforceable contracts. He identified their extensive use to, in effect, restructure the regulatory framework in the highly regulated US rail-freight industry.

Arrow (1969) traced underlying difficulties with markets to transaction cost origins, stating that

“Market failure is not absolute; it is better to consider a broader category, that of transaction costs, which in general impede and in particular cases completely block the formation of markets” (Arrow, 1969).

It is interesting to consider the progress of commercial electronic auction sites such as e-Bay with this view in mind, and how they have opened up new markets. Taking an institution as a set of rules which delineates guidelines of interaction among members of a social system, a contract can be seen as a specific type of institution with the economic function of institutions being to economise on transaction costs, in particular enforcement and information costs (Roumasset and Uy, 1980).

Joskow (1991) expands on the anti-trust aspects of NIE in respect of fair competition and regulatory policies, identifying that the basic conceptualisation of competition is often as repeated spot market transactions between individual buyers and sellers, which is why vertical integration was often seen as ‘anti-competitive’. Yet as Lyons (1996) points out, the core of contract theory is about transactions not governed by spot contracts with a predetermined price and immediate exchange. Without immediacy, the passage of time introduces environmental uncertainties, effort monitoring and investments as important issues because they can be exploited by the parties to the transaction. In theory, cleverly specified contracts can do much to alleviate such problems, although bounded rationality means that complete, contingent contracts must remain a hypothetical ideal. The main purpose of contract theory is to find relatively simple specifications that come close to what a complete, contingent contract would do under situations of environmental and behavioural risk. A branch of contract theory addresses the use of legal versus non-legal mechanisms for enforcing contracts (Lyons, 1996) but is outside the scope of this research. Principal-agent theory investigates the nature of optimal incentive contracts which give the agent a reward based on observable outcomes which can be used to offset the problem of incomplete monitoring. In Lyons’ view the transaction cost literature tends to play down risk aversion and asymmetric information as explanations of contracting, preferring to emphasise the difficulties of enforcing contracts whatever their specification. Incomplete contract theory has applied formal, mathematical modelling methods associated with principal-agent theory to the

problems addressed by transaction costs theory and has resulted in two theoretical clarifications. Firstly, it is easier to write a simple contract to protect self-investments than it is to protect investments which involve other parties, and secondly, a contract can always be re-negotiated if it is mutually beneficial to do so, meaning that an understanding of contracts requires an understanding of the re-negotiation process (Lyons, 1996).

Williamson (1999) draws a distinction between contract as legal rules and contract as legal framework. This distinction was found relevant within the case studies for contrasting simple contracts, which can at least in principle be complete, and complex contracts which are necessarily incomplete because of economic uncertainties, even if not because of opportunistic behaviour. Joskow (1985, 1987, 1988a, 1988b, 1990, 1991) discusses contracts in some depth, with particular reference to the coal industry and electricity generation. He found the transaction costs framework to be ‘an extremely powerful vehicle for gaining a better understanding of the nature of vertical supply relationships between power plant owners and their coal suppliers’ in his investigation of vertical integration and long-term contracts (Joskow, 1985).

3.1.4 Behavioural aspects of NIE

The behavioural economist Simon (1991) offers a sceptical and simplistic review of the value of NIE and argues that it is seriously incomplete. However Simon’s alternative theory although parsimonious is presented on what is obviously reasonable rather than reasoned argument according to Williamson (1996a), who counters many of Simon’s arguments by moving the discussion to ‘the deep structure of economic organization’ and long-term contractual relationships rather than ‘the ebb and flow of day-to-day behaviour and its frailties’. Williamson (1996a) offers the proposition that ‘nothing but a serene and frank examination of the hazards of opportunism will enable us to mitigate those hazards’ whereas Ghoshal and Moran (1996) suggest that candid reference to opportunism will invite bad practice. Certainly when a transaction entails one party in committing capital that has little value in other uses, the other party has strong incentive to appropriate the quasi-rents through opportunistic actions (Hubbard and Weiner, 1991).

Others have critiqued organizational economics in similar vein. Donaldson (1990), replying to Barney (1990), raises issues with the motivational model in organizational

economics and its negative connotations towards the practice of management, and raises doubts whether organizational economics can readily be synthesised with traditional management theory. Barney (2001) takes a differing view on stakeholders' abilities to appropriate fair rents. He cites Coff (1999) and Alchian and Demsetz (1972) as some who have begun to examine the rent appropriation process while discussing whether the RBV is a useful perspective for strategic management research.

Williamson (1981a), discussing the behavioural assumptions in NIE, suggests that the two behavioural assumptions on which transaction cost analysis relies add realism to the subject and distinguish the approach from neoclassical economics. He expresses these behavioural assumptions as 'the recognition that human agents are subject to bounded rationality' and 'the assumption that at least some agents are given to opportunism'. McCloskey (1998), interpreting TCE relative to mainstream economics, argues that many have misunderstood the meaning of these behavioural assumptions. McCloskey contends that there are few people in the world who actually understand the Coase theorem which addresses circumstances where transaction costs matter, rather than 'the Coase Theorem' as expressed by Stigler and others, according to McCloskey, in which goods gravitate to those who value them most if transaction costs are not too high.

Williamson (1981a) distinguishes bounded rationality from both hyper-rationality and irrationality. Boundedly rational agents experience limits in formulating and solving complex problems and in processing information but otherwise remain 'intendedly rational'. If such rationality were not bounded, all economic exchange could be efficiently organised by contract, as is demonstrated in the Arrow-Debreu comprehensive contracting model (Radner, 1968; cited by Williamson 1981). With bounded rationality, it is impossible to deal with complexity in all contractually relevant aspects, and so incomplete contracting is the best that can be achieved. Some have described bounded rationality inappropriately as 'shirking'.

Incomplete contracting would still be sufficient in the absence of opportunism.

Opportunism is not the simple seeking of self-interest of 'economic man', but makes provision for self-interest with guile (Williamson, 1981a). Problems of contracting are considerably complicated by economic agents who make promises that they do not necessarily intend to fulfil, such as disguising preferences or attributes, presenting data

in a way that is true but misleading, or making it difficult to gain access to relevant data. The possibility of opportunistic behaviour greatly complicates problems of contracting.

Principal-agent thinking in AT suggests that opportunism can be controlled internally by adequate monitoring through hierarchical structures. Foster (2000), contrasts this with a competence view, stemming in large part from the work of Nelson and Winter (1982) and Williamson and Winter (1993), in which opportunism is limited through the firm behaving as a complex adaptive system. Shankman (1999), re-visiting the foundations of AT, expresses other concerns about its limitations, and shows how AT can be subsumed within a general stakeholder model of the firm. He argues that AT must include a recognition of stakeholders, that it requires a moral minimum to be upheld, and that it contains contradictory assumptions about human nature. He refers back to Eisenhardt (1989) for a description of the agency problem in the assumptions that the desires and goals of the principal and agent conflict, and that it is difficult or expensive for the principal to verify what the agent is doing.

3.1.5 *Trust, risk and relationships from an NIE perspective*

Nilikant and Rao (1994) argue from a performance outcome view that AT is limited in its generalisability as it overstates the importance of operational effort and ignores the importance of facilitative effort such as teamwork. They accept the concerns of moral hazard and adverse selection as contributors to uncertainty. Davis et al (1997) voice further concerns, discussing stewardship as a theory that has applicability beyond the assumptions of AT, and identifying factors that differentiate between them.

TCE, since it concentrates on exchange between entities, is concerned about the nature of the relationship between those entities. Sobrero and Schrader (1998), in their systematic meta-analysis of studies into inter-firm relationships, comment on assumptions in TCE that any transaction object is 'perfectly transferable', and that the output of a transaction is not influenced by how the transaction is structured, whether by single firm or jointly with a supplier. They adopt resource dependency theory for preference.

Williamson (1975, 1996c) draws out the distinction between contract as a one-time transaction and contract as a framework for a long-term relationship between parties. There are greater possibilities for opportunism in a long-term relational contract,

particularly where there are relationship-specific investments. Three themes emerge from earlier literature on methods of dealing with opportunism in long-term state contracts (Grandy, 1989). Firstly, the state may act as third-party enforcer standing behind explicit terms designed to constrain opportunism. Secondly, economic incentives may provide implicit constraints on opportunistic behaviour. Lastly, the state's role in providing a structural framework for transactions may break down when the state is both enforcer of a contract and a party to that contract.

Bachmann (2001), also looking at such relationships, analyses trust and power as means of controlling trans-organisational relationships. He argues that there are two distinct patterns of controlling relationships where trust and power inter-relate in quite different ways depending on the institutional environment. In one, both mechanisms are generated at the interpersonal level and either trust or power dominates the relationship. In the other, power occurs at the level of the structural framework of relationships and is highly conducive to developing trust between individual organisations. He draws on specific national examples to illustrate the argument.

Nooteboom et al (1997), taking trust as having been treated as redundant or misleading in TCE, test empirically the effects of governance and trust on the risk perceived by agents of firms in alliances. This builds on extensive earlier work, as in Globerman and Schwindt (1986) who consider the rationale for vertical integration. The literature on trust is compared with TCE and AT by Beccerra and Gupta (1999). They integrate the key concepts and assumptions of these theories, using field data from a multi-national corporation, to illustrate that 'trust-embedded' economic theories provide a richer explanation of intra-organisational relationship than 'trust-absent' theories. A summary of Beccerra and Gupta's (1999) findings is shown in table 2.

	Agency theory	TCE	Trust literature	This study
Unit of analysis	Principal-agent relationship	Vertical integration of organisations	Any dyadic relationship between individuals and/or organisations	Economic system
Objective	Minimise agency costs	Minimise transaction costs	Maximise social capital	Satisficing under conditions of resource scarcity
Risk factor	Delegation (separation of ownership and control)	Exchange (asset specificity)	Co-operation (willingness to be vulnerable)	Selective rationality Bounded rationality
Attitudinal context	Goal incongruence Differences in risk attitude	Opportunism	Differences in individuals' attitudes Propensity to trust	Difference in attitude towards analytic bounded rationality
Informational context	Informational asymmetry regarding: - moral hazard (effort) - adverse selection (competence) - Environmental uncertainty	Bounded rationality	Subjective evaluation of: - attitude (benevolence and integrity) - behaviour - competence	Information asymmetry Information boundedness Adverse selection hazard
Determinants (tools)	Contextual factors: - contract design (monitoring and incentives)	Contextual factors: - governance structure (hierarchy and markets)	a) Contextual factors: - impersonal (institutional arrangements eg structure and incentives) b) Individual factors: - personal (characteristics of managers and their interpersonal relationships)	Contextual factors - governance structure - institutional arrangements
Role of trust	Exogenous fixed variable Assumed always at low level	Implicit in the theory Nonexistent in markets Created by the hierarchical structure	Central element Varies for each specific relationship	Dependant measure of specific relationship

Table 2: Trust literature compared with AT and TCE (after Beccerra and Gupta, 1999)

Stump and Heide (1996) review 'recent studies that have drawn on transaction cost and agency theory' to examine how inter-firm relationships are organised. Their general premise is that control mechanisms must be deployed in a relationship to manage a partner's potential opportunism. They develop and test hypotheses about interdependencies between different control mechanisms and identify some contextual factors that influence their use, including qualification of supplier ability, buyer's

specific investments, qualification of supplier motivation, technological unpredictability, supplier's specific investments, performance ambiguity, purchase importance, and monitoring. They generally use items from their own previous studies.

3.1.6 *Limitations of NIE*

A number of previous authors have identified concerns with NIE. Potential limitations of AT have already been discussed. With respect to TCE, Williamson (1991a) discusses four objections to prior work. One objection is that the two stages, the institutional environment and the institutions of governance, have developed separately and in different ways. The institutional environment emphasises the institutional rules such as customs, laws and politics, whereas the institutions of governance are more microanalytic and focus on the comparative effectiveness of alternative generic forms of governance in economising on transaction costs. A second objection is that TCE deals with markets and hierarchies to the exclusion of intermediate forms of governance. Although this objection has begun to be addressed, the abstract attributes that characterise alternative intermediate forms of governance remained obscure at that time although Williamson had asked what the key attributes might be and how they might vary among forms of governance. The third objection is that efforts to operationalise TCE have given disproportionate attention to the abstract description of transactions and relatively little to the abstract description of governance, although the dimensionalising of both is needed. The fourth objection is that TCE purports to have general applicability but has largely been developed with reference to Western capitalist economies.

Pitelis (1998) critically assesses the contribution of TCE in explaining the nature of the firm. He concludes that the conceptual contribution of TCE to the issue of the nature of the firm is based on shaky theoretical grounds, and that it offers no evidence to substantiate the proposition that markets failing due to transaction costs leads through a contractual process to efficient firms emerging. He concludes that TCE's main contributions are in firms' make or buy decisions and in the nature of economic development, but that it has limitations in that it lacks history, dynamics and a historically informed evolutionary perspective. He comments that there is a need for a synthetic, integrative framework, as is constructed in this research.

Robins (1987) in criticising TCE argues that some weaknesses in work on transaction costs are not due to inherent flaws in the approach but stem from an over-ambitious objective in attempting to explain the causes or origins of organisational structure. Robins concludes that the emphasis on causality has resulted in flaws in previous work, but that the approach may provide valuable tools for organisational and strategic analysis if the emphasis on causality is removed. He suggests that TCE is useful in organisational studies as a means of integrating research on the behavioural aspects of organisation into an economic and strategic analysis of the firm, which is how it is used in this research, rather than as a basis for general laws of organisation.

3.1.7 *Recent developments in institutional economics*

There has recently been renewed interest in institutional economics as a whole.

DiMaggio (1998) discusses the field of new institutionalisms in the social sciences.

Nielsen (2001) finds DiMaggio's typology insufficient and argues that it ignores or misrepresents some institutionalist approaches, including American neoinstitutionalism, institutional-evolutionary economics, the new economic sociology, new institutionalism in political science, historical institutionalism and the cognitive institutional approach.

Nielsen (2001) presents a number of theoretical assumptions which he argues are relevant to these institutionalist approaches:

- Human agency is seen as purposeful, or intendedly rational, endowed with some freedom to deliberate or choose in accordance with individual psychology, as opposed to irrational, automatic rule-followers, totally encapsulated in an externally defined role, or rational in the sense of isolated, maximising 'economic man'.
- The constitutive importance of the cultural and cognitive framework.
- The central and pervasive role of power and conflict.
- The role of institutions as habits, routines, and norms in the co-ordination of behaviour.

Nielsen (2001) also identifies deep seated methodological differences between some of the institutionalist approaches:

- The distinction between open system and closed system methodology

- The distinction between positivist and post-positivist approaches
- Within post-positivist approaches, the distinction between realist and idealist ontologies.

In Nielsen's (2001) view, these approaches share an open system, post-positivist and realist methodology which makes collaboration and joint work potentially fruitful. He suggests that collaboration with approaches which do not share these characteristics has limited potential apart from exchange of information on empirical regularities whether in the form of quantitative data or discourse analysis.

Discussion of these more recent variants of institutional economics is outside the scope of this dissertation.

This thesis now considers the interpretation of NIE and a selection of prior empirical studies as a foundation for creating an initial theoretical model.

3.2 Interpretation of NIE

Coase (1998) expresses a view that:

“If one is concerned with the further development of the analysis of the firm's activities, the way in which I presented my ideas has, I believe, led to or encouraged an undue emphasis on the role of the firm as a purchaser of the services of factors of production and on the choice of the contractual arrangements which it makes with them. As a consequence of this concentration on the firm as a purchaser of the inputs it uses, economists have tended to neglect the main activity of a firm, running a business. And this has tended to submerge what is to me the key idea in ‘The Nature of the Firm’: the comparison of the costs of coordinating the activities of factors of production within the firm with the costs of bringing about the same result by market transaction or by means of operations undertaken within some other firm.” (Coase, 1998)

This raises two issues. The main activity of firms is not about buying and selling, or about the choice of contractual arrangements, but about running a business. Buying, selling and choosing contractual arrangements are but a part of this. The relevant comparison is not mere costs, but the costs of bringing about the same result, whether it be similar output at lower cost or superior output at the same level of cost.

These emphasise that greater understanding is needed of differences between firms in regard to production if the institutional structure of production is to be better understood. Madhok (2002) comments that the source of firm advantage lies in those activities which it is able to conduct in a manner superior to other firms and which are difficult for another firm to emulate competitively within an acceptable time frame or cost. He contends that such differences would help to explain why an activity is organised within a particular firm and not obtained through the market. In this context, 'market' implies organisation of the same activity within another firm. This brings Coase's emphasis on costs close to the 'resource-based view of the firm' (RBV) theorists' arguments on competitive advantage.

Coase (1990) sees the relative costs of different firms in organizing particular activities as the generally dominant factor determining the institutional structure of production rather than transaction costs. This does not mean that transaction costs will not be important in particular cases, nor that they will not be important in determining the form of the contractual arrangements made by firms. What it does mean is that to explain the institutional structure of production in the system as a whole it is necessary to uncover the reasons why the cost of organising particular activities differs among firms:

“the institutional structure of production comes into being under the influence of forces determining the inter-relationships between the costs of contracting and the costs of organizing ... But it is a theoretical scheme that incorporates these inter-relationships that I believe will make my approach to *The Nature of the Firm* operational.” (Coase, 1988)

This suggests that make-or-buy decisions should explore the process through which firms produce goods and services, echoing the RBV (Menard, 1994). The transaction costs and resource-based views differ, being interested in different aspects of economic activity – exchange and production. TCE focuses on the theory of the firm in general, addressing the question of why firms exist, and searching for the efficient governance structure to facilitate exchange. The RBV is more concerned with performance differences across and between firms, addressing the question of why firms differ from the point of view of a specific firm, and searching for competitive advantage through production (Madhok, 2002).

Madhok (2002) extends the RBV discussion to inter-firm exchange and collaboration. Assuming that the bulk of economic activity is carried out by firms (Simon, 1991), the market is largely an implicit and abstract representation of other firms. Market exchange is predominantly exchange between firms, and so the division of labour between the firm and the market is actually the division of labour, and hence of economic activity, between firms. Madhok (2002) compares the transaction costs view, with its analytical focus on friction in exchange, with the RBV, which has a focus on friction in production (table 3). The production function here is viewed not merely as a single transformation function, but as a more sophisticated one in which technical and organisational components are fused together. It is recognised that even if two firms had access to similar inputs and technology there could still be differences in performance due to differences in how skills and capabilities are organised.

The separation between TCE and the RBV seems somewhat artificial, and

“it seems that we cannot construct an adequate theory of industrial organization and in particular to answer our question about the division of labor between firm and market unless the elements of organization, knowledge, experience and skill are brought back to the foreground of our vision” (Richardson, 1972).

Madhok (2002) combines these theories to create a ‘triangular alignment hypothesis’ between governance structure, transactions and resources, and suggests that firms are not just efficient governance structures, but also institutions for learning. Governance structures serve as a vehicle to manage skills and knowledge as well as aligning transaction and governance characteristics.

	Transaction cost theory	Resource based view (RBV)
Broad theoretical arena	Theory of <i>the</i> firm	Theory of <i>a</i> firm
Primary theoretical question	Why do firms exist?	Why do firms differ?
Primary driver	Search for efficient governance structure	Search for competitive advantage
Primary domain of interest	Exchange and the transaction	Production and firm resources or capabilities
Primary focus of analysis	Transaction attributes (such as asset specificity)	Resource attributes (value, stickiness)
Primary emphasis	Transaction costs	Firm resources, skills, knowledge, routines

Table 3: Comparison of transaction cost and resource based theories of the firm (Madhok, 2002)

Shifting attention away from just the transaction costs associated with organising through the market, and incorporating differences in production costs between firms which originate in the differing capabilities of firms, provides a more comprehensive lens into the organisation of economic activity (Madhok, 2002). The RBV suggests that the source of a firm's advantage lies in those activities which it is able to conduct in a manner superior to other firms and which are difficult for other firms to emulate competitively within an acceptable time frame or cost.

Afuah (2000), taking a slightly different view, relates TCE, which recognises that labour is not homogeneous but rather a complex bundle of heterogeneous skills (Foster, 2000), to the 'knowledge-based theory of the firm' in discussing business changes such as vertical integration, particularly where it results from technological change which renders specific technical competences obsolete. His conclusions support the contention that as the technology that underpins a firm's product evolves, so do the efficient boundaries of the firm. He suggests that there is an 'efficient frontier' on which firms perform best in the face of competence destroying technological change, and that this is related to technical performance or firms' revenues rather than price-performance. His main conclusion highlights the need to pay more managerial attention to the impact of technological change on firms' boundaries, which is in line with Coase's original view (1937) that the boundary of the firm should be a decision variable, and not taken as a given.

3.3 Empirical studies of NIE

As Pratten (1997) observes, Williamson has from the beginning emphasised the importance of operationalisation, suggesting that the impact of Coase's work (1937) was delayed by a failure to operationalise arguments sufficiently. Williamson has identified a progression from the general verbal argument about the importance of transaction costs, through a more general mathematical interpretation, to more recent and more rigorous work on comparative incomplete contracting.

Williamson expressed the view (1989, repeated by Pratten 1997) that:

“Among the key steps that any attempt at operationalization must take are: (1) identifying the behavioural assumptions that are responsible for transaction costs and developing their contractual ramifications; (2) proposing a basic unit of

analysis; and, (3) developing the logic of microeconomic organization – whereby some transactions are predictably organized one way and others another – and discovering distinctive patterns or regularities in the process.”

NIE is still recognised as a challenging theory to operationalise. Although there have been many empirical studies, few consider the conceptual range of the full theory, even though researchers have long questioned the practical relevance of applying narrowly specified transaction cost models (Globerman, 1986). Brockmann’s (2001) theoretical NIE model (figure 5) developed for the construction industry reflects Goldberg’s (1987) subsequent comments that the choice of governance structure for a set of transactions depends crucially on the whole socio-legal context surrounding those transactions.

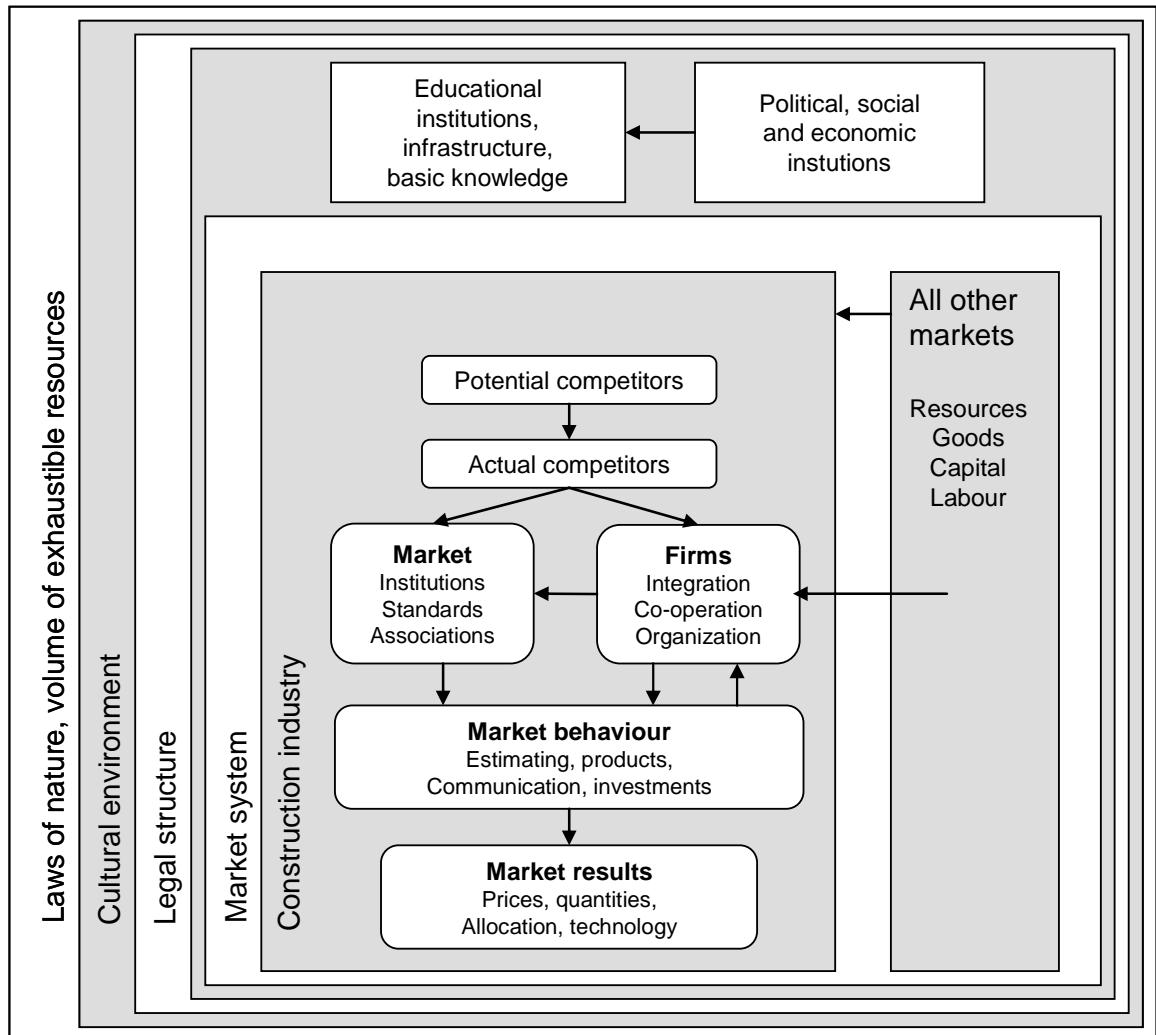


Figure 5: Institutional layers surrounding the construction industry (Brockmann, 2001)

Brockmann’s model, based on substantial experience with large construction industry projects, positions the construction industry within a market system which depends for

its operation on property rights. This is in turn positioned within the legal structures as laid down in man-made constitutions, and a situational view representing the cultural context and recognising that cultures vary between countries, groups and organisations. Culture is taken as the social inheritance learned by each individual from its reference group. These are all set in the context of the data for economic enterprises that cannot be changed, for example exhaustible resources cannot be augmented. This is the only previous model found that reflects the breadth of NIE, but is predicated on exhaustible resources, which is not the case for the digital resources which are typical of e-business.

Previous empirical studies vary enormously in their focus which made it difficult to identify which would be directly relevant to this current research.

Joskow (1991), Shelanski and Klein (1995, 1999), Lyons (1996) and Crocker and Masten (1996) all review and discuss empirical tests of NIE. Joskow (1987) examined the importance of specific relationship investment in determining the duration of coal contracts negotiated between coal suppliers and electric utilities using data for 227 contracts. Joskow operationalised three of Williamson's (1981a) four distinct types of asset specificity, namely site specificity, physical asset specificity and dedicated assets, that he considered were relevant to coal supply relationships. He concluded that his results strongly supported the view that buyers and sellers make longer commitments to the terms of future trade at the contract execution stage, and rely less on repeated bargaining, when relationship-specific investments are more important.

Shelanski and Klein (1999) list a sample of empirical studies that either test TCE directly or 'have important implications for TCE'. They partition their sample across vertical integration, complex contracting and 'hybrid modes', price adjustment in long-term contracts, multi-national corporations and the structure of foreign trade, the effects of vertical integration on types of company performance, comparative studies of organisational forms, and company ownership and governance.

Shelanski and Klein (1999) segment each partition in the sample by topic. In the area of comparative contracting they identify 30 studies testing the effects of transaction costs on vertical integration, which they segment under focused single-industry studies (14 studies), studies using multi-industry data (8 studies), forward integration into marketing and distribution (6 studies) and company towns and company stores (2 studies). They identify 39 studies exploring complex contracting and 'hybrid modes' which research

how transaction costs determine the structure of exchange relations that lie between market and hierarchy. These are segmented into long-term commercial contracts (14 studies), franchising and franchise bidding (8 studies), exclusive dealing, tie-ins and specific leases (3 studies), land tenure agreements (4 studies), informal exchange relations (8 studies), labour market contracts (1 study) and auctions (1 study). Further studies explore price adjustment in long-term contracts and in particular the adjustment mechanism for price and/or quality (7 studies), and studies into multi-national corporations and the structure of foreign trade (10 studies). On the effects of organisational form they found 8 studies on the performance effects of vertical integration, 3 studies on the financial market effects of vertical integration, 16 comparative studies of organisational form, mostly comparing multi-divisional forms with unitary forms or holding companies, and 5 studies into firms' ownership and governance.

Rindfleisch and Heide (1997) reviewed 45 'key empirical studies' of transaction cost analysis (TCA), a particular aspect of TCE. Their concern was that the TCA literature lacked a thorough review that organised and summarised the empirical evidence regarding governance problems and governance mechanisms, and that consequently it was unclear what had been learned from the research and what unresolved questions remained. They considered the methods used and found that the most common means of data collection were mail surveys, and to a lesser degree secondary data collection techniques, for example data on contractual agreements between exchange partners. Their discussion concentrates around operationalising TCA's key dependent construct, governance structure, and its independent constructs, asset specificity, environmental uncertainty and behavioural uncertainty. Rindfleisch and Heide (1997) assess the validity of TCA's conceptual framework by synthesising the key findings of the studies reviewed. They come to mixed conclusions, including that some of the evidence is contradictory as for example in the case of the safeguarding problem of avoiding or mitigating the effects of opportunism. They found some support for the premise that high levels of asset specificity increase the costs of safeguarding contractual agreements and that the use of governance in general, and vertical integration in particular, is broadly confirmed. They suggest some theoretical questions and areas for further research, for example that assessments of transaction costs should include the impact of wider costs associated with internal organisation such as monitoring employees,

administrative overhead, and bureaucratic inefficiency due to political posturing. Their main conclusion remains that ‘a discriminating theory of governance choice is still at an early stage of development.’ They indicate some other studies that question whether governance choice may be influenced more by imitation through a network than by questions of efficiency. The analysis of transaction costs used by Rindfleisch and Heide (1997) is summarised in table 4 as an illustration.

	Asset specificity	Environmental uncertainty	Behavioural uncertainty
Source of transaction costs: Nature of governance problem	Safeguarding	Adaptation	Performance evaluation
Type of transaction costs: Direct costs	Costs of crafting safeguards	Communication, negotiation and co-ordination costs	Screening and selection costs (ex ante) Measurement costs (ex post)
Type of transaction costs: Opportunity costs	Failure to invest in productive assets	Maladaptation; failure to adapt	Failure to identify appropriate partners (ex ante) Productivity losses through effort adjustment (ex post)

Table 4: Source and types of transaction costs (after Rindfleisch and Heide, 1997)

3.3.1 Examples of NIE operationalisation

Over the years, NIE has been operationalised in many different ways. This section lists some of the many potential candidates for the current research that were considered in the search for a theoretical model that could be applied to the research question.

According to Shelanski and Klein (1999) the study by Masten et al (1991) measures directly the costs of internal organisation and represents an early attempt to estimate actual costs and benefits of alternative institutional arrangements, rather than rank them ordinally by reference to reduced-form estimation.

Harabi (1998) studied innovation, in the sense of joint research and development, through vertical relations between firms, suppliers and customers, using insights from TCE to explore the economic rationale behind different modes of co-operation. The principal dimensions of transactions used in the study are the frequency with which they recur, the degree of type of uncertainty to which they are subject, and the condition of asset specificity. The governance forms considered are market, hierarchy and hybrid co-ordination mechanisms. Hybrid forms are described by example, such as joint ventures and different forms of joint research and development agreements. The empirical

investigation used data from a wider survey based study of German industry but is not statistically representative.

Ghosh and John (1999) extend transaction costs analysis into a governance value analysis framework to address marketing strategy decisions, particularly those based in co-operative relationships, while Sobrero and Schrader (1998) structure contractual and procedural co-ordination mechanisms for asset specificity and uncertainty.

Taking a somewhat different view, Dahlstrom and Nygaard (1999) studied organisational efforts to constrain ex post transaction costs in inter-organisational exchange. Their theoretical model of antecedents to transaction costs based on transaction cost analysis frames opportunism as a determinant of transaction costs, in particular bargaining costs, monitoring costs and maladaptation costs. The model implicates co-operation and formalisation as control structures that alleviate opportunism. Their study concluded that opportunistic behaviour consistently increases transaction costs, that co-operative interaction curbs bargaining costs and that formalisation reduces opportunism.

Other studies are cast in an empirical form but are descriptive rather than empirical. Maher (1997) undertook a number of case studies across different industries, including automobile, mechanical engineering, electronics, and gas to examine the governance of contractual relations within the context of TCE. These case studies appear to be descriptive of the contractual relations. There is little development of NIE concepts or their interpretation for these different industries. Maher (1997) does point out the importance of trust which is explicitly excluded by Williamson on the grounds that operationalising trust has proved inordinately difficult (Williamson, 1985; Williamson, 1986).

Gulati (1995), who carried out an empirical study on data from economics and research databases relating to some 2,400 alliances, provides an example of the use of secondary data. He expresses concern at the use of a singular emphasis on transaction costs which treats each transaction as independent and ignores the role of inter-firm trust that develops from repeated alliances between the same partners.

Wiseman and Gomez-Mejia (1998) used AT in modelling managerial risk taking. They identify from the executive compensation literature that agents exhibit a preference for

accounting-based performance measures whereas principals prefer market-based measures. Wiseman and Gomez-Mejia (1998) consider evaluation criteria for managerial behaviour and point out that some governance literature, such as Walsh and Steward (1990), challenges assumptions that rational decision-making requires accurate and unbiased information.

Other modelling approaches adopt more mathematical and analytical treatments. Park et al (2000) used TCE as a theoretical framework for sourcing strategies. They use an integrated model formulated by Reve (1990):

$$Firm = f(\text{strategic core}, \text{strategic alliance})$$

which relates to Rumelt's (1982) concept of strategy as an efficient bundle of unique resources and relationships. Reve (1990) elaborates the strategic core of the firm using four types of asset specificity, namely site, physical asset, human asset, and dedicated assets. The strategic core of the firm is described as close to the firm's business idea which sets it apart relative to other competing firms. It is represented by assets of high specificity to attain the firm's strategic goals. In contrast, Williamson (1991a) developed a reduced-form analysis of governance cost expressions and showed numeric comparisons of the costs of different governance forms based on the mathematical analysis.

Grossman and Hart (1986) build on foundations laid by others in discussing the integration of firms and the issue of property rights. They state the Coase-Williamson property rights theorem and develop a game theoretic extension of it with mathematical modelling. Malone (1987) uses mathematics to model co-ordination structures in organisations and markets so that trade-offs between these structures can be analysed in terms of production costs, transaction costs and vulnerability costs. Ghoshal and Moran (1996) 'unpack' opportunism into a model, 'the cycle of self-fulfilling prophecy'.

Continuing the mathematical approach, Gabaix and Laibson (2000) develop and demonstrate an algorithmic model based on decision trees which they claim makes quantitative predictions of behaviour, and is psychologically plausible, broadly applicable, and empirically testable. Wimmer and Garen (1997) characterise asset specificity in a franchising context in algebraic form, expressing it as $1-\alpha$, where assets purchased for a price P have a salvage value of αP , with α being less than or equal to 1.

Shelanski and Klein (1999) suggest that much of the empirical work in TCE can be considered as a variation of a basic model. This model is that the efficient form of organisation for a given economic relationship, and therefore the likelihood of observing a particular organisational form or governance structure, is a function of properties of the underlying transaction or transactions. Organisational form is taken as the dependent variable while asset specificity, uncertainty, complexity and frequency are taken as the independent variables. However they consider that there are some limitations of empirical research in TCE. In their view the main variables of interest in TCE are difficult to measure consistently across firms and industries. These variables are typically estimated based on surveys or interviews, for example by asking a manager to rate a variable on a 7 point Lickert scale. These are ordinal perceptions of the individuals involved making any results difficult to compare across firms or industries. They suggest that empirical research in TCE is often hampered by confusion about the definitions, and likewise with the empirical operationalisation and parameterisation of key variables. Furthermore they point out (Shelanski and Klein, 1999) that besides the difficulties of measurement and definition that are unique to TCE, empirical TCE is also subject to problems found more generally in empirical work. For example, alternate hypotheses that could equally fit the data are rarely stated and compared.

3.3.2 Use of NIE as a cognitive framework

No studies were found which used NIE as a cognitive framework, but many do use TCE for this purpose.

Ghoshal and Moran (1996) comment on the extent to which TCE had become increasingly important for the analysis of a wide range of strategic and organisational issues of importance to managers. These range from vertical integration (Masten et al, 1989; Monteverde and Teece, 1982a, 1982b; Walker, 1988) to distribution strategy (Anderson and Schmittlein, 1984; John and Weitz, 1988), from international expansion (Buckley and Casson, 1976; Hennart, 1982; Rugman, 1981; Teece, 1983) to strategic alliances (Balakrishnan and Koza, 1993; Hennart, 1991), and from optimum financial structure (Balakrishnan and Fox, 1993; Williamson, 1991a) to the design of internal incentive systems (Harris and Raviv, 1978; Hoskisson and Hitt, 1988). Such contributions have drawn many normative conclusions based on the logic of TCE. Economists have begun to bring this transaction cost reasoning to the classroom

(Masten, 1993) and to general business audiences (Rubin, 1990) although prescriptions of the theory cannot be normative if managers are incapable of implementing them or if the assumptions on which the theory is built do not apply.

Ennew et al (1992) use ideas from TCE, such as asset specificity, to discuss the boundaries of firms in the financial services industry over a period of significant industry restructuring. They conclude from asset specificity considerations that the firms were experimenting organisationally in positioning themselves. Ennew et al's (1992) model of flexible boundaries for the firm has some similarities to Neuman's model (1994) referenced earlier.

Choudhury and Sampler (1997), developing a concept of information specificity to parallel the idea of asset specificity, suggest cognitive costs of information will parallel transaction costs. They introduce the notion of cognitive transaction and agency costs to 'complement the behavioral costs that are the focus of traditional transaction cost and agency theory logic', tabulating their assumptions and offering two worked examples.

Continuing this cognitive theme, Ashmos et al (1998) examine the direct and indirect effects of predisposition, in terms of rule orientation and past financial performance, and interpretation of strategic issues on the participation of internal stakeholder groups in strategic decision-making. They create a theoretical model, describing the measures used, and test it using an experimental method based on hypothetical decisions with executives in 52 organisations. From their study they suggest that any attempt to improve decision-making effectiveness by shaping how organisational members frame and interpret issues will be constrained by the organisation's existing routines as well as its past performance.

This leads on to Foster (2000) who assesses the usefulness of TCE when firms are viewed as complex adaptive systems. He draws on literature in psychological economics to synthesise TCE with aspects of complexity science, and develop the concept of bounded rationality by drawing on emotional as well as cognitive limitations. He points out that some have analysed behavioural complexity using game theory and lays out some concerns about the scope of applicability of TCE. He suggests that TCE is useful in providing a simple analytical framework to guide the design of general policy instruments and in the formalisation of institutional rules, but that care must be exercised in thinking in terms of TCE in too much detail. On balance, Foster (2000)

concludes that TCE is a theory suited to economists and economic policy makers, with limited relevance for management scientists who are interested in business strategy because their goal is to understand processes that in effect change transaction costs and the developmental potential of the firm. This current research challenges Foster's conclusions.

3.4 Relevance of NIE to technology-related change

This literature review of empirical studies, including those listed in Appendix A, gave the researcher the impression that many previous NIE studies, most of which used TCE, were inconclusive. This impression was later borne out by David and Han's (2004) systematic meta-analysis of what seeks to be a representative sample of 63 articles containing empirical tests of TCE's central tenets. They filtered and distilled these 63 articles from 4,555 articles identified within the extensive literature around TCE, and found mixed conclusions.

The empirical studies gave surprisingly few practical clues as to how to apply NIE, so attention was focused next on information technology (IT) related studies. The special section on economics, electronic commerce and competitive strategy in the Fall 2000 issue of the *Journal of Management Information Systems* was reviewed from a NIE perspective. In particular, Thatcher and Oliver (2001) discuss firm-related impacts of technology investments from an economics perspective and conclude that the relationship between production efficiency, product quality and productivity may be counter-intuitive, and that 'a single-minded focus on productivity can be unprofitable'. Au and Kauffman (2001) present a model for technology adoption decision making which demonstrates a change in efficient boundary of the firm under conditions of technology adoption to achieve competitive advantage by using a specialist supplier, in their case a supplier of bill consolidation services.

A deeper analysis of economics and technology, which includes NIE considerations, is provided by Kurdas (1994), who explores theories of technical change and investment. She suggests that an assumption of bounded rationality implies that economic agents' decisions depend on the institutional setting, with conventions, policies and rules specific to the institution influencing the outcomes. Through experience the firm learns how to produce certain products, sell in certain markets, do certain types of research and development, and how to organise itself to carry out these tasks. The firm has inter-

related routines that govern the various activities taking place within its legal framework which reflect its past learning experience, and enable groups of individuals to systematically pursue and achieve collective goals which they would not be able to reach as individuals. Procedures are used at all levels of the organisation and form a hierarchy of routines that matches the hierarchy of the organisation. Routines are typically adapted to a specific environment to assure smooth operation in the context of that environment. When conditions change, old routines and conventions can become dysfunctional, yet changing them is costly and uncertain. A central problem facing the firm is how to achieve a balance between established patterns of behaviour and the need to make changes (Nelson and Winter, 1982; Chandler, 1992).

Kurdas (1994) discusses choices of technology investment strategy in this context of bounded rationality. She characterises two types of uncertainty – productive uncertainty relating to the internal operations of the firm, and competitive uncertainty of the firm's external market environment – and suggests that investment strategies involve a trade-off between these uncertainties. A static technical strategy takes technology and preferences as given, minimising productive uncertainty, although it leaves the firm vulnerable to changes in the market environment caused by other agents. In contrast, an innovative strategy changes the technology and preferences, increasing productive uncertainty, but if successful reduces competitive uncertainty by enhancing the firm's market power.

Typically, technologies become more standardised as they age. Information about them becomes more public, reducing information asymmetry and reducing the cost of purchasing implementation and deployment knowledge which can be bought ready made rather than having to be learnt through experience. Entry barriers reduce and price competition increases while productive uncertainty diminishes against increasing competitive uncertainty. This interpretation approximates to the conventional neoclassical view of the firm. On the other hand, a Schumpeterian strategy involves moving first to learn and create capabilities, as eloquently described by Kurdas (1994) in relation to technology related change. Success results from reconfiguring the firm's capabilities for new products and preferences, and taking the lead in shaping the environment and adapting in ways that match the firm's capabilities and the environment. Such a longer-term innovative strategy requires that the firm:

- Develops a set of core capabilities that are hard to imitate and flexible enough to be applied to other areas
- Evolve the organisational structure that facilitates high utilisation of these capabilities
- Increase market share to reap economies of scale
- Find new products related to core capabilities to benefit from economies of scope.

Further, Kurdas (1994) discusses technological discontinuities and the importance of incremental innovations, or 'microinvention', in realising the economic potential of a technological paradigm, and suggests that incremental and revolutionary technical change are complementary. In Nelson's view (1987) this paradigm specifies general rules, problem solving heuristics, key variables, and ways of pushing back constraints. Educational, industrial and professional practices, like the firm's routines, are adapted to specific technological paradigms, and may themselves become standardised if routines are learnt by large numbers of individuals working for different organisations. Change then becomes difficult because it is only possible if a large number of organisations and individuals agree to change simultaneously, but this depends on there being suitable incentives for an agent to bring about such agreement. As a brief aside, a contemporary example can be seen in the UK national programme 'Building Schools for the Future' (Bibliography – DfES, 2003a). Incremental innovations find solutions to problems within this frame of reference, but economic progress is eventually subject to the law of diminishing returns which may make revolutionary change attractive in terms of risk and reward if there is sufficient market opportunity.

Many other researchers have reviewed the economics literature to explore ways in which economic theory could be applied to IT. According to Bakos and Kemerer (1992), Ciborra (1985) was one of the earliest proponents of applying TCE to IT, arguing that existing models of the systems development process were excessively rational in their expectations of how end users viewed the systems being developed for them. Beath (1987) explored this further by studying fourteen IT projects in terms of their transaction governance structures, and according to Bakos and Kemerer found 'clear relationships between project performance and the degree to which the governance structures 'fit' the problem domain'. Bakos and Kemerer (1992) saw transaction cost theory as promising in terms of the debate about the relative merits of

outsourcing information systems and services. They highlighted the potential relevance of AT in that it 'views firms as a nexus of agency relationships among individual economic agents', including the relationships a firm has with its employees which are in part to exploit the economies of specialisation. Their conclusion, that more research was needed to understand the economic impact of IT, was reflected in the resurgence of interest in NIE in the field of IT during the early to mid 1990s. Many of these studies appear to take a somewhat limited and perhaps rather superficial view on the concepts of NIE, rather than exploring the original intent behind them. In some cases this has led to an emotive and disparaging interpretation of NIE concepts, for example describing the concept of opportunism as 'shirking' rather than taking it as a descriptor of a pattern of behaviour and investigating whether this behaviour actually occurs.

Other studies are more thorough. Clark et al (1995) investigated IT outsourcing as a strategic choice using a transaction costs approach, and produced a managerial and governance framework for the outsourcing decision from the results of 63 in-depth interviews with executives about their outsourcing options. Hann and Weber (1996) provide a model of IT planning and the principal/agent relationship. They tested the model empirically using survey data and analysed the results using structural equation modelling. Huarng (1995) used AT to look at system development, producing a model which was then tested using a cross-sectional structured questionnaire.

More recently, Stapleton et al (2001) applied TCE to the shift from marketplace to marketpace as defined by Rayport and Sviokla (1995), discussing key concepts of TCE including asset specificity, uncertainty, and frequency of transaction, and a number of stated propositions. They made little attempt to operationalise these concepts.

Recent contributions from the practitioner literature were considered from an NIE perspective. These include Hagel (2003), who discusses the impact and relevance of web services and considers edge conditions for the success of business, Singer (2002) who looks at web-based architectures in plant engineering, Pak et al (2002) who discuss changes to service and sales territory boundaries when managing distributed service networks, and Laartz et al (2003) who discuss the importance of determining boundaries in an architectural approach. Anderson and Anderson (2002) discuss the changing role of intermediaries in an e-commerce context. Bichler et al (2002) look at the impact of a

reduction in transaction costs with flexible pricing in business-to-business (B2B) e-commerce, and question differential pricing.

Prahalad and Krishnon (2002) discuss the increasing gap between emerging strategic direction and IT's ability to support it for large companies, and Becker et al (2002) discuss changing contractual relationships as an option for survival in the cable industry. Kangis and Kareklis (2001) apply AT to governance and organisational controls in public and private banks, Rasheed and Geiger (2001) consider empirically the determinants of governance structure for an electronic value chain, and Mollering (2002) looks empirically at perceived trustworthiness and inter-firm governance using transaction costs for 184 printing firms.

The wide variety of ways in which NIE has been applied makes it plausible that NIE as a body of theory could be more widely adopted but gives little guidance on how it might be applied. The researcher, therefore, decided to take a step back from this detail and return to the core elements of NIE to formulate a theoretical framework for the empirical phase of the research.

3.5 Initial theoretical model

Few of the existing theoretical models based around parts of NIE consider the full theory. Most look for specific relationships between a limited number of constructs, but do not obviously control for other NIE concepts. Joskow's (1991) various studies around the coal and power industries, and Brockmann's (2001) of the construction industry, are rare in considering the full theory. Selected models drawn from the literature, which appeared relevant and illustrate how some others have used the theory, were considered as part of the process of developing the theoretical framework.

3.5.1 *Models from the literature*

Dyer (1997) derives a theoretical model (figure 6) from an empirical study of 50 US and Japanese automakers, looking at inter-firm collaboration with a view to minimising transaction costs and maximising transaction value. The study suggests that transaction costs do not necessarily increase with relationship-specific investments, and supports this with five propositions:

- Repeated transactions with a small set of suppliers

- Economies of scale and scope in transacting with that smaller supplier group (with a high volume of exchange between transactors)
- Extensive information sharing which reduces asymmetric information
- The use of noncontractual, self-enforcing safeguards (such as goodwill and trust) which are effective for an unlimited time horizon (as opposed to contracts which are effective for a finite time horizon)
- Investments in co-specialised assets.

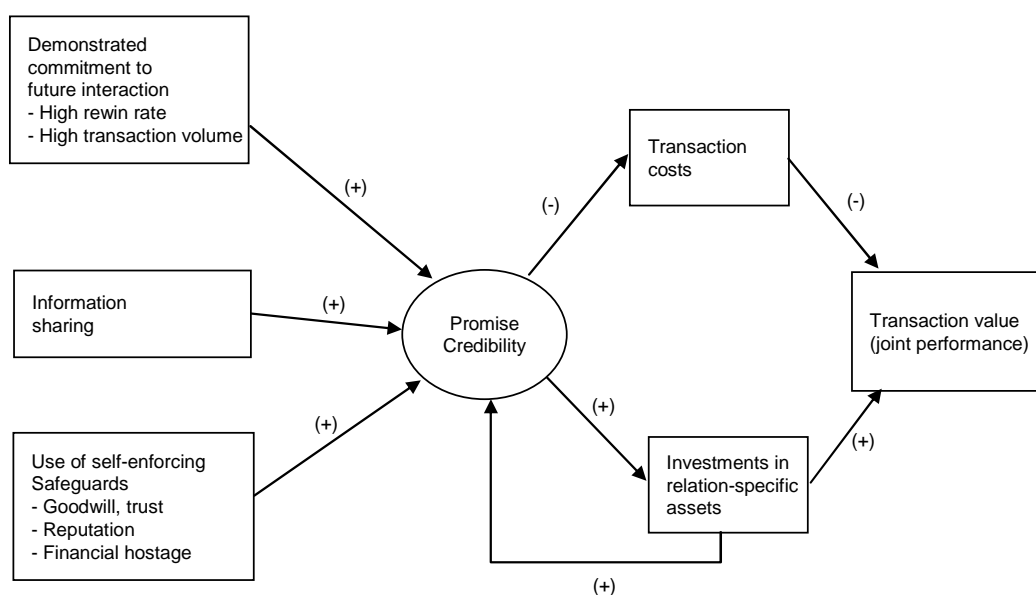


Figure 6: Model of inter-firm collaboration (Dyer, 1997)

Dyer (1997) contends that a ‘production network that can simultaneously achieve the twin benefits of asset specialization and lower transaction costs will have efficiency advantages over a less specialized network with higher transaction costs’. Dyer discusses whether Williamson’s (1985) question ‘How can exchange relationships be structured to economize on transaction costs?’ is the wrong question, and whether the fundamental question should be ‘How can exchange relations be structured to maximise transaction value (which includes both production and transaction costs)?’ This fits with Coase’s (1998) rejoinder that the underlying purpose is running a business successfully.

Madhok (2002), relating transaction cost and resource-based views of the firm, derives a ‘triangular alignment hypothesis’ (figure 7) between transaction, governance structure and resource particulars. His premise is that a truly strategic theory of the firm should address not only the decision with respect to hierarchical governance or market

governance, that is production or exchange, but also take into account how a firm's resources and capabilities can best be developed and deployed in the search for competitive advantage.

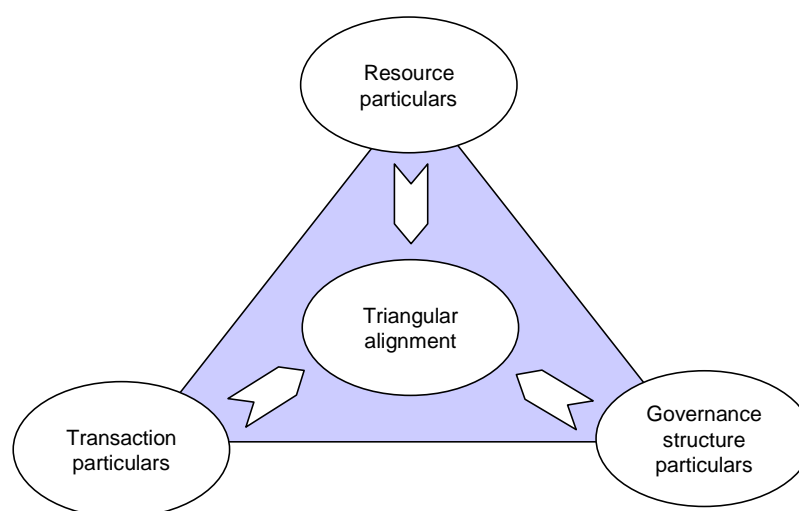


Figure 7: The triangular alignment hypothesis (Madhok, 2002)

Madhok argues that the reason why organisation forms differ under similar transaction characteristics, and why different firms organise similar transactions in different ways is that a firm's particulars matter as well as transactional characteristics. The central issue then becomes a question of aligning the characteristics of the governance structure, the characteristics of the transaction, and the characteristics of relevant firm-specific resources. Achieving such alignment requires increased attention to the interdependence between costs and skills to address Coase's concern regarding the importance of addressing the interdependence between production and exchange relations. Madhok identified research to support his hypothesis of the importance of the triangular alignment argument in firms' boundary decisions, and that the characteristics and strategy of a particular firm influence both how its resources interact with each transaction and how it will choose to govern it. Madhok argues that both theories need to pay more concerted attention to the context in which activity occurs, since the value of a particular resource is dynamic and changes over time.

Pilling et al (1994) use a transaction cost based model of relational closeness (figure 8) for an experimental study of relational bonds in industrial exchange involving 229 mid-level purchasing personnel in the US aerospace, electronics and defence industries, using a between-groups factorial design. They use relational exchange theory in their treatment of governance aspects. The experimental treatments were operationalised

through artificial, written, role-playing scenarios but it is not clear to what extent the findings, which were mixed, were conditioned by the necessarily limited scope of those scenarios.

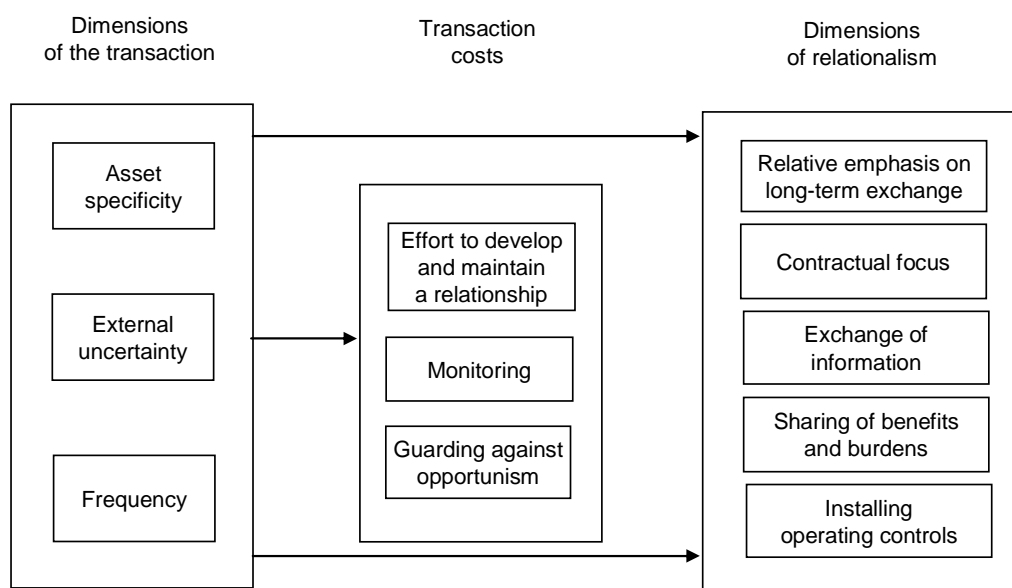


Figure 8: Transaction cost-based model of relational closeness (Pilling et al, 1994)

3.5.2 *Derived conceptual model*

None of these models makes clear how NIE might be used in practice, so an initial conceptual model was created for this research to clarify the underlying assumptions. TCE traditionally concentrates on the costs to an organisation of carrying out transactional exchange with other entities, which might be other organisations, but could be consumers. The first significant characteristic of the model developed in this current research is that it looks at both sides of the exchange (figure 9), recognising that there are transaction related costs to both parties as well as resource costs. This reflects the concept of information asymmetry. These costs are assumed to be asymmetric as in the case of a buyer and a seller for an exchange in that the nature of their transaction related costs will be different. As well as the actual cost and value associated with the transaction, there is a cost of being able to carry out transactions, and an associated value of being able to carry out transactions. These associated costs and value can typically be amortised across a number of individual transactions.

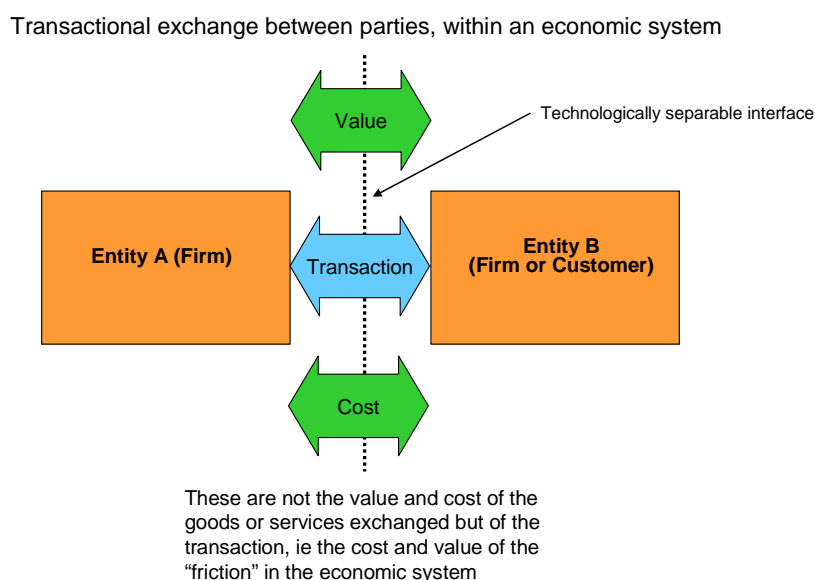


Figure 9: Model of inter-firm exchange adopted in this research

This echoes a view presented by Madhok (2002) that, as a result of the interdependence of production and exchange relations, strategic management is about co-ordination and resource allocation both within and across organisational boundaries.

This conceptual model and the broad understanding derived from the earlier exploration of existing sources were then used in creating the initial theoretical model in mid-2001. This was, subsequently, found to reflect Madhok's (2002) triangular alignment hypothesis.

3.5.3 Derived theoretical model

The initial theoretical model (figure 10) developed in this research represents Williamson's (1981a) three levels of analysis. The 'ownership' layer takes the scope of the enterprise as a given and considers how the operating parts of the organisation are related to each other, as well as the boundary with the market. Williamson refers to unitary form (U-form) organisations which consist of a single division, multi-divisional (M-form) organisations, and a 'catch-all' hybrid form (H-form) structure. Organisational form has been the subject of much debate, including more recent discussion of network (N-form) organisations (Snow et al, 1992; Hedlund, 1994; Achrol, 1997). This is the domain where property rights are considered, for example whether property rights boundaries align with organisational boundaries.

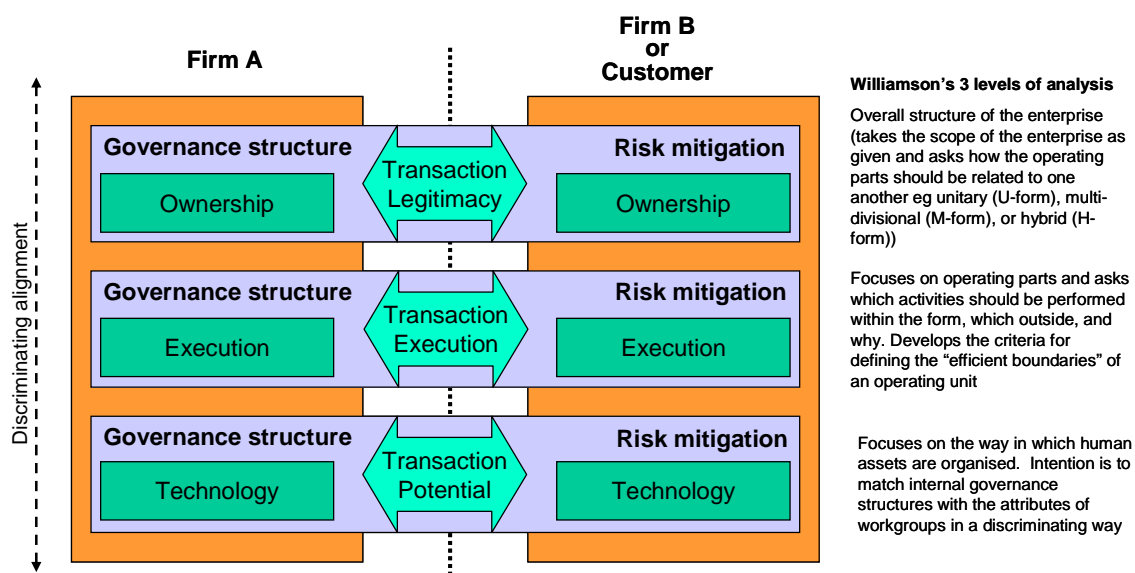


Figure 10: Initial theoretical model developed for this research

The 'execution' layer focuses on the individual operating parts of the organisation and asks which activities should be performed within the boundaries represented by the organisational form, which outside, and why. This is the level at which the 'efficient boundaries' of the individual operating units are defined.

The 'technology' layer focuses on the way in which the organisation's technological and related assets are organised, with the intent of matching internal governance structures with the attributes of individual working units in a discriminating way. This area is developed much further in the RBV. Lockett and Thompson (2001) provide a good summary of the links and relationships between economics, including NIE, and the RBV.

This model, which is TCE-centric, assumes that different governance mechanisms and structures will apply at the three different levels, and that they will mitigate different transaction related risks.

The key question raised originally by Coase (1937) is what determines when a firm decides to integrate the forces of production and when instead to rely on the market. In the model this translates into a question of what is the most appropriate form of relationship between the two firms, which may be as part of one encompassing organisational structure. Mosakowski and Zaheer (1999) offer a theory of firm boundaries in the context of Foreign Exchange trading. They question whether the governance of exchange for speculation differs from the governance of exchange for

production, and propose two forces affecting a firm's boundaries in this context: cost minimisation as emphasised in TCE, and foreknowledge exploitation (which can be viewed as an aspect of information asymmetry) as critical to speculation. They conclude that the likely boundary change in terms of expansion or contraction differs between single trading unit and multi-trading unit firms.

3.6 Conclusions from review of literature and prior empirical studies

This has been a limited review of NIE directed at the research problem because the theory is so wide ranging across the fields of law, economics and organisations. It should be borne in mind that NIE is nowhere clearly, fully or succinctly defined, and that this account, which is recognised as incomplete, merely attempts to bring together sufficient of its features for the purpose of this e-business related research.

In summary, NIE is a body of theory which has been developed by Oliver Williamson and others over the past 70 years since the initial ideas of Commons (1934) and Coase (1937). The theory has had both proponents and detractors during that time who have debated its strengths and limitations. Some, like McCloskey (1998), have suggested that some detractors have not fully understood the theory. There have been suggestions that NIE is a threat to conventional economic thinking. However, the theory has been used in a wide range of empirical studies, many of which are constructive, which suggests that there is merit in the theory and sufficient relevance of NIE to e-business to make this research worth pursuing, particularly with the recent resurgence of interest in institutional economics.

Empirical studies have used concepts from NIE across many different industries in different inter-organisational arrangements yet they do not come to any clear and unequivocal conclusions about distinctive patterns or process regularities in their logic of micro-economic organisation. Where individual studies have come to strong conclusions they are often softened by contrasting results found in other studies, or by a failure to consider alternative hypotheses that could fit the data. This lack of strong and consistent results may in part be due to the difficulty that many have found in operationalising the concepts and constructs of NIE in a way that would give consistent quantitative results across organisations, or even across industries. In many cases it appears that the variables used have been ordinal rather than quantitative and reliant primarily on the perceptions of individuals. Studies which only consider TCE make

ceteris paribus assumptions about AT, and vice versa, without defending these assumptions.

Alternative conclusions can be drawn from this. It may be that NIE, and particularly the transaction costs approach, is inappropriate as a body of theory. The counter-argument to this is that the theory has clearly been effective for identifying and exploring topics and relationships of concern. A second conclusion might be that the complexity of the situations studied was far greater than could be handled by this body of theory. In the social sciences the challenge of complexity is always present. The key concern is to isolate the constructs of interest and ensure that *ceteris paribus* assumptions in the study do not invalidate the results by ignoring, or not controlling for, significant other factors that have an effect. Since many of the studies appear not to consider alternative hypotheses for their results, it is not clear that additional significant factors have been consciously excluded. Finally, it may be that attention needs to be paid to standardising the dimensions of NIE, and calibrating constructs from NIE, across organisations and across industries. This would require research focused on producing validated measures, perhaps by comparing and contrasting the many different definitions and descriptions of the constructs as they appear in previous studies.

In conclusion, it is evident that NIE is a body of theory that has found wide use in empirical studies, but there are challenges in operationalising its constructs in a way that enable clear and consistent conclusions to be drawn about the micro-economic behaviour of organisations. In the context of the current research there remains a need to evaluate whether NIE can be applied to IT-enabled transformational change, and if it can be applied, how to apply it. For this we need to understand what it might be used for, why it would be an appropriate theory, when it could be applied, where and by whom. These questions are investigated through four case studies in the empirical phase of this research.

The next chapter concentrates on the philosophical stance taken for these case studies, and explores how it interacts with AR as a case study method. The chapter starts with a brief outline of some of the philosophical challenges that were faced in this research. These arise from by the need, driven by the experience of the first case study, to adopt a philosophical stance within the case studies of constructivism that is different from the primary philosophical stance of post-positivist critical realism.

4 RESEARCH PHILOSOPHY

It was not immediately obvious what philosophical stance was most appropriate for this research, but after some investigation it was decided that post-positivist critical realism (Lincoln and Guba, 2000) would be adopted. However it was found, from the first case study, that this was not appropriate for the case studies themselves. Extensive further investigation then led to the adoption of a constructivist research philosophy for the remaining case studies. This chapter concentrates on the implications of adopting this constructivist stance and explores the relationship between constructivism as a philosophical position and action research (AR) as a case study method. AR was a natural choice in that it is close to the intervention approach that the researcher uses as a professional consultant.

Post-positivist critical realism, the primary philosophical stance chosen for the overall process of the experimental research, is outlined sufficiently in table 5. However a different philosophical stance, constructivism, is adopted within the individual case studies. These two stances are compared in table 5. Heron and Reason's (1987) view of the participative consultant's stance is included to clarify how this differs from the constructivist stance.

This duality required a clear separation between the researcher's two roles of (a) enacting the research process (primary role), and (b) as constructivist research instrument carrying out the case study method (secondary role). Ideally, a different person would have been used as research instrument but this option was not feasible. This limitation is mitigated by the fact that these roles were performed at different times making it less of a conflict than initially appears. This duality is actually close to the conflicts experienced day-to-day by a professional consultant who works with multiple clients. Switching frequently between them requires exactly this sort of mental separation of roles to be able to maintain integrity of practice.

The approach made it necessary to establish clear null hypotheses before starting the case studies, and keep them unaltered to maintain validity. Within each case study, the researcher in his secondary role formed a judgement against the null hypotheses. The researcher in his primary role then assessed these experimental results to derive overall findings.

	Post positivist critical realist	Critical social theory (CST)	Constructivism	Participative consultant (based on Heron and Reason, 1997)	Relevance to research method
Ontology (A specification of a conceptualisation)	Critical realism – ‘real’ reality but only imperfectly and probabilistically apprehendable	Historical realism. Virtual reality shaped by social, political, cultural, economic, ethnic and gender values crystallised over time	Relativism – local and specifically constructed realities	Participative reality – subjective-objective reality, co-created by mind and given cosmos	Theoretical model provides conceptualisation, but recognising that individuals will have their own conceptual models to describe situations.
Epistemology (The branch of philosophy that deals with questions regarding the nature, scope and sources of knowledge.)	Modified dualist/objectivist, critical tradition/ community, findings probably true	Transactional/ subjectivist. Value-mediated findings	Transactional/ subjectivist; created findings	Critical subjectivity in participatory transaction with cosmos; extended epistemology of experiential, propositional and practical knowing; co-created findings	Reflective practice was used to form a personal judgement on whether the theory and model were better than competing theories and models?
Methodology	Modified experimental/ manipulative; critical pluralism; falsification of hypotheses; may include qualitative methods	Dialogic/dialectic	Hermeneutic/dialectic	Political participation in collaborative action inquiry; primacy of the practical; use of language grounded in shared experiential context	Researcher as participant observer using a reflective cycle in action focused consulting assignments.
Axiology (The branch of philosophy dealing with values and value judgements, such as ethics, aesthetics and religion)	Propositional knowing about the world is an end in itself, is intrinsically valuable	Propositional, transactional knowing is instrumentally valuable as a means to social emancipation, which as an end in itself, is intrinsically valuable		Practical knowing about how to flourish with a balance of autonomy, co-operation, and hierarchy in a culture is an end in itself, is intrinsically valuable	The client’s needs through the consulting assignment take primacy over the research project.

Table 5: Comparative summary of research stances (after Lincoln and Guba, 2000)

	Post positivist critical realist	Critical social theory (CST)	Constructivism	Participative consultant (based on Heron and Reason, 1997)	Relevance to research method
Accommodation and commensurability	Commensurate for all positivist forms, ie paradigms can be retrofitted to each other in ways that make the simultaneous practice of both possible. Mixed methodologies (strategies) make good sense	Incommensurable with positivist forms; some commensurability with constructivist, criticalist, and participatory approaches			Constructivist philosophy and primacy of subjects' view of their reality makes research approach incommensurate with positivist paradigms. Hence separation between research process and case study method.
Action	Not the responsibility of the researcher; viewed as 'advocacy' or subjectivity, and therefore a threat to validity and objectivity. Viewed as a 'contaminant'	Found especially in the forms of empowerment, emancipation anticipated and hoped for, social transformation particularly towards more equity and justice	Intertwined with validity; inquiry often incomplete without action on the part of participants; constructivist formulation mandates training in political action if participants do not understand political systems		Objective of research is to 'improve' action on the part of participants.
Control	Resides solely in researcher	Often resides in 'transformative intellectual', in new constructions control returns to community	Shared between inquirer and participants	Shared to varying degrees	Participants remain in control in their environment. Researcher retains responsibility for research.
Relationship to foundations of truth and knowledge	Foundational	Foundational within social critique	Anti-foundational, refusing to adopt any permanent unvarying standards by which truth can be universally known. Agreements about 'truth' may be the subject of community negotiations regarding what will be accepted as truth.	Non-foundational. No appeal to empirical evidence or any fixed criteria that would decisively determine the correctness of an interpretation.	Non-foundational stance is not inconsistent with the premise of bounded rationality and its relationship to uncertainty in NIE. Anti-foundational stance is consistent with case study method

Table 5: Comparative summary of research stances (cont)

	Post positivist critical realist	Critical social theory (CST)	Constructivism	Participative consultant (based on Heron and Reason, 1997)	Relevance to research method
Extended considerations of validity (goodness criteria)	Traditional positivist constructions of validity; rigour, internal validity, external validity, reliability, objectivity	Action stimulus as above. Social transformation, equity, social justice	Extended constructions of validity (authenticity criteria, relational and ethics-centred criteria, community centred determinations of validity)	As 'action' above	Two aspects to validity – internal validity judged within individual case situations, external validity judged through reflection across multiple case situations.
Voice, reflexivity; postmodern textual representations	Voice of the researcher, principally; reflexivity may be considered a problem in objectivity; textual representation unproblematic and somewhat formulaic	Voices mixed between researcher and participants	Voices mixed, with participants' voices sometimes dominant; reflexivity serious and problematic; textual representation an extended issue	Voices mixed; textual representation rarely discussed, but problematic; reflexivity relies on critical subjectivity and self-awareness	Involvement of 'thinking participants' introduces reflexivity into action process.
		Textual representation practices may be problematic, ie 'fiction formulas' or unexamined 'regimes of truth'			Textual representations of case situations subjected to review and use by other practitioners involved with the client situation
Aim of inquiry	Explanation: prediction and control	Critique and transformation; restitution and emancipation	Understanding, reconstruction	Community-based analysis of social problems with an orientation towards community action	Analysis of social situations with an orientation towards beneficial action
Nature of knowledge	Non-falsified hypotheses that are probable facts or laws	Structural/historical insights	Individual reconstructions coalescing around consensus	Extended epistemology. Primacy of practical knowing, critical subjectivity, living knowledge	Researcher as reflective practitioner concerned with structural and forward looking insights. Researcher as consultant concerned with practical knowing.
Knowledge accumulation	Accretion – 'building blocks' adding to 'edifice of knowledge'. Generalisations and cause effect linkages	Historical revisionism. Generalisation by similarity	More informed and sophisticated reconstructions, vicarious experience	In communities of inquiry embedded in communities of practice	Researcher as 'complete participant' accumulates knowledge through accretion. Participants accumulate knowledge through guided practical experience. Danger of researcher taking control and manipulating the situation mitigated through ethical position of 'process tilt towards revelation'.

Table 5: Comparative summary of research stances (cont)

	Post positivist critical realist	Critical social theory (CST)	Constructivism	Participative consultant (based on Heron and Reason, 1997)	Relevance to research method
Quality criteria	Conventional benchmarks of 'rigour', internal and external validity, reliability and objectivity	Historical situatedness. Erosion of ignorance and misapprehensions, action stimulus	Trustworthiness and authenticity	Congruence of experiential, presentational, propositional and practical knowing leads to action to transform the world in the service of human flourishing	Quality judged through stimulus to beneficial action
Values	Excluded – influence denied	Included – formative			Values included. Relevant to view on what is beneficial action
Ethics	Extrinsic – tilt towards deception	Intrinsic – moral tilt towards revelation	Intrinsic – process tilt toward revelation		Process emphasis on revelation
Voice	'Disinterested scientist' as informer of decision makers, policy makers and change agents	Transformative intellectual as advocate and activist	Passionate participant as facilitator of multivoice reconstruction	Primary voice manifest through aware self-reflective action. Secondary voices in illuminating theory, narrative, movement, song, dance, and other presentational forms	Illumination through publication of co-generated knowledge in white paper and associated video
Training	Technical. Quantitative and qualitative; substantive theories	Re-socialisation. Qualitative and quantitative, history, values of altruism and empowerment	Co-researchers are initiated into the inquiry process by facilitator/researcher and learn through active engagement in the process. Facilitator/ researcher requires emotional competence, democratic personality and skills		Researcher learning through sequential case situations. Participants learn through engagement in the process.
Hegemony	Researcher in control of publication, funding, promotion, and tenure	Researcher seeks recognition and input. Power remains with social group.			Joint publication of co-generated knowledge.

Table 5: Comparative summary of research stances (cont)

4.1 Philosophical stance for the case studies

It became apparent from the literature review that studies which consider the breadth of New Institutional Economics (NIE), such as the qualitative studies by Joskow (1985, 1988a, 1988b, 1990, 1991), take a phenomenological perspective in that they seek to understand the lifeworld, or *Lebenswelt* (Schwandt, 2000), of organisations within a regulatory environment and to interpret their actions as meaningful. Other studies which explore specific relationships between constructs, particularly those taking a much more limited transaction costs analysis (TCA) view, are predominantly positivist. Since this research takes a view across NIE's full breadth, a phenomenological, case situation based, approach was adopted.

The main areas of research which have fully developed research methods for assessing the applicability of theoretical models in the full complexity of organisational case situations were found to be social science disciplines like teaching (Kemmis and McTaggart, 2000) and nursing (Polit and Hungler, 1997). These disciplines have used research methods based on action research for many years. As a result of the first case study, a constructivist stance based around action research was adopted for the subsequent cases along with the underlying assumptions of constructivism about what constitutes 'valid' inquiry and which methods of inquiry are appropriate. This is in line with Lincoln's (1998, cited by Lincoln and Guba, 2000) observation about research shifting beyond interpretation and *Verstehen* (understanding) towards social action and 'constructivist and participatory phenomenological models' in response to 'widespread nonutilisation of evaluation findings and a desire for forms of inquiry that will attract champions who will convert recommendations into meaningful action plans.'

4.2 Constructivist research stance

Constructivists seek to understand contextualised meaning, the meaningfulness of human actions and interactions as experienced and construed by the actors in a given context. This assumes that the social world does not exist independently in a way that can be discovered by technically expert social researchers but that, as summarised by Greene (2000), the 'full emotional, linguistic, symbolic, interactive, political dimensions of the social world, and their meaningfulness or lack thereof, are all constructed by human actors.' These constructions are influenced by specific historical, geopolitical and cultural practices and discourses, and by the intentions of those doing the

constructing. These constructions are multiple, contingent and contextual in that constructivism recognises that different people create different meanings out of the same situation, depending on their individual circumstances and their individual perceptions of the social context.

Constructivism adopts a relativist ontology in that it assumes multiple realities, a subjectivist epistemology in that knower and respondent co-create understandings, and a hermeneutic dialectical methodology of language and argument which overlaps with various participatory approaches in valuing transactional knowledge (Denzin and Lincoln, 2000). This paradigm leans towards the production of reconstructed understandings of the social world, believing that we each construct our view of a social world based on our perceptions of it. Because perception and observation is fallible, our constructions are necessarily imperfect. Traditional positivist criteria of internal and external validity are replaced by terms like trustworthiness and authenticity.

Constructivism connects action to praxis and builds on anti-foundational arguments while encouraging experimental and multi-voiced texts. 'Anti-foundational' as a term denotes a refusal to adopt any permanent, unvarying foundational standards by which truth can be universally known.

The methods of constructivism emphasise the ability to solve real-life, practical problems, working in co-operative groups rather than as individuals. The focus is on projects that require solutions to problems rather than on instructional sequences that require learning of certain content skills. For example a teacher in constructivist models arranges for required resources and acts as a guide to students while they set their own goals and 'teach themselves' (Roblyer et al, 1997).

Constructivists study the world from the point of view of the interacting individual. The researcher as interpreter must always ask 'how should I be towards these people I am studying?' Thinking in terms of issues which warrant attention, rather than problems or opportunities, is vital as language and labels are of the utmost importance at the outset (Dutton et al, 1983; Cooperrider and Srivastva, 1987; Coughlan, 2001). Framing an issue as a problem may influence who gets involved in problem resolution, may lead to convergent thinking, and may restrict the range of alternatives considered, blinding organisational members to the possible existence of novel solutions. The use of the label 'opportunity' may lead to divergent thinking as this label has a greater sense of

gain associated with it. Making assumptions explicit aids the resolution process as organisational members develop a shared understanding of the issue being addressed in terms of its history, scope and possible outcomes. Establishing causal relationships helps to place an issue in context by grounding it in organisational reality. Outlining predictive judgements can attach a sense of urgency to the issue at hand.

Interpretive researchers start with the assumption that access to this reality, whether given or socially constructed, is necessarily through social constructions such as language, consciousness and shared meanings. Critical researchers go further, assuming that social reality is historically constituted and that it is produced and reproduced by people. Although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination. The main task of critical research is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research focuses on the oppositions, conflicts and contradictions in contemporary society, and seeks to be emancipatory, aiming to help eliminate causes of alienation and domination. This research takes the more limited interpretive stance; it does not seek to be emancipatory.

In general, interpretive research attempts to understand phenomena through the meanings that people assign to them and interpretive methods of research in information technology (IT) are 'aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context' (Walsham, 1993). Interpretive research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges (Kaplan and Maxwell, 1994).

Taking Stakes' (2000) classification of case studies, the empirical approach in this research is best described as a collective case study, consisting of a number of instrumental case studies, which investigates the general condition of whether NIE is applicable to e-business. The collection uses different case situations to investigate the extent to which the theory might be applicable and whether some situations are more suited to the theory than others. The cases, which were investigated through a reflective participant-observer approach, were selected from a range of possible organisational situations which were accessible to the researcher, as an employee of a global software

company, among consulting assignments aimed at establishing the value and relevance of technology in e-business situations involving transformational organisational change.

The social science research path of an action focused, constructivist participative researcher is similar to that adopted by Gubrium and Holstein (2000) as health practitioners. Their approach to inquiry led them to change the therapeutic approach at their Northland Clinic to 'a more 'postmodern' approach, articulating intervention in an everyday linguistic and constructivist discourse'. The idea was that client's troubles were as much constructions, ways of talking about their problems, as they were real difficulties. Therapists began to apply what they called 'solution-focused brief therapy', viewing clients' troubles as ways of talking about everyday life. In their context the effect was to transform these clients from being 'relatively passive agents of systems of personal troubles and negative stories' to being 'active problem solvers with a potential to formulate positive stories about themselves and design helpful solutions.' An everyday language of solutions, not a discourse of problems, became the basis of intervention, resulting in the construction of distinctly different clients and problems that allowed alternative solutions. Likewise it was found through the course of the case studies in this current research that clients' situations could be described in new ways by using the theoretical model, enabling them to envisage alternative solutions.

4.3 Action research basis for the case study method

Action research (AR) represents a whole family of approaches to inquiry which are participative, grounded in experience, and action-oriented (Reason and Bradbury, 2001). It originated with Kurt Lewin and his AR model in the mid-1940s, developed during the 1960s, and has proved useful in the area of managing change (Remenyi, 1998). Noting the chasm between social theory and social action, and the lack of collaboration between practitioners and researchers, Lewin called on social scientists to bridge the gap and combine theory building with research on practical problems (Peters and Robinson, 1984; Cunningham, 1993). By using the methodology of AR, practitioners could research their own actions with the intent of making them more effective while at the same time working towards theories of social action.

AR describes a continuous process of inquiry and learning in the researcher's long term relationship with a problem (Cunningham, 1993; Dickens and Watkins 1999), although Cunningham does not explicitly state how AR leads to action or change, or how long is

'long term'. He neglects to mention AR as a group process. Some (Reason and Rowan, 1981) ignore the issue of changing the environment under study, or fail to mention the importance of the participants in the AR process as members of the change environment. Avison et al (1999) discuss the way that AR associates theory with practice, and researchers with practitioners, through change and reflection in a problem situation within a mutually acceptable ethical framework. They describe AR as an iterative process involving both researchers and practitioners, drawing heavily on Lewin's original conception of AR as a cycling back and forth between ever-deepening surveillance of the problem situation and a series of research-informed action experiments. Argyris and Schon (1991) emphasise features from Lewin's approach which are consistent with their action science approach:

“AR takes its cues – its questions, puzzles and problems – from the perceptions of practitioners within particular, local practice contexts. It builds descriptions and theories within the practice context itself, and tests them through *intervention experiments* – that is, through experiments that bear the double burden of testing hypotheses and effecting some (commonly thought to be) desirable change in the situation.” (Argyris and Schon, 1991)

In this definition, interventions are an experimental manipulation, with problem solving as the goal. Participants learn a mode of public, democratic reflection and participate in solving self-diagnosed problems. The researchers' reporting of what was learned during an intervention in respect of the hypotheses should contribute both to improvement in AR practice through AR-based intervention experiments that attempt to generalize initial results to other settings, and to greater general understanding about processes of planned social and organizational change as the contribution to knowledge (Bartunek, 1993).

Greenwood and Levin (1998) extend this notion, contending that AR aims to solve relevant problems in a given context through a democratic inquiry where professional researchers collaborate with participants in the effort to seek and enact solutions to problems of importance to local people. In doing this, AR specifically engages in systems-informed, pragmatic social science, and is challenged to practice leading edge science, combining the best in scientific practice with a commitment to the democratic transformation of society.

In this research, the quest to find an effective way of applying AR led inexorably towards the use, in the final case study, of participatory action research (PAR). PAR has steadily matured as a research approach over the past 15 years (Whyte, 1991; Ledford and Mohrman, 1993; Reason and Bradbury, 2001; Friedlander, 2001). Kemmis and McTaggart (2000) discuss it at some length, describing it as a form of 'insider research' in which participants move between two stances. On the one hand they see themselves, their understandings, their practices and the settings in which they practice from the point of view of insiders, as involved participants. On the other hand they see them from the point of view of an outsider, the dispassionate observer (Kemmis and McTaggart, 2000). Gold's (1958) characterisation of these participant and observer roles was used to provide guidance for the researcher as research instrument moving between these two stances.

The use of the term 'participatory action research' (PAR) in this research follows the lead of Park (1992), Friedlander (2001) and Whyte (1991). They all use the term to denote research which is sponsored by a relatively independent group within the organisation, is directed towards the discovery of information about an issue or opportunity of group concern, is aided by the researcher as facilitator, and often results in the empowerment of the group involved. In PAR the participants, their issues, their action and their learnings are highlighted and the researcher, as both participant and observer, has a direct responsibility to ensure that his voice is but one equal voice among many. This contrasts fundamentally with 'action research' as research directed toward a specific organisational goal with a specific group of people, with a consultant who manages the process who is sponsored from higher up in the organisation. In this thesis the term 'action research' (AR) is used specifically to represent the family of AR approaches.

4.3.1 Action research as a group process

From its origins, AR has generally been researcher dominated rather than participative (Friedlander, 2001), with the research being designed by the researcher, conducted by the researcher, and the results written and published by the researcher. The voice of the research is that of the researcher.

In PAR, the voice is that of the participants. The researcher is a facilitator or consultant to the participant group, helping it to explore group issues and facilitate group

development and change. Often the results empower the group by giving it more information about itself, enabling it to move in directions favourable to the group's interests. Learning for the group can lead to action. It may lead to theory building or theory ratification for the both the participants and the scholarly audience. In this way the research communicates with three audiences (Reason and Marshall, 1987, cited by Coghlan, 2001):

“All good research is for me, for us, and for them: it speaks to three audiences and contributes to each of these three areas of knowing. It is *for them* to the extent that it produces some kind of generalisable ideas and outcomes that elicit the response ‘that’s interesting’. It is *for us* to the extent that it responds to concerns for our praxis, is relevant and timely and produces the response ‘that works’ from those who are struggling with problems in their field of action. It is *for me* to the extent that the process and outcomes respond directly to the individual researcher’s being-in-the-world, and so elicits the response ‘that’s exciting’.”
(Reason and Marshall, 1987)

According to Hughes (2004), participatory research arises when the researcher is concerned about the politics of research. Questions about control and power, especially in the relationship between the researcher and those being researched, led ethnographers, feminist researchers and others to collaborate with those being researched, with the researcher becoming a facilitator who works collaboratively with research participants. The forms and extent of collaboration vary. Participants may be involved in any aspect, including establishing research priorities, collecting data, interpreting data and disseminating results. It is possible to have participatory research that is not AR, and which does not necessarily seek to effect change.

AR is a way of maintaining a conversation between researcher and participants. Its methods open horizons of discussion, and create spaces for collective reflection in which new descriptions and analyses of important situations develop as the basis for new actions. This is labelled co-generative learning. The primary outcome of an AR process is relevant actions to solve the problem at hand, but it is argued that linking the ‘process to construct meaning’ to the ‘process of practical problem solving’ is the major knowledge generation element (Greenwood and Levin, 1998). In this way, AR is a social process in which professional knowledge, local knowledge, process skills,

research skills, and democratic values are the basis for co-created knowledge and social change.

The knowledge demands on an action researcher are heavy and keenly felt. To assist a group of collaborators in resolving some kind of important social problem, the action researcher must know or learn about the industry, the situation, and some of the possible solutions. Unlike the case of the conventional social researcher who distrusts local knowledge, this contextual knowledge is not a unilateral responsibility of the professional expert. Action researchers weigh the knowledge of local people much more heavily than do these conventional researchers, and are deeply sceptical about the transcendence of professional knowledge over all other forms of knowing. The action researcher can, and must, rely on local knowledge to a considerable degree (Greenwood and Levin, 1998).

The involvement of participants in the research process creates a genuine opportunity to use individual capacities. Insiders and outsiders join in a mutual learning process enabled by communication. New understandings are generated through discourses between people engaged in the inquiry process, but for this to occur, a mutually understandable discourse is required. New knowledge emerging from an action-reflection process shapes a language shared between insiders and outsiders that is relevant for describing actions and the learning arising from them, and identifies meanings constructed through the inquiry process.

There are advantages of being close to the data in terms of having access to deeper knowledge of an organisation's everyday life, being able to participate and observe in discussions without others necessarily being aware of the presence of a researcher. There are also disadvantages. The researcher may assume too much and not probe so deeply, nor expose their current thinking to challenge. The researcher may find it difficult to traverse departmental, functional or hierarchical boundaries. Confusion of organisational and researcher roles can lead to role conflict, identification dilemmas, and confusion in relationships with fellow organisational members (Weinstein, 1999). Meanwhile AR examines everything, stresses listening, emphasises questioning, fosters courage, incites action, demands reflection and endorses democratic participation. The researcher may find that what constitutes valid information is intensely political. These

challenges require rigorous introspection and reflection on experience in order to expose underlying assumptions to continuous testing (Argyris et al, 1985).

4.3.2 PAR – AR with an explicit conceptual model

The notion that a conceptual framework and its implementation should be explicit in AR is not novel. Argyris and Schon (1991) argued that AR can be understood as intervention experiments within particular practice contexts in which action researchers test hypotheses pertaining to the resolution of particular problems and attempt to effect a desirable change in the setting based on their hypotheses.

In PAR what is desirable is determined by what the participants consider important, and what affects their daily lives, linking the inquiry process to solving practical problems and to actions taken to provide a solution to the problem being examined. Theoretical inquiry using conceptual models can precede action as a way of acquiring necessary knowledge to design actions that will resolve the pertinent issue, as can reflections based on experiences drawn from prior actions that can be understood in new ways.

PAR ‘frequently emerges in situations where people want to make changes thoughtfully – that is, after critical reflection (Kemmis and McTaggart, 2000). It emerges when people want to think ‘realistically’ about where they are now, how things came to be that way, and, from these starting points, how, in practice, things might be changed’. This is not novel in the area of economic thought. Dopfer (1998) draws this out in his essay about the participant observer in the formation of economic thought. The participant observer

“... works with material that can be genuinely understood and this understanding presents itself as a possible method for analysis. The concept of the ‘participant observer’ is borrowed from physics where it is mainly related to the phenomenon that, under certain experimental conditions, the observer influences the observation; methodological discussions sometimes refer to an analogous ‘fuzziness’ in the observation of economic phenomena. The economist who takes part in the ‘experiment’ of contemporary history of economic thought is, however, a participant observer in a far more radical and immediately insightful sense. He is not connected to the object of his perceptions on some subatomic level, but rather on the basis of multifarious and complex social interactions; it is not a

matter only of relationships between forces, but rather between ideas. In his status as observer, the economist differs from the physicist in that the observation is not (primarily) defined by the experimental measurement equipment, but rather by psycho-cognitive disposition. The person is thus an observer in a genuine perceptual and cognitive sense, and the result of the observation depends significantly not only on the objective and instrumental equipment and method, but on the subjectivity of the cognitive apparatus of the observer. In this connection, it is important to recognize that the biography of the observer constitutes a significant determinant of the process of observation and of its results.” (Dopfer, 1998)

Dopfer’s ‘cognitive apparatus of the observer’ is a conceptual model, whether implicit or explicit. Most of the research projects presented in the February 1993 Human Relations special edition on PAR used an explicit conceptual model. In some cases the conceptual model was clearly articulated and expressed in practice. In others it was articulated as a basis for the work, but its expression in practice was less explicit. Conceptual learning clearly occurred in some cases in that implementation of the conceptual model led to increased understanding where there were complex dynamics and joint interactions, but in others the relationship between the practical learnings and the conceptual model were less obvious. Three studies from this journal special edition were used to provide a point of reference for the PAR approach used in the final case study of this research.

Ledford and Mohrman’s (1993) case study of a 5-year AR project in a 12-plant division of a multi-billion-dollar food processing firm, where the company was attempting to design new plants and redesign all established plants as high-involvement/high-performance work systems, develops a conceptual model focused on three factors: self-design, large scale organizational change, and high-involvement learning systems. They propose that the three elements of (1) self design, a learning strategy that begins with the development of a foundation for change and which includes an educational component, (2) clarification of values to guide the design process, and (3) diagnosis of the organization based on these identified values, lead to large-scale organizational change in the direction of high involvement management. They suggest that these would extend the decision-making power, rewards for performance, and technical and social skills to lower organizational levels. Self-design strategies attempt to achieve this by

stressing the learning aspects of change, while at the same time moving design activities and ownership into work units.

Greenwood et al (1993) describe three distinct PAR projects which were in response to very different problems: an economic crisis at Xerox, an economic and moral crisis at Mondragon, and economic and social crises in West Philadelphia. They position PAR as a form of AR in which professional social researchers operate as full collaborators with organisational members in studying and transforming these organizations in a joint ongoing organisational learning process. In their view PAR is always an emergent process as it depends in large part on local conditions, but is more likely to be effective than most research methods at resolving complex organizational problems because it incorporates local knowledge and mobilises theories, methods, and information from whatever sources the participants jointly believe to be relevant. As a result it incorporates a more complete knowledge base than is usually the case in research efforts.

Greenwood et al (1993) raise a number of methodological considerations, being concerned that many studies do not distinguish between the participatory intent of the research process and the degrees of participation actually achieved by a particular project. They stress that participation cannot be imposed, arguing that the degree of participation achieved in any particular project results jointly from the character of the problems and environmental conditions under study, the aims and capacities of the research team, and the skills of the professional researcher. Participation must be generated, beginning with participatory intent and continuing by building participatory processes into the activity within the limits set by the participants and the conditions. Viewing participation as something that can be imposed is both naive and morally suspect, even more so within the constructivist paradigm because it indicates the imposition of the researcher's voice. In PAR, authority over and execution of the research is a collaborative process between expert researchers and members of the organisation under study.

Levin (1993) considers the role of AR in creating social networks to support regional economic development in Norway. AR was anticipated to help accomplish the formation of such networks because close interaction between researchers and actors in the field involves mutual learning, generating new local theory or a new and shared

'social reality'. This would occur through 'democratic dialogues' (Gustavsen, 1985), forums for dialogue in which expert input complements and blends with the inputs of other constituents. AR was mainly implemented here through search conferences and the subsequent formation of task forces to follow through on items identified for action. These task forces helped achieve a new social structure because they brought together and organised different sets of people to carry out tasks, ultimately linking the search conferences with existing social structures. Data was collected through observation by researchers and others involved in the development process, exploration of tangible outcomes of activities, and interviews with participants at the end of formal project work. Several entrepreneurial efforts resulted from the search conferences and task forces, with secondary positive outcomes such as the formation of new organisations, although there were some failures where groups failed to continue collaborating.

In each of the above cases (Ledford and Mohrman, 1993; Greenwood et al, 1993; Levin, 1993) the outcomes were deemed valuable but the actual means by which they were achieved is not clearly described. The dialogic practices that formed a conceptual foundation for the PAR approach are not discussed, nor is it clear what aspects of local knowledge were evoked and what roles these played. Although conceptual issues are discussed, their implementation is not explicit. Discussion and analysis of these issues might have helped to clarify why some of the groups and task forces had more enduring effects than others. In particular there is evidence (Bartunek et al, 1992) that different members of a setting are likely to experience and understand the approach very differently, in part due to their rather varied levels of knowledge about it. For example, participants are likely to experience democratic dialogues very differently from a researcher who helped to invent them. Given this divergence, participants in a PAR process can make an important scholarly contribution to outside scholars by contributing their own experience of the intervention.

Participants in PAR are expected to be 'co-researchers' whose knowledge is necessary for scientific sense-making (Elden and Chisholm, 1993) because of their unique knowledge about their system and culture. Given this stance of PAR, it is legitimate to question the role 'insider' members (Louis and Bartunek, 1992), the participants, have on the presentation of the scholarly report. It is appropriate to question whether their contribution is only for local consumption, or whether their perspectives should be

included in a way that helps convey to an outside scholarly audience a more accurate understanding of the dynamics of a change process.

Action researchers and participants interpreting and writing together about their joint endeavours is a logical step in the PAR process. As Bartunek et al (1992), Greenwood et al (1993), Israel et al (1992), and Levin (1993) note, this kind of joint work can help participants and researchers alike increase their understandings and clarify learnings from change processes. It can present a more ‘complete’ picture of the change process to readers, one that indicates how it is interpreted by participants being introduced to new concepts as well as by those who originally have a more sophisticated understanding of the concepts. By showing these multiple experiences of change it too can contribute to theory building about change processes. Co-generated knowledge from the final case study has been published separately (Ellis, 2003).

4.3.3 Reliability of the research process

‘Research credibility’ as a term is defined here as the arguments and processes necessary for someone to trust research results. Credibility in AR comes from the research process, which should be reflexive and dialectical, ethical, democratic and collaborative. Participants should learn new research skills, attain greater self-understanding, or achieve greater self-determination. The research should solve significant practice problems in a manner that enhances the overall learning capacity of the individuals or the system, or contributes to knowledge about what will solve these problems.

Two kinds of credible knowledge can be distinguished. One is ‘internal credibility’ to the group creating it. This kind of knowledge is fundamentally important to AR because of the collaborative nature of the research process. Its direct consequences in altered patterns of social action constitute a clear test of credibility, one that abstract social science frameworks may lack. Members of communities or organisations are unlikely to accept as credible the ‘objective’ theories of outsiders if they cannot recognise the connection to the local situation, or because local knowledge makes it clear that the frameworks are either too abstract or simply wrong for the specific context. (Greenwood and Levin, 1998)

A second kind of credibility involves external judgements. External credibility is knowledge capable of convincing someone who did not participate in the inquiry that

the results are believable. AR requires a process where chains of arguments can undergo some kind of testing procedure. Gadamer (1982) advocates a complex combination of dialogue, mutual interpretation and eventual ‘fusion of horizons’. It is assumed that every situation contains more possibilities than those that are acted upon. The particular outcome realised is through the intersection of environmental conditions, a group of people, and a variety of historical events, including the actions of participants. From this perspective, all explanations of present situations are actually accounts of historical moments and particular causes acting on particular organisations in specific contexts. In this way of thinking, theory does not predict the outcomes of a particular situation. The roles of theory are to explain how what happened was possible and took place and to lay out possible scenarios for the future and give good reasons for the ones that seem to be probable outcomes. This latter move, of course, relies precisely on making analogies about outcomes from other cases and contexts in a coherent way. Such practices are science at its best.

4.3.4 *Relevance to IT practice*

This research recognises IT as a social system which can be more deeply understood if the researcher is in some sense part of that socio-technical system. Consequently, this study has to reconcile the systemic view and the actors’ life-world view, as in Habermas’ (1984) theory of communicative action which Ngwenyama and Lee (1997) consider has had a greater impact on the IT discipline than other critical social theory (CST) school of thought. This challenge is debated within CST where:

- Validity claims are assessed through critical reflection (the approach taken within the current research study).
- Instrumental action treats the receiver as a passive receptor (in this study researcher as guide to the process, participant as receptor).
- Communicative action aims for achieving and maintaining mutual understanding, and requires a shared understanding and common language in order to enact meaning from each other’s communicative actions (in this study the participants’ language was used rather than the language of research). Communicative action considers validity claims and whether the message makes sense, responsibility for which fell to the researcher in this study rather than to the participants.

- Discursive action, aimed at achieving or restoring agreement and redeeming validity claims, was initiated when actors needed to achieve agreement for joint action. This is about engaging in debate around claims of validity.
- Strategic action, aimed at influencing and transforming the behaviours of others so as to conform to the actor's desires or goals. This raises the question of validity as to whether an action is legitimate given the organisational context (sometimes leading to discursive action in the current study).

Discussion of CST is outside the scope of this research, but these different forms of action were used as a point of reference within the research approach and for reflection.

Recognising that improvement through AR is directed at the three areas of creating a change in an institution, creating a change in professional practice, or empowering a group of people (Hart and Bond, 1995), Avison et al (1999) suggest IT practice can benefit from AR methods. In their view, AR has made five key contributions in this regard: the Multiview contingent systems development framework supports professional practice through an exploratory rather than prescriptive approach (Avison and Wood-Harper, 1990); Checkland's soft systems methodology is used in changing professional practice (Checkland, 1981); the Tavistock School's socio-technical design is used to create change in institutions (Mumford, 1978); Scandinavian research efforts aimed at institutional change are intended to empower trade unions and strengthen the bargaining positions of users in systems development (Bjerknes et al, 1987); the Effective Technical and Human Implementation of Computer Systems (ETHICS) participative and ethical approach to information systems development is about empowering users (groups of people) (Mumford, 1978).

According to Lau (1997), AR is increasingly being applied to IT. In 1991, only one AR article was found among 155 articles identified in a survey of 19 journals describing research theories and methods used in information systems. A more recent survey identified 29 articles on AR, although the four mainstream journals had only one AR article between them. This later survey noted a deeper complexity of AR studies and categorised them into four types of AR:

- AR focusing on change and reflection
- Action science trying to resolve conflicts between espoused and applied theories

- PAR emphasising participant collaboration (as in this current research), and
- Action learning for programmed instruction and experiential learning.

Lau (1997) draws attention to the discussion between Jonsson (1991), who advocates the use of either an interpretive or critical perspective to provide a philosophical basis for the research method adopted, and Checkland (1991) who discusses the structure that a research study should follow to be accepted as legitimate (table 6).

Relevance	There is a real-world problem relevant to research themes of interest to the researcher
Roles	The respective roles of the researcher and participants are defined in the problem situation
Rigour	Inclusion of an intellectual framework
Participation	Researcher involvement in unfolding the situation
Interpretation	Making sense of the accumulating experience
Conclusion	Point of exit and review for the researcher.

Table 6: Structure for AR research (after Checkland, 1991)

4.3.5 Formalising AR

AR is a family of research methods and so does not predetermine the research procedures, with action researchers accepting no a priori limits on the kinds of research techniques that they use (Greenwood and Levin, 1998). Formal quantitative, qualitative and mixed methods suit differing situations. Rigour in AR refers to how data are generated, gathered, explored, and evaluated, and how events are questioned and interpreted, through multiple action-research cycles. Sound and acceptable research procedures, therefore, had to be established for the current research, which would show (Coghlan, 2001):

- How the researcher engaged in the steps of multiple AR cycles, including how diagnosing, planning, taking action, and evaluating were done, and how these were recorded to ensure that they are a true representation
- How the researcher challenged and tested his own assumptions and interpretations of what was happening continuously through the project by means of public reflection, so that their familiarity with and closeness to the issues were exposed to critique
- How the researcher accessed different views of what was happening which probably produced both confirming and contradictory interpretations, and

- How interpretations and diagnoses were grounded in scholarly theory, with project outcomes being challenged, supported or disconfirmed in terms of the theories underpinning those explanations and diagnoses.

Avison et al (1999) make the point that it is important for action researchers to explain and document their approach and its application since the research is evaluated in part by its ability to explain practice. Further, that explicit criteria should be defined before the research is carried out, as should ways to manage alterations in these criteria as part of the process of problem diagnosis, action intervention, and reflective learning. It is notable that Avison et al (1999) suggest that the value in AR is not whether the project was successful or not, but rather that the exploration of the data provides useful and interesting theory which may contribute to learning on the subject. Value in PAR is determined by whether the participants and others like them gain greater control of their own destiny from what is learnt, and not just the researchers.

In PAR, particularly where the researcher is a full participant, this places a burden of responsibility on the researcher to protect the rights and interests of the participants. Researchers and practitioners working together in this way need to share a mutually acceptable ethical framework, again defined as part of the AR process. In the current research Christians' (2000) discussion and Stake's (2000) summary were used for guidance on ethical concerns, particularly where there were conflicts arising from the researcher's dual responsibilities as employed consultant and participative researcher.

4.3.6 *Limitations of AR*

AR is an intervention carried out in a way that is intended to be beneficial to the organisation. The researcher brings knowledge of the research process and reference models whereas participants from the organisation bring knowledge of the organisation (Kock et al, 2001). The possibility, if not requirement, of positive intervention from the researcher is a characteristic of the approach. In experimental, survey and case research the possibility of positive intervention from the researcher is minimised.

PAR brings its own concerns (Kemmis and McTaggart, 2000). It does not have a single defined research method. PAR's typically revisable, informal and ad hoc structure, where most of the study is done in cycles with temporary reports, methodologies and frameworks which are contingent on the participants, is considered by some as lacking scientific rigour. For a constructivist, this flexibility is consistent with the constructivist

assumption which leads the research discourse away from questions of quality of technique towards questions of quality and meaningfulness of understanding (Greene 2000). Key questions are whether PAR must contribute to knowledge in the same manner as other forms of social science research, and whether or not PAR must end in a resolution of a problem in order to be valid.

There can be considerable contingency of the research findings in AR. AR is often seen as inappropriate for producing models with high external credibility because most AR projects involve a small number of client organisations in depth and longitudinal studies. Personal over-involvement and influence may hinder good research by introducing personal biases in the conclusions (Francis, 1991). This is particularly true in situations involving conflicts of interest, with AR placing a considerable responsibility on the researcher when research objectives are at odds with those of other groupings. As far as internal credibility is concerned, the constructivist is a facilitator of multi-voice reconstruction and does not assume the researcher as sole 'expert' voice. It is for the participants to determine whether the intervention has been worthwhile, and whether the findings are explanatory, even though they may not be predictive.

Although the researcher has low control of the environment, this should not be regarded as a criticism of the approach, but as a strength of the philosophical stance. Since the constructivist seeks to understand contextualised meaning, low control of the environment is required. Nonetheless, the underlying concern about credibility of the findings is valid. AR's interference with the research environment may be beneficial to the client organisation but may bias research findings in ways that are difficult to identify. This may make them difficult to replicate by other researchers in different settings. This concern is about questions of credibility, audience and voice. AR is about understanding the events in a particular setting. The researcher reflects on whether the results are credible 'for me'. The next question is whether the other participants find the results credible 'for us'. The question for the external audience is then whether it finds the results as shared and voiced by the participants credible 'for them' (Reason and Marshall, 1987). This is directly comparable to scientific research where an external audience might mediate the credibility of the research findings according to the credibility of the research institution where the research is being carried out.

The lengthy time required to conduct quality AR projects may not be acceptable to the research's sponsor or client. This was recognised as a serious risk in the current research so considerable attention was given to managing sponsors' expectations.

Individuals seeking to solve problems in complex, real-time settings may find that the problems change under their feet, often before the more in-depth iterative search for solutions suggested by AR has achieved meaningful results. In the current research this did happen with the second case study but useful findings resulted even though the case could not be followed through all the intended cycles of activity.

One final practical limitation on dissemination is that AR is rarely accepted by top American information systems journals since it leans towards the interpretive and away from the quantitative (Lau, 1999).

5 THE RESEARCH DESIGN

The overall research design (figure 11) consists of a series of action research (AR) case studies as intervention experiments, and is based on the scientific method as described by Greenwood and Levin (1998). The previous chapter has described how AR is interpreted for the purposes of this research. This chapter now concentrates on the case study method.

The chapter starts by outlining the ‘reflective cycle’ (Ellis, 2000) which provides the theoretical basis for the case study method. This reflective cycle is also applied to the research process as a method for developing researcher competence and guiding the selection of cases. The research process had to be formalised in this way because the research was subject to ongoing changes in both the e-business environment and the academic literature.

This chapter then goes on to describe the steps involved in the case study method, the research technique of researcher as participant-observer, and the notion of reflective practice as a research tool. The chapter finishes by outlining the case situations researched. The case studies are described in detail in the following chapter.

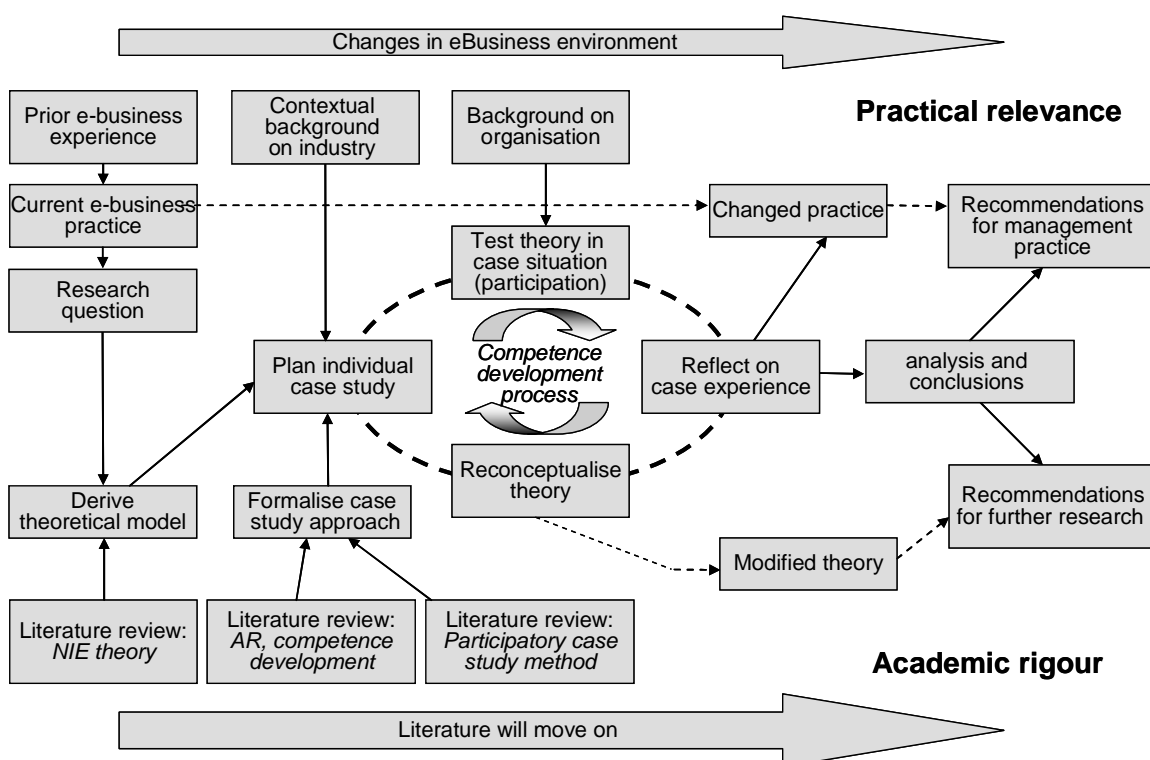


Figure 11: Research design

5.1 Theoretical basis for the research method

Reflective practice is well established for practitioners who use theoretical models in the full complexity of professional practice in other social and scientific disciplines, including teaching and nursing, as in the relationship-centred clinical method (Miller and Crabtree, 2000). It is appropriate within the context of this research since e-business is a complex domain and the research is aimed at the needs of practitioners. Schon (1983) argued that people who perform complex professional roles cannot apply simple rules and basic theories to the wide variety of situations that they face, but must develop their own tacit or unwritten knowledge by reflecting on their experience and testing out their new ideas in their day-to-day work. Kolb and Fry's 4-stage experiential model of learning (1975; cited by Boud et al, 1989) and Gibbs' 6-stage reflective cycle (1988; cited by Palmer et al, 2004) both suggest that such learning occurs by passing in turn through each of the four main bases – concrete experience, reflective observation, abstract conceptualisation and active experimentation. Gibbs' cycle is more practical in that it describes what the individual should do at each stage. Relationships and contrasts between these two models are evident from superimposing one on the other (figure 12). (Ellis, 2000)

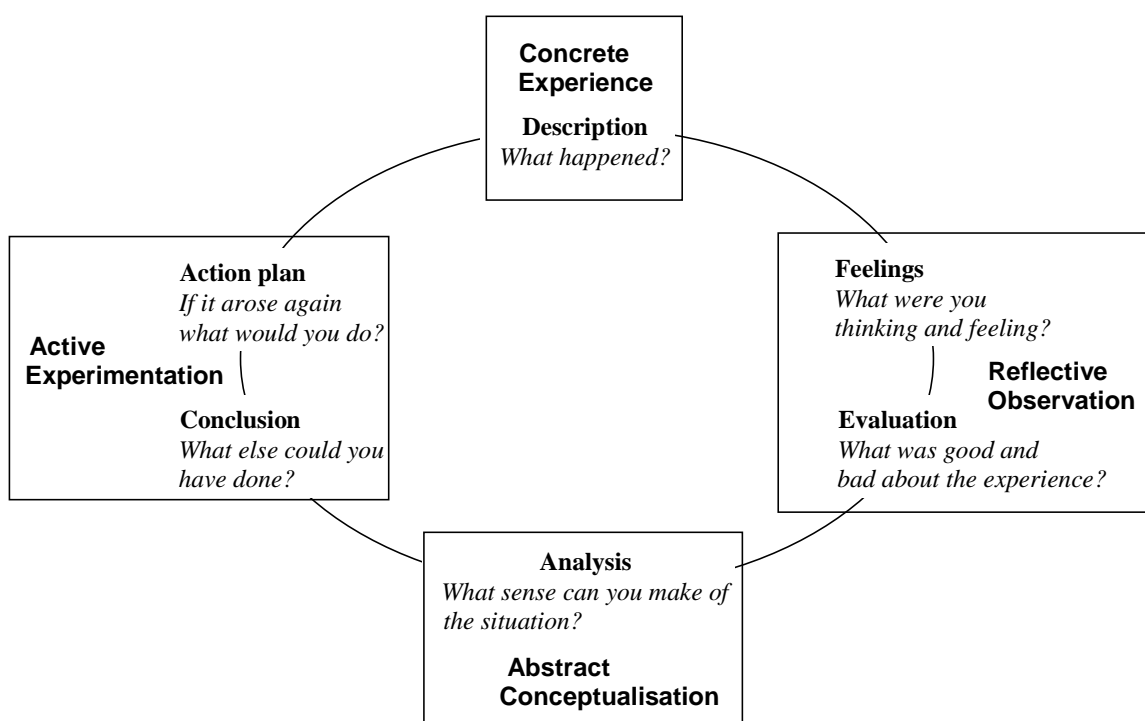


Figure 12: Unified reflective cycle (Ellis, 2000)

A competency development process (figure 13) (after Reynolds, 1965) is used to develop researcher capability across the series of case studies. This process, based on

the reflective learning cycle (Ellis, 2000), allows the researcher to develop practical research skills and a personal style to encourage rapport, and effective patterns of communication and participation, with the participants. The case study planning activity provides time within the cycle for reviewing existing records, documents and articles which might provide insight (Denzin and Lincoln, 2000).

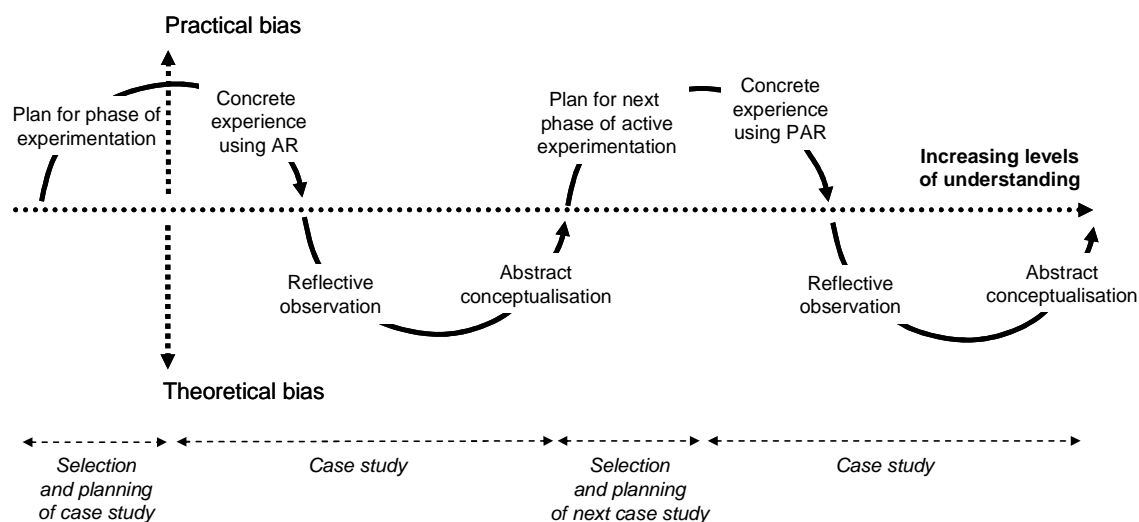


Figure 13: The research process – competence development (after Reynolds, 1965)

Learning theory is used to monitor and assess progress through the competency development process. Hendry (1996) suggests that learning theories can be broadly divided into behaviouralist theories which condition behaviour through rewards, and cognitive theories which form plans linked by the principle of feedback. This research adopts a cognitive view based on Burgoyne and Reynolds' (1997) four 'pure type' theories – normative, descriptive, interpretative and critical theories – because this provides a model that relates theories to reflective practice. Normative theories articulate what should be done in given circumstances. Descriptive theories represent what is thought to happen regularly or normally. The differing roles that people are observed to take on in teamwork, as in the work of Belbin (1981), can be taken as such an example. If this typology is used to describe what people in teams *should* or *must* do, as well as what they actually do, then it has reverted into a normative theory. When practitioners explicitly use the descriptive as normative they take on a conservative role – normalising deviants and newcomers to the conventions of the situation. Interpretative theories attempt to describe a deeper level of reality which is presumed to generate phenomena. Critical theories examine in-depth questions, such as what assumptions are we making in analysing what we do, what aspects are we leaving out,

what value judgements are built into the positions we take, what larger social processes are our theory and practice part of, what contradictions and paradoxes exist between these various values, assumptions, agendas and omissions, and what would it take to resolve them?

These models do not suggest how to progress from one stage to the next. Many theories that do suggest how to progress, such as Kolb's experiential model of learning (Kolb and Fry, 1975, cited by Boud, 1989), Gibbs' reflective cycle (Gibbs, 1988, cited by Palmer et al, 1997), Honey and Mumford's learning styles (1995), and Carlsson et al's (1976) discussion of research and development organisations as learning systems, use the underlying two axis model of 'concrete experience vs abstract conceptualisation' and 'active experimentation vs reflective observation' developed by Piaget in 1926 to represent the major directions of cognitive development (Piaget, 1974). These two modes of active experimentation and reflection, like abstractness/concreteness, stand in opposition to one another. Wolfe and Kolb (1991) identify action/reflection as one of the dimensions of cognitive growth and learning. As cognitive growth occurs, thought becomes more reflective and internalised, and is based more on manipulating symbols and images than on overt actions. This research uses Dreyfus et al's (1986, cited by Quinn 1991) sequential five-stage model to guide the researcher's cognitive growth from novice towards expert:

- Novice. As a novice people learn facts and rules, with the rules being learned as absolutes, never to be violated.
- Advanced beginner. In the advanced beginner stage, experience becomes critical, and performance starts to improve as real situations are encountered and understanding begins to exceed the stated facts and rules. Observing patterns leads to recognition that there are factors beyond the rules.
- Competence. The third stage is competence with the individual beginning to appreciate the complexity of the task, recognising a much larger set of cues, and developing an ability to select and concentrate on the most important cues. The reliance on absolute rules now begins to disappear as people take calculated risks and engage in complex trade-offs.
- Proficiency. In the proficiency stage, calculation and rational analysis seem to disappear, and unconscious, fluid, and effortless performance begins to emerge.

No one plan is held sacred as the individual learns to unconsciously ‘read’ evolving situations and achieve a holistic and intuitive understanding. Cues are noticed and responded to, with attention shifting to new cues as the importance of the old ones recedes. New plans are triggered as emerging patterns call to mind plans that worked previously.

- Expert. Experts, those at the fifth stage, do what comes naturally rather than applying rules, using a holistic recognition which allows them deep understanding of the situation. They have mental maps of the territory of which others are not even aware. They see and know things intuitively, in many dimensions, that others do not know or see. In action inquiry they frame and reframe strategies as they read changing cues. Here the expert manager has fully transcended personal style and seems to meet the contradictions of organizational life effortlessly.

The research starts the competence development process with a case suitable for a relative novice in NIE and AR, and progresses through increasingly challenging cases to develop researcher expertise and understanding in both.

5.2 Applying theory to practice

When selecting the most suitable theory, or part of a theory, to be used in a given situation the researcher had to select from the range of theories and concepts available. As is shown in Appendix D, NIE was only one of many common strategic management theories considered for each case. This decision was reviewed as each case unfolded to assess whether the initial decision remained sound. In the first case it was necessary to revert to alternative theories to fulfil the objectives of the consulting assignment.

It was not clear how to use NIE as a complete theory, so specific parts of NIE relevant to each case were consciously identified by investigating the industry and company background for the case, and then reviewing prior empirical articles which considered issues which seemed to be arising in that case. These empirical studies are listed in each case discussion with a note of their topics of interest. This process was used to focus attention on particular NIE concepts within each case situation; these are identified in the research analysis. In the later cases, with deeper knowledge of NIE concepts, it became quicker to identify which parts of NIE were more likely to be useful by both assessing the situation and by talking to participants about their perception of it.

Another issue which arose with applying theory to practice was the distinction between the participants' language and the language of the theory. To illustrate this distinction, the 'case description' sections in Chapter 6 are largely presented in the participants' language with the language of NIE being used in the associated sections on researcher involvement, analysis and conclusions.

5.3 Case study method

The case study approach, which matures through the four cases, is structured around the four dimensions of the framework proposed by Lau (1997). Lau's first dimension, the category of action research used and its focus, is initially AR, but research findings from the second case study lead to participatory action research (PAR) for the final case study. All cases are focused on the applicability of NIE. The second dimension, the traditions and beliefs implied by its assumptions, is represented by the constructivist philosophy. The third dimension, the research process, includes e-business as its theme, organisational system or sub-system as the level of organisation involved, transformational change as the extent of change, and participant-observation as the style of the researcher. The final dimension, the style of presentation adopted, is as co-generated knowledge.

A similar pattern of AR activities is followed in each case, but is refined as the research progresses towards the use of PAR. This pattern repeats Whyte's (1991) description of using PAR as an applied research strategy, and Greenwood et al's (1993) view that although PAR is always an emergent process, largely controlled by local conditions, it can be a powerful way to resolve complex organisational problems. The fundamental difference between AR as used initially and PAR as used in the final case is the question of researcher and participant voice. In AR the researcher is the expert. In PAR the researcher is responsible for ensuring that he is an equal participant.

Each case study involves complex technical, commercial and social systems. The case study method seeks to minimise the degree of additional complexity introduced by the research process, and is designed to build an initial basis for participation and success followed by cycles of research activity (table 7).

Step	Research activity
1	Qualify whether the assignment was a suitable research candidate
2	Discover the problem existing within the organisation and confirm scope of assignment
3	Seek consent where this was not covered within existing contractual arrangements
4	Determine potential scope of research case study within consulting assignment
5	Agree responsibilities and boundaries
6	Carry out background research on industry area and organisations involved
7	Identify the group that has a shared interest in effecting change and engender participation
8	Identify the sponsor and primary point of contact
9	Identify the different domains involved and relationships between them to build a 'systems' view
10	Build an informed basis for participation, developing relationships between stakeholders and participants
11	Negotiate roles and responsibilities
12	Apply core conceptual model, and additional complementary conceptual models as appropriate to reduce complexity, bring clarity and provide guidance to detailed 'within domain' or 'actor life world view' and 'cross domain' or 'systems view' investigations
13	Carry out cycles of investigation and analysis within and across the different domains <ul style="list-style-type: none"> • Use interviews, meetings, workshops and/or correspondence with members of identified group to build quantitative as well as qualitative understanding • Explore additional relevant sources where identified, building momentum by encouraging wider participation • Reflect on progress and learnings to co-generate 'within domain' and 'cross domain' knowledge with those members of the group who will take the change initiative forward
14	Synthesise co-generated findings and review with participants
15	Articulate co-generated knowledge and guidance for the sponsor

Table 7: Case study method

The process uses a number of data collection and analysis tools. Preliminary document analysis and scoping meetings are used to establish initial viability of the case study and identify organisations or situations which are suitable candidates for further investigation. The approach adopted in the first case study of interviewing participants using a strongly structured format was found to be restrictive, constraining discussion, so a more discursive and interactive format was used in the later studies. Notes taken during the interviews were transcribed as soon as possible after the event to form a contemporaneous record. Some of these notes were re-interpreted back to participants to determine whether they were an acceptable reflection of nature and content of the

interaction. In the last two case studies, working sessions with participants are used as part of achieving deeper participation. Since ‘a priori design commitments can block the introduction of new understandings in interpretive research’ (Denzin and Lincoln, 2000) these empirical procedures were lightly structured to leave sufficient built-in flexibility to allow for unexpected changes through the course of each case study.

5.4 Researcher as participant observer

The case study method is enacted through the researcher as research instrument, using participant observation as a research tool with interviews, meetings, working sessions, extended email and voice conversations as forms of participation. Periodic reviews are used to confirm or disconfirm understanding and specifically to challenge the accuracy with which participants’ perceptions had been captured and interpreted. Because of the richness of the case situations, the researcher based the participant-observer role on Kluckhohn’s (1940) classic definition of participant observation:

‘conscious and systematic sharing, insofar as circumstances permit, in the life-activities and, on occasion, in the interests and activities of a group of persons. Its purpose is to obtain data about behaviour through direct contact in terms of specific situations in which the distortion that results from the investigator’s being an outside agent is reduced to a minimum’. (Kluckhohn, 1940)

Incidentally, other simpler forms such as Sekaran’s (1992) definition that a participant observer is a researcher who ‘enters the organisation or the research setting actually becoming a part of the work team’, Huczynski and Buchanan’s (1991) view that the participant observer ‘takes part in the activities under investigation’, or Becker’s (1958) definition that ‘the participant observer gathers data by participating in the daily life of the group or organisation he studies’, appeared rather simplistic by comparison.

Gold’s (1958) categorisation of four participant observer roles is used to guide researcher behaviour. The ‘complete participant’, whose true identity and purpose are unknown, does not reveal that research is being undertaken. Role-pretence is the basic underlying theme. The ‘participant as observer’, where researcher and informants are both aware that the research is being undertaken, minimises problems of role-pretence yet carries research hazards by blurring the boundaries between formal and informal interaction. The ‘observer as participant’, where both parties are aware of the research,

is used for studies involving one visit interviews where the main activity of the researcher is observation, for example through formal interviews, rather than participation. The 'complete observer', where both parties are aware of the research but the researcher has no participation in the activities being observed and no social interaction with the informants, is illustrated by systematic eavesdropping or by reconnaissance of a social setting as preparation for more intensive study in a different field role.

According to these definitions, the researcher found the role of 'participant as observer' to be the most appropriate for this research study, working with the organisations as a consultant whilst simultaneously acting as a research observer. The objective behind the 'participant as observer' role is to manipulate events and gain understanding from the outcomes, as with scientific experimental manipulation. Yin (2002) argues that this is a strength of the role of participant observer in that the researcher 'may have the ability to manipulate minor events ... only through participant observation can such manipulation occur', and that such manipulations 'can produce a greater variety of situations for the purposes of collecting data'.

The 'participant observer as research instrument' approach requires conscious attention to role boundaries in terms of knowledge and research voice, and to personal attitude. As Reason (1993) observes, orthodox research has a clear and intentional separation between the knower and what is known which goes to the very roots of Western paradigms of being and knowing and the scientific paradigm. This contrasts with, for example, the Taoist experiential tradition as suggested by Maslow (1966) which is closer to the researcher's participant-observer role. Reflective practice is used in a continual quest to separate the contribution of the theory from the knowledge, skills and behaviours of the researcher.

In terms of attitude towards the participants, the research approach follows Schwandt's (2000) recommendation that the qualitative researcher continually ask himself 'How should I be towards these people I am studying?' Guidance is taken from Prus' (1996) suggestion that the researcher should attempt to minimise his obtrusiveness in the field and in the text eventually produced, becoming a researcher who 'chameleon-like fits into the situation with a minimum of disruption, and whose work allows the life-worlds of the other to surface in as complete and unencumbered a way as possible'.

Participant observation has strengths and weaknesses. Yin (2002) argues for the increased reality of data that comes from perceiving reality from the viewpoint of someone inside the case situation. It offers fuller coverage of the phenomena being studied with the opportunity to observe what people do rather than what they say they do. Huczynski and Buchanan (1991) observe that 'by becoming a member of the group to be studied the researcher can achieve a high level of understanding of their behaviour, feelings, values and beliefs'. Becker and Geer (1982) describe the role of participant observer as providing 'first hand reports of events and actions and much fuller coverage of an organisation's activities, giving direct knowledge of matters that, from interviewing, we could know about only by hearsay'.

Participant observers must consider how far they may influence the setting in which they work. Yin (2002) identifies bias due to the researcher's inappropriate manipulation of events as a potential weakness, and suggests that it is difficult for the researcher to operate as an external observer and may, at times, have to assume positions or advocacy roles contrary to the interests of good scientific practice. This is perhaps less of a danger in PAR as the researcher has to maintain a position as one equal voice among many. If the participant observer 'goes native' this changes the relationship between the observer and other participants, and may provide opportunities to exert inappropriate influence over the phenomena being studied (Burgess, 1982; Yin, 1991; Gill and Johnson, 1997). Critically reflective practice is used to mitigate such risks.

5.5 Reflective practice as a research tool

The use of reflective practice, as applied in this research, is based on the work of Burgoyne and Reynolds (1997).

Burgoyne and Reynolds (1997) distinguish between effective, reflective, and critically reflective practice in the context of reflective enquiry. Effective and successful practice is judged by consensus of subjective views among people who matter in a given situation, with practice and practitioners being labelled as effective whether or not the practitioners can account for how they perform. In this view, practitioners regarded as effective, even though they cannot explain their 'success', are *effective practitioners*. Such practitioners know that they perform, but may regard their skill as intuitive, unconscious, or tacit.

Practitioners who render some plausible account of how they perform and articulate a theory of their practice become *reflective practitioners* producing *reflective practice*, with the advantage of being able to transfer skills to others through a conscious normative theory. It becomes possible to work out how to adapt theory and practice to changed circumstances rather than relying on intuition and trial and error, the only route available to the effective practitioner. Reflective practitioners' working theory of their practice tends to be normative, suggesting what should be done and why it should work.

Critically reflective practice adds a further layer of theory behind the working normative theory which includes diverse descriptive, interpretative and critical theories, understands rival normative theories, and compares them to the preferred one. This further layer of theory enables practitioners to question and revise the working theory, and to make sense of experiences that do not fit current working theories. Critically reflective practice is more sophisticated both in its understanding of the instrumental aspects of the work – what actions lead to what outcomes in what circumstances – and in the valuing, ethical and moral aspects of practice. It reveals a deeper concern with the purposes that the practice is or might be serving. Critically reflective practitioners can interpret practice and its immediate organisational context as part of the broader economic, political and social context, and to have an understanding of the kind of society that their work is reproducing or changing. Critically reflective practitioners are aware that with every practical action they take they are fixing their beliefs temporarily and acting on their current best working theory, while recognising that this is always open to challenge and improvement, and that this attitude applies to components of their practice both in an instrumental sense of how to achieve an outcome and in a moral sense of how to decide what outcomes are 'good'. Critically reflective practitioners operate what they judge to be the best working idea available to them at all times, but have a perpetual commitment to search for a better one. The additional layer of theory is the major resource for this, giving the practitioner a richer set of ideas and concepts with which to think about issues.

In Burgoyne and Reynolds' view (1997) this gives the critically reflective practitioner of management learning access to the most sophisticated process of learning that we are capable of, given our current state of understanding.

5.6 Selection of cases

During the period that the field work was carried out, the researcher was working as a strategy consultant for a major software company (SoftCo) with some 50,000 employees world-wide. SoftCo is not a recognised supplier of strategic management consulting and so the research results are unlikely to be due to supplier reputation effects. This strategy consultant role involved carrying out short business consulting assignments with clients from different industries, some assignments being funded by the client, others by SoftCo. SoftCo provided some freedom in finding and selecting the consulting assignments to be undertaken, as long as they were consistent with SoftCo's business objectives.

In the event four instrumental cases (Stake, 2000) were selected to create a 'collective case' that would provide insight into the research issue of exploring NIE's relevance to strategic analysis of e-business. The outcome of each individual case was of secondary interest to building understanding of the applicability of NIE. Each case was scrutinised in depth to help the researcher pursue that external interest, although the initial cases were viewed more as intrinsic case studies so that the researcher could gain better understanding of how to apply the theory to the peculiarities of those individual situations. Throughout each case study the ethical stance was towards a better outcome for the participants.

It seemed likely from the literature review that NIE would be more appropriate to a corporate environment, such as a division within a large corporate, than for small or medium enterprises. It was important that the organisation was using information technology (IT) widely and effectively so that a reasonable level of knowledge could be assumed. This would avoid basic issues of lack of understanding or awareness of IT. It was anticipated that the most likely candidate firms would be in service related industries such as financial services, commercial services, or telecommunications. Sources considered for potential case situations included:

- Companies investing in web services or other transformational use of technology which might be accessible through prime industry movers in web services
- Systems integrators who are looking to develop capabilities in developing and supporting web services

- Corporate contacts through past and current engagements and conferences.

In the event, case situations were selected which would be diverse in nature to assist generalisation through casewise and cross-case analysis, yet rich and relevant to optimise what could be learned and understood from each one. Reflection was used to elicit learning from what happened within each case and apply the increased understanding to the next.

5.6.1 *The first case – technology change in a financial services company*

It was not evident what features would characterise a suitable case situation, so the first case was selected on the basis that:

- It was an early application of an e-business focused technology, namely web services
- Technology was being used to reduce transaction costs
- It involved change within the business value chain as well as in the technology development process
- It was clear how to achieve the consulting objectives so the research would not put the assignment at risk, despite challenging timescales.

This first case, with a financial services company (FinanceCo), was exploratory and raised a number of questions as to whether the researcher could realistically use the theory in practice. The organisation was an early adopter of web services to transform the way it interacted with intermediaries in its mortgage business. This meant that decisions had to be made about the appropriate efficient boundaries between the different organisations involved.

Analysis of this first case, which derived more value from the use of resource based theory concepts (Grant, 1996, 1997) and concepts of intellectual capital (Ellis, 1999) than it did from institutional economics, suggested that the unit of analysis should be ‘the system’ rather than the contract. As a result, the object of study was chosen to be a system or subsystem in all subsequent cases. Some difficulties arose in using NIE in this first case situation which meant that it was not clear that NIE could be readily applied.

5.6.2 *The second case – transformational outsourcing in a retail business*

The second case situation involved a large and complex IT outsourcing project being delivered by a consulting company (ConsultCo) to a large retailer (RetailCo) of fast moving consumer goods (FMCG). This case was chosen because outsourcing has been the subject of much previous NIE discussion, particularly around transaction cost economics (TCE), making it more likely that the researcher would find a way of using the theory. Although far more complex than the first case situation, this case was more aligned to customary application of TCE. The lessons learnt from this second case made it easier to select the remaining cases. This second case was selected because:

- Transformational outsourcing is an example of a complex inter-organisational contract
- Simple and complex inter-organisational contracts have been the subject of a significant proportion of the prior empirical studies in institutional economics
- There has been prior research on the application of institutional economics to outsourcing
- This appeared to be a good pilot case study candidate for the researcher to learn how to apply the theory
- It was in retail, a different industry sector from the first case study, and so might expose sector specific differences.

The original intent was to have multiple cycles of activity, but the failure to engage key individuals into full participation and the departure of two key sponsors meant that the case was halted after the first cycle. Nonetheless, research findings from this case allowed the theoretical model and research approach to be improved. Reflections on this case study led to a tighter research focus around IT-enabled transformational change within an e-business context rather than e-business in general.

5.6.3 *The third case – bid governance on an outsourcing re-bid*

The evidence from this second case that the theory could be applied to practice meant that the third case situation could be selected to explore the theory in a very different context and challenge whether the understanding and approach would still be helpful. The third case situation was selected because it:

- Involved a different aspect of IT outsourcing, competitive bidding for a government contract, in a situation where there was a need to establish acceptable and trustworthy working practices in the context of a technology supplier working with three competing bidders for a large private finance initiative (PFI) contract.

This third case centred around a UK central government department (GovDept) and its competitive re-bid for a long term IT outsourcing contract. The existing contract was coming to an end, and had apparently caused some difficulties for the department because the ‘contract as legal rules’ nature of the contractual agreement had not been sympathetic to unexpectedly rapid changes demanded by e-government and a corresponding increase in electronic delivery of the department’s services. This case considered the role of a major software supplier (SoftCo) in the competition for the new contract. Three systems integration consortia were shortlisted to bid for the contract. GovDept required that SoftCo, which has a dominant market share in its market segment, would be prepared to work with all three bidders to avoid the competitive advantage and risk to the department that an exclusive agreement between SoftCo and a single consortium would give. The challenge for SoftCo was to be able to devote significantly different quality and level of resource to the different bids without being, or appearing to be, anti-competitive. The theoretical model was used to create a practical solution to this problem. Governance complexity arose in this case through the need for SoftCo to work competitively with each competing bidder while at the same time providing high quality information without favour to all three in common, acting to promote fair competition, and yet putting significantly different levels of resource into working with the three competing consortia. This involved significant change for SoftCo which had not previously worked in this way with such consortia.

5.6.4 *The fourth and final case – transforming school age education*

The fourth and final case drew on the findings of the preceding cases and combined the theoretical model with PAR to explore the impact of technology and help to shape the transformation of school age education across Kent. Kent County Council (KCC) is one of the UK’s largest local authorities. This final case situation was selected because it:

- Involved significant IT-enabled change in local government, typically a challenging context, and education in particular
- Involved complex organisational ownership and governance considerations

- Was a response to a capability shortage, amongst other economic challenges
- Involved an e-business model based around a range of transactional exchanges.

At the time of writing this transformation programme is continuing, and the co-generated knowledge from the case is being used with other UK local authorities. This final case, which looked at the economics of a local education authority (LEA) providing school age education, built on the knowledge gained from the prior studies to provide a more comprehensive test of the theory's applicability. It involved multiple cycles of activity. The first cycle consisted of the process to secure full sponsorship and commitment. The second cycle involved working with other participants to appreciate the potential advantages of significantly changing the way technology was used to support school age education across the county. The third and final cycle of activity involved working with a different group of participants to create a detailed white paper (Ellis, 2003) representing co-generated knowledge and describing the anticipated changes. This was subsequently used to support the creation of a joint public relations video (Microsoft, 2003a) (a copy is included on a compact disk with this thesis).

5.7 Summary of case situations

This sequence of case situations, with each being selected according to what was needed for the next stage of the research, allowed the researcher to develop research skills at the same time as developing the participatory research method for applying NIE. The case situations, and how they were expected to contribute to the research, are summarised in table 8. The next chapter describes the case studies in detail, with case by case analysis to identify case-based research findings.

Case	Consulting view	Research view
<p><u>First case: FinanceCo</u></p> <p>Financial Services November 2001 – March 2002 (25 man day consulting engagement)</p>	<p>Business context: Multi-channel business model using intermediaries as well as direct channels</p> <p>Objective: Inform a technology ‘make or buy’ decision</p> <p>Technical context: Web services</p>	<p>Purpose of research case: Build familiarity with NIE concepts by using them in a consulting assignment</p> <p>Research objective: Develop and challenge theoretical model</p> <p>Research approach: Reflective cycle – plan, act, reflect, conceptualise</p>
<p><u>Second case: RetailCo</u></p> <p>Retail FMCG March 2002 – June 2002 (30 man day consulting engagement)</p>	<p>Business context: Retail business transformation</p> <p>Objective: Understand complex multi-organisation business situation</p> <p>Technical context: Transformational outsourcing of IT</p>	<p>Role of research: NIE needed as consulting tool. No other more suitable consulting tool known.</p> <p>Research objective: Resolve business problem</p> <p>Research approach: AR</p>
<p><u>Third case: GovDept</u></p> <p>Large central government department November 2002 – March 2003 (advisory engagement)</p>	<p>Business context: IT outsource contract ending</p> <p>Objective: Competitive contract re-bid seen as fair competition despite unequal involvement of dominant supplier.</p> <p>Technical context: Supplier support for competitive re-bid from a position of dominant market share</p>	<p>Purpose of research case: Challenge researcher understanding of NIE in a different context.</p> <p>Research objective: Build deeper understanding of NIE while reviewing suitability of action research method</p> <p>Research approach: Participant observation</p>
<p><u>Fourth and final case: KCC</u></p> <p>Large UK local authority October 2002 – November 2003 (30 man day consulting engagement)</p>	<p>Business context: Transforming the delivery of e-government services</p> <p>Objective: Transformation of school age education through IT</p> <p>Technical context: IT supplier as business transformation partner</p>	<p>Role of research: NIE needed as consulting tool. No other more suitable consulting tool known.</p> <p>Research objective: Resolve actual business problem</p> <p>Research method: PAR</p>

Table 8: Summary of cases

6 CASE STUDIES

This chapter looks in depth at each case study and provides case by case analysis.

A standard structure has been used for each to make cross-case analysis easier. Thus the first section of each case study, 'the case description', introduces the organisations involved in the case situation and describes what they were seeking to achieve. The second section 'researcher involvement' explains what was expected from the researcher's involvement, and describes the nature of the intervention and research activities. Subsequent sections cover business analysis of the case, using NIE and the conceptual model, and research analysis detailing both how NIE was used and how the case contributed to the development of the research method. The final section of each case study, 'results', includes illustrative conclusions from the consulting assignment, research findings from the case, and any additional outcomes.

Each case study was approached using the case study method as outlined in chapter 5 (table 7).

6.1 First case study – Technology change in financial services company

6.1.1 Case description

6.1.1.1 The case situation

This first case study, undertaken in late 2001 and early 2002, used a participant-observer method to explore how the concepts from New Institutional Economics (NIE) could be used in an e-business related management consulting assignment in a financial services company (FinanceCo). The research objective for this case study was to expand the researcher's understanding of NIE, to investigate whether the researcher could use NIE concepts in this context, and whether their use would produce insights that would not otherwise have arisen. General case related sources are listed in the bibliography.

FinanceCo is one of the UK's larger mortgage lenders with pre-tax profits of £206.8 million in the six months to October 2001 (table 9). In 2001 FinanceCo had an 8.5% UK mortgage market share, with around 700 branches servicing 2-3 million financial transactions per day (October 2000 figures).

Mortgages are a critical part of FinanceCo's business. Intermediaries and brokers introduce up to 60% of mortgage business each month. One of these, MAI (Mortgage Application Intermediary), owns a large UK estate agency network. Repackaged and customised online mortgages were becoming crucial to UK lenders' survival. The growing number of Britons online, and rising confidence in the web, were projected to drive the online mortgage market from £3 billion, representing 2% of annual UK mortgage sales, to a £15 billion market by 2006 (Forrester, 2001). Forrester also suggested that web automation would exacerbate three problems – price competition, customer retention and product innovation – and that lenders must actively shape the web into a means to avert ongoing credit commoditisation and to meet changing consumer demands profitably. A continuous service replacing discrete products would help individual lenders to capture market share from their rivals, and stop price and margin erosion. This was not projected to happen overnight, or benefit all UK lenders equally.

UK Mortgage market		
Annual UK mortgage sales	£150 billion	Forrester Report (2001)
Value of 0.1% market share	£150 million	Calculated
Expected annual growth in mortgage market	10%	Conservative estimate on public figures
Online UK mortgage market (24 Oct 2001) (2% of annual mortgage sales)	£3 billion	Forrester Report (2001)
Projected online UK mortgage market (2006)	£15 billion	Forrester Report (2001)
FinanceCo's mortgage business		
FinanceCo market share of UK mortgage market	8.5%	BBC 22 Nov 2001
% growth of FinanceCo mortgage balances (over last 5 years)	65%	Annual report 2001
FinanceCo annual mortgage sales	£12.5 billion	Calculated
Averaged % of sales through MAI (up to 60% in a month)	40%	Estimated
Annual mortgage sales through MAI	£5 billion	Calculated
FinanceCo pre-tax profits (6 months to Oct 2001)	£206.8 million	Council of Mortgage Lenders (Davey, 2001)
Projected FinanceCo mortgage sales through intermediaries over next 5 years (assuming proportion of sales through intermediaries remains constant)	£33.6 billion	Calculated

Table 9: Summary of financial context showing main sources of data

Simultaneously, an increasing audit requirement driven by regulatory changes was requiring intermediaries to give the same product illustration as the main lender. A further requirement to deliver the same product at completion of mortgage business as in the product illustration meant that the intermediary had to apply the same business rules as the main lender.

In response to these changes, FinanceCo was investigating whether its Mortgage Application Process (MAP) could be improved. Regulatory changes affecting this multi-channel process, which used branches, call centres, direct access and intermediaries as different channels to the customer, would require FinanceCo to guarantee the mortgage illustration that customers got at the time of application in principle, even if they changed to a different channel mid-way through the process. This meant that the MAP process had to be made more rigorous, particularly where it used intermediaries like MAI. FinanceCo used a market leading in-house process automation tool and software development platform (ProcAuto) to automate processes like MAP and provide an electronic channel for MAI's systems to communicate directly with

FinanceCo's own main Point of Sale for Mortgages application (POSM) in getting Approval-in-Principle from FinanceCo for a customer mortgage (figure 14).

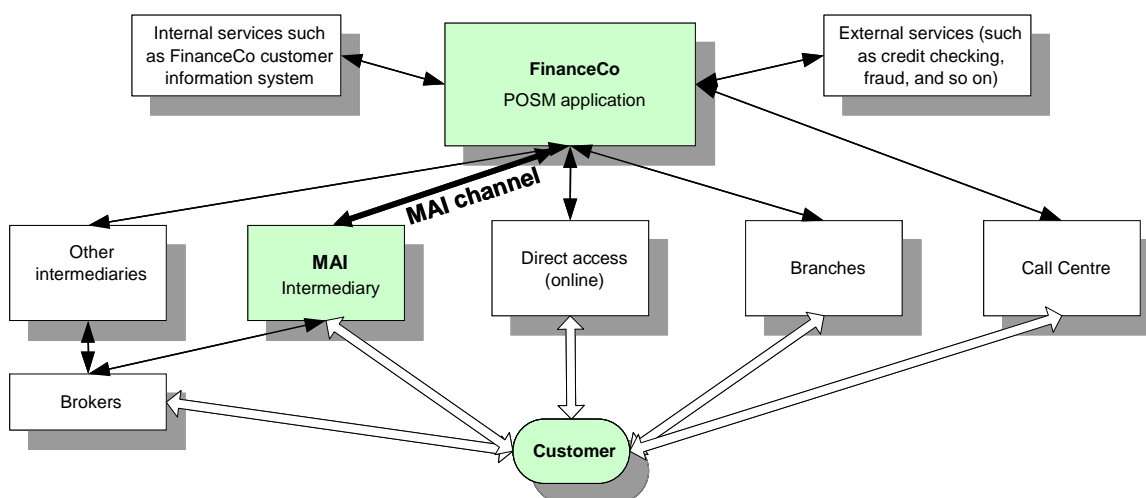


Figure 14: The multi-channel business model showing researched channel

As an early adopter of Microsoft's commercial web services technology set known as .NET, FinanceCo had a business opportunity to consolidate its technology leadership position. It could convert the market leading technical knowledge embodied in ProcAuto into a commercially supported framework for wider use within FinanceCo by replacing parts of the ProcAuto development platform with Microsoft's Visual Studio, and replacing a substantial part of the bespoke ProcAuto code with the .NET Common Language Runtime (CLR). It was projected that these changes could substantially reduce development and maintenance costs, and the amount of ongoing process specific investment needed in proprietary skills.

6.1.1.2 What FinanceCo was trying to achieve

FinanceCo was running a web services project (WSP) to investigate whether use of web services in the MAP process could reduce the costs to both FinanceCo and MAI of agreeing mortgage applications in principle. FinanceCo wanted to know whether .NET and web services could provide a cost effective commercial-off-the-shelf (COTS) alternative to the in-house software applications for MAP, and in particular the initial 'mortgage application in principle' phase of this particularly complex business process.

6.1.2 Researcher involvement

6.1.2.1 Why the researcher got involved

The ProcAuto environment provided FinanceCo advantage in terms of speed of delivery, but COTS technologies were eroding FinanceCo's competitive advantage. The choice facing FinanceCo in this context was between continuing to develop and support the existing in-house ProcAuto technology and adopting a technology migration strategy which would largely replace that in-house technology with .NET. In NIE terms this is a governance decision between hierarchical and market governance.

The SoftCo account team for FinanceCo, which had an interest in encouraging FinanceCo to move to the COTS equivalent, persuaded FinanceCo to accept a consulting engagement, to be carried out by the researcher as a SoftCo consultant, to develop the arguments for and against this choice. It was at this point that the researcher became involved.

The purpose of this involvement was twofold. The primary objective was to identify and quantify economic benefits that FinanceCo could derive from adopting the components of .NET, namely Microsoft's .NET framework, CLR, Visual Studio development environment and extended mark-up language (XML) based web services. FinanceCo already understood the costs involved in the existing in-house technology. This would inform FinanceCo's business decision about technology choice, timing and transition. A secondary objective, required by SoftCo which was funding the assignment, was to produce and publish a public relations (PR) case study about the value to FinanceCo of migrating to .NET and web services, if this was justified.

6.1.2.2 Intervention

At this time, the researcher's understanding of NIE was limited and purely theoretical, being based solely on the literature review. It was not clear at this stage how NIE might in practice be used for conducting this assignment, so SoftCo's established and proprietary five step (business assessment, solution definition, benefit/cost analysis, risk assessment, financial metrics) business value method was used for the consulting assignment to avoid the commercial risk that is inherent in a purely theoretical approach. The competence development process (figure 15) was used to guide the parallel consulting and research processes and maintain the distinction between them.

This took the form of reflective practice around the proprietary consulting process using NIE as a lens to help the researcher challenge his interpretation of the data and build practical understanding of NIE concepts found in the literature by relating them to an active practice context.

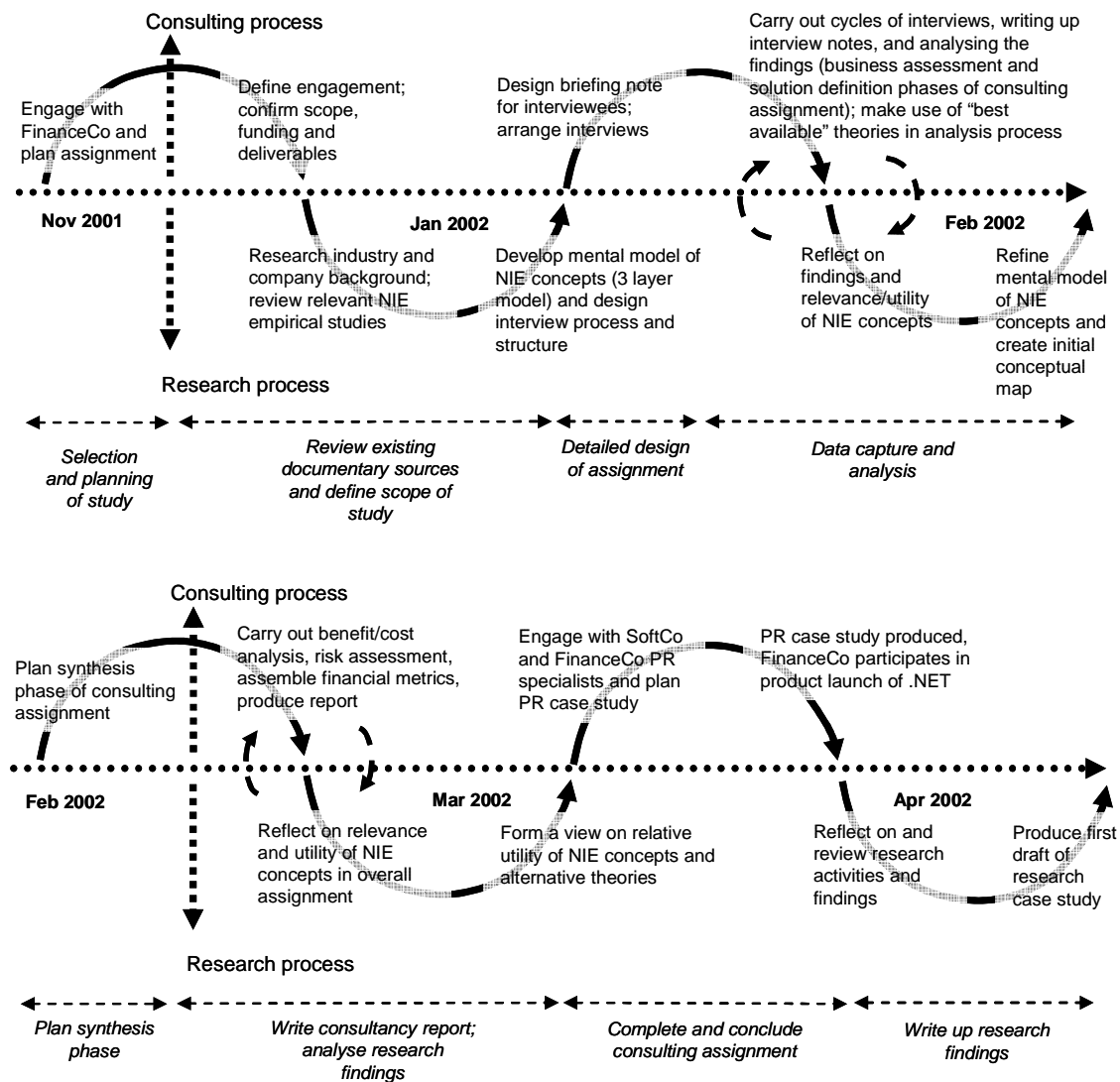


Figure 15: Research process for first case study

The initial NIE theoretical model (figure 10) was used as a tool for reflective practice alongside the proprietary method. This led to the identification of additional stakeholders and business implications by considering each of the layers in the model, and the NIE concepts that appeared to be associated with those layers, to challenge each interviewee's stated perspective during interviews and the subsequent reflective reviews. Since the main thrust of the consulting assignment was to inform a strategic choice between remaining with in-house development of software tooling or purchasing an equivalent from the market, the primary NIE concepts considered in this case were

those relating to TCE, in particular the nature and frequency of software development and mortgage application transactions, their associated transaction costs, and the transaction specific assets that were needed to support them. Considering a change from in-house development to a commercial alternative brought in property rights implications in respect of intellectual property, and the researcher felt that the change in mortgage channel structure to take advantage of web services was also likely to separate ownership of parts of the mortgage application process from control over the constituent web services which would be implementing the process. This made it necessary to consider much of the breadth of NIE including TCE, AT and property rights considerations. The institutional environment, in terms of FinanceCo's position in a highly competitive market was important to the consulting assignment, but did not form part of the research analysis.

The NIE model was also used to structure the business analysis, which was described by the third party specialist who wrote the PR case study as "the most thorough analysis he'd ever seen". Because of this depth of analysis, it was found necessary to extend the proprietary method significantly through the use of additional business value (Tallon, 2000) and intellectual capital (Edvinsson, 1997; Ellis, 1999) techniques to deliver the full potential of the assignment.

An initial assignment meeting took place in November 2001. This was followed by a review of documentation, a series of semi-structured interviews, and telephone and email exchanges through to late January 2002. Regular reviews were held with the project sponsor and with the main day-to-day point of contact at FinanceCo. The report and presentation were delivered in late February 2002 and the audited PR case study finalised in mid April 2002. The depth of analysis achieved had an unexpected effect in that whereas FinanceCo was sceptical about web services at the start of the study, it became a leading participant in the product launch of .NET.

The research analysis was carried out in three sections to reflect the three levels of the initial theoretical research model:

- Ownership and organisational structure, looking at the overall multi-channel business model, including intermediaries, diversity of service offered through the different channels, governance questions arising, business value targets, and the responsibility for delivering against them. The model helped in identifying

different areas of ownership, and property rights boundaries which were non-trivial in the multi-channel arrangement.

- Business operation, looking at the business process and how business value targets are delivered through the common business process underpinning the multi-channel business model, and the transaction and asset related economics of this part of the business.
- Technology, looking at current and potential use of .NET, the technology supporting the multi-channel business model and common process, and the technology processes by which value is delivered to the business through software applications created by Technology Development, supported by Technology Support, and managed by Technology Operations.

Findings for the consulting study were derived using business value (Tallon, 2000) and intellectual capital (Edvinsson, 1997) techniques.

6.1.2.3 Research activities

The case study research process was followed alongside the consulting assignment as shown in figure 15.

Existing theoretical and empirical NIE studies were reviewed before, and during, the consulting assignment to assess their relevance and to develop deeper understanding of NIE. These studies included the use of agency theory (AT) to look at systems development (Huang, 1995), the determinants of governance structure for electronic value chain (Rasheed and Geiger, 2001), vertical integration in the face of technological change (Afuah, 2001; Balakrishnan and Wernerfelt, 1986; Hagedoorn, 1993; Mitchell, 1989), and performance effects of vertical integration, including forward integration into marketing channels, relationship specific investments, and organisational forms (Andersen, 1985, 1988; Anderson and Schmittlein, 1984; Anderson and Weitz, 1992; Armour and Teece, 1980; Bucklin and Sengupta, 1993; Gates, 1989; John, 1984; John and Weitz, 1988; Klein, 1988). Further studies reviewed covered relationship development using multiple channels (Dnes, 1992; Dutta et al, 1995; Joskow, 1988a; Pilling et al, 1994; Rasheed and Geiger, 2001), capability development and transaction specific assets (Barney, 1999; Caves and Bradburd, 1988; Weiss, 1992; Weiss and Anderson, 1992), and make-or-buy decisions (Walker and Weber, 1984). Between them, these provided different and deeper perspectives on the decisions faced by

FinanceCo and on the decision-making process than would otherwise have been achieved.

Research data was collected by reflecting on the series of investigative, semi-structured interviews held with the divisional director for technology, business owner of POSM, financial controller for POSM, current and previous POSM project leaders, chief architect (who led on ProcAuto), senior development manager, and senior managers from technical support and technical operations. Governance questions around control over the content and process for the PR case study were brought to the fore in the negotiation discussions which were held with the divisional director and with FinanceCo's Media and Communications Unit because of FinanceCo's unexpected depth of involvement in the product launch process.

The original intention was to introduce NIE concepts in the interviews and use them directly alongside the consulting method but this did not work because, to be effective and make best use of the available time, the interviews had to keep to the language of the interviewee's work context. One of the first interim findings of this research was that interviewees immediately started to close the interview down when attempts were made to widen the discussion to a more theoretical stance with direct use of NIE.

The interview structure as described to interviewees is detailed in Appendix C. Interview notes were transcribed and analysed after each interview, email communications were collected and collated, and key information was collated in an Excel workbook to support the financial analysis. Supporting documentary information, including the relevant sources listed in the Bibliography, was also collected and analysed. The collection of case related notes, sources and transcriptions was not easily structured for this case because of its exploratory nature.

6.1.3 Business analysis using NIE

The three layer initial theoretical NIE model was used to structure the analysis and is used to structure this section. It was less easy to relate NIE concepts to the case situation, but section 6.1.4.1 indicates how NIE concepts were related back to the case situation as a result of reflecting on their relevance and usefulness.

The goal of using the CLR proprietary software to replace the existing, in-house developed, ProcAuto runtime software in the POSM application was to check the

viability of completely replacing the ProcAuto runtime with a commercially supported equivalent. In-house ProcAuto tools were used both at development time and at run time. The value that FinanceCo expected from the CLR was to be able to eliminate the proprietary ProcAuto tools completely from the run time environment while still running existing systems constructed with ProcAuto. The advantage was that the existing run time, which depended on a hard to change shared infrastructure supported by scarce personnel with particular skills specific to that environment, would change to a COTS alternative with full and ongoing supplier investment and commitment.

Whereas Technical Architecture staff in FinanceCo had previously lacked a viable COTS replacement, they believed that this changed with the arrival of .NET. The WSP project provided an opportunity to explore whether .NET could provide a viable COTS alternative, by offering a self-contained study of parts of the system which were separable as a subsystem, were due to be upgraded anyway, but could readily be regressed if problems arose.

6.1.3.1 Ownership and organisational structures – characteristics of the business model

FinanceCo was taking introduced mortgage business from many intermediaries and brokers, but electronic support for these relationships was varied. FinanceCo's strategic intent was to have a single electronic system that any of these intermediaries and brokers could use. The WSP project, which provided an electronic link between FinanceCo and MAI was seen as a step towards this strategic intent.

Mortgage regulations which were due to come through in August 2003 required that mortgage illustrations would provide many questions and answers that would in turn enable customers to compare mortgage illustrations more readily, increasing transparency of the mortgage market. Although FinanceCo's intermediaries also offered non-FinanceCo products, the conventional wisdom within FinanceCo was that FinanceCo performed better in more transparent markets. It was anticipated that increased richness of electronic support would further aid transparency.

According to the Director for the mortgage business the existing business model was effective, realising around £50 million of mortgage business daily on average, but had limitations, such as poor ability to consolidate management information across different

channels. The process for getting a decision in principle on a mortgage was channel specific, so a mortgage application that started in a particular branch remained with that branch throughout. The process from the many different channels such as branches, intermediaries, and online, only came together as a single process post-offer. This phase ran on an established older IT system. The process in each channel was essentially sequential, although in many respects it need not have been. If specific information was not available when required, delays arose even though the process could in principle proceed with the required information being added later.

Reflection using the different NIE concepts highlighted the complexities of the mortgage process with its multiplicity of roles and organisations. Business process governance discussions guided by principal-agent concerns from AT showed that, with the ongoing move towards an electronic self-activated process, it was not obvious who owned a case at any particular point in time, and that the lack of a single signature raised mortgage application process audit issues.

6.1.3.2 Business operations

POSM was FinanceCo's main mortgage engine. The POSM project had been in progress for some 3 years. At its inception, FinanceCo had considered key aspects of where the mortgage business was going, including increased regulation, market pressure to be ever faster to market with lower processing costs, multi-channel delivery, the use of internet and intermediaries, whether branches should continue, and whether tele-sales should continue.

The market pressure to reduce mortgage application related costs while using multiple channels suggested that it was appropriate to investigate transaction related costs, the specificity of the supporting assets, and whether they were well aligned.

The existing MAI mortgage broker link was essentially a 'one-to-one' link. The POSM project highlighted a 'cottage industry' among the intermediaries and brokers, with the mortgage application-in-principle process being subject to many local variations, such as property surveys having been carried out, incurring delays in the process and costs for FinanceCo, even where they were not required by the business rules. This showed that the need for brokers and intermediaries to know the business process had to shift towards them needing to understand the business rules. They had been applying local

business rules, but the change in mortgage regulations was making it a statutory requirement for intermediaries and brokers to be consistent. The process had to be simple enough to work across both mediated and on-line channels.

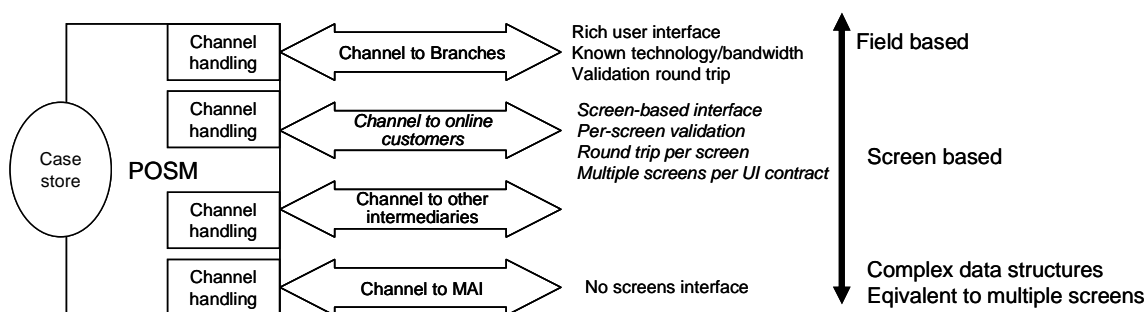


Figure 16: Mortgage application channel model

POSM had always been intended for multi-channel operation. The process had to be channel independent, even though channels could offer different capabilities (figure 16). A common ‘case store’ service retained information about the channel and product being used at any particular time. It was anticipated that .NET would provide a standard environment enabling data to be passed around within, and external to, the organisation in extended mark-up language (XML) format. For example, this was needed for mortgage-related communications with the Land Registry which was moving to electronic transfer of data. It was intended that the interface to surveyors be electronic so that an address and location could be passed to a surveyor and the report returned in XML form. POSM went live in December 2001 and included an electronic link to surveyors as a business trial. By the end of the month the first electronic report direct from a surveyor had been received.

6.1.3.3 Technical stakeholder perspectives

The governance decision from TCE between in-house development of software tooling and buying an equivalent from the market, and the associated implications for the development teams as human assets, lay at the heart of the technical stakeholders’ perspectives and their management of these technology-related capabilities.

FinanceCo’s chief architect’s view of an ideal transition to .NET was that removing the ProcAuto runtime would be transparent to the business, and that Technology Development would be better able to deliver on the capabilities of their programmers by bringing greater rigour to the development process. In particular he was keen to achieve better design control, police software configuration management better using the

additional tools, and move towards a single defined set of methodologies which would reduce the load on key staff by enabling FinanceCo to replace the ProcAuto middleware with a commercial equivalent.

The development approach represented by the ProcAuto tool was innovative, providing FinanceCo with a significant competitive advantage through being able to bring mortgage products to market rapidly across a range of channels. The tool, which was process-based not programming-based, was a purely in-house proprietary capability so there was no access to an external market for ProcAuto skills. In NIE terms, ProcAuto skills represented a significant tool-specific investment. ProcAuto's inventors and maintainers were few in number which is why FinanceCo was seeking to move this part of the development environment to a commercially provided platform with skills available from the market. It was expected that, even with full commitment, it would take a minimum of an 18 months development path to fully remove the ProcAuto runtime.

In contrast, Technology Support retained concerns around using .NET with POSM around achieving a cost effective process that would be as automated as possible, and that would have as little friction as possible (transaction costs) in the sense of difficulties that had to be resolved in moving the new version of the application into the live environment.

6.1.3.4 Technology-related capability

FinanceCo had built up significant dedicated assets in its technical development and operations teams to maintain efficiency in its technical operations.

FinanceCo's information technology (IT) operating environment was complex, having resulted from a number of mergers over the years, giving information governance concerns in respect of the mortgage application process. Different insurance engines could be used to provide quotes, and it was difficult to know which was the correct one to use, who owned it, and who was liable for the quote. It seemed plausible that a web service front end to such engines might facilitate re-use and tighter management by providing more clearly defined technological boundaries.

Technology Development had a strong emphasis on business analysis and was becoming more aligned to the business units. Scarce developer resource remained

associated with business areas rather than being redeployed into a resource pool, providing greater visibility of change management issues to those business areas. Technology Development had an equally strong emphasis on using sound methodologies centred around business process and meta-data because of the highly heterogeneous environment and high degree of inter-operation between systems.

The proposed POSM application was typical in the need to apply a strong methodology. The complex mortgage process included fraud management and detection, as well as facilities to override or mandate the process. All customer related processes had to be deployed to all channels, including Branch, call centre, internet, financial consultants, intermediaries, and brokers, with the application handling variations in process across channels while maintaining consistency. This was a whole new level of modelling compared with previous methods. The process based approach was a major challenge, but was expected to provide a competitive edge since FinanceCo intended to use the same process in many channels with only small variations. Ideally it would be possible for existing processes to be recombined as part of new business models, but this raised challenges in defining service encapsulation boundaries, versioning and variation. In NIE terms these are challenges of defining efficient boundaries with their associated transactions and contracts.

FinanceCo's heads of technology were concerned about the real costs of changing significant parts of the underlying ProcAuto technology, however good a 'fit' there was with their needs, how .NET could best be deployed, and whether FinanceCo could realistically increase competitive advantage through deploying .NET and the Visual Studio developer tools. Furthermore they had practical concerns about adopting .NET technologies in the modelling phase of the software development process and understanding how best to migrate to the new technology. The cost of migrating developer skills was of particular concern, along with the challenges of reducing FinanceCo's dependence on highly skilled people for maintaining ProcAuto, and the cost balance between ProcAuto's demands on the time of key individuals relative to the cost of equivalent COTS modelling tools.

Achieving and maintaining a high speed of delivery demands good people as well as effective processes and tools. In the technology domain, FinanceCo had to achieve high performance with average people because of practical difficulties in recruiting high

capability individuals. The ProcAuto tools meant that FinanceCo had been acting as a software tools business with consequences such as the need to develop and deliver in-house training. Running with a proprietary environment meant that FinanceCo had to put this burden onto its skilled staff, and so had difficulties securing access to the skills needed, as well as motivating technical staff who expected to maintain and enhance the marketability of their skills rather than becoming skilled in proprietary technologies.

Software development was only part of the technology process. Technology Support owned the software release process onto the live environment, receiving applications from Technology Development and delivering fully managed servers into operations by providing the operational 'wrappers' and supporting facilities that were needed to deploy an application into the live environment. Technology Support had systems management concerns in that they expected a comparable management environment for web services but this was not commercially available, and operational concerns around achieving predictability of resource demands. Service management in a web services context involves knowing how the end to end service is running, not just the individual component services, and so managing the full service consumption network robustly becomes critically important. In NIE terms this service consumption network can be considered as a nexus of treaties.

6.1.3.5 Synthesis using non-NIE consulting tools

Although NIE was helpful in the analysis phase of the consulting process, it was less helpful in the synthesis phase of developing business value conclusions and recommendations. Tallon's (2000) model representing six dimensions of business value of IT (figure 17), which had been uncovered during the wider literature search to find applicable models, was used instead. Tallon's model happened to be an effective way of articulating, to the assignment sponsor, the value and areas where the use of .NET might influence the business value which the MAI part of the POSM project would deliver to FinanceCo.

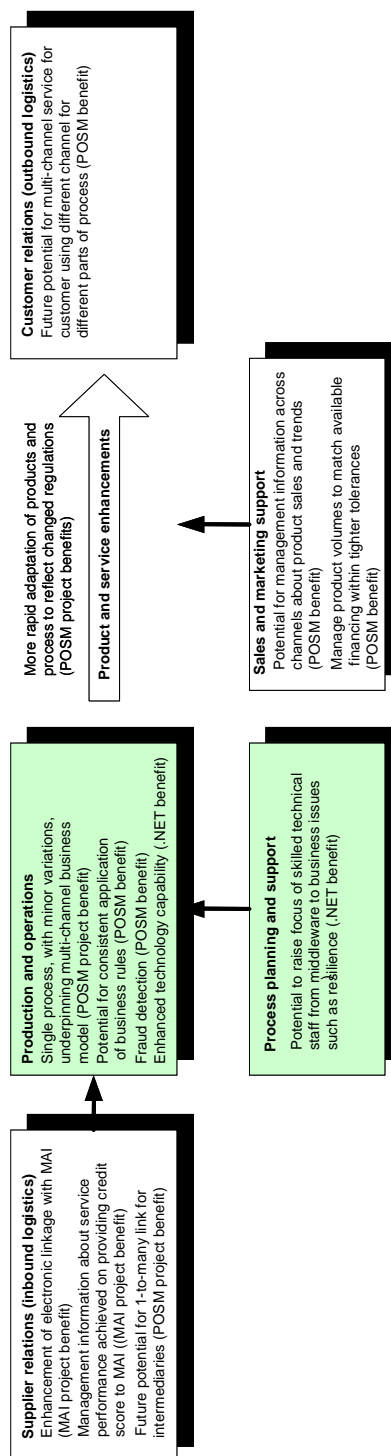


Figure 17: Tallon's (2000) six dimensions of business value applied to FinanceCo

The main areas where FinanceCo expected to benefit from .NET derived from enhancing the value delivered by FinanceCo's competitive capabilities in technology, its technology-based intellectual capital, but this was predicated on how well FinanceCo could appropriate value from its technology knowledge. Early trials suggested that POSM could offer competitive flexibility to the business through a much more rapid release cycle for mortgage product changes and business feature changes. The value

that FinanceCo could appropriate in practice depended on being able to translate that flexibility into actual achievement of competitive mortgage lending targets.

The Skandia intellectual capital model (Edvinsson, 1997; Ellis, 1999) dividing intellectual capital into human capital, structural capital and customer capital, which was already familiar to the researcher, was used to express critical success factors identified from interviews with the Director for FinanceCo's mortgage business and FinanceCo's Divisional Director for Technology in balanced score card style. In FinanceCo, skilled technical resource was in short supply so there was value in using structural capital in the form of tools and methods to increase the effective productivity of the available staff. Project management staff within the MAI subproject indicated that productivity differences between ordinary development staff of two to one were not unusual; others suggested that skilled staff can be up to ten times more productive than ordinary staff, suggesting that enhanced tool support could be equivalent to a significant increase in resourcing.

6.1.4 *Research analysis*

6.1.4.1 **How NIE was used**

This case situation revealed an example of the classic transaction cost problem as posed by Coase (1937) of firms deciding when to produce to their own needs and when to procure in the market. Coase argued that transaction cost differences were principally responsible for the decision to use markets for some transactions and hierarchical forms of governance for others. In this case, technological developments changed the nature of the costs involved in procuring the necessary skills and technology to support a particular class of business transactions, creating a classic management dilemma between staying with the existing in-house technology and making a significant investment to change to a commercially available one.

However, business transactions were not the only transactions identified. Once 'application changes' had been identified as relevant transactions, the transaction cost economics (TCE) concerns of transaction frequency, uncertainty and asset specificity became important because of the limited resource of people skilled in the ProcAuto tools. This would not have been an issue in a stable and predictable environment, but it was difficult to achieve the rapid changes needed in the application to meet changing

business requirements. The asset specificity of the tools restricted resource flexibility, whereas with a COTS toolset additional skills could readily be purchased from the market. Clearly, the contractual form here was dominated by 'internal development'. This contrasted with other parts of the development team where the predominance of widely used commercial tools meant that contractors could be brought in at a competitive rate on what were effectively spot contracts.

This case situation also illustrated aspects of the AT question as to whether the separation of ownership and control in the corporation had organisational implications. For those parts of the MAP process which became implemented as web services, control of individual elements within the process would pass to disparate parts of the organisation, whereas ownership of the MAP process as a whole would remain with a specific part of the organisation. Treating these different parts of the organisation as individual agents suggested that ownership and control would become separated. Looking at this situation through an AT lens indicated that liability for the different parts of a mortgage illustration and hence accountability should remain with the contributing part of the organisation. The change to a web services approach was actually likely to make this easier since there would be one source delivered as a web service for each element, independent of the distribution channel in use, rather than the multiple channel-specific engines previously used.

The organisational imperative (Williamson, 1996c) implied by TCE is that transactions, which differ in this case in attributes such as distribution channel and asset specificity, should be aligned with governance structures whose costs and competencies differ in a discriminating and economising way. This suggested that different governance structures might be required for the various channels if the channel-specific transaction costs were to be reduced, yet these different governance structures would need to be reconciled to guarantee identical mortgage illustrations, whichever channel was used. These challenges make the question of determining the efficient boundary non-trivial. FinanceCo had to strike a balance, between selling mortgages direct and selling through intermediaries, which would be acceptable to MAI as well as to FinanceCo. FinanceCo had to strike a further balance between economising in the long term commercial relationship, a long term agreement involving significant investment in IT by both parties, and economising around the short term agreements involved in selling mortgages as an intermediary.

It was found that the NIE concepts of human asset specificity, dedicated assets and physical asset specificity were complementary to concepts within the Skandia intellectual capital (IC) model, and that it was helpful to view the situation separately through NIE and IC lenses. Physical asset specificity was observed in FinanceCo's investment in ProcAuto based systems tailored to the commercial relationship with MAI. As they stood, these systems could not readily be used for other intermediaries, or to process transactions through other channels, without additional investment. Dedicated assets, discrete investment in general purpose systems to support transactions with a specific organisation, were observed in MAI's systems which communicated with FinanceCo's ProcAuto system. Human asset specificity was observed in the investment over many years to develop individuals with skills in the in-house ProcAuto technology. Although the knowledge gained from working with this technology to automate processes is to some extent transferable as a generic skill, the level of productivity that an individual would be able to deliver in another context would be diminished by not having the ProcAuto tools, methods and technical environment. So the quasi-rent from these skilled individuals is positive while they remain within FinanceCo working with the ProcAuto tools, and they could appropriate value from these skills within FinanceCo, as long as FinanceCo's need for skills in the technology continued. One concern that these individuals expressed was that these context-specific skills were not as marketable outside the organisation as industry standard skills. FinanceCo was concerned that it was becoming impossible to secure access to these critical ProcAuto skills since it was difficult to persuade staff to develop skills with limited marketability, and these skills were not available in the market place.

The study was prior to the launch of .NET which meant that knowledge of how to use it to implement systems was limited to the relatively few organisations involved in pre-release trials. In terms of bounded rationality, this created informational boundedness because much necessary information about costs and consequences was not yet available. Computational boundedness was less of an issue because FinanceCo's technical teams used robust and evidenced management methods. Consequently the management decision to adopt .NET was mainly limited by the available information. The consulting study was a part of the management process to reduce the unknowns and gain fuller understanding of the ramifications of a decision between staying with the in-house tools and moving to .NET as a COTS alternative.

The concepts of bounded rationality and opportunism arose in the form of transaction uncertainty within the mortgage illustration since different channels used different engines to provide mortgage illustrations and were consequently able to present, opportunistically, better offers than other competing channels.

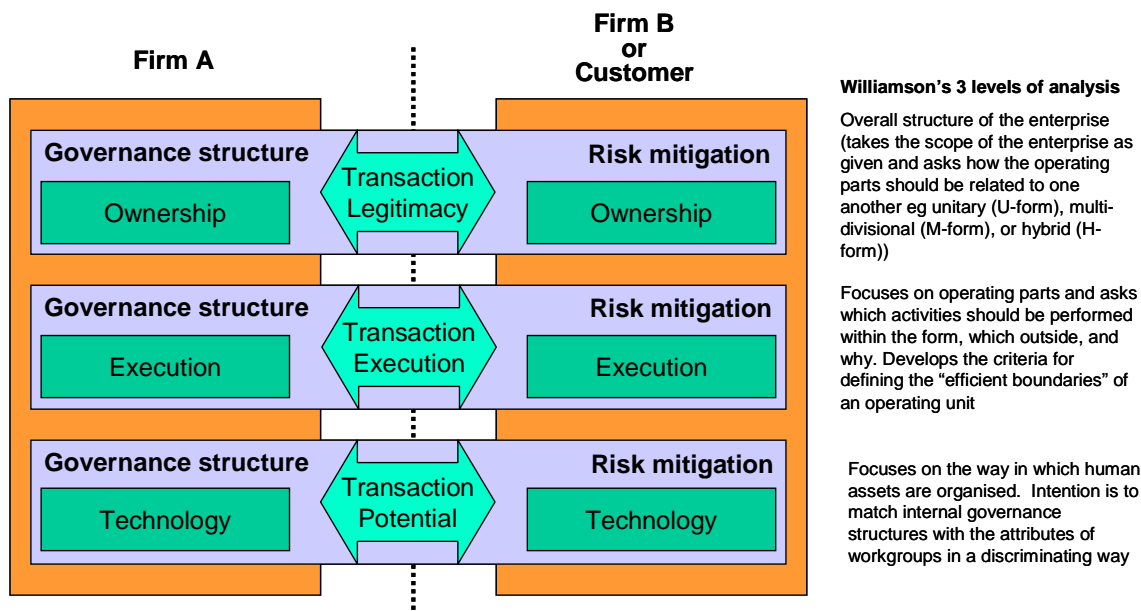


Figure 18: Initial theoretical model

During the study the initial theoretical model (figure 18) was helpful in its characterisation of transaction related attributes of potential, legitimacy and execution. An initial conceptual map was also created (figure 19) to show relationships between NIE concepts. With reference to transaction potential, the intermediary MAI would only be able to carry out purely on-line business transactions on behalf of FinanceCo if the technology provided sufficient support for MAI's mortgage application process, and was sufficiently competitive to encourage MAI as a broker to sell mortgages from FinanceCo rather than from other mortgage suppliers. The forthcoming regulatory changes, which would require mortgage illustrations through different channels to be consistent, were discovered by discussing the question of transaction legitimacy. Transaction execution, in the sense of the number and character of transactions that would be carried out, became an anticipated measure of success. The first complete transaction on the replacement system was carried out during the time of the study.

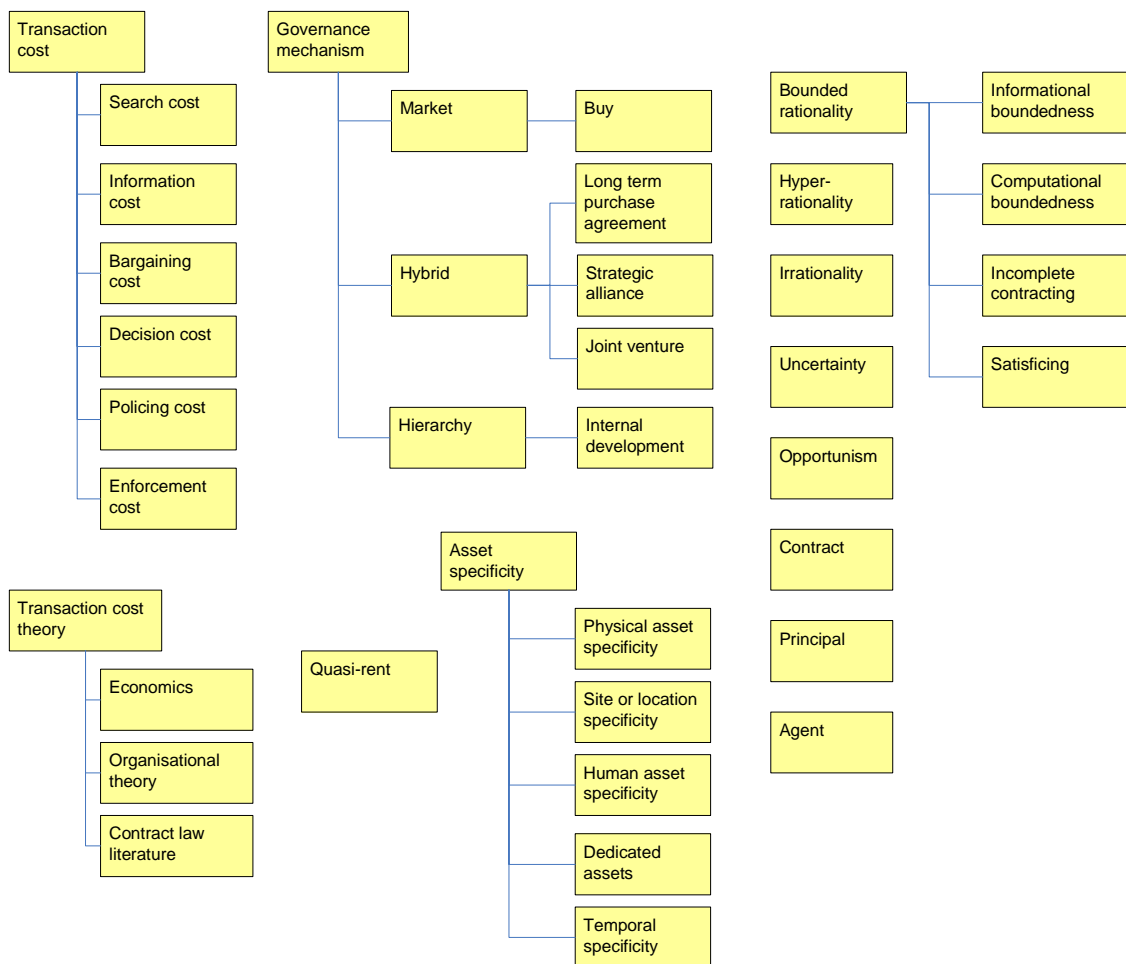


Figure 19: Initial NIE conceptual map

6.1.4.2 Development of the research method

This case represented the first empirical cycle of the competence development process. By the end of this case the researcher had become an ‘advanced beginner’ (Dreyfus et al, 1986). The consulting method provided an adequate interview structure for this initial exploratory case because the emphasis was on gaining experience of using NIE concepts, but it became clear that interviews in subsequent cases would benefit from a more formal, NIE based, structure.

6.1.5 Results

6.1.5.1 Conclusions from the consulting assignment

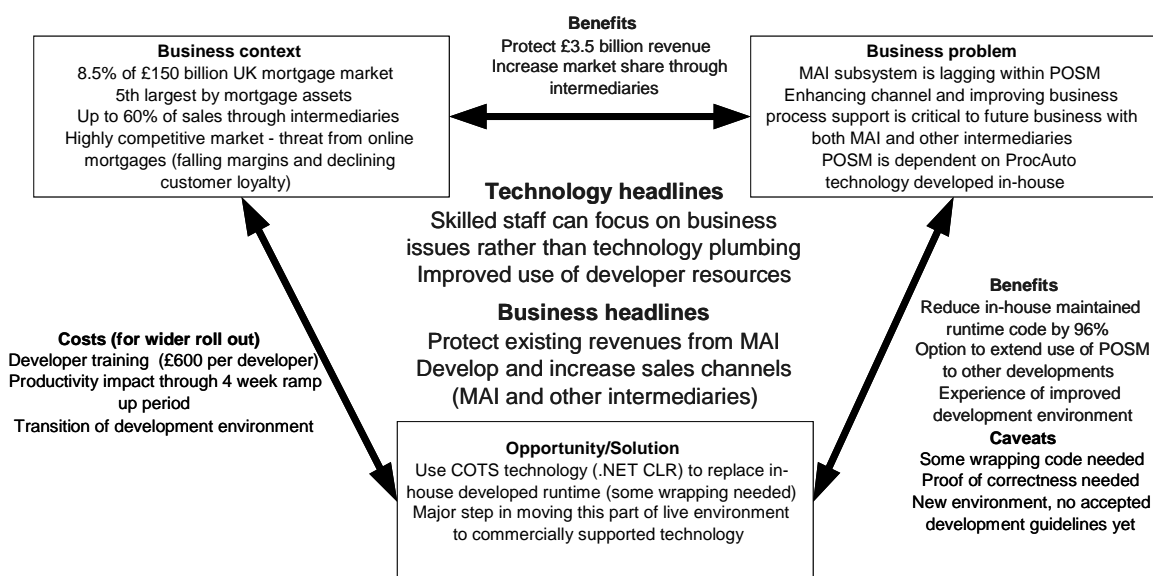


Figure 20: Summary of consulting findings

The findings of the consulting assignment (figure 20) were ratified with the project sponsor, then written up and published with FinanceCo's permission in more generic terms as a PR case study after independent auditing by a third party consulting company.

The main business value to FinanceCo was identified as maintaining technology leadership, which in the MAI context represented some £3.5 billion of mortgage business through intermediaries annually that would be critical to maintain as the mortgage market moved increasingly to electronically supported channels. Potential future benefits anticipated from moving towards a web services model included single sourcing of services such as insurance quotes, and tighter version and variant control and ownership for service changes which would help in managing risk as regulations changed.

The technology leadership value to FinanceCo of replacing the proprietary runtime code with a COTS equivalent was in reducing the human asset specificity of the in-house ProcAuto technology. Scarce highly skilled technical staff could then focus on maintaining competitive advantage from technology.

The costs of migrating to .NET were expected to rise as FinanceCo extended its use of .NET across the development environment as it would require an appropriate education and training programme for software developers. The development manager's view was

that this should involve on the job exposure and skills development as well as formal training for efficient knowledge transfer. Localising .NET specifically to FinanceCo's development practices would incur initial development costs and ongoing maintenance costs.

6.1.5.2 Research findings – a challenging theory to use

This case provided an opportunity to gain some familiarity with NIE concepts, and to compare their use in the literature with their use in a specific organisational situation.

It was not clear at the end of this case how NIE could be useful as a business tool. The more the existing theoretical and empirical theory was investigated, the less well-defined NIE was found to be, so a conceptual NIE map (Figure 18) was created to aid understanding. The three level theoretical model had not been natural to use and it was not clear how NIE concepts could be used to aid management practice although they had been useful in creating insights about managing a multi-channel business model that would not have arisen otherwise. The main value at this stage was that a number of the NIE concepts relating to transaction attributes (frequency, uncertainty, and asset specificity), the different types of asset specificity, and different types of governance structure (market, hierarchy, hybrid) had proved useful starting points for discussion. Details of transaction costs (search cost, information cost, bargaining cost, decision cost, policing cost and enforcement cost) were used less formally. It immediately became apparent that NIE concepts would have to be expressed in the interviewees' own business language if they were to be useful.

This first case was selected in part because it was relatively straightforward. It was clear how to complete it without the use of NIE, reducing the risk of relying on an unfamiliar approach. However, this meant that it could be completed with familiar and simpler tools. When time became tight, the use of NIE became a risk to completion making it necessary to revert to more familiar tools. The remaining cases were all selected to be more challenging of the researcher and his use of NIE.

6.1.5.3 Additional outcomes – participation in product launch

A far greater depth of analysis was achieved through the use of selected NIE concepts, and through using the theoretical model to drive new and different conversations, than was normally achieved through the use of the proprietary business value methodology.

The depth of trust and engagement achieved with FinanceCo over the short space of less than three months led to FinanceCo participating centrally in an associated product launch, an outcome that was not even being considered at the start of the study.

6.2 Second case study – Transformational outsourcing in a retail business

6.2.1 Case description

6.2.1.1 Case situation

This second case study, which was undertaken in 2002, used action research (AR) and the initial theoretical model developed for this research (figure 10) to structure and guide a consulting assignment. This assignment was aimed at understanding a large, transformational IT outsourcing programme being carried out by a global consulting services firm and systems integrator (ConsultCo), for a fast moving consumer goods (FMCG) retail company (RetailCo). The consulting assignment was on behalf of SoftCo, a software supplier to the programme, to identify ways in which SoftCo could add value to the programme. Names and other forms of identification have been changed to maintain confidentiality. This case was a likely candidate for successful use of NIE in that it involved outsourcing which has previously been investigated using TCE (Guerrier, 1998). As a result of this case the theoretical framework was modified from three to four layers. Case specific sources are listed in the bibliography.

RetailCo is a major UK-based grocery retailer with interests in finance and property as well as supermarkets and a bank. At the time, RetailCo had a retail chain comprising some 500 stores ranging from large superstores down to small local stores, together with regional offices, business centres and picking centres. Larger supermarkets carried some 23,000 product lines of which 40% were own brand. About 60% of sites were in town centre or edge of centre locations. RetailCo had been a leading retail company in its sector with 13% market share, annual sales over £17 billion, some 185,000 employees, and some 9.5 million customers per week. However, profits had fallen by 40% and the firm had dropped to a lower position in its sector, with the result that RetailCo's share price was dropping dramatically, while competitor positioning had strengthened. A competitor was rapidly gaining market share at RetailCo's expense.

At the time the case study started, a recently appointed Chief Executive Officer (CEO) was making radical changes in RetailCo. He had identified six key strategic issues: establishing a differentiated market position, maximising customer economic profitability, delivering a step change in store standards, increasing business

effectiveness and reducing costs, creating a high performance organisation and infrastructure, and driving e-commerce. He considered that RetailCo's existing IT environment was a major barrier to change and so had selected ConsultCo through competitive bid to engage in a transformational partnership to implement a strategic repositioning and comprehensive transformation programme. The main aims of this transformation programme were to accelerate IT dependent projects, reduce risk in achieving business transformation goals, introduce leading edge IT service approaches that support business transformation, and achieve major per annum reductions in RetailCo's IT expenditure. The transformation programme covered RetailCo's UK operation including supermarkets, some supermarket related bank services, and the property company set up to maximise value from the Group's property portfolio. The timescales were tight because of competitive threats and the risk of RetailCo being acquired unless it significantly and quickly increased business performance.

Since RetailCo's management had limited experience in executing a transformation programme of such magnitude, they had engaged ConsultCo 'to achieve world class leadership in retailing, with a focus on best in class business practices and the innovative use of technology to drive both incremental revenues and to reduce operation costs.' The transformation programme, which was to be achieved by outsourcing RetailCo's IT, was the largest transformational outsourcing project ever undertaken by ConsultCo's UK practice, which had an annual turnover around £300 million and employed some 10,000 consultants, so key roles within ConsultCo's project delivery team were filled by experienced individuals drawn from ConsultCo worldwide.

At the time SoftCo's major UK subsidiary, which supplied a significant part of RetailCo's IT infrastructure software, had an ongoing and forward-looking strategic relationship with RetailCo focused around several innovative technology projects aimed at the future of retailing. SoftCo had a further strategic relationship with ConsultCo which included a joint venture company (JVCo) that provided a centre of excellence for ConsultCo in the use of SoftCo technologies. However, lack of trust between SoftCo and ConsultCo at an operational level meant that SoftCo only had contact with those technical parts of the transformation programme that involved SoftCo software.

6.2.1.2 What RetailCo, ConsultCo and SoftCo were trying to achieve

ConsultCo and SoftCo had separate strategic relationships with RetailCo (figure 21). ConsultCo was concerned to deliver the strategic transformational outsourcing project successfully, whereas SoftCo's interest was in promoting its software-centric view on the strategic direction of technology. These differences of priority were causing some tensions in the relationship between SoftCo and ConsultCo, particularly because SoftCo had limited understanding of ConsultCo's transformation proposition to RetailCo. SoftCo was also concerned that ConsultCo's project team might not be making best use of SoftCo's software, even despite SoftCo's recommendations to RetailCo on the strategic direction of technology.

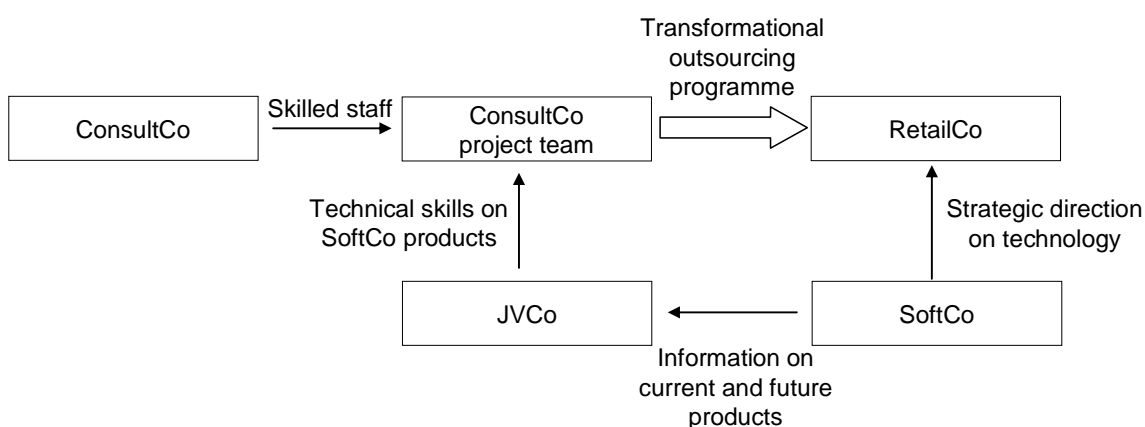


Figure 21: Consultative interactions between RetailCo, ConsultCo, SoftCo and JVCo

As a result of executive discussions between ConsultCo and SoftCo, it was agreed that SoftCo would invest a month of consulting to deeply understand the organisation, technology, and objectives of RetailCo's transformational partnership with ConsultCo and offer ConsultCo proposals to add value to the transformation programme with a view to achieving better alignment across the different strategic relationships.

6.2.2 *Researcher involvement*

6.2.2.1 Why the researcher got involved

Few consultants within SoftCo had experience of a transformation programme of this magnitude. SoftCo used the researcher for this assignment because of his previous exposure to large government private finance initiative (PFI) and IT outsourcing projects. The researcher quickly realised that this assignment would test his ability to

use NIE for the purposes being investigating in this research, and that if additional knowledge of NIE and its use could be developed, this case would test NIE's applicability. The risk of using untried methods was offset by testing interim conclusions for authenticity with ConsultCo or RetailCo specialists.

The researcher discovered early on, through repeated delays and extended negotiations at the start of the study, that ConsultCo was unconvinced that SoftCo would be able to find a suitable consultant to carry out the work and doubted that the study would take place. RetailCo were keen for the work to take place to give a fresh and independent perspective on the transformation programme. It was against this background that the assignment eventually commenced in March 2002.

6.2.2.2 Intervention

At the beginning of the assignment very little information about the transformation programme was available within SoftCo and individuals from ConsultCo were only prepared to talk about the limited technology areas where SoftCo technology was in use. It was made clear from the outset that little time would be allowed with any individuals involved because of programme priorities and time pressures.

AR and NIE were used to shape the overall engagement and interviews (figure 22). AR was adopted to guide the engagement because there was no guarantee that the researcher would be able to engage successfully with ConsultCo, and AR provided a potential mechanism by which to engage. The first case had shown that it was unrealistic to expect interviewees to spend time learning and understanding the NIE concepts sufficient to be able to use them as part of their working language, so NIE was used to shape the interviews to make best use of the limited time available with each interviewee. The investigation was structured in accordance with the initial theoretical model across three different perspectives: a contractual/ownership perspective, a business model/business process perspective, and a technology architecture perspective (figure 23). The developing map of NIE concepts (Appendix B) was used to guide the assignment format, the interview structure and the selection of interviewees for each level. Examples of the interview structure are included in Appendix C.

After much negotiation, agreement was eventually reached at senior executive level in ConsultCo's programme delivery team that the study would focus on project areas

across retail point of sale, demand forecasting, warehousing, retail online, enterprise application integration, enterprise data warehouse, customer relationship management, human resources management system, store based resource planning, store rescheduling, and software development. However this top level mandate was only a starting point. After extensive further planning and negotiation with ConsultCo team leaders access was secured to relevant project documentation, and interviews were scheduled with ConsultCo business partners and technical specialists. Further interviews were scheduled with key individuals from RetailCo, in particular the contracts executive who had responsibility for the overall contractual programme on behalf of RetailCo. These interviews took place over a period of four months from March to June 2002 alongside occasional meetings and reviews with ConsultCo and SoftCo staff.

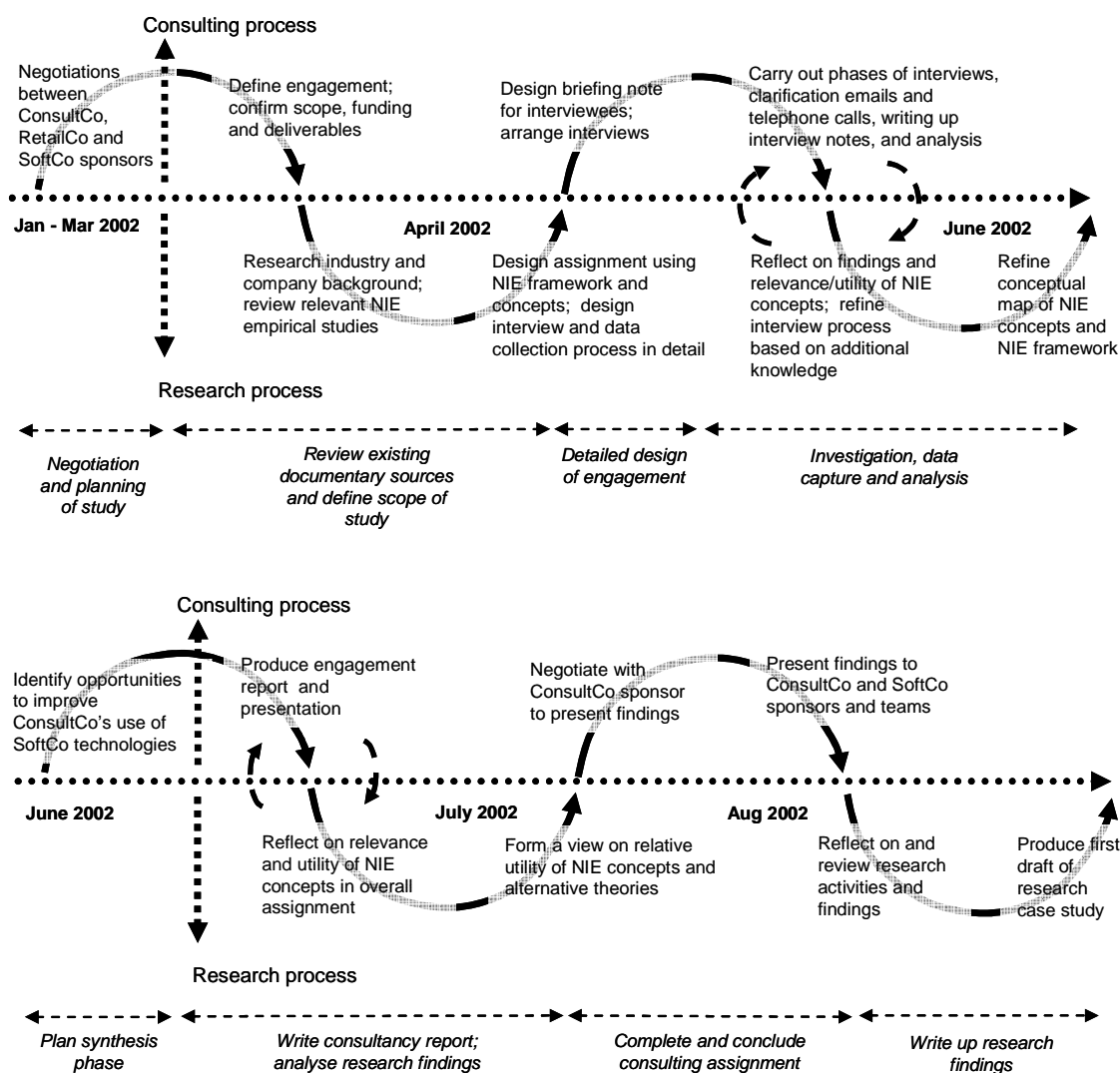


Figure 22: Research process for second case study

The information gathered from these various sources was, when possible, analysed on location with ConsultCo's architecture team so that there was opportunity to observe key parts of the programme organisation at work and to discuss interim findings. A report was produced of the consultancy findings and, subsequently, a briefing paper for SoftCo's worldwide director of consulting services.

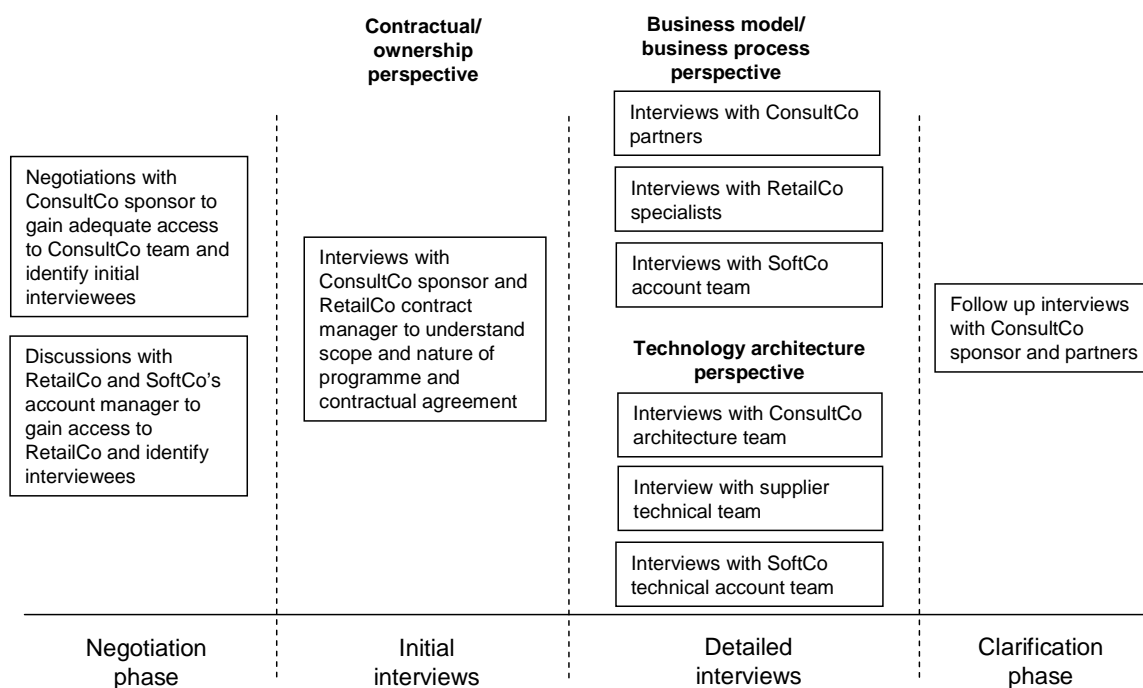


Figure 23: Phasing of interviews

The main sponsor from SoftCo left the company during the course of the assignment, and a key sponsor from RetailCo left soon after the findings were reported. These changes meant that subsequent cycles of activity which had been planned to build on the findings of the investigation did not materialise.

6.2.2.3 Research activities

The underlying research objective for this second case was to build researcher competence in applying NIE.

Industry sources on transformational outsourcing, including research and results from other previous IT outsourcing assignments, were reviewed to identify recent changes and developments and to compare ConsultCo's approach with that of other systems integrators. Burn's (1993) typology was revisited to position ConsultCo's strategy in respect of retail business transformation, which appeared to be based on business

planning rather than competitive analysis. This caused the researcher some concerns since it was not clear that retail business priorities were being systematically factored into the transformation programme.

Existing theoretical and empirical NIE studies were reviewed to assess their relevance. These included complex commercial and working relationships around vertical integration (Acheson, 1985; Balakrishnan and Wernerfelt, 1986; Burton and Obel, 1988; Erramilli and Rao, 1993; Hagedoorn, 1993; Joskow, 1985), relationship between technological change and firm boundaries (Afuah, 2001), financial aspects such as real time accounting and business information (Alles et al, 2002; Jones and Pustay, 1988) and capital structure (Balakrishnan and Fox, 1993), effect of contract design on outsourcer performance and adaptability as an agent of the retailer (Anderson, 1985, 1988; Bajari and Tadelis, 2001; Butler and Carney, 1983; Crocker and Masten, 1988, 1991; Lyons, 1996), contractual risks and safeguards (Brinig, 1990; Dyer, 1997; Helfat and Teece, 1987; Palay, 1984, 1985), investment risk (Joskow, 1990; Lieberman, 1991), separation of channel integration from IT outsourcing including variety of transaction forms (Anderson and Coughlan, 1987; Caves and Bradburd, 1988), human asset specificity and the ability to create organisational capabilities cost effectively (Anderson and Schmittlein, 1984; Barney 1999), implications of alternative organisational forms (Armour and Teece, 1978, 1980; Mahoney 1992), programme and business governance arrangements (Baysinger and Zardkoohi, 1986; Hill and Pickering, 1986; Noordewier et al, 1990; Osborn and Baughn, 1990; Parkhe, 1993; Pisano, 1989) and power asymmetry (Bucklin and Sengupta, 1993; Globerman and Schwindt, 1986), appropriation of quasi-rents (Klein, 1988), and distribution and logistics (Maltz, 1993, 1994; Muris et al, 1992), the use of TCE in debate about relative merits of outsourcing information systems and services (Bakos and Kemerer, 1992), managerial and governance frameworks for the outsourcing decision (Clarke et al, 1995), different attitudes to risk between principal and agent (Eisenhardt, 1989), and labour as a complex bundle of heterogeneous skills (Foster, 2000). More discursive studies were considered, including Madhok's (2002) argument that central issue of organisational structure becomes one of aligning the characteristics of governance structure, transaction structure, and relevant organisational resources, Prahalad and Krishnon's (2002) discussion of the increasing gap between emerging strategic direction and IT's ability to support it for large companies, and Simon's (1991) argument that NIE is seriously incomplete with Williamson's (1996a) counter argument that discussion

should be about deep structure of economic organisation rather than ebb and flow of day-to-day behaviour.

A structured interview with RetailCo's contract executive for the transformation programme provided insight into the ownership and contractual structure, contractual intent, and programme governance for the whole project. Semi-structured interviews and meetings were held with ConsultCo business partners, IT architects and project managers who represented the different areas under review and were prepared to make themselves available. With business partners the interview focus was on the retail business processes and the transformation business model. With IT architects the interview focus was on their specific area of responsibility, but then covering all four levels of the theoretical model within that. With project managers the interview focus was on programme execution and project management. A detailed background to the consulting study, derived from the terms of reference and structured using the theoretical model, was provided for interviewees to explain in some detail what was likely to be covered in the different levels of interview so that potential areas of misunderstanding could be avoided or addressed up front. This full version was used with technical interviewees (Appendix C). A shortened version, which avoided the section on technical architecture, was used with management interviewees.

Email exchanges were used to seek answers to specific questions, not always successfully, where meetings or interviews could not be arranged because of programme priorities. Individuals from one of the supplier organisations to the transformation programme were interviewed to provide insight into the programme's contractual and working relationships with supplier organisations other than SoftCo.

Not all interviews and meetings held were relevant to the research. Notes from interviews were transcribed contemporaneously where possible, and interim findings reviewed for accuracy.

Gaining access to key individuals from ConsultCo was difficult throughout the study. This was generally stated as being due to the time pressures within the programme, but was symptomatic of a general reluctance from ConsultCo to participate. This almost certainly reflected ConsultCo attitudes towards SoftCo, which have since been observed in other engagements, so were unlikely to be specific to this study.

6.2.3 Business analysis using NIE

The objective of the consulting assignment was to understand the scope and nature of the transformational outsourcing part of the transformation programme with a view to making recommendations about ways in which SoftCo's involvement could add value. The following sections illustrate the way in which the NIE theoretical model, which was revised from three to four layers during this case study, was used to structure and analyse the assignment, and communicate the findings.

6.2.3.1 Transformation programme ownership and structure

One of the researcher's first observations, as a result of considering AT, was that the transformational outsourcing agreement separated RetailCo's ownership of the contract from ConsultCo's control over what actually happened, introducing positive costs of agency as well as the governance costs relating to contract management and distribution of funds. These were in addition to the transaction costs of the original competitive bid process and subsequent monitoring and policing costs in respect of IT service delivery.

The transformational outsourcing project part of the transformation programme was debt financed based on a multi-year revenue stream to ConsultCo. A special purpose financial vehicle (SPV) between RetailCo, which owned the contract, and ConsultCo controlled access to funds (figure 24). These funds, which were managed through a business transformation board (BTB) and an IT value committee (ITVC), were distributed evenly between Operations and Development (figure 25). Development funds were split between mandatory and discretionary spend, and a third area of funding used to address changes of volume or scope through formal change control.

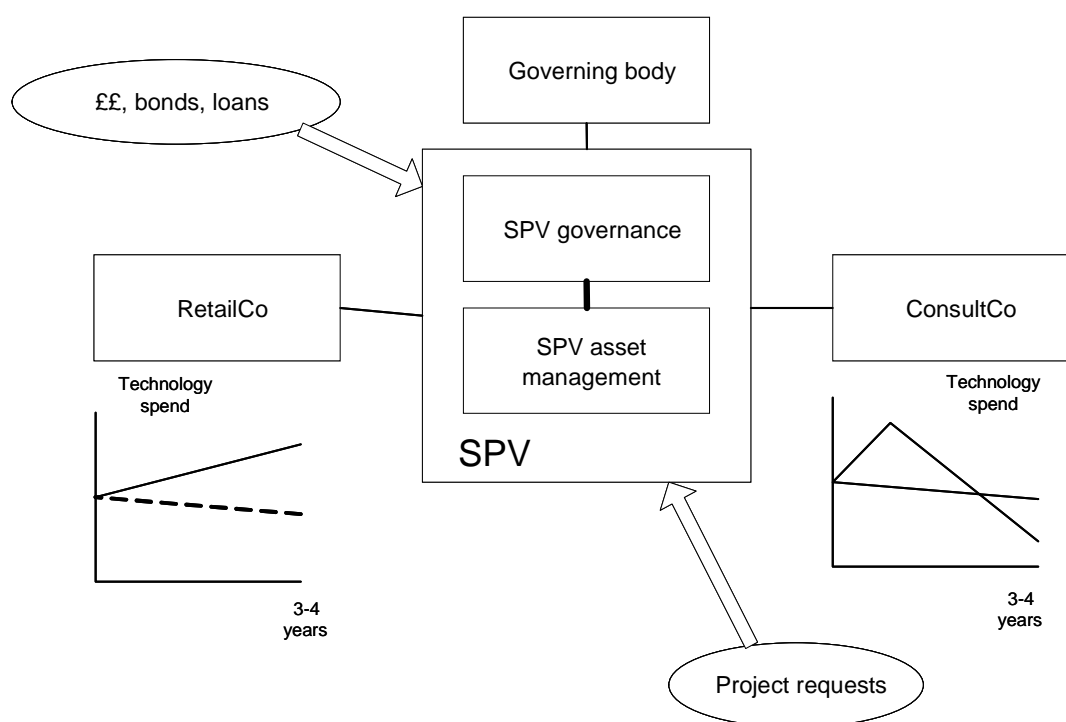


Figure 24: Financial structure

The contractual intent behind the outsourcing agreement was twofold. The first was to achieve immediate savings in cost of operations of over £30 million per annum on an existing cost of operations of some £200 million per annum, and to reduce the rate of growth in IT expenditure from 20% per annum to below 15%. The second was to re-platform the IT. This would significantly reduce the cost of operations by the end of the contract period, while using IT as an enabler for a significant step up in capability and as a lever to the concurrent business transformation programme.

The cost base was to be reduced by re-platforming hardware and applications software away from custom written software and proprietary hardware to take advantage of lightly tailored packages and open systems, reducing support and maintenance costs and improving the 'speed to value' for new developments. A shortfall on the discretionary spend required to support short term business improvement caused by directing 80% of new investment towards re-platforming was alleviated by approving additional investments on a case by case basis.

RetailCo's IT capability was transferred to ConsultCo with a projected annual cost reduction of over £30 million, leaving the Chief Information Officer (CIO) and a small specialist supporting team within RetailCo. This represented a transfer of approximately 1100 staff, reducing by approximately 300 in the first 9 months. About 80% of the existing development and capital budgets were re-directed towards the re-

platforming of technology in support of the projected operational savings. ConsultCo's technology agreements in the retail industry were expected to bring further cost efficiencies. A £500 million business transformation programme which was running in parallel to the outsourcing project was outside the scope of the transformational outsourcing contract and so is not explored further in this case study.

ConsultCo's outsourcing project team was broadly structured into two separate organisations in line with this contractual intent (figure 25). Operations Services outsourced management of the estate with a strategic intent to drive down costs. At the time of the study the 900 people taken on initially had already been reduced to some 700, primarily through losing contractors. Development Services carried the main re-platforming programme with around 60 sizeable projects, of which about 10 were identified as critical.

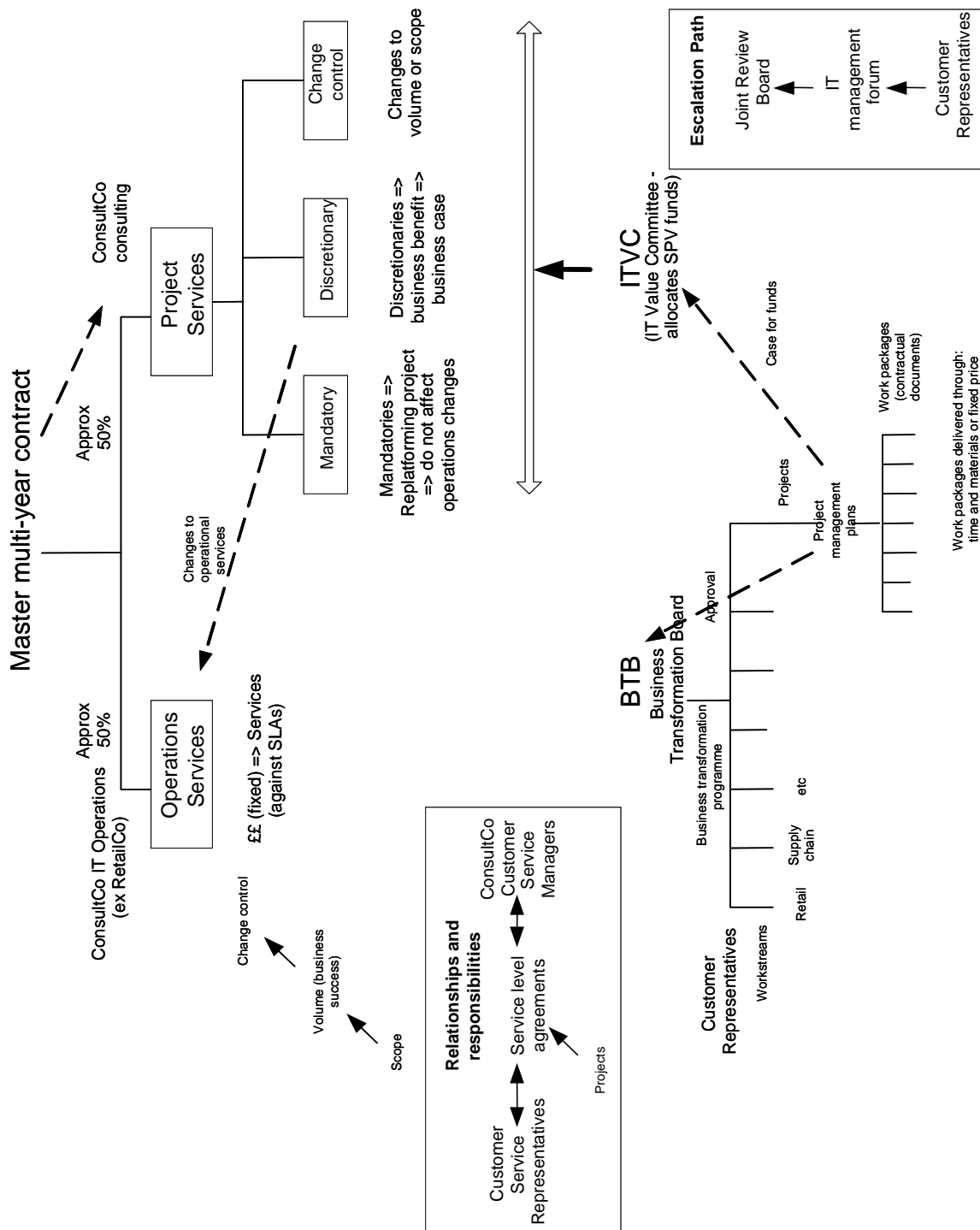


Figure 25: Transformational outsourcing project structure

6.2.3.2 Transformation programme governance

The programme had a governance structure in place to provide contractual safeguards that could mitigate contractual hazards and provide assurance of efficient and effective operation. From a TCE perspective this should guide discriminating alignment between the assets available and the organisation's transactional activities such as IT service development and IT service delivery whilst minimising transaction costs.

The outsourcing project was governed through the BTB and the ITVC finance committee. The BTB, consisting of the transformation project board and the RetailCo CIO, owned the transformational outsourcing project. ITVC authorised allocation of funds to projects and work streams through individual proposals. Day-to-day governance was through Service Level Agreements (SLAs) between ConsultCo and RetailCo. Monthly review meetings escalated issues to an IT Management Forum, which in turn escalated issues to a Joint Review Board. The main responsibility paths were through ConsultCo customer service managers to RetailCo line management, and through the individual work streams (figure 25).

One of the main project governance challenges was to achieve consistency between these different parts of the overall programme. For example, there was a sharp contrast between the inflexibility of Operations Services which was driven by the need to achieve minimum costs, and the flexibility of Development Services which emphasised adaptability to changing customer requirements.

RetailCo's contract executive expressed concerns as to whether ConsultCo could achieve the transition from the project-based focus in Development Services to a service orientation within Operations Services, and whether ConsultCo would really help RetailCo to improve retail service levels. He expressed further concerns as to whether ConsultCo really did understand about retail service delivery since Operations Services were being kept very tight on resources, and although technology platforms were likely to change, ConsultCo seemed to be taking a 'one size fits all' approach with few processes to create new services that would help ConsultCo to change RetailCo behaviour. He identified:

- That what Operations needed to deliver was an information service to the business, not just a technology set.

- The cross-functional impact of systems and services in RetailCo, such as a major release of functionality, might have an unduly heavy impact on a particular part of the business and it was not clear that this risk was being managed.

RetailCo's contract executive also expressed concerns about releases of IT capability and whether they would deliver tangible benefits to the retail business. It was broadly recognised that there was a need to harness the business transformation to the business plan and to business benefits realisation. Yet although the ConsultCo development approach expressed an intent towards business benefits realisation it was not clear how business benefit would be delivered, particularly with significant interdependencies between projects from the different workstreams. For example there was a recognised risk, with a high potential impact, around managing the delivery of a large segment of core functionality as a release on top of an already running retail point of sale roll-out. It was not clear whether the governance structures were aimed at assuring quality and enhancement of retail service delivery, or on delivering segments of IT functionality. He took this question on for further investigation as being central to successful delivery of the programme, but left RetailCo before a follow up meeting could be arranged.

6.2.3.3 Outsourcing project execution

The AT question relating to separation of ownership and control re-appeared in the context of project delivery.

The outsourcing project was being delivered through two largely separate organisations. Operations Services, responsible for and therefore owning ongoing IT operations, mainly consisted of transferred personnel who were familiar with operating the current IT estate. Development Services, responsible for the change programme part of the outsourcing contract and therefore in control of what was delivered, was responsible for delivering new functionality to Operations Services. This change programme was based on four workstreams:

- Infrastructure transformation to standardise highly customised core systems
- Management of retail demand
- Fundamental re-platforming of retail processes from supply chain to customer relationship management

- Corporate management, including human resources, property, and corporate systems, to re-shape the cultural structure and business operations.

The outsourcing project as a whole was structured and programme managed through a separate Commercial Architecture team within the ConsultCo project team (figure 26).

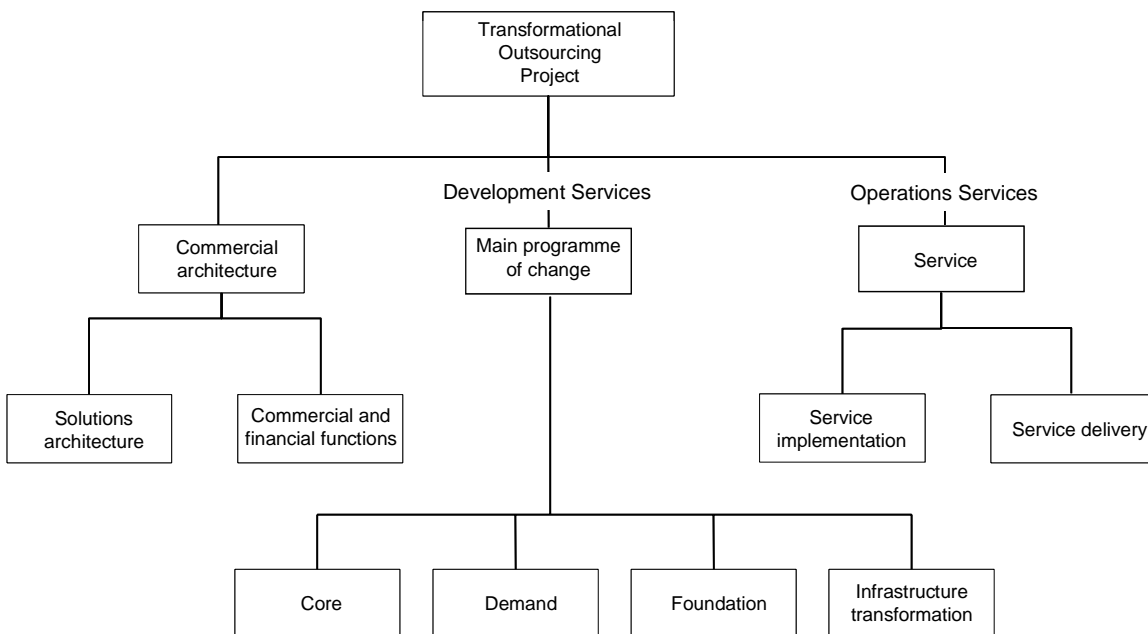


Figure 26: ConsultCo's outsourcing project team structure

Detailed information was gathered across the areas of focus for the investigation about the projects that were being undertaken, particularly the critical projects which were against tight timescales, to identify opportunities for SoftCo to add value. Although this was a major part of the researcher's consulting assignment, it was relatively routine investigation and analysis. Working on a principle of using the simplest effective tools available the researcher found that there was little need to use concepts from NIE for this part of the investigation and that commonly used management and IT methods were sufficient (Johnson and Scholes, 1997; Cartlidge, 2004).

This part of the consulting assignment led to a number of practical opportunities for SoftCo to add value, particularly where progress was being delayed through insufficient access to depth technical skills in SoftCo products among specialist technology suppliers to the programme.

6.2.3.4 Organisational capability

Part of the rationale for outsourcing had been to gain access to human assets, in terms of capability and skill, which RetailCo considered were needed to effect the transformational change but did not have within RetailCo. Although ConsultCo staff had been physically located to be close to RetailCo's operations, it did appear that there was goal incongruence between RetailCo's business objectives and ConsultCo's approach.

The transformation involved challenges for RetailCo in both how technology would support the business in the future, and how RetailCo could be transformed as a retail business. RetailCo had formed the transformational partnership with ConsultCo because RetailCo lacked sufficient organisational and IT capability to make the transformation for itself. However, the size of the contract meant that a risk remained in whether ConsultCo had sufficient capability, in terms of capacity as well as depth of technical capability, to effect RetailCo's overall business transformation cost effectively and against demanding timescales.

The project team's commercial architecture team, which had defined the default technologies for the four main workstreams, held responsibility for assuring access to sufficient technical capability and capacity to deliver the programme. The individuals within the commercial architecture team were drawn from ConsultCo's worldwide corporate technical and enterprise architect group which was the main repository for ConsultCo's technical capability. This group also provided other key individuals for the programme, as well as guidance on professional standards, frameworks, construction aids and learning. The solution architecture team (figure 27) within the commercial architecture team defined the main solution architecture areas as the overall replatforming, the application projects, and supporting technical architecture projects. These were aligned with a technology delivery focus rather than with retail business areas.

The solution architecture team had produced a project management plan (PMP) as the main architectural governance mechanism, covering areas such as team capabilities, project resources, design resources, and reviews, and building new IT capabilities. The primary activities for this central solution architecture team were to develop these

capabilities around the organisation, and review them to ensure that they were aligned and that architectural guidance was being followed.

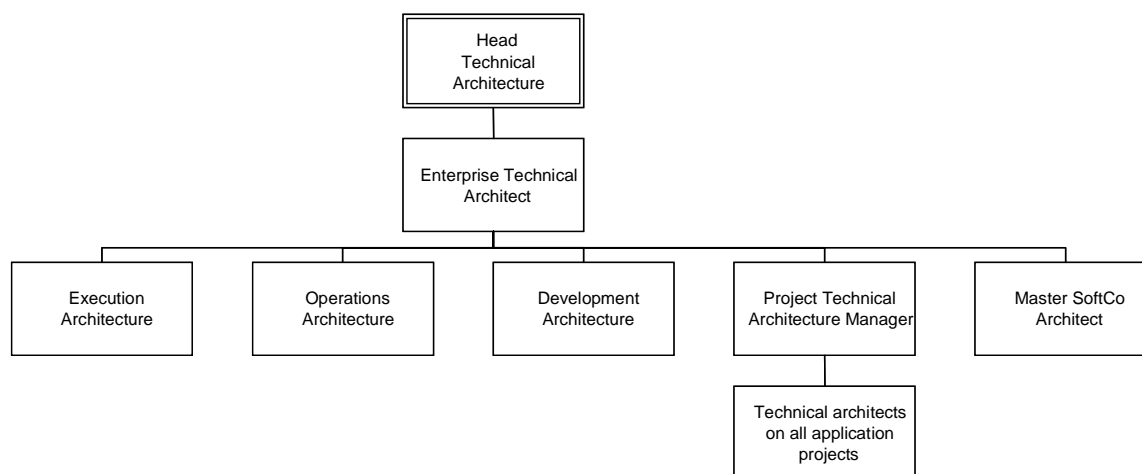


Figure 27: Solution architecture team structure

The core technical architecture provided a centralised, consolidated, and consistent view of technical architecture for the outsourcing project across ConsultCo's three types of architecture – execution architecture, operations architecture and development architecture (figure 27). Project technical architects were assigned to each project application delivery team, directed equally by their project application team and the central solution architecture team. Project technical architects liaised with other technical specialists within the ConsultCo organisation and co-ordinated with the commercial, finance, purchasing and service implementation organisations on behalf of their individual projects. A master architect in the team provided specialist expertise on the capabilities of SoftCo's software and technical consultancy.

Architecture capability varied according to the technology domain. For example there was little need for unix technical architects within ConsultCo because unix understanding is pervasive. This network of understanding provided informal technical support. Architects specialising in other technologies were more isolated and so required training and support for making informed technology choices relative to the project's default technology environments unless additional expertise could be contracted in from the market. JVCo was one source of such specialist expertise for technology skills around SoftCo's products but ConsultCo's relationships with JVCo staff were awkward. Even though ConsultCo had invested heavily in JVCo, ConsultCo's project team treated JVCo like an external consultancy using ConsultCo consultants in preference to JVCo consultants wherever possible. Consequently,

products which relied on internally available ConsultCo skills were frequently chosen in preference to SoftCo's.

6.2.4 Research analysis

6.2.4.1 How NIE was used

The transformation from in-house provision of IT to outsourced provision is a classic example of change in NIE governance structure from hierarchical governance to a hybrid form. The outsourcing contract, a long term purchase agreement, had been won through competitive bid between commercial organisations in a thin market. The market was thin because comparatively few organisations have the capability to bid for, and deliver, such change programmes. It is understood that there were only two bidders.

Using NIE meant viewing the programme as a governance structure rather than a production function (Williamson, 1996c), and hence as an organisational entity rather than a technological entity. This led the researcher to consider the different types of transaction involved, and their relationship to asset specificity, transaction frequency and transaction uncertainty. Types of transaction identified included the outsourcing contract as a long term purchase agreement, the IT service transactions being provided by the outsourcer to the retail organisation, application development tasks as transactions, and the separate business transformation contract which was out of scope. At this level of analysis retail transactions between RetailCo and consumers were also out of scope. The dependencies of these transactions on different organisational assets are illustrated (table 10).

Transaction	Assets, and asset management
Outsourcing contract	ConsultCo organisational structures and experience in transformational outsourcing (human assets) Transfer of experienced personnel from RetailCo to ConsultCo (dedicated asset specificity) Co-location of ConsultCo staff in RetailCo offices (physical asset specificity)
IT service transactions	Reduction in asset specificity through re-platforming to industry standard desktop although configured to RetailCo requirements Reduction in service search and policing costs through highly managed IT deployment and locked down desktop
Application developments	Reduction in asset specificity by using COTS applications for line of business use with minimal tailoring
Business transformation contract	Out of scope

Table 10: Asset dependencies

The next stage was to look at how the governance structures were aligned with the transactions. Williamson (1996c) has described a 'simple contractual schema' which describes the contract as a 'triple', with process, asset specificity and contractual safeguards all being determined simultaneously. Although these had been worked through in considerable detail during contract preparation, it seemed that many of the details had been set aside once work was under way in favour of a return to a classic IT consulting model in terms of cost management and competence management. Even though cost was a driving factor throughout RetailCo's whole business transformation programme it was not clear that management trade-offs, as with the discretionary spend managed by the Review Board, were optimally aligned vis-à-vis the governance structures for the different transactions. There seemed to be a strong emphasis on putting effort and the more skilled individuals into new developments in preference to supporting the existing systems.

This was a consequence of the ConsultCo project team's partner-centric structure which created competitive trade-offs between different parts of the outsourcing contract and meant that the programme was not managed as a single entity. Organisational boundaries created by the way the project team had been structured, with business partners being responsible for defined areas, were causing inefficiencies by directing attention to localised concerns, particularly since higher level retail priorities had not been formalised and stabilised. Local organisational boundaries, and the limitations that these put on information flows around the project team, meant that local decisions were being made with incomplete, and in some cases misleading, information. For example an architectural principle within technology development of reducing ongoing operational costs by reducing the level of asset specificity through the use of COTS products had not been followed through into the financial management process and the implications for systems management despite being fully established through architectural guidelines. Instead, this principle had become a mandate for a locked down, minimally modified, COTS infrastructure platform, with the underlying cost management priority of reducing ongoing operating costs having been put to one side.

Allocation of funds was explored from a quasi-rent perspective to investigate the economic value added above best alternative use, and in particular whether funds could be better allocated. This topic was explored briefly with the contract manager, and led to detailed discussion of the way funds were allocated around the programme and

whether this did indeed represent best use, particularly as there was some evidence of ConsultCo partners opportunistically drawing funds into their own area that was consistent with ConsultCo's focus on personal utilisation and revenue but was not necessarily congruent with the overall needs of the outsourcing project.

6.2.4.2 Development of research method

The use of NIE to structure the interviews was found to be effective, but reflection on the lack of participation led to a significant change in the research methodology. Up to this point the research had followed AR in its classic 'researcher as expert' form with the researcher using reflective practice as an analysis tool. However, this approach was not creating sufficient engagement with the participants, making it essential to find a form of action research that would create greater engagement and allow the research findings to be carried forward into action by the participants, even after the researcher was no longer present.

This was a critical point in the research and meant that the methodology had to be revisited. The potential use of future search conferences was considered and explored, but discarded for practical reasons in that funding could not be obtained. Further investigation of alternative forms of action research led to the research methodology known as participatory action research (PAR) (Whyte 1991) and the very different relationship between researcher and participants that PAR requires.

While the research methodology was being refined, a strongly contrasting third case situation, which was to become the third case study of the research, was used to explore NIE's breadth of applicability and develop further understanding of how NIE concepts might be applied.

6.2.5 Results

6.2.5.1 Conclusions from the consulting assignment

These conclusions were discussed at an assignment closedown presentation to the ConsultCo sponsor, the replacement SoftCo sponsor, and members of SoftCo's 'outsourcing project account team'. As a result of the change of sponsor, the investigation was terminated at this point and so the account here represents only one view, the researcher's reflections, on what was a very large and complex project.

However, this has to some extent been validated through a briefing document provided to a SoftCo director for a top level executive discussion between SoftCo and ConsultCo, and subsequent use of the consulting report by SoftCo's account team.

Partnership financing through an SPV has structural similarities with UK government PFI IT outsourcing projects, and a level of complexity in the contractual and financial models that is challenging, even to specialist systems integration companies who focus on such projects. For the financial model to be viable ConsultCo needed to deliver service as early as possible since payment was based on service delivery, and expenditure delayed as late as possible with early costs minimised since the project was debt financed. These were counter-intuitive to ConsultCo as a traditional consulting organisation.

On PFI projects, resource usage expended in delivering service targets should be minimised since the revenue is capped but expenditure is not, in contrast to a 'time and expenses' based consulting model. All releasable resource should be directed at further minimising delivery costs through smarter working or by achieving extra revenue, either by accelerating delivery so that the staged revenues accrue earlier or by delivering additional services which will attract additional revenue. The primary focus should be on delivered service, rather than project delivery which should be seen as a mechanism supporting effective service delivery. Again, this contrasts with consulting organisations which typically focus on project delivery with service delivery remaining the responsibility of the client organisation. The consultancy preference for delivering multiple projects in parallel introduces significant risks to the level of service delivered to the business operations making release management critically important in maintaining delivered quality of service. Asset costs should be incurred as late as possible consistent with speed of delivery whereas in a typical consulting project, assets are purchased early with rapid ramp up of staffing to maximise consulting revenues.

In this transformation programme the need to achieve revenue based on contracted service delivery as early as possible required a focus on service delivery, not on development, yet development appeared to be viewed by the outsourcing project team as the more important area. This reflected a 'project' philosophy of delivering infrastructure and software applications rather than a 'service' philosophy of providing a guaranteed level of service to users. For example, ownership of applications was

unclear in terms of who was responsible for the ongoing quality of service to the business. Ownership was clearly defined within the development phase, but there was no governance mechanism that assured ongoing ownership and maintenance of applications once they had been transferred from development into operations. ConsultCo required its consultants from the development phase to move on to other work, once those applications had been transferred to operations, removing their detailed knowledge. It was unclear who owned the ongoing responsibility for the technical and business architectures beyond the transformation phase.

RetailCo's business transformation priorities and the ConsultCo project team's priorities differed, which is unsustainable on a contract of this scale and complexity. ConsultCo's risk aversion conflicted with RetailCo's need to achieve a competitive edge. Some RetailCo interviewees expressed concerns that the cash burn rate was too high, and although this was being followed up through a RetailCo review of corporate IT funding, it reflected the programme's lack of a single point of management commitment and direction from ConsultCo arising from the partner-based model. The ConsultCo project team's focus in the programme was on technical re-platforming rather than competitive benefit to RetailCo's business, with minimal visibility of the parallel business transformation programme. Also, RetailCo's six key strategic issues for its business transformation proposition, as detailed earlier, were not visible within the technology programme, even though they were all critically dependent on technology.

The key finding was that it was not clear that the purpose of RetailCo's business transformation was recognised within the ConsultCo project team as being about supporting and enhancing a retail business, which is interesting in view of Coase's (1998) comment that the fundamental purpose of companies is to run a successful business.

6.2.5.2 Research findings – a lack of participation

Many NIE concepts were considered during this case. However the fact that NIE is ill-defined in the literature made the evolving map of NIE concepts (whose final form is shown in Appendix B) invaluable in visualising how they inter-relate. In this case it was found that the more relevant concepts were those relating to ownership and governance structure, such as viewing the outsourcing project as a nexus of treaties with the many different workstreams and work packages competing for available funds. It

was not clear what practical safeguards there were for RetailCo in respect of the programme as a whole since there did not seem to be a clear single point of accountability within the ConsultCo project team, each business partner being accountable for their own part of the project.

In investigating the diversity of relationships between RetailCo, ConsultCo and the many suppliers, such as SoftCo, to the overall business transformation programme it was helpful to consider the different characters of contract and transaction involved. Some contracts were essentially spot contracts to deliver specific IT functionality, whereas others were much longer term like the JVCo joint venture. Many demonstrated agency problems including goal incongruence between RetailCo, ConsultCo and the contracting suppliers, particularly where suppliers like SoftCo were keen to strengthen their own position within the programme to increase their bargaining power or influence. Clearly the researcher's position within this situation was ethically complex because of the many conflicts of interest arising from his different roles and responsibilities in respect of the three different organisations, so reflective practice was used to explore such ethical considerations in the quest to maintain a professionally sound stance.

This case was a critical point in the development of the theoretical model, which was re-cast while formulating the detailed terms of reference for this case. The initial approach was structured on the three level model, but as initial investigation proceeded it was found that separating ownership structure from the contractual and governance worked better resulting in a revised four-layer model (figure 28). This brings out a clear relationship between transaction related, and agency related concerns, and highlights the need to use NIE, not just TCE.

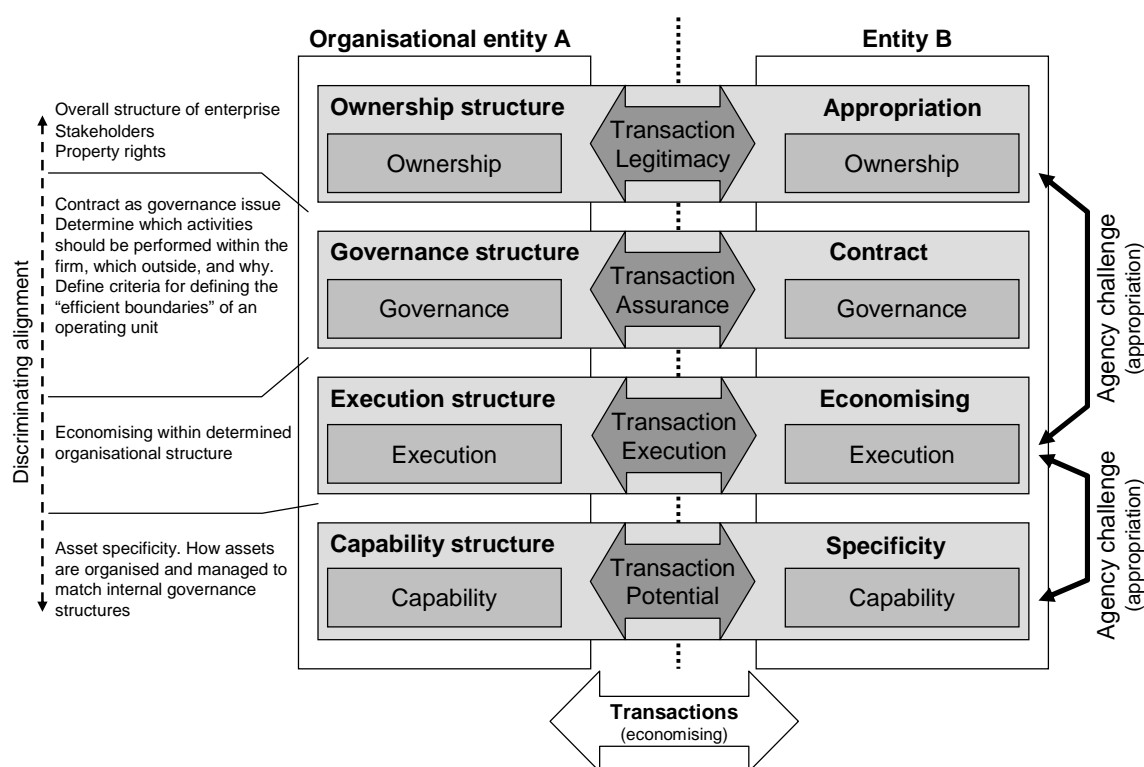


Figure 28: Revised four-layer theoretical model

The evolving map of concepts (Appendix B) was used in formulating the guidance for the interviews. This was not a direct process from concept to question, but instead meant using the concepts to identify areas of interest and then developing questions that were appropriate to that area of interest in a language that made sense in the context of the outsourcing project. The process was cyclic in that the first attempts at questions used language and terms which were not sufficiently tailored to the project situation and so further review of project related documents was needed to refine them. This was crucial because of the importance of the language and signals used in the constructivist stance and attitude towards the participants. It was essential that the language used was that of the participants, not of the expert researcher.

One particular methodological concern was interpretation. In this AR approach using a conceptual model to guide the researcher, the researcher carries a number of different and conflicting roles. The researcher is guiding both the consulting and research processes, and acting as an interpreter between the researcher and the participants. The participants are in general not aware that NIE is being tested, particularly as it is hidden behind a layer of interpretation, although the opportunity to find out more about the research process was offered. This is necessary in making the abstract concepts of NIE accessible to the participants, but does introduce the researcher as a significant part of

the interpretation, the classic dilemma of all professional practice. One of the main limitations of the research, particularly in terms of its transferability, has been this dependence on the researcher for interpretation of NIE concepts into the language of the participants.

This second case provided experience in using the concepts and theoretical model. Time spent on planning the study and how NIE would be used meant that a significant amount was learned in a short space of time. However, since many of the interviews proceeded in rapid succession, there was barely sufficient time to transcribe and interpret the findings from one interview before moving on to the next, limiting the amount that could be learned ahead of subsequent interviews. The original intention was to follow these findings through to a second cycle of activity but key sponsors from RetailCo and SoftCo left their companies, which meant that funding ceased at the end of this first phase.

The depth of analysis achieved did cause difficulties. It was not easy to find a succinct way of communicating the richness of the analysis. Since most interviews were one on one, the overall analysis covered a far broader picture than any individual interviewee was concerned with, apart from RetailCo's contract executive, and raised some concerns which were of broader scope than any one area. It was difficult to find an owner for these cross-domain concerns because of the politics involved. It was also difficult to carry the results through into action because of a lack of participation and engagement from ConsultCo. Individuals were content to be interviewed, but were not interested in the study and its findings beyond that level of involvement, partly due to the many day-to-day issues arising, but also because they were reluctant to acknowledge findings from a SoftCo consultant.

This assignment held many challenges. It is the consultant's opinion that the consultancy findings would have been far more limited if he had not used NIE. It was certainly not guaranteed that the assignment would take place. The knowledge and structure provided by NIE, AR and the case study method gave the consultant a way of approaching the assignment, and of persuading ConsultCo to engage. It also enabled him to establish credibility rapidly, with interviewees at many different levels within the organisations involved, to an extent that he had previously found difficult as an employee of SoftCo.

6.2.5.3 Additional outcomes – highly effective interview

One of the most striking effects of using NIE was experienced in the interview with RetailCo's contract executive. This was only a 45 minute interview, but the interview structure produced a highly efficient and trusting discussion that, according to the contract executive's direct feedback at the end of the interview, rapidly homed in on his main areas of interest and concern across the breadth of the transformation programme, and particularly around organisational and contractual issues. This was a considerable achievement for such a meeting, and the researcher believes would not have been achieved without the use of NIE.

6.3 Third case study – Bid governance on an outsourcing re-bid

6.3.1 Case description

6.3.1.1 Case situation

This case study, which took place between November 2002 and March 2003, arose out of a need to resolve organisational relationship issues around a competitive re-bid to a large central government department (GovDept) for a 10 year IT outsourcing contract, and to formalise the role of a major software company (SoftCo) in this competitive process. Three systems integration consortia, A, B, and C, had been shortlisted to bid for the contract. Consortium A was led by the systems integration company which was also the incumbent supplier, Supplier A, of the existing outsourcing service. Consortia B and C involved companies which had been suppliers of other services to the government department (GovDept) but had established track records in IT outsourcing. All three consortia had extensive experience of bidding for government outsourcing contracts. The re-bid was being closely watched by other parts of government and the media. GovDept was concerned that the competition should be fair, and without favour to the incumbent supplier. Clearly there would be significant risk to GovDept if it chose to change its outsource partner because of the business impact of such a major change and because a different consortium would take a new architectural stance and technology direction for the 10 year contract. All three consortia were concerned to maintain strict confidentiality of their proposals as they brought competitively different strengths and weaknesses to the contract.

SoftCo had a dominant market share in the desktop software used by GovDept and provided desktop software to GovDept through Supplier A. Each consortium had sought an exclusive deal with SoftCo because of this dominant position. However GovDept required that SoftCo would be prepared to work with all bidders to avoid the competitive advantage to a particular consortium and risk to the department that an exclusive agreement between SoftCo and a single consortium would give. In addition SoftCo was promoting other products to GovDept as part of developing a strategic relationship, and this was causing tensions with the incumbent supplier.

6.3.1.2 What SoftCo was trying to achieve

SoftCo was trying to establish a way of working effectively with GovDept and all three consortia simultaneously. In particular, SoftCo needed a way of devoting significantly different quality and level of resource to the three competing bids without being, or appearing to be, anti-competitive, while maintaining good relationships with each of the three bidding consortia, improving its relationship with GovDept, and simultaneously promoting its commercial products to all parties involved.

SoftCo's initial stance had been to provide technical information and support as needed to each of the organisations involved, gaining access to whatever information was available to support its technology product proposition to GovDept, whilst continuing to provide ongoing products and services under the existing contract (summarised in figure 29).

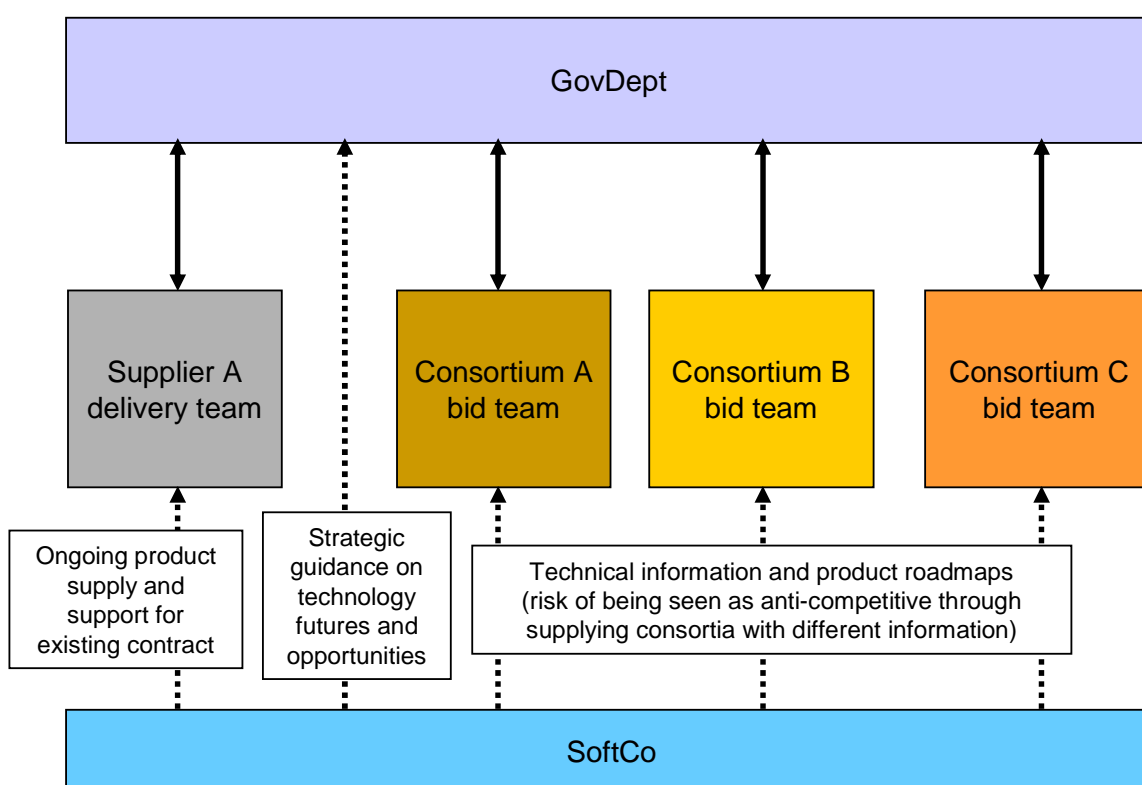


Figure 29: Initial SoftCo proposition

This approach was causing tensions. Consortium A was concerned to protect its competitive position and so was reluctant to engage with SoftCo, seeing SoftCo as a potential conduit through to the other consortia for information about Consortium A's proposal. Consortium A was additionally concerned that SoftCo might provide a

conduit for confidential client (GovDept) information from the Supplier A delivery team to the Consortium A bid team, which would put Consortium A in conflict with the confidentiality conditions for bidding as incumbent supplier. This was based on the fact that SoftCo was using the same technical specialists to work with both the Supplier A delivery team and the Consortium A bid team to provide technical product information, and that these technical specialists needed to know enough about the context in which products would be used to be able to provide a sufficient depth of technical information. No breach of confidentiality had been identified at that time, but it was recognised by all parties as a significant risk.

SoftCo was finding it easier to work with the other consortia. They did not have this conflict of interest and so were less concerned about leakage of competitive information than they were about establishing a strong competitive play. Consortia B and C were each putting pressure on SoftCo to give them preferential support, and help them to develop strong competitive propositions around the integrated use of SoftCo technologies with other technology vendors' offerings. SoftCo was beginning to put specialised resources into consortia B and C, which raised a management question about how SoftCo's limited funding and other resources should be distributed without SoftCo's involvement being seen as anti-competitive.

6.3.2 *Researcher involvement*

6.3.2.1 *Why the researcher got involved*

It was at this point that the researcher, as a consultant with SoftCo, became involved in this in-house assignment, being assigned by SoftCo to "do what you can" to improve the relationship between SoftCo and Consortium A.

Although SoftCo had supplied software to GovDept throughout the term of the existing contract with GovDept the relationship with Supplier A was poor, though professional. SoftCo's account team had already had numerous meetings with Consortium A about working together on the Consortium's bid submission, but Consortium A's bid team viewed SoftCo as a risk and so was excluding SoftCo from their bid team. The team was prepared to include SoftCo under an exclusivity agreement severely limiting the areas that SoftCo could get involved in.

The researcher's involvement rapidly extended and became twofold. Firstly, from an initial investigation and review of the current situation between Consortium A and SoftCo it was evident that an agreement was needed between them as a basis for working together, but that an agreement would be unlikely until the confidentiality issue had been addressed. This was a question of ownership and entitlement, which would need to be protected through an appropriate and acceptable governance structure that would avoid intentional or accidental misuse of knowledge and information, and be acceptable to both sides.

Secondly, there was the practical problem of GovDept insisting that SoftCo would not enter into an exclusivity agreement with any of the Consortia, and this was in conflict with Consortium A's demands. This in turn raised questions of determining the level of resourcing and commitment that SoftCo would be able to allocate to Consortium A, and determining a basis for a differential resource allocation that would be acceptable to all three consortia.

6.3.2.2 Intervention

The purpose of the intervention was to find a way of improving the relationship between SoftCo and Consortium A. The intervention process is outlined in figure 30.

The first stage of intervention involved reviewing bid related documents and emails, and talking to account specialists. These failed to convince the researcher that SoftCo's initial proposition sufficiently represented the situation's complexities. The researcher, therefore, spoke to other individuals involved with the process from SoftCo and GovDept to understand the context for the bid, and GovDept's expectations from the bid process, and attended meetings with Supplier A, to put SoftCo's involvement in context.

The main case activity was then a facilitated group session with the account executive for the Supplier A partnership, who brought deep understanding of GovDept, one of SoftCo's lead bid support architects, and the commercial lead for SoftCo's overall bidding arrangements with the three consortia. SoftCo lack of an established approach for this case situation posed significant commercial and relationship risks. The purpose of the working session was to build a shared understanding of the situation and develop a workable solution to SoftCo's relationships with the many parties involved that would allow differential effort and resourcing to be allocated in support of the different

consortia. This solution involved a change to the governance framework guiding SoftCo's working relationships with the different consortia.

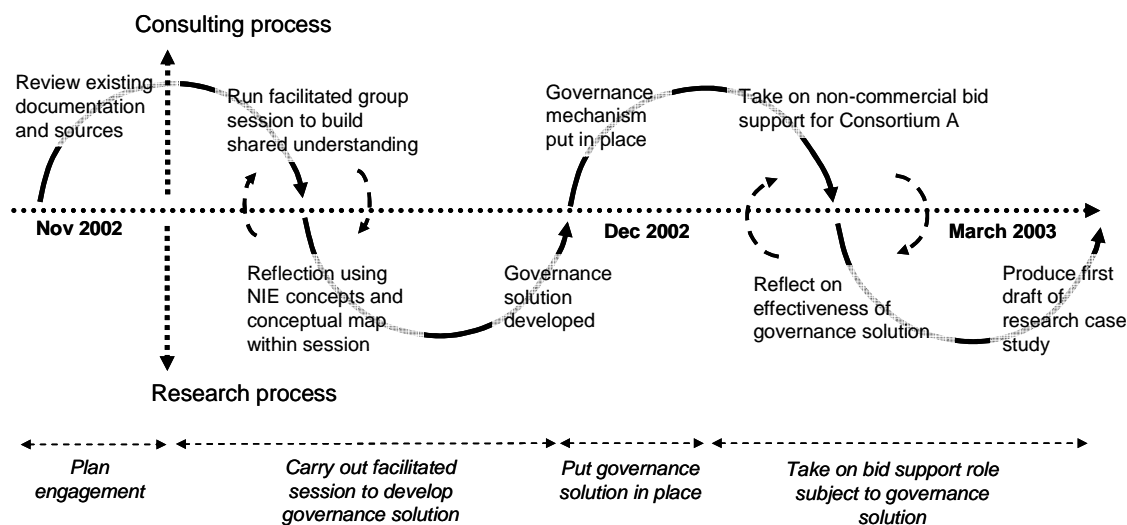


Figure 30: Research process for third case study

This group session was followed up by ad hoc meetings to refine the governance structure. Once this structure was in place the researcher became the non-commercial lead for bid support to Consortium A, working closely with SoftCo's commercial lead for GovDept who was also SoftCo's account executive for Supplier A's relationship with GovDept. This change in role gave the researcher a different perspective on the governance solution and an opportunity to see how well it worked in practice, but necessarily terminated the research intervention.

6.3.2.3 Research activities

The research purpose for this case study was to develop deeper researcher understanding of NIE by working with a situation that involved questions of governance, property rights in terms of confidentiality of information, and behaviour of principals and agents.

The NIE theoretical model was used to analyse the business situation, and in the workshop, to find a workable solution that could be expressed through partnership proposals with each of the bidding consortia. Crocker and Masten's (1996) discussion on public utility regulation and administered contracts was used as a point of reference. Areas of reference to the theoretical and empirical literature used included governance and trust perceived by firms in alliances (Nooteboom et al, 1997), obligations of one group to be fulfilled by another (Shankman, 1999), competitive bidding (Anderson and

Coughlan, 1987), specialised vs unspecialised human assets (Anderson and Schmittlein, 1984), procurement contracts (Bajari and Tadelis, 2001), complex contracting and adjustments (Barker and Chapman, 1989; Brinig, 1990; Crocker and Reynolds, 1993; Grandy, 1989; Joskow, 1985, 1990, 1991; Lyons, 1996; Masten and Crocker, 1985), governance modes and asymmetry (Bucklin and Sengupta, 1993; Eccles, 1981; Osborn and Baughn, 1990; Rasheed and Geiger, 2001), multi-contractor bidding and contracts (Butler and Carney, 1983; DeCanio and Frech, 1993; Harrigan, 1986), transaction-specific investments (Dyer, 1997; Pisano, 1989), contract exclusivity (Gallick, 1984), industrial alliances (Heide and John, 1990), and re-negotiation of contracts (Zupan, 1989a, 1989b).

Nilikant and Rao's (1994) argument that AT overstates the importance of operational effort and ignores facilitative effort such as teamwork resonated with the researcher's own observations derived from critical review of the workshop and subsequent ad hoc meetings.

6.3.3 Business analysis using NIE

The nature of the outsourcing contract itself was not part of the analysis as SoftCo was not a bidder.

The four level structure that had been developed through the retail case study was re-used for investigating this situation since it quickly became apparent that the questions of ownership and governance lay in different places. Ownership of competitive information, which was the main good being transacted, lay with the consortia bid teams. The governance structure had to be independent of the consortia and of the SoftCo account teams.

6.3.3.1 Ownership

One of the key issues was protection of property rights, so the first activity was to identify the different teams and groupings of people involved. This was done by identifying the different areas of ownership for information and the interfaces between them that might require agreements, whether contractual or not. This led to discussion about how SoftCo's resources should be allocated, bearing in mind that skilled resources, particularly technically skilled and knowledgeable individuals, were in short supply. The solution identified was to separate the individuals providing technical

information that would be provided equally to each of the consortia from the individuals who would work with a specific consortium to differentiate that consortium's offering. This way it was possible to provide in depth technical product and product futures information to all three consortia equally, economically and without favour. It was made clear that it was up to each consortium to take ownership of deciding whether their competitively sensitive information should be made available to these product specialists. This posed a principal-agent challenge within each consortium to ensure that the confidentiality agreements agreed at principal level would be honoured by their agents.

6.3.3.2 Governance

By looking more thoroughly at the governance arrangements, it became evident that the existing governance framework for SoftCo's bid support engagement was inadequate. Although individuals talked in terms of 'Chinese Walls' between the different bid teams, this was informal and did not represent a formal and agreed structure about working arrangements between the different teams that could auditably manage any interactions between them.

Consequently the next part of the solution, which was derived from the analysis, required a separate governance team headed up by a named SoftCo senior manager to address governance concerns that might arise with these multi-organisation teams and to provide guidance as to what was, and was not, acceptable. This governance team had to be able to monitor and audit compliance, which meant that it had to have access, by permission of each of the consortia, to all areas where SoftCo individuals were involved to be able to monitor compliance. The governance team was set up successfully.

6.3.3.3 Execution

The governance arrangements meant that skilled individuals could then be allocated to work with the individual consortia to build competitive propositions combining SoftCo's technology capabilities with the consortium's capabilities. These individuals were charged with the responsibility of maintaining competitive confidentiality and forbidden from working with any other consortium for the duration of the bid process.

This arrangement separated the teams working with each consortium on competitive propositions from the product focused sales support teams who could then provide equal

access to SoftCo's product information for all three consortia. This was an economising arrangement in that it reduced information, decision, policing and search costs.

6.3.3.4 Capability and resourcing

The final part of the solution was to find a way of providing differential resources to each consortium. Because of SoftCo's dominant position, it was likely SoftCo would be seen as acting anti-competitively if different levels of resource were provided to the different consortia. It was important for SoftCo to be perceived as working to support fair competition.

This was achieved by considering quasi-rents, and who was best positioned to make decisions about the allocation of funds. The choice of how much resource to invest was passed to SoftCo's partners in each consortium as part of their existing partnership agreements with SoftCo, which were part funded by SoftCo investment. These SoftCo investments had been agreed individually with each partner as part of SoftCo product marketing and sales, and independently of any specific competitive situation. This meant that each consortium determined how much of its SoftCo partnership resources should be allocated to this particular bid, taking the decision about how much to invest in each consortium away from SoftCo. SoftCo did allocate additional, but equal, funding to each of the three consortium facing teams to ensure they would have a basic level of resource to engage with the bid opportunity, even if the consortium decided not to allocate any of its partnership funds.

The resulting partitioning is shown in figure 31. Within figure 31, S/A, S/B, S/C and S/GD refer to the specialist technical resources provided by SoftCo to Consortia A, B, C and to GovDept respectively.

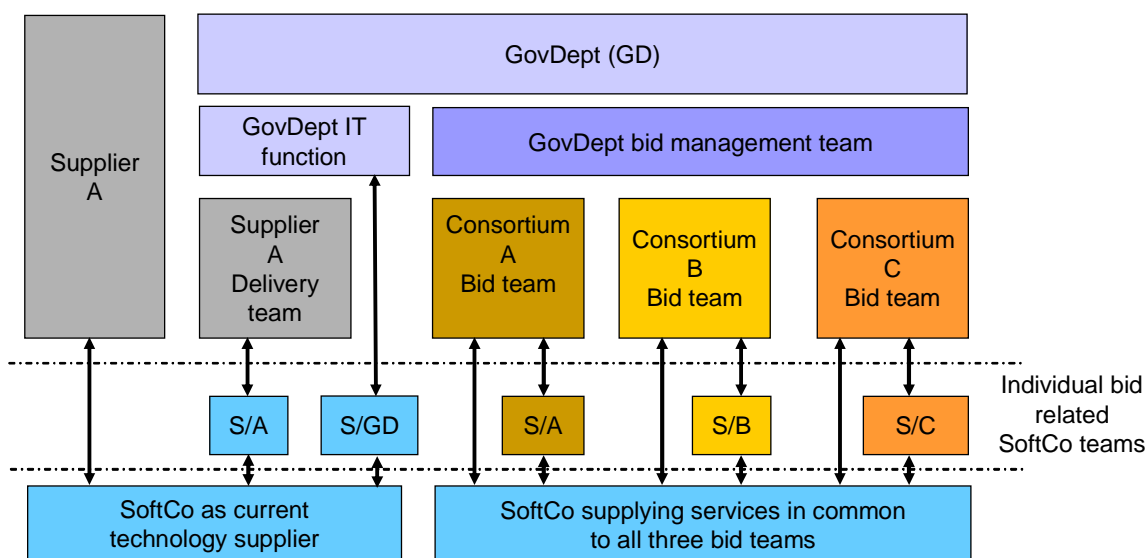


Figure 31: Revised SoftCo proposition

6.3.4 Research analysis

6.3.4.1 How NIE was used

This rich and relevant situation involved a number of parties to the transactions involved. The scope for opportunism raised agency issues which took the situation beyond purely transaction cost considerations, and which could not have been tackled with TCE alone. This competition for a UK central government transformational outsourcing contract had similarities with the retail case study but was for contract re-bid, a different stage of the outsourcing process, in a different industry. This organisationally complex situation demanded an appropriate framework for the researcher to understand the situation sufficiently to make a difference. The theoretical model was used as a starting point in the workshop, and the conceptual map (Appendix B) of NIE concepts helped the researcher explore many different aspects of the situation in rapid succession with the workshop participants in the search for a solution to the governance issues. Since the knowledge of how to apply these concepts had been internalised from reading a wide range of existing studies, and the experience with the first two case studies, it is difficult as a researcher to describe how the solution was arrived at.

In broad terms NIE concepts were used as follows. The practical boundaries of each organisational entity were identified by considering property rights, and the obligations that these placed on each person and organisation. The main transactional exchanges of information between these entities were then identified, and discussed to identify how

they complied with, or violated, these rights. The production costs of generating bid related information and the transaction costs of information exchange were then factored in, assuming that participants were only boundedly rational. The potential for positive agency costs arising from mis-alignment of goals between the companies involved and the consortium bid teams was also explored, as was the scope for opportunism within the bidding teams to achieve a competitive edge. Finally the practical opportunities to provide contractual safeguards were considered, and led to the definition and creation of a sufficient, but not onerous, bid governance structure for SoftCo's engagement with the multiple competing consortia, GovDept, and Supplier A.

The researcher's subsequent role as non-commercial lead supporting one of the consortia enabled the researcher to play a different and to some extent participant-observer role. The researcher remained as an adviser on the governance structure, but only as long as no competitive aspects of other bids would be discussed. This gave an opportunity, and a reason, for emphasising the importance of confidentiality since the researcher had to maintain total client confidentiality for his role as non-commercial lead, but clearly raised conflicts of interest. This role also provided an opportunity to explore the capability and execution aspects of the theoretical framework in the context of the consortium's proposal.

In essence, the winning consortium would be contracted to deliver IT related services to the client's users and desktop estate. To execute on this contract the consortium would have to provide an appropriate IT infrastructure that had the capability and capacity to deliver the contracted services, and have the assets and resources to be able to develop both the infrastructure and the contracted IT services. This drew on the notion of asset specificity. To be able to provide services cost effectively on a project of this scale the winning consortium would have to invest in dedicated human assets, either by recruiting from the market or by transferring staff from the incumbent supplier if the incumbent did not win the follow on contract. The researcher observed that this was a factor for Consortium A which was keen to reduce the existing staffing costs, although it did not know the costing details since the client required that the existing Supplier A team keep this private from Consortium A to avoid competitive advantage. The cost of acquiring dedicated human assets could be reduced by choosing technology that would allow more of the technology management function to be automated. Consortium A's aspiration was to get as close as possible to 'zero touch' on the desktop estate because of the

relatively high cost of an engineer visit to a user's workstation, although a substantial technical team would still be needed to maintain and update the infrastructure estate.

The concept of physical asset specificity was relevant. Under the terms of the contract the winning consortium would take ownership of much of the technical infrastructure including software licences and developed code, a very large set of assets, much of which was highly specific to the business operations of this particular government department and so would have very limited value in any alternative use. Many of the software licences were non-transferable and so had no value outside the department.

Site specificity was observed. Supplier A had taken offices close to the relevant offices of the government department for its outsource team for the previous outsourcing contract. It is understood that this had been to save on the travel costs and time impact of having the team distant or dispersed, but was a factor that Consortium A had to consider in terms of the risks of not winning the follow-on contract.

6.3.4.2 Development of the research method

This case study in itself did not lead to changes in the research method beyond reinforcing the importance of adopting a participatory approach which would engage the participants in the research process. This was achieved in the final case study by using PAR rather than AR.

6.3.5 Results

6.3.5.1 Conclusions from the advisory role

As a result of the analysis SoftCo set up a separate governance authority for its involvement in the bidding process. The governance solution met all that was required of it. SoftCo enhanced its relationship with all three consortia, with Consortium A despite its failure to win the follow on contract, with the winner Consortium B, and with Consortium C. The researcher has been led to understand that SoftCo strengthened its relationship with GovDept, and that GovDept was impressed at the way SoftCo had engaged with the competitive process, although it has not been possible to verify this.

6.3.5.2 Research findings – the model appears robust

The main results for the research study from this case were that it led the researcher to a far deeper understanding of NIE, and that the revised theoretical model remained robust even though this case situation was rather different from the preceding ones.

The primary concern here was of transaction assurance. It was critical to manage transactional creation and exchanges of competitive information in line with agreements between SoftCo and each consortium. In effect, each of SoftCo's bid support teams became part of a consortium, and consequently subject to hierarchical governance within that consortium. It was important to formalise which interactions between individuals from different organisations were legitimate in terms of exchange of information, and which were not. This required a clear identification and recognition of information ownership. Each consortium was investing a substantial amount in its bid, investment which is only justified if there is a fair chance of appropriating value from that investment by winning the contract.

It was, therefore, important to ensure that there were appropriate governance arrangements in place that would recognise the different inter-organisational roles, in particular the 'market governance' of the common technical resources and the 'hierarchical governance' of the resources allocated to a specific consortium. The governance team within SoftCo was set up to protect the property rights of the different consortia, and meant that SoftCo could set up workable teaming agreements with each consortium, and monitor compliance by the SoftCo teams. Each consortium was then able to economise by making best use of its allocated resources, and decide how to align them in a discriminating way with their individual bidding arrangements. Once adopted, the governance structure clarified the agency relationship between each bid management team (as principal) and its SoftCo resources (agents) since it created an 'efficient boundary' for the consortium team to economise on the effort involved in creating competitive propositions, and for individuals to become 'specialised assets' for a particular consortium by developing consortium specific understanding.

6.3.5.3 Additional outcomes – the need for participation reinforced

Participation was again an issue, in part due to a lack of trust between SoftCo and Consortium A which reduced the effectiveness of the teaming arrangements between SoftCo and Consortium A. This reinforced the need to find a form of action research

for the final case study that would foster participation and engagement in the research process by the participants.

6.4 Final case study – Transforming school age education

The final case study, undertaken from late 2002 through to mid-2004, centred around e-government consulting work for Kent County Council (KCC) in support of their intent to transform school age education as part of a wider programme to transform the delivery of local government services. The revised NIE theoretical model (figure 28, section 6.2.5.2) and conceptual map (Appendix B) were applied using PAR, again with the researcher as a reflective participant-observer. The competency development process was used to provide guidance across the three AR cycles of this case study. The first cycle secured sponsorship, the second built participation, and the third involved carrying out the consulting assignment. The findings were authenticated by preparing co-generated knowledge for joint publication. Case specific sources are listed in the bibliography.

6.4.1 Case description

6.4.1.1 The case situation

UK government publications on school age education express a consistent view that the information economy requires young people to be independent learners, confident in their knowledge of how to learn, and in their ability to meet increasingly complex demands of life in a constantly changing world. They express a strong view that this will not be met by a 1 to 30, instructional model of education which has changed little since the industrial age. The new economy demands different skills and new information age competences from an education system that will prepare young people for their part in securing the future.

KCC, one of the largest Local Authorities in the UK and one of the few large employers in a county which has some 34,000 small and medium sized companies, represents a population of some 1.3 million people. KCC is seeking to strengthen Kent's economy, with the information economy and knowledge-intensive working being seen as economic mainstays for Kent's future. Higher skill levels and aspirations are considered to be an essential pre-requisite to raising productivity and facilitating a shift towards a higher value-added, higher wage economy. Although it is one of England's larger subregional economies, Kent has pockets of disadvantage co-existing alongside areas of comparative affluence, and its economy is not rated highly for its industrial structure.

Council statistics identify a shortage of skills in key growth areas, including information and communications technologies (ICT), and workforce performance is the weakest in the south east. Industry sectors identified as most capable of sustaining local competitive advantage through high value output and breadth of employment opportunities include the information economy, financial services, higher education, research and development, knowledge-based business services employment and consumer services employment. KCC is keen to promote high-technology industry to spread development across these sectors. It seeks to improve the skills of the local workforce to support local employers, and create opportunities for qualified workers to reverse the 'brain drain' to London. KCC is also seeking innovative and diverse ways of assisting the rural economy to meet the changing needs of farming and other rural enterprises.

KCC's Education Directorate, the local education authority (LEA) is supporting this aspiration through a radical programme of authority-wide structural change in education, enabled by ICT, aimed at providing the highest possible quality of education throughout Kent and significantly improved standards of attainment for all.

Improvement is delivered through a structural change to school clusters and 'schools that never sleep'. At the heart of these changes lies a belief that collaboration between schools, and with local services, is central to raising standards and performance, and that addressing the needs of learners will ultimately improve Kent's competitiveness in a globalised economy.

Discussion of the extensive literature related to pedagogy and ICT enabled learning is outside the scope of this thesis.

6.4.1.2 What KCC was trying to achieve

In 2002, KCC's transformation programme was under way with the help of commercial partners, but was progressing slowly. Structural change in education to create school clusters was in progress, with some isolated exemplars demonstrating the opportunities offered by ICT.

KCC had recognised the social changes that meant that technology such as mobile phones was everyday for pupils outside of school, that no school age pupil had experienced a world without personal computers, and that there was a growing

willingness amongst teachers to embrace technology. The challenge for KCC was to accelerate the process of creating more effective, and sustainable, economic and learning communities that a structurally different and ICT-rich model for education could offer.

6.4.2 Researcher involvement

6.4.2.1 Why the researcher got involved

SoftCo, as a global software company, had an existing relationship with one of Kent's schools based on a proof of concept (PoC) project around the use of tablet personal computers (TabletPCs). SoftCo made funding available for a consulting assignment to explore the potential value to KCC of such technologies, and offered it to the researcher. A brief review of Kent's situation by the researcher indicated that there was an opportunity to have a wider impact than just the school associated with the existing PoC project and wider than this particular technology. After extensive discussions with KCC directors and SoftCo's account team it was finally agreed, with slightly increased funding, that this brief could be interpreted widely as long as the study demonstrated clear potential for delivering value through the use of ICT.

It was not clear at the outset what could be achieved but the agreed brief was to identify and explore ways in which ICT could have a role in KCC's radical programme of change. As a result of the sponsor meeting (first cycle of activity) it was agreed that attention should be focused on school age education (figure 45), and that the researcher would work with KCC members and officers and with the SoftCo's virtual account team. Furthermore, it was agreed that the researcher would choose appropriate consulting tools and methods which would include those from the current research study, and that the findings would be published.

6.4.2.2 Intervention

Through applying the research approach and NIE this engagement developed into a PAR project and, through the deep participation of the SoftCo business manager for KCC, wider than the consulting assignment.

Cycle of activity	Nature of activity	Reflection	Abstract conceptualisation	Conclusions, and planning for next cycle
Gain sponsorship (first cycle)	Initial meeting and interview with business sponsors	Reflection and allied use of critical incident analysis to understand the initial interview	Highlighted role of organisational structures and ownership outside the immediate scope of the project	Difficult meeting which nearly derailed the project
Build participation (second cycle)	Preparation activities October 2002 Build consortium of partner organisations to carry out first phase pilot projects Primarily reflective observation	Process to build consortium became protracted and benefited from joint reflection on the issues, including reflective meetings with the programme manager to build consensus	Conceptualising the transformation of education as a programme of activities led ultimately to the appointment of a programme manager	Once the consortium was formalised, the consulting assignment could be planned
Carry out consulting assignment as participant observer (third cycle)	Carry out assignment Participant-observation Research phase ends June 2003	Reflective investigation/ interview approach adopted	Theoretical model was used in conceptualising the changes in the economics of providing school age education	Plan needed for dissemination of findings of consulting assignment
Publish co-generated knowledge (validation of findings)	Joint documentation and publication of co-generated knowledge July 2003 – April 2004	Publication process became protracted, and benefited from joint reflection on the issues	The various audiences for the white paper were identified and communications shortfalls identified	Public relations video needed to address the communications shortfalls

Table 11: Cycles of activity

Three cycles of activity developed (table 11). The experience with the second case study had demonstrated the critical importance of robust sponsorship so the first cycle of activity (figure 32) concentrated on securing support from sponsors within KCC. Detailed terms of reference were laid out for the initial meeting with KCC directors. Although the meeting was stormy, with several directors disputing that SoftCo as a technology company could offer value around KCC's transformation agenda, it did ultimately lead to committed sponsorship over a long period of time. Terms of reference for the meeting and reflections on the meeting as a critical incident are provided in Appendix C (figure 46). Follow on meetings were held by the researcher with the main points of contact at KCC and with the SoftCo account team to review the situation and work out how to proceed.

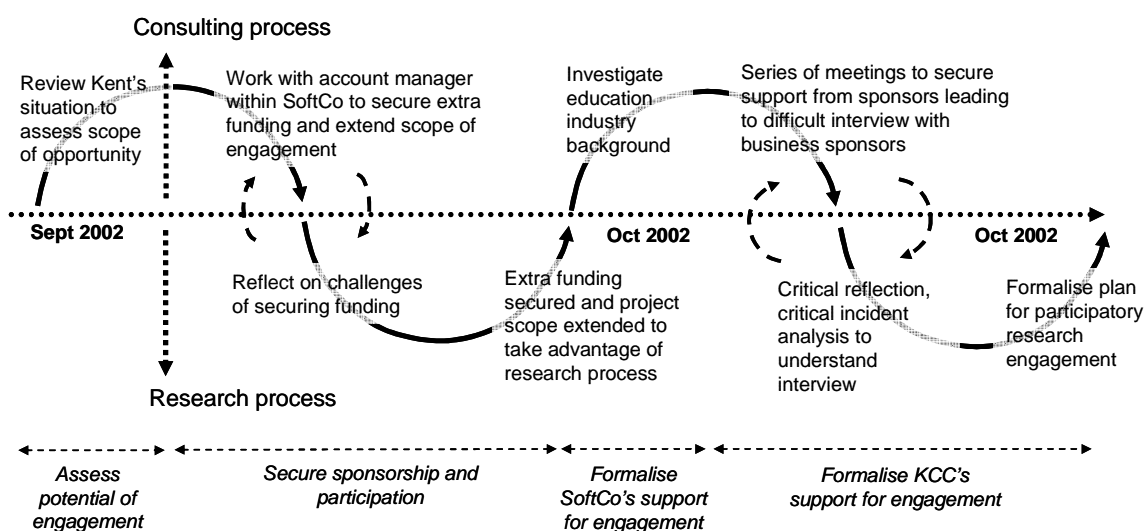


Figure 32: First cycle – secure sponsorship

KCC and SoftCo's prior experience with the school based TabletPC PoC project had demonstrated the value of the PoC approach for proving the potential contribution of ICT. Extended negotiations with KCC and potential technology partners led to a second cycle of activity (figure 33).

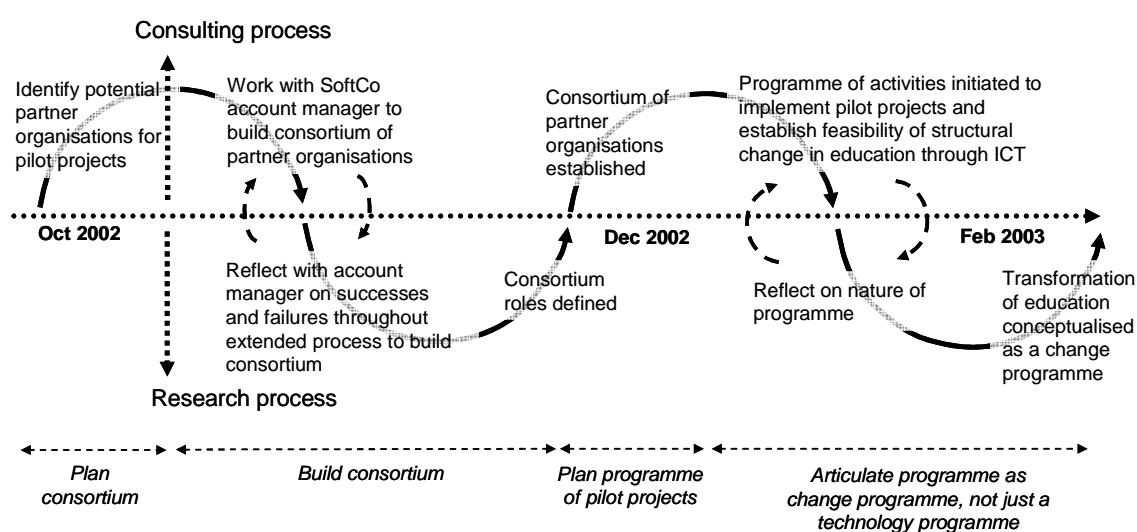


Figure 33: Second cycle – establish consortium and PoC projects

This consisted of building a team of commercial organisations who were prepared to invest in an initial pilot, 'Putting Learners First', that would take place across 6 schools, two primary and four secondary. The selected organisations were included by formal agreement, primarily on the basis of the technology-related capabilities that they brought. The four-layer theoretical model was used for reference to ensure that boundaries between organisations were clear and that appropriate governance would be

put in place to ensure that all parties could work effectively together, despite conflicting commercial agendas.

PAR was used to guide this phase of the project and engender participation. In this cycle of activity the researcher participated primarily as a reflective observer, helping the team of commercial organisations through regular progress and planning reviews. This phase of activity, which set up PoC technology infrastructure projects in six schools as a test-bed for a subsequent wider roll-out, was carried out under the umbrella of an existing KCC change programme ‘Connecting Kent’ which was rolling out broadband connectivity county-wide.

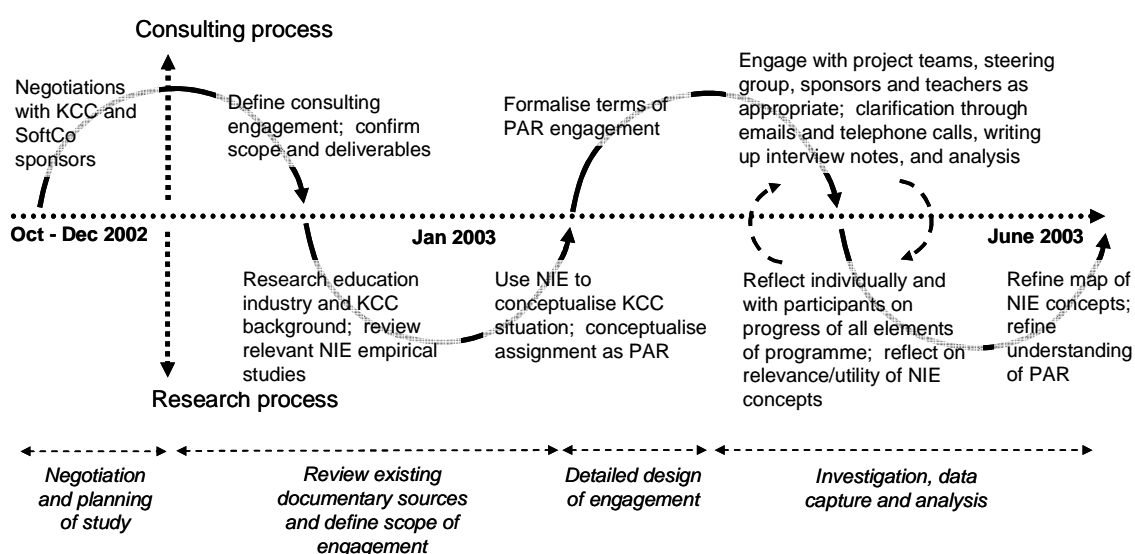


Figure 34: Third cycle – consulting assignment

The third cycle of activity (figure 34), the consulting assignment to identify the potential value of ICT in the KCC’s ‘school of the future’, was begun once the team of organisations was in place and ran in parallel to the project ‘Putting Learners First’. The consulting approach taken within the assignment was to:

- Identify the key stakeholders and stakeholder communities for the school of the future.
- Work with those stakeholders to understand their vision of the school of the future.
- Explore the vision and what the value proposition would be for each of the stakeholders, comparing it with the existing value proposition.

- Question the sustainability of the vision.
- Further develop the value proposition, refining the proposition by challenging it with the stakeholders.
- Identify sources of evidence of feasibility, sustainability and deliverable value that could be generated from the PoC projects.
- Use the proof of concept projects to provide evidence to support the proposition.
- Summarise the proposition in documentary form.

The assignment was carried out through a rich mixture of meetings, workshops, interviews, email and other forms of communication, with staff from KCC, from the LEA and from the pilot schools over a period of some 9 months, supported by assimilation and analysis of documents from a range of sources including internal KCC documents, published KCC documents, government documents, industry and economic data, and published articles. NIE was used as an analytic framework for assessing sources of complexity, including regulatory, political, economic and social issues, faced by a local government education directorate in providing school age education as a service.

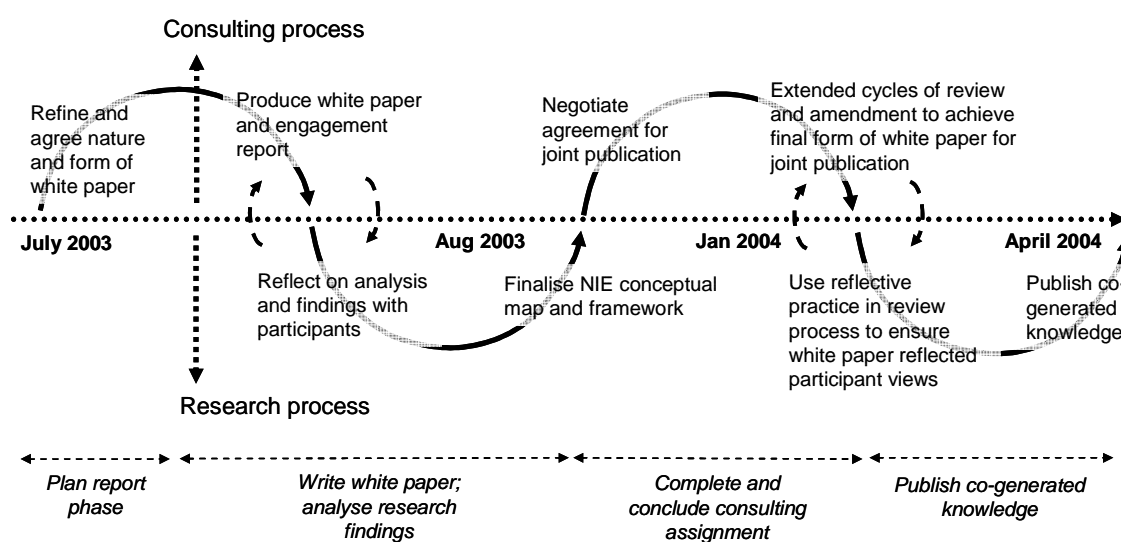


Figure 35: Process to achieve joint publication of co-generated knowledge

The findings of the consulting assignment were authenticated through the joint publication (figure 35) of co-generated knowledge in the form of a detailed white paper (Ellis, 2003) which describes the anticipated economic impact of transforming school age education in Kent. Further validation was provided by the subsequent production

and publication of a public relations video (Microsoft, 2003a) which draws on the original TabletPC PoC. A copy of this video, which is significant in terms of its participants, is contained on the compact disc associated with this thesis along with a copy of the white paper.

6.4.2.3 Research activities

The research purpose of this final case study was to refine the research-based consulting approach based around NIE, drawing on the nine premises of Miller and Crabtree's (2000) qualitative clinical model of mediation for qualitative clinical research, and apply it to a complex e-business situation.

Recent government and academic publications were reviewed to gather current perspectives on providing school age education and the potential role of ICT in that process. It became evident that the education industry had yet to experience the full effects of the digital economy, and retained many administrative and pedagogic practices which could be performed better and at lower cost if the use of ICT became widespread. The review indicated that the level of knowledge of ICT among school staff varied significantly.

A low key approach was taken to school-based interviews to be constructive around the changes that ICT could bring and avoid appearing threatening in technology terms. The four different perspectives of the theoretical model were explored within each school. The 'ownership' view was used to understand the stakeholders in each school's education provision, the way the school was organised, and the implications of school autonomy as an interpretation of the question of property rights. A financial ownership perspective was taken to appreciate each school's financial and resourcing models and priorities. The 'governance' view was used to gain some understanding of the relationships between schools, between the school and its pupils and their parents, and between the school, KCC and the LEA. This gave insight into the value adding priorities within the school, how they related to the current and anticipated school environments, and whether transformational use of ICT could be a compelling strategy. The 'execution' view was used to explore clarity of purpose and priorities, such as the role and nature of pedagogic services provided, and how they are expected to change over time to maintain the school's success with its stakeholders. The topic of ICT was introduced as a potentially complex change that would be incompletely understood

(bounded rationality), and that the key concern was to understand how such a transformation might in practice be effected. It was important to appreciate how programme governance and project management would connect with the school environment. The ‘capability’ view was used to identify how educational objectives could realistically be delivered through ICT, bearing in mind the level of technical expertise available within the school. This included ICT-related development and implementation. Similar perspectives were used to explore inter-school considerations and opportunities, and the LEA’s perspective. The financial discussion with the LEA was more extensive than that with individual schools and covered:

- the money flows between the various funding sources including central, regional and local government and non-governmental agencies, the LEA, and the schools
- the returning information flows that provide knowledge on how, why and where money has been spent and on the outcomes achieved
- money flows for non-school based learning, for example excluded pupils, pupils at home, or in hospital
- the current scope for discretion in spend and allocation at different points in the financing chain
- the current balance between different categories of spend, such as buildings and facilities, special educational needs provision, teaching and other staff, other resources, corporate activities such as marketing and communications, where they are relevant at the LEA level.

It was important to maintain consistency with other programmes, like the ‘Connecting Kent’ broadband rollout, that were in progress as part of the wider transformation of government services. At this level the ‘ownership’ view also was used to gain a broad appreciation of the wider picture. The scope of the intended transformation was clarified by identifying which parts of the Kent economy fell within scope, and where the boundaries of responsibility lay in terms of operating and improving business processes for service delivery. This clarified the extent to which the wider programme’s intent was transformational on the economy, in terms of delivering economic benefit, as well as on the use of ICT. The ‘governance’ view was used to clarify how KCC’s contractual intent would bring competitive advantage to Kent, and how that value would be delivered. ‘Execution’ was used to explore programme delivery, the technical

solution, the change programme and the project approach, and 'capability' was used to identify critical capabilities needed, including programme governance. This latter exposed a need for KCC to increase its programme management capability.

Detailed research notes were maintained throughout the assignment. Notes from meetings and interviews were transcribed as soon as possible after each interview or meeting to aid the reflective process. Email threads were captured and transcribed. This became critically important for keeping a clear view of what was going on, particularly when the projects started in the six different schools. Progress notes were structured around actions, contact information (contact plan, key stakeholders, plan for meetings), problem statement and background for interviews, terms of reference, meeting notes, analysis, findings, business background and perspectives on strategic objectives, programme architecture, solution architecture, notes and transcripts, detail on consulting tools, sources and references.

Empirical NIE studies were reviewed to give alternative perspectives on technology integration and processes (Afuah, 2001; Armour and Teece, 1980), transaction monitoring with a view to real time information (Alles et al, 2002), contract mix, structure and adaptability (Alston and Higgs, 1982; Anderson and Weitz, 1992; Bajari and Tadelis, 2001; Crocker and Masten, 1991; Joskow, 1990; Lyons, 1996), government procurement (Masten, 1984), use of contrasting organisational forms and relevance of relationships and controls (Armour and Teece, 1978; Hill, 1988), cost effective creation of new capabilities (Barney, 1999), relationship between human skills and organisational boundaries (Monteverde and Teece, 1982a), effect of comparative production costs on make or buy decisions (Walker and Weber, 1984), alternative governance arrangements and management boards (Baysinger and Zardkoohi, 1986; Davidson and McFetridge, 1984), recognition of stakeholders other than principal (Shankman, 1999), employer-employee relationship and importance of social contact (Fishback, 1986, 1992; John 1984), socio-cultural perspectives in respect of autonomy of schools (Gatignon and Anderson, 1988), development of new value system (Gates, 1989), structuring of exchange relations to maximise transaction value rather than economise on transaction costs (Dyer, 1997), and the value of TCE as a means of integrating research on behavioural aspects of organisations into an economic and strategic analysis of the firm (Robins, 1987).

Theoretical perspectives considered included Aoki's (1990) view of the firm as a nexus of treaties, Foster's (2000) expression of labour as complex bundle of heterogeneous skills, Mayhew's (2000) description of institutionalism as analysis that treats encultured individuals in cultural settings, particularly in view of Pitelis' (1998) criticisms that NIE lacks history, dynamics and historically informed perspective. This case study led the researcher to the opinion that the Pitelis' (1998) concerns could be alleviated by using PAR, but this would need further research.

This case study aligns with Ghoshal and Moran's (1996) argument that organisations possess unique advantages for governing certain types of economic activity through a logic very different from the market. The need, identified through the case studies, to adopt a participatory approach reinforces Poirot's (2002) view that NIE does not of itself explain normatively how particular paths emerge or how real change comes about, although the deeper understanding gained from using NIE certainly did provide greater appreciation of the alternative choices represented by different paths.

The information gathered was analysed by reviewing it from various perspectives, and talking it through with other participants. From the constructivist viewpoint it was no problem that interviewees and participants held varied, and sometimes conflicting, views since they each constructed their own perception of the various programmes. However this did make the joint publication process protracted. An outline economic model was constructed identifying the key stakeholders, their priorities with regard to the organisational and educational changes to be enabled by the transformational use of ICT, and whether these changes would address any broader educational aspirations and concerns, including any desire for change and the motivations for it. This is described in the jointly published white paper (Ellis, 2003).

6.4.3 Business analysis using NIE

The UK education system is complex and multi-faceted. Clearly any proposals to change the underlying economic model for the business of providing education in Kent must recognise this. The four-layer theoretical model derived in the second case study (figure 28, section 6.2.5.2) was used to reduce this complexity. It was tailored to fit with the nature and vocabulary of the education system whilst keeping the conceptual foundations consistent in the form of the underlying reference model (figure 36).

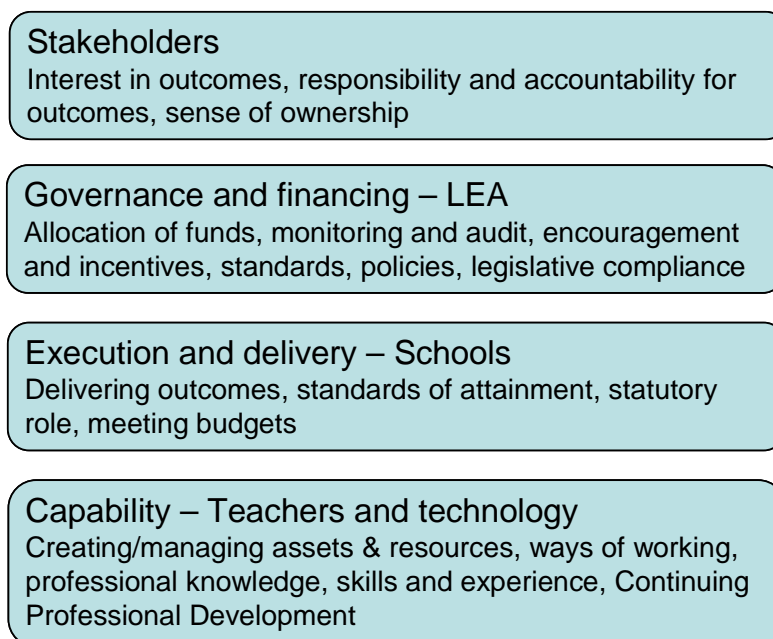


Figure 36: Economic framework (Ellis, 2003)

Each layer was investigated in terms of KCC’s intent to transform the delivery of school age education.

6.4.3.1 The transformation proposition – ownership and structure

There are many stakeholders in school age education (figure 37). Some, especially the LEA, school and teachers, have statutory accountabilities. Health, social services and the police all connect with the education system, even if only to exchange information to ensure pupils’ continued education and welfare as they come into contact with these agencies. Each stakeholder has interests in improving the outcomes achieved by the education system and increasing standards of attainment, but few other than the LEA, teachers, parents, and the local community through the Board of Governors have direct influence within the educational process. However it is inappropriate to view these stakeholders as owners even though funding that they provide is a critical element of the economic model. Some stakeholders contribute funds or other resources formally through the budgetary process, others contribute in other, not necessarily financial, ways. Parent-teacher associations traditionally raise additional funds, and many parents contribute time. In some authorities, partnerships between public and private sector organisations offer alternative approaches to funding.

Headteachers have a high degree of autonomy within this system. By taking a “property rights” view it became evident that this autonomy placed obligations and responsibilities

on everyone else to respect and recognise each headteacher's rights of control over their school. This approach helped to clarify what were in effect contractual boundaries between different parts of the county's educational system. It was imperative to understand these as the introduction of wide scale ICT to facilitate collaboration and inter-working between different parts of the system, as was projected with the change to school clusters, meant that new types of transactional exchange between schools such as shared lessons would be introduced with attendant transaction costs and the need for new forms of governance mechanism to introduce contractual safeguards that would mitigate the new contractual hazards.

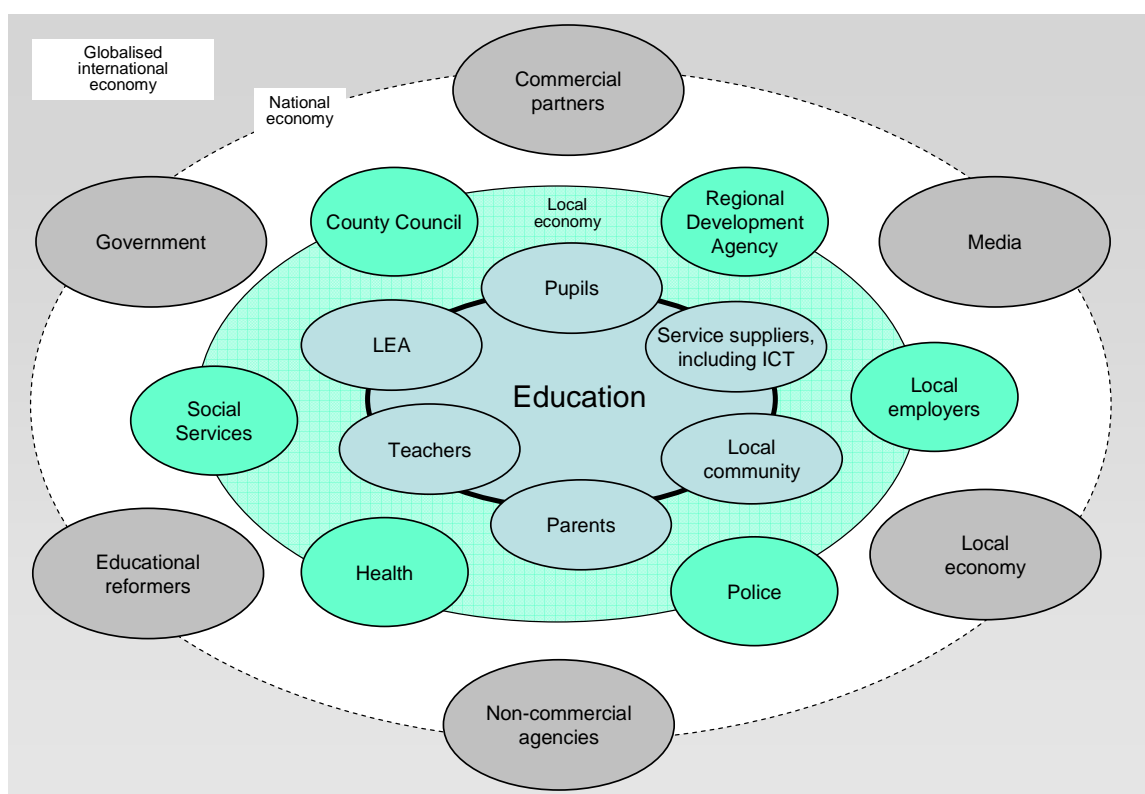


Figure 37: Inner and outer stakeholders in school age education (Ellis, 2003)

Kent has 622 local authority secondary schools. KCC was in the process of grouping these schools into twenty-two clusters within geographical localities that would empower communities of schools to create a new learning culture that would benefit both individual students and their communities (figure 38). The clusters varied from 18 to 40 schools, each cluster averaging some 10,000 pupils, and were expected to develop a distinct ethos and way of working to reflect local circumstances. Individual schools would retain their autonomy, independence and commitment to individual pupils, but would work in a recognised context of collaboration guided and encouraged by a Management Board. Most schools in each cluster had collaborated previously, but less

formally. Commitment to the holistic view of an individual pupil's education would remain with their school within the cluster.

One motivation for the change to clusters was the desire by the LEA to bring LEA resources closer to the schools by allocating some staff to specific clusters while retaining others within the LEA.

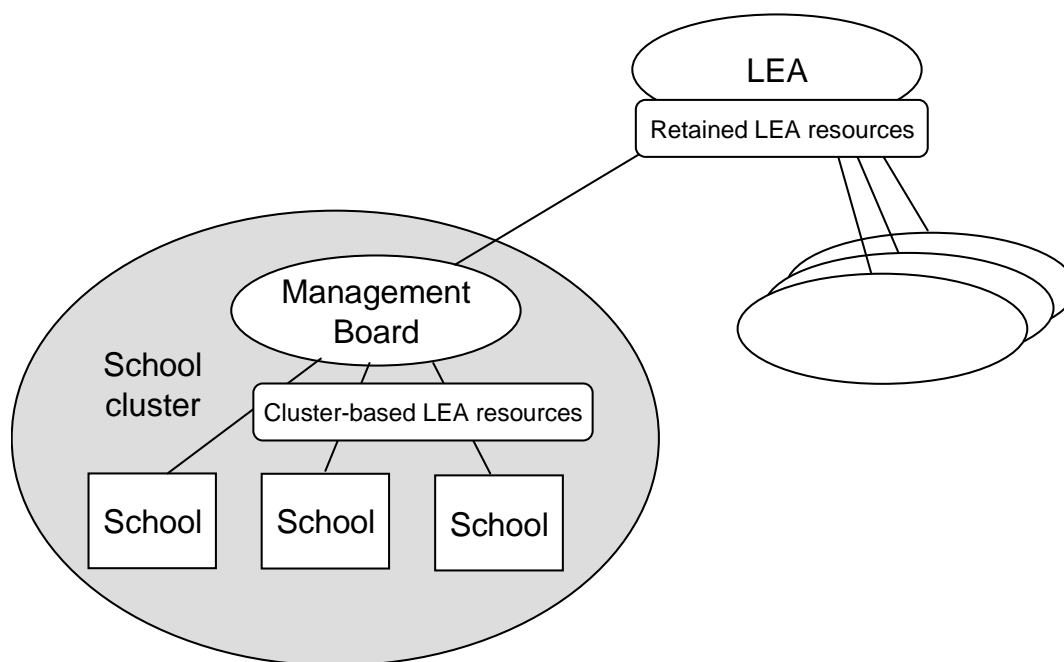


Figure 38: School clusters (Ellis, 2003)

6.4.3.2 The transformation proposition – contract and governance

The Education Directorate has the primary governance role, setting vision and providing leadership, allocating and distributing funds, auditing and monitoring performance, setting strategies and targets, providing incentives, tackling underperformance, establishing and disseminating policies and standards, and working towards end to end integration of the many agencies involved in school age education. However individual schools retain autonomy within this structure.

At the time of the study, Kent's LEA was changing its governance structures to bridge the divide between the Directorate and the schools and to allow greater use of staff between schools. As well as the Management Board, each school cluster would have an

assigned KCC officer to bring closer working between schools and with the LEA. The objective was to build school improvement on a wider base, by changing the nature of the boundaries between schools, and taking advantage of the greater connectedness provided through ICT by the combination of the 'Connecting Kent' broadband rollout and an associated dramatic increase in the network bandwidth provided to schools. The wide introduction of ICT brings opportunities for scale economies through reduction in transaction costs of sharing resources and capabilities between schools. This helps to maintain diversity by keeping specialised subjects viable on a county-wide basis, even where they are un-economic for individual schools, because schools can use teaching staff from other schools more readily (market governance) via technologies like video-conferencing as well as staff specific to the school (hierarchical governance). Achieving these potential benefits of wider connectedness depends on the practicalities of providing infrastructure and services, including premises and their associated services, to maximise the value delivered from a gross budget approaching £1 billion. One of these practicalities lies in the change from hierarchical governance, with ICT related services being developed and provided in-house within the school, to market governance where these services are procured from other providers. This meant that headteachers, who were accustomed to using their authority within the school as a governance mechanism to mitigate principal-agent risks between them and the staff providing the service, would now have to establish a different and contractual governance mechanism in respect of external service providers who would not be subject to hierarchical authority. Furthermore, this would change the nature and profile of transaction costs associated with the on-line digital curriculum as it extended from school-based supply to take advantage of on-line sources external to the school. In the case of commercial providers, this would mean setting up supply contracts with providers who could provide digital resources, their on-line specialised assets in TCE terms, which were well aligned with the needs of learners and the school's curriculum.

6.4.3.3 The transformation proposition – execution and delivery

It became evident, by taking a transaction-centric view of education, that one major change was in the production and exchange costs of providing curriculum materials to support the multitude of educational interventions, both physical and now also virtual, that make up a pupil's learning journey through their school age education.

Rayport and Sviokla (1995) identified that organisations operate in two worlds – a physical world of resources that can be seen and touched, and a virtual world made of information. Economies of scale and scope apply in a different way in the virtual value chain from the physical value chain. The economic changes that led to disintermediation in the commercial world now apply to the teaching profession. The economics of service industries have changed with Moore’s Law (Moore, 1965), the doubling of microchip cost performance every eighteen months, making cheap digitisation possible with the cost-performance of digital technologies continuing to improve. Digitisation of learning materials is not cost effective if only a few pupils are connected or pupils can only connect occasionally, but becomes compelling when all pupils and all teaching staff are connected because of Metcalfe’s Law (Gilder, 1993) which values the utility of a network as the square of its number of users. Organisations which create value with digital assets become able to re-harvest that value many times over. In this context effort can then be put into raising the educational quality of learning materials, or into producing variants that support alternative learning modes and styles.

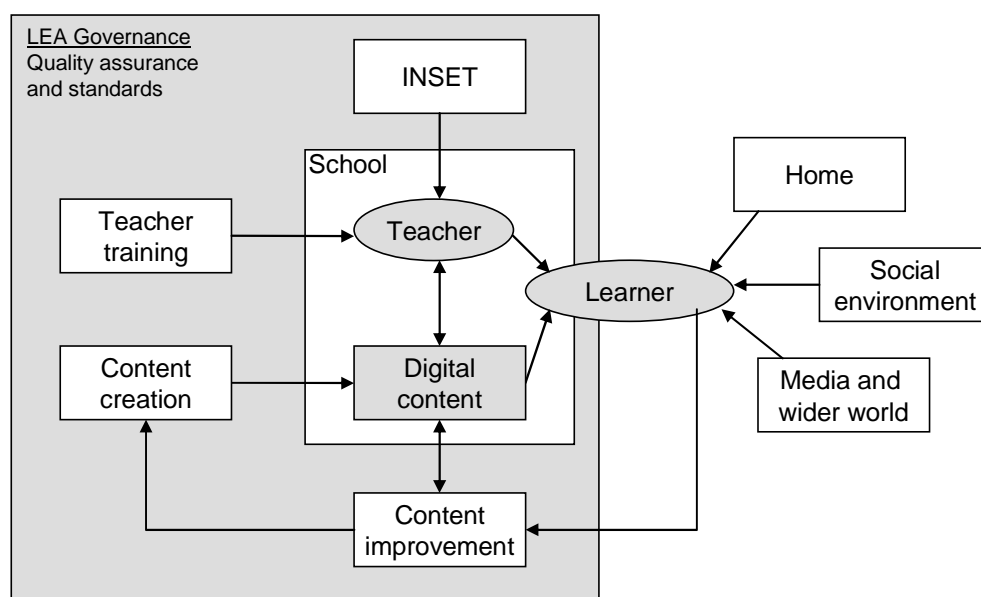


Figure 39: Value system for school based education (Ellis, 2003)

It is not sufficient to consider the school in isolation. The school is part of a whole educational value system which prepares teachers and educational materials, and makes them accessible to learners (figure 39). In the industrial age this was a relatively slow moving system with many teaching materials remaining relevant over many years with

minimal change. The dynamics of the information age mean that the conventional model is no longer appropriate for many areas of the curriculum. Management and improvement of learning materials becomes critically important, as does updating and re-skilling of teachers, if these key assets are to continue to align with the changing needs of learners. In TCE terms, maintaining a discriminating alignment of these key assets becomes an important part of sustaining effective and efficient operation as learners' needs change.

Conventionally, education is delivered through a school-centric model, with the pupil's day-to-day experience and learning path determined by a school timetable adapted and delivered by individual teachers, typically in groups of about 30 pupils. Content is gathered and configured by the teacher to support a lesson plan created by the teacher, and is typically based on existing lesson plans. The teacher determines what is to be taught at each time and place. Discriminating alignment of assets places a deep emphasis on the teacher's subject knowledge and skills.

In the ICT-enabled model, this conventional model is complemented, or in part replaced, by content to support an individual education plan that is selected and configured by independent learners from a wide range of resources. The learner, with guidance, determines what is to be learnt at each stage. Teachers focus on activities which add value through their personal expertise and knowledge now that ICT can provide far better access to information than the most dedicated teacher. The teacher as constructivist becomes mentor and guide, rather than information gateway (Lincoln and Guba, 2000) encouraging and mediating access to the best available knowledge and information through a rich combination of available resources, both physical and digital. In this model, discriminating alignment requires a combination of a rather different set of professional skills together with reliable access to on-line resources.

Continuing the analysis of how well assets are aligned for effective operation shows that various other factors determining the viable range, size and physical structure of schools change dramatically. KCC secondary schools have already demonstrated the value of having differently configured and dynamically configurable learning spaces such as study halls so that learning can take place in very different ways and environments. With this approach, some schools have up to 90 pupils learning successfully in the presence of a single teacher. The individualised managed learning model is not unique

or untested having been around for many years. The novelty is in the sheer richness and variety that can be made available to learners now that ICT has developed to the point where fundamental change in the economics of providing education becomes possible. For example, one Kent school started to digitise teaching materials for the whole curriculum for the whole school, to be completed within a year, so that all lesson materials would be available electronically. In that school pupils accelerate their learning by accessing learning materials outside lesson times and use lessons as deep revision having previously done the computerised lessons at home.

The cost of providing technology-based assets can be compared with the cost of other facilities and services, but this is of little relevance unless the outcomes are enhanced. A fundamental redistribution of funding would significantly change the balance between different categories of spending. Economies of scale give the sustainable cost per pupil to the LEA of providing a fully managed ICT infrastructure, including personal computer (PC) and full network connectivity, as the same as the cost per pupil to an individual school of providing a just a configured PC. The overall cost to the LEA of providing a county-wide infrastructure, complete with access to managed content, content development tools, administrative tools and analysis capabilities was explored through the PoC projects.

Number of pupils:	210,000
Annual budget for schools:	£605 million
Average cost per pupil:	£2,881
Average cost per pupil in most challenged primary schools:	£3,084
Average cost per pupil in least challenged primary schools:	£2,279
Average cost per pupil in most challenged secondary schools:	£3,461
Average cost per pupil in least challenged secondary schools:	£2,785
Cost of alternative curriculum (college) placements:	£5,500
Cost of home tuition (3 hours per week):	£4,485
Cost of Pupil Referral Unit place:	£6,595 to £14,049
Cost for a fully excluded child can rise towards £150,000.	
Staff turnover rates around 15% per year	
In one school, 42% of teacher recruits were from abroad	
Teaching staff were predominantly in the 40-55 year age range	
Inset training was subject to practical difficulties of releasing teacher time to attend	
There was a shortage of good candidates for leadership, and many teaching, positions	
Supply teacher led lessons had a strong correlation with discipline problems	
The annual cost of supply teachers, including insurance, was over £10 million	

Figure 40: Reference costs from KCC (after Ellis, 2003)

From these reference costs provided by KCC (figure 40), supporting detail from the education budget statement, and ICT service cost information from one of the commercial partners it was calculated that:

- Assuming an annual fully burdened cost of a teacher to be £50,000 (roughly twice salary), the annual cost of one teacher was equivalent to the annual cost of providing ICT for 200 pupils
- The difference between a teacher and an assumed annual fully burdened cost of a teaching assistant of £40,000 was equivalent to the annual cost of providing ICT for 40 pupils
- The extra cost of each Pupil Referral Unit placement (at least £3,000) was equivalent to the annual cost of providing ICT for 12 pupils
- The annual cost of providing ICT for a pupil was equivalent to 7 hours of home tuition.

6.4.3.4 The transformation proposition – organisational capability

Effective delivery of outcomes against the education agenda can only take place if the right assets and resources, such as schools, teachers, ICT and educational materials are in place, discriminately aligned with current educational objectives, and managed effectively. A key economic question is to decide on the minimum acceptable profile of educational attainment and determine the economic costs of meeting this requirement.

Individualised learning can only be provided in this way if there is a change in the capabilities within the system. New forms of digital learning content are needed, either by digitising existing material or creating new. In the pilot schools existing learning materials, digitised in the form of e-books, were linked electronically to other content and materials, immediately extending the learning possibilities. Responsibility for production of materials was being planned and shared to avoid duplication and repetition, and to provide satisfactory quality, consistency and coherence (satisficing behaviour). Teachers and other staff were beginning to develop new skills in creating and managing new forms of learning content, in using the technology, and in class and group management while developing knowledge about how best to exploit these opportunities. Increased collaboration provided professional support through the transition as they sought new ways of introducing their individual personal touch and value to the learning environment.

6.4.4 Research analysis

6.4.4.1 How NIE was used

Using Commons' (1934) original conception of 'the transaction' as the basic unit of analysis, school education was viewed as a series of transactions, consisting of lessons, assignments and other teaching interventions to advance a pupil's education. This transactional model was used to challenge the existing model now that alternative forms of educational provision are available, and explore how the best of the different mechanisms might be combined to best effect for each and every individual whether as part of a subject led or competency led curriculum.

A pupil's learning journey through their school age education was characterised as a sequence of transactional interventions, both educational and non-educational. Conventionally, these consist primarily of individual lessons, assignments, tests,

examinations and so on, with their timing, nature and content being owned by the assigned teacher and governed by the school's timetable. In many cases the overall plan and content of these individual transactions is not made visible to the individual learner who may only find out about what is to be covered in a particular session at the beginning of the session, limiting the learner's preparation. Less formal transactional interactions with staff and other resources, particularly in the context of developing soft skills, include day-to-day pastoral care, class management and discipline. The combination of these transactions makes up the pupil's school experience and achievements.

With ICT many of these transactions can be carried out in new ways, whether to reduce transaction related costs or increase their educational value, and whole new categories of transaction are realistic. The current model of educational transactions depends on a long established series of physical assets such as lesson plans, lesson materials, and so on, which are often personal to the individual teacher or specific to an individual school. When these are made electronic, and delivered to a wide population through ICT, the frequency of any particular transaction increases with assets being re-used many times over at minimal marginal cost. Defining the contractual model for funding development of these electronic assets and providing wide access is as yet unresolved, although sources of digital curriculum are becoming commercially available. New transactional attributes, such as the ability to self-serve, mean transaction ownership may well transfer from the teacher to the pupil, changing the 'discriminating alignment' with regard to human-related assets such as classroom and school management models which were specific to the industrial age model of education and so do not necessarily translate to the new model.

NIE originated in the desire to understand where organisational boundaries lie and why. Virtual learning environments using ICT allow 24 hour a day access, changing long established temporal boundaries. Social boundaries change with pupils being able to participate in lessons without being physically present, and this has an impact on the nature and form of communication between the pupils and the teacher. Such changes reflect those identified by Casson and Wadson (1998) in their discussion of conversations and dialogues between firms and their suppliers and the associated communications costs. Some teaching staff were already finding that the language in which they communicated with students changed when they used a different

communications medium such as email rather than classroom discussion and that this was changing the nature of the pedagogic relationship.

The change in communications protocol created behavioural uncertainties in that teacher and student were having to find out how to establish and maintain an effective 'pedagogic contract' under these new and uncertain conditions, and find out whether existing assets in the form of accepted patterns of social behaviour could be re-used. It was helpful to view this question from a principal-agent perspective, and the AT principle of minimising agency costs between principal and agent. The teacher was still responsible for getting the student to study, although this responsibility may shift in the fullness of time onto the student as individualised learning becomes more prevalent. The existing and familiar goal incongruence and difference in risk attitude between teacher and student remains, yet the communications mechanisms that teachers (the principal) use to verify what effort (moral hazard) a student (the agent) is applying are changing. It is not clear whether this increases or reduces the teacher's ability to know (agency cost) how the student is progressing (informational asymmetry) or how stresses on the student are managed (contractual safeguard).

6.4.4.2 Use of PAR as research method

The main significance in the use of PAR for this case was in the question of 'voice'. Many forms of action research are driven top-down by an expert researcher, with planned interventions applied to subjects who are then monitored for their response. In PAR the researcher's voice is but one among those of many participants. PAR places a direct responsibility on the researcher to ensure that this equality of voice is maintained despite the researcher's influential position. This is a central difference between PAR and other forms of AR, and means that the researcher is forced to 'go through a rigorous process of checking the facts with those with firsthand knowledge' (Whyte et al, 1991).

The process of reporting the co-generated knowledge in the white paper (Ellis, 2003) was laborious and long winded with many corrections before all contributors were satisfied. In that sense the overall project findings have been judged authentic by the participants.

Whyte et al (1991) suggest that PAR 'can have a far greater impact than the conventional professional expert role of the consultant in stimulating and guiding major

organizational change’, and describe cases that ‘suggest that the PAR process not only can achieve results of current benefit to the organizations but can lead to a re-thinking and restructuring of relations so that the impact of the process can carry far into the future’. Certainly, similar effects were observed in this case, but this does then cause a research dilemma as to whether the results were achieved because of the use of NIE, because of the use of PAR, or because of their use in combination. It is the researcher’s considered opinion that it was the combination that was effective in this case because of the extent to which the NIE-based theoretical model was used as a conceptual framework in analysing this organisationally complex situation which is fundamentally changing organisational boundaries and inter-organisational relationships.

It is noteworthy that Pace and Argona (1991) highlight the role of the internal consulting team as strategists. In this case a number of members of the core team now contribute more formally to organisational strategy in respect of the transformation of school age state education throughout Kent.

6.4.5 Results

6.4.5.1 Conclusions from the consulting assignment

As a result of the assignment, a new economic model for school age education in Kent is emerging based on ubiquitous access to ICT which shows that the economic model for a rich ICT environment to develop independent learners is different from that of the conventional classroom. The analysis helped KCC to re-think the role of the teacher in delivering high educational attainment, and work out how funding could be allocated to best effect. Teachers themselves are often constrained from giving of their best by circumstances that they are individually powerless to change, so a potential benefit of the changed model is releasing and rewarding this hidden potential of the county’s teaching workforce. Early evidence from the pilot schools, with one school expecting some pupils to achieve Key Stages in 2 years rather than 3 and complete a degree foundation year before leaving school, suggests that this changed economic model is achievable, but only if the practice of providing education is changed significantly.

6.4.5.2 Research findings – an answer to the research question

This final case study was the only one which was complete in its use of NIE, participatory research method, and validation of findings through joint publication of

co-generated knowledge. It confirmed the critical importance of participation for validating the findings and the practical value of combining local knowledge with the complementary and systematic research expertise of the researcher, and supported Elden and Levin's (1991) view that PAR can be used as a way of bridging between theory and practice with its dual goals of solving practical problems and developing new or improved scientific findings and theory.

Interventions consisted of cycles of collaborative work on a new model for the business of providing school age education, in parallel with a number of pilot projects, which were not part of the research, to challenge the model and its potential to build beneficial use of IT. Elements of this final case study illustrate Bartunek's (1993) core characteristics of AR:

- AR is context bound and addresses real-life problems. (The final case study addresses the challenge of transforming school age education across a Local Education Authority in response to current economic imperatives.)
- Participants and researchers co-generate knowledge through collaborative communicative processes in which all participants' contributions are taken seriously. (In the final case the co-generated knowledge was published as a joint and detailed white paper.)
- The diversity of experience and capacities within the local group enriches the research-action process.
- The meanings constructed in the research process lead to action, and reflections on these actions lead to the construction of new meanings. (The joint white paper (Ellis, 2003) produced during the final case study has since been used as part of the ongoing strategic process by the Local Authority.)
- The credibility and validity of derived knowledge is measured according to whether actions that arise from it solve problems and increase participants control over their own situations, continuing action beyond the end of the research activity. (This is evidenced for the final case study by a published PR video about the challenges involved in transforming school age education (Microsoft, 2003a).)

The knowledge produced by the inquiry process in the final case study is believed to have increased participants' control over their own situation in that teachers and pupils

are developing new IT enabled models of school age education to suit their local situations; they are using the knowledge that emerged to support the achievement of pedagogic goals, such as the acceleration of learning.

The experience of using the combination of NIE and PAR to discover how the economics of delivering school age education could be changed demonstrated the value of being able to work with a holistic view through combining a wide-ranging theory and an established participatory method. This case clearly demonstrated that NIE, when combined with PAR, is applicable to e-government related change. The proposition that NIE cannot expose new insights was rejected because of the insights gathered around the economics of providing school age education.

However the proposition that NIE cannot be used as a conceptual framework for managers making decisions in the context of e-business related change is not rejected because it was the researcher using NIE rather than the managers themselves.

6.4.5.3 Additional outcomes – findings validated through publication of co-generated knowledge

The co-generated knowledge resulting from the study was published jointly in the form of a detailed white paper (Ellis, 2003), and an associated PR video (Microsoft, 2003a). The project 'Putting Learners First', the first phase of which developed as a result of the assignment, continues to accelerate progress towards the integrated use of ICT in delivering high quality education within and between schools in Kent. This is evidenced by the fact that at the time of writing the initial PoC in 6 schools has extended to a phased roll-out now reaching over 100 schools, demonstrating that action has continued beyond the researcher's participation.

7 ANALYSIS AND FINDINGS

7.1 The research question

In review, this broad-based research investigates, through case study ‘experiments’, whether conceptual tools based on New Institutional Economics (NIE) can assist e-business related strategic decisions. The question of whether NIE is applicable to e-business in this way is explored by seeking counter-examples to the null propositions that:

NIE cannot be used as a conceptual framework for managers making decisions relating to e-business, and

NIE exposes no new insights when used to inform e-business related decisions.

Assumptions were made to guide and bound this research. Case study organisations were selected that take a rational planning approach to e-business strategy, setting a strategic direction and managing progress objectively. This is consistent with Burn’s (1993) typography of strategies. A second assumption, recognising concerns expressed in the literature that NIE has significant limitations (Simon, 1991; Shankman, 1999; Poirot, 2002), was that NIE should not be assumed to be a complete theory and so the use of alternative tools should not be excluded from the consulting assignments. This mitigated the researcher’s ethical concern that, as a professional consultant, he had a responsibility to at least meet the standards that would have been reached without the research. Whether this was the case was assessed through reflective practice throughout each assignment. Although this meant that alternative models based on the resource-based view (Afuah, 2000) and intellectual capital models (Edvinsson and Malone, 1997) were used for analysis in the first case study, NIE was used thereafter.

7.2 Analysis

7.2.1 *Overall analysis model*

The overall analysis model is illustrated in figure 41. This indicates how the case study findings drew on the literature review, and how the findings and conclusions were derived from the overall research process.

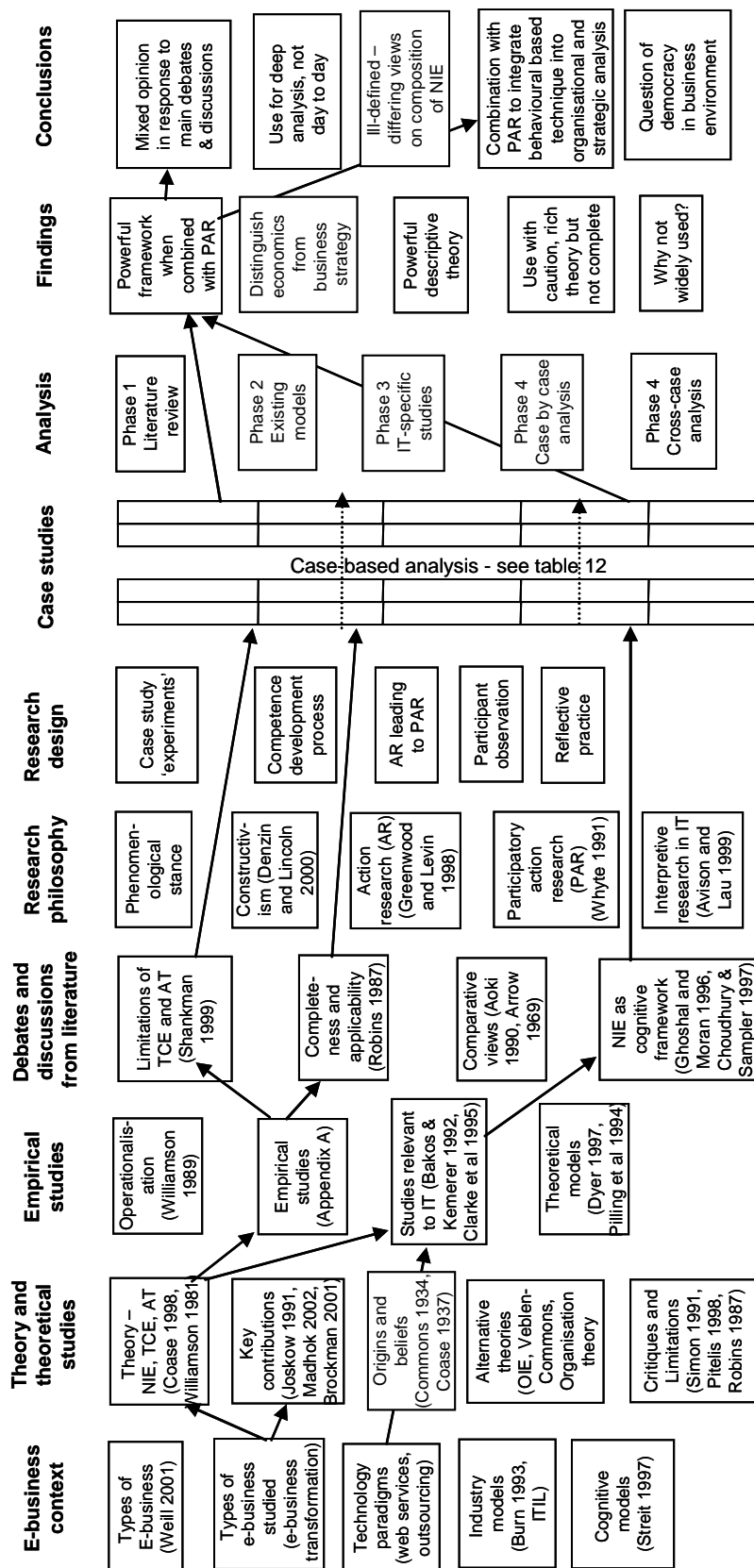


Figure 41: Analysis model

7.2.2 Phases of analysis

The research analysis was carried out in a number of phases throughout the research process. The theoretical and empirical literature was explored to see if the research question could be answered from existing studies. Major debates and discussions in the literature were identified and reviewed, in case they provided sufficient insight to discard NIE as a theory for e-business. Simon's (1991) view that NIE is 'seriously incomplete' raised concerns, but guidance was taken from Williamson's (1996a) response that discussion should be about the 'deep structure of economic organisations and long-term contractual relationships' rather than the 'ebb and flow of day-to-day behaviour' to mitigate these concerns. Nelson and Winter's (1982) competence view highlighted the need to include agency issues and bring them to the fore. This view is reinforced by Shankman's (1999) concern that AT should expand to recognise stakeholders, and Eisenhardt's (1989) concern, about the nature and scale of agency costs, which contrasts with principal-agent thinking that suggests that opportunism can be controlled by ex-post monitoring through hierarchical structures.

Considered arguments from Ghoshal and Moran (1996), that organisations should be viewed as having unique advantages for governing certain types of economic activity through a logic very different from the market and that they are not mere market substitutes for structuring efficient transactions when markets fail, and from McCloskey (1998), that the core of Coasian economics is about what happens in cases in which transaction costs cannot be neglected, suggested that there was sufficient merit in proceeding further. This view was reinforced by studies which discussed NIE's use as a cognitive framework, such as Ghoshal and Moran's (1996) comments on the extent to which NIE has become important for the analysis of a wide range of strategic and organisational issues of importance to managers, ranging from vertical integration, distribution strategy and international expansion to strategic alliances, through to optimum financial structures, and the design of internal incentive systems. Researcher enthusiasm was tempered by cautions from Foster (2000) that NIE is a theory more suited to economists and economic policy makers, with limited relevance to management scientists who are interested in business strategy. This current research clearly contradicts Foster's view.

The next phase was to consider existing models based on NIE. Many studies take a discursive approach to the application of NIE making it difficult to understand how their

conclusions might be applied. Others which define models of, for example, inter-firm collaboration (Dyer, 1997), relational closeness (Pilling, 1994), and alignment (Madhok, 2002) appear relevant but again it was not clear how they might be used in practice in an e-business context. No directly appropriate model was found. Those models which were found centred around TCE and did not include agency theoretic considerations, so a new model was created based on Williamson's (1981a) three levels of analysis.

Once the theoretical model had been created, IT-specific studies were reviewed to challenge whether the model had merit. Many such studies (Ciborra, 1985; Beath, 1987; Bakos and Kemerer, 1992; Huarng, 1995; Hann and Weber, 1996) were found to be centred within the IT domain; others (Clark et al, 1995; Bakos, 1998; Stapleton et al, 2001; Rasheed and Geiger, 2001) which take a wider view tended to use NIE implicitly rather than explicitly, and so did not offer a re-usable model. None of the studies demonstrated how NIE should be used, confirming that this research should continue to the data gathering phase of participating in a series of case situations and carrying out case by case analysis. This case by case analysis is summarised in Table 12 which also shows how it relates to the cross-case conclusions resulting from the final phase of analysis. This final phase consisted of mapping the main elements and findings from each stage of the research process and identifying supporting and conflicting linkages between them. This mapping process, illustrated in figure 41 (section 7.2.1), provided a visual representation of the arguments developed through the research making it easier to challenge them, and to contrast them with discussions in the literature.

First case (1)	Second case (2)	Third case (3)	Final case (4)
Situation			
Financial services E-business model for mortgage applications using multiple channels including intermediaries and new technology paradigm (web services)	Retail FMCG (fast-moving consumer goods) Transformational outsourcing of IT Three organisations – RetailCo, ConsultCo, SoftCo	Central Government Software supplier supporting competitive bidding process for large government IT outsourcing contract Six organisations (three consortia, incumbent IT outsourcer, GovDept, SoftCo)	Local Government Large local authority transforming the delivery of local government services. Transforming school age education through IT. Sample of 6 schools representing 622 schools being grouped into 22 clusters
Cross-case conclusions: As the research progressed and researcher competence with NIE increased, NIE could be used to tackle significantly more complex situations. The main limitation was found to be researcher competence, not the theory.			
Purpose			
Identify business benefits of corporate IT changes towards greater use of commercial, off-the-shelf, (COTS) products	Identify potential opportunities for retail business improvement from different ways of supporting and using IT	Find a way for dominant software supplier SoftCo to support multiple bidders in fair competition while devoting different levels of resource to each	Find a way of using IT to accelerate the creation of new economic and learning communities
Relevance to research			
Use NIE with single organisation and sales intermediary in the context of a new IT paradigm. Internal development vs COTS	Investigate use of NIE with classic outsourcing question. Involved intermediate form of governance, so not just market or hierarchy (cf Williamson's 1991a objections to prior work), and different forms of transaction and asset specificity	Use NIE to investigate organisational relationships in complex contracting under conditions of limited trust.	Use NIE to investigate deep structure of a complex economic system involving a multiplicity of organisations and stakeholders.
Cross-case conclusions: NIE was not found to be helpful in short term business dynamics such as day-to-day project and programme issues (2), (4). NIE was found of value as a descriptive theory in considering deep economic and structural issues, but only after developing considerable familiarity from the literature with NIE ideas and the way it has been used (2), (3), (4).			
Use of theory			
NIE used as lens – to ask different questions. Highlighted need to separate questions of business strategy and of underlying economics Case used to develop familiarity with NIE concepts	Four-layer model used to structure interviews and engagement Prior theoretical and empirical studies used to seek depth of insight into large and complex IT programme, and into governance and management mechanisms	Four-layer model used to interpret different levels of relationship between the six organisations, from contractual to operational and technical.	Full breadth of NIE used, with rich investigation possible through PAR, to understand and interpret complex economic system
Cross-case conclusions: Using NIE for deep analysis requires a strong and participatory method to provide access to rich and relevant case data (2), (3), (4). This required the researcher to develop participatory research skills alongside developing understanding of NIE and how to use it.			

Table 12: Case-based analysis

First case (1)	Second case (2)	Third case (3)	Final case (4)
Units of analysis			
Service transaction Application change	Contract/contracted work package Transformational change programme	Transactional exchange Organisational relationship	Economic (sub-)system (to determine boundaries of financial and operational authority) Organisational relationship (to identify contractual agreements) Learning transaction (for economising and definition of assets)
Cross-case conclusions: The appropriate level of analysis was not obvious a priori in each case, and differed according to the case circumstances. In the last case units of analysis were closely associated with the main elements of the theoretical model.			
Research objective			
Build researcher understanding through putting NIE into a specific context	Use NIE in well-established context (outsourcing) for situation where other available tools are insufficient	Develop deeper understanding of NIE while developing PAR method for final case study	Develop repeatable research-based consulting approach applicable to economically complex e-business situations
Cross-case conclusions: NIE is more likely to be appropriate in situations where there is a need for deep analysis, as in the case of architectural change (2), (4), where the business model changes, rather than incremental change where the business model remains unchanged (1).			
Method			
Reflective practice around defined consulting methodology	Action research (AR)	AR	PAR (as advanced beginner)
Cross-case conclusions: Limited progress was made in disseminating the results of the business analysis until deep participation was achieved. This finding about the importance of participation led to PAR, an established participatory method, being adopted to good effect in the final case.			
Other tools			
Models based on resource based view (RBV), and intellectual capital (IC)	Technical architecture tools and frameworks such as the IT infrastructure library (ITIL) in common use	Technical architecture frameworks and business strategy models in subsequent bid activity	Programme management models, technical architecture frameworks, business strategy models
Cross-case conclusions: Simon's (1991) concerns about incompleteness were supported in that complementary tools were found necessary to handle analysis relating to the ebb and flow of day-to-day activity.			
Nature of participation			
Participant as observer	Participant as observer	Complete participant	Participant as observer
Cross-case conclusions: The balance between participation and observation had to change according to the circumstances found in each individual case situation.			
Ethical considerations			
NIE seen as a risk Existing non-NIE tools sufficient	Interests of three organisations have to be balanced	Promotion of fair competition	Representing participants' views fairly
Cross-case conclusions: The theory should not be used if it poses a risk to the consulting assignment by exposing unnecessary complexity. With the more complex cases it was essential to use the theory since no sufficient alternative tools were available.			

Table 12: Case-based analysis (continued)

First case (1)	Second case (2)	Third case (3)	Final case (4)
Findings			
Challenging theory to use Added significant depth to the institutional analysis	Metrics used by ConsultCo to drive behaviour were in conflict with the needs of the programme, creating flaws in the financial model because of the timing of financial transactions.	Use of NIE enabled rapid development of an effective and robust governance solution	Economic model for ICT-rich classroom is different from conventional classroom, and should be managed differently.
Cross-case conclusions: It was found that to some extent the research was addressing the wrong question. NIE was found so clearly to be of value for carrying out deep institutional analysis in the later cases that it seemed that the right research question would be about why NIE is not used more widely.			
Conclusions			
Existing non-NIE methods and tools sufficient, but use of NIE added depth to analysis	Insufficient participation, along with departure of sponsors, led to limited use of analysis and findings	4 layer model found to be robust. Deep participation and co-operative working led to rapid solution	Combination of NIE and PAR is found to be effective
Cross-case conclusions: The main conclusion is that using PAR and NIE together is an effective way of applying NIE in practice for deep institutional analysis, and addresses a number of concerns expressed in the literature about NIE's limitations in terms of completeness (Simon, 1991), lack of historical and dynamic perspective (Pitelis, 1998), stakeholder perspectives (Shankman, 1999), trust (Nooteboom et al, 1997), and team working (Nilikant and Rao, 1994).			
Researcher journey			
Researcher as novice in understanding and use of NIE	Researcher as advanced beginner in using NIE in practice	Researcher competent in applying NIE	Researcher proficient in using NIE, but only advanced beginner in the use of PAR.
Cross-case conclusions: The researcher needs skills in both NIE and PAR to be able to apply the final case study method, and both are demanding in their own right.			
Development of research process (as part of researcher journey)			
Found challenges with AR of knowing what information is important to keep and how to record it for rapid access during fast moving consulting assignment	Case showed up the need for a more participatory research method	Need for deep participation reinforced	PAR used as the dominant method, with NIE as a supporting conceptual model, along with other simpler models and tools where they were sufficient.
Cross-case conclusions: Neither NIE nor PAR should be approached lightly. Both require considerable knowledge and commitment if they are to be applied effectively. NIE is a broad ranging theory drawing on three separate bodies of literature – economics, contract law and organisation theory – in its holistic view of an institution, which is why the conceptual map (Appendix B) was produced to illustrate relationships and connections between NIE concepts. PAR involves committed participation in an organisational situation over a significant period of time and so is very demanding of researcher stamina. A strong finding was that if other simpler and less demanding tools are sufficient for the purpose in hand, they should be used in preference (NIE principle of satisficing). However for those situations where deep structural analysis was required, the combination of NIE and PAR was found to be very effective.			

Table 12: Case-based analysis (continued)

7.2.3 *Cross-case analysis*

The combination of theory, method and skilled practitioner was developed by using a repeating process of action, reflection and learning across the cases. Each case provided important steps towards being able to use the theory effectively. A TCE-centric view of NIE was taken initially, but principal-agent issues in the second case study made it necessary to include AT explicitly in the theoretical model.

The first case study provided a grounding in the theory and its limitations in that the theory was found to be ill-defined and wide-ranging, making the theory difficult to interpret even in a situation which appeared at first sight to be well suited. From reflecting on the case, the researcher concluded that the case situation should involve a whole e-business system, with some level of completeness, not just part of a system.

This 'whole system' conclusion was tested in the second case, which involved transformational outsourcing of IT and provided a different perspective on e-business. The theory was easier to apply in this context because previous empirical studies that have investigated outsourcing contracts using the theory could be used to provide guidance. The main conclusion from this second case was of the need to achieve a sufficient level of participation. It was this need for participation which drove considered use of PAR in the final case. A secondary conclusion was that the theory was more relevant to situations involving transformational change than those involving incremental change where less complex tools would be sufficient. With incremental change the underlying economic model for the organisation does not change, and so there is less need to understand that underlying model explicitly because relevant knowledge is embedded within the organisation. In transformational change, the economic model may well change and so it becomes more important to understand that underlying model and the implications of changing it.

The second case demonstrated how a holistic view across a number of organisations involved in the transformation of a substantial retail business could be produced using NIE, and highlighted researcher skills that needed further development. It was at this stage that the case study method forced a change from the initial philosophical stance of post-positivist critical realism to a constructivist paradigm for the case studies, because of the multiplicity of views with multiple social constructions of reality.

The third case explored the applicability of the theory in a very different situation, helping to refine the theoretical framework and its interpretation. The case reinforced the need for participation and a method that would encourage this. The final case then brought together NIE, PAR and the researcher as facilitators of change.

Researcher competence with NIE increased as the research progressed, meaning that NIE could be used to tackle significantly more complex situations. Time spent on background preparation in the case studies proved invaluable as suggested by Denzin

and Lincoln (2000). The main limitation was found to be researcher competence, not the theory. Although NIE was not found to be helpful in short term business dynamics such as day-to-day project and programme issues, it did have value as a descriptive theory for investigating deep economic and structural issues once the researcher had developed knowledge and skills from the literature and the early case studies.

Using NIE for deep investigation required a strong and participatory method to provide access to rich and relevant case data, which meant that the researcher had to develop participatory research skills as well as developing understanding of NIE and how to use it. Furthermore, the appropriate level of investigation was not obvious a priori in any of the cases, and differed according to case circumstances. The level of analysis was, therefore, emergent rather than predetermined which brings parallels with the nature of PAR. In the final case the units of analysis were closely associated with the main elements of the theoretical model, but it cannot be concluded that this would necessarily be the case in subsequent studies. Nonetheless, it was found that using PAR and NIE together can be an effective way of applying NIE in practice for deep institutional investigation. This combination removes some of the concerns expressed in the literature about NIE's limitations in terms of completeness (Simon, 1991), its lack of historical and dynamic perspective (Pitelis, 1998), and its shortcomings around stakeholder perspectives (Shankman, 1999), trust (Nooteboom et al, 1997) and team working (Nilikant and Rao, 1994).

The approach was demanding of the researcher. The researcher found it necessary to draw on his management skills of negotiation and persuasion, political skills in securing sponsorship, facilitation skills in managing group processes, and consulting skills in gaining access to participants, building credibility with them and being able to work as a peer at multiple different levels in an organisation. NIE was demanding of his mathematical skills in handling abstract concepts, and teaching skills in translating abstract concepts into practical form for participants. Ethical considerations meant that the researcher had to consider whether the full case study method should be used if it poses a risk to the consulting assignment by exposing unnecessary complexity, or if the researcher lacks sufficient skills in both NIE and PAR.

Using the theory was essential in the later, more complex, cases because no sufficient alternative tools were available. This raises a direct and fundamental question about

why NIE is not used more widely for situations requiring deep institutional analysis. Perhaps it is because NIE and PAR both need a high level of academic and practical ability to assimilate and use, with both requiring considerable knowledge and commitment if they are to be applied effectively. With NIE being a broad theory drawing on bodies of literature around economics, contract law and organisation theory, and PAR requiring committed participation in an organisational situation over a significant period of time, the case method is very demanding of the researcher's stamina. Consequently, a strong finding is that if other simpler and less demanding tools are sufficient for the purpose in hand they should be used in preference, with the combination of NIE and PAR being reserved for those situations where deep economic and structural analysis is required.

7.2.4 *Discussion of theoretical model*

NIE covers a very broad theoretical arena, drawing from theories of law, economics and organisation. It is based in assumptions that institutions matter, and that they are susceptible to analysis. It combines two theoretical approaches to economic organisation, transaction cost economics (TCE) in terms of alternative governance structures for managing transactions in a discriminating way, and agency theory (AT) which addresses the agency problem caused by separation of ownership from execution. TCE on its own is broad, but the combination with AT extends it even further. The combination of the two was found to bring advantages that were not available from considering either theory on its own. TCE concentrates on the firm and its interactions with other firms, through transactions, their attributes and governance. This institutional view contrasts with AT and its focus on the behaviour of individuals through incentives and measurement, which was found to have value in understanding the participants' life-world view. These two differing perspectives were found to make visible different types of costs and efficiencies and how they might be influenced. Brockmann (2001) illustrates these elements of NIE (figure 42).

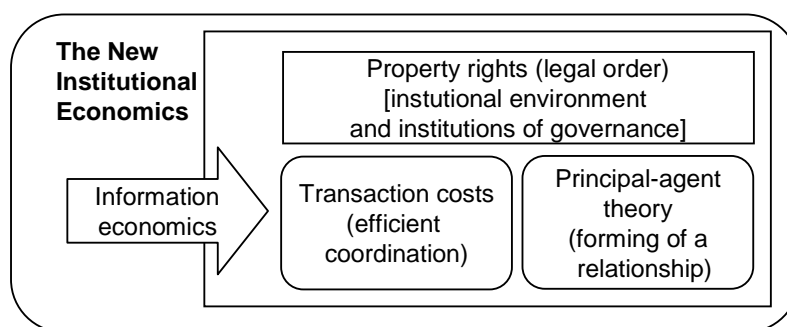


Figure 42: Components of NIE (Brockmann, 2001)

The literature review showed that NIE theory is not well defined. It offers many concepts, but there are few accepted relationships between them. Authors use many different combinations of concepts making it difficult to find a satisfactory description of NIE from either theoretical or empirical papers. The most effective use of NIE is by authors like Joskow (1985, 1987, 1991) who uses NIE descriptively to gain a rich understanding of firms working in complex regulatory environments like the coal, cable franchise and fish industries. Although it has been researched in many different ways, and to different purposes, few accounts detail how NIE has actually been applied proactively. Quantitative studies generally give detail about the research method but tend to use a limited set of NIE concepts. Qualitative studies tend to describe the results of using NIE rather than giving detailed guidance on its application. The experience of using NIE in the case studies within this research suggested that a reason for this lack of detail lies in the difficulty of capturing and describing both the full richness and organisational complexity that was uncovered and the nuances of the activities and interactions involved, many of which were necessarily ad hoc and lightly structured. The same difficulty is observed in other accounts of using participatory action research (PAR) (Whyte, 1991). A further reason identified in this research lies in the context-specific selection and use of NIE concepts which was found to rely on the researcher's understanding of the particular context, and was influenced by the researcher's level of NIE knowledge at the time. The formalised approach which was developed through the case studies to bring method to this context-specific selection and use of NIE concepts is outlined in the next section. Deriving a general normative theory for the use of NIE concepts is outside the scope of this research.

A further difficulty with using NIE lies in the continuing discussions in the literature about the many different schools of institutional economics thought. Comparison with other schools of thought was outside the scope of this research which has concentrated

on practical application of NIE, but it is recognised that alternative schools might well have provided different insights within the case studies. For example the cognitive function of the institution is an aspect drawn out to greater extent by the Veblen-Commons variety of institutionalism (Williamson, 1996c) but was beyond the scope of this research.

It was not clear in advance, even after reviewing the empirical studies, how NIE could be used in practice. Many have looked for specific relationships between concepts, for example Dyer (1997) and Pilling et al (1994), mainly within the firm. Brockman (2001) took a broader view, looking at the construction firm as part of a network of organisations. Brockman's model based on his wide experience with large projects in the construction industry was considered for this research, but it makes industry-based assumptions that are inappropriate. Brockmann's model is based in physical constraints, such as his premise around the volume of exhaustible natural resources, whereas this research takes capability, which is renewable but time constrained, as the main limiting factor.

NIE has been used previously, for example by Joskow (1991), to explore the nature and development of contractual relationships within regulated industries. This aspect of NIE was expected to provide some guidance within the first case study around the use of web services to automate transactional exchange. However, this case was undertaken when web services were an immature technology, and although the notion of contract is important it was not well developed in respect of web services at that time. Subsequent industry developments associated with web services are beginning to highlight the importance of contract.

It was found helpful to keep certain aspects of NIE in mind. It was helpful to consider the institutional environment, expressed by Williamson (1996c) as the polity, judiciary and the laws of contract and property, and whether they had any particular relevance to the situation, and secondly the institutions of governance involved, described by Williamson as 'the play of the game'. These were particularly relevant in the second and final case studies. This institution-centric view was then contrasted with an individual agent-centric view that firms, over time, establish routines which govern the various activities that take place within their legal framework and influence how groups of individuals pursue collective goals that they could not achieve as individuals. NIE's

concerns with principal-agent conflicts, information asymmetries, path dependency and problems of assigning property rights, suggest ways of thinking about such routines that imply agents are not fully rational, independent actors. It was helpful to keep in mind the principle that rationally intended decisions are bounded in their rationality through, for example, limits on information, limits on ability to interpret that information, and by uncertainty. Uncertainty is characterised in NIE as productive uncertainty relating to the internal operations of the firm, and competitive uncertainty of the firm's external market environment. Whereas an assumption of unbounded rationality suggests that there is a given choice set because there are no uncertainties, and that an identifiable optimal choice can be defined independently of the decision making process (Kurdas, 1994), bounded rationality implies that decisions by economic agents depend on the choice set determined by the institutional setting. Conventions, rules and policies specific to the institution, therefore, influence the outcomes. The participatory approach was found to have value in helping to uncover such institutional factors.

Bounded rationality means that it is not feasible to deal contractually with all possible complexities, making incomplete contracting the best that can be achieved. If agents were fully trustworthy, comprehensive contracting could still be achieved. This is where the behavioural assumption of opportunism allows for 'interest seeking with guile'. This was found to be pertinent to the nature and implications of contractual decisions, particularly the distinction between 'contract as legal rules', where transactions are tightly defined, and 'contract as legal framework' which emphasises structures for organisations to work together towards joint objectives. Exploration of these alternatives within the case studies suggested that these alternative contractual forms require very different governance structures because of the very different nature of the interactions between the organisations under the two regimes. These differences, which appear to be compounded by choices of organisational, or 'efficient', boundary and whether, or when, to go to the market rather than developing in-house, appear consistent with Coase's (1937) view that long term contracts will be preferred unless the cost of negotiation and enforcement of separate short term spot contracts is low.

The problem of forecasting the future is more pronounced when contracts operate over an extended period, as in areas like e-business where the situation is never static. Technology changes continuously as well as the business environment. If bounded rationality is recognised as a factor, then mitigations can be put in place. It was found

helpful to discriminate between lack of information and inability to process the information that is available. This led to an observation that some managers were, in effect, deliberately limiting the amount of information that they had and limiting the tools that they used to process the information available to them. This behaviour is commonly termed 'rational ignorance'.

The behavioural model of bounded rationality with its assumption that some agents exhibit opportunism has been the subject of criticism (Pitelis, 1998). Attempts were made in this research to offset these criticisms by using participatory methods to understand participants' behaviour in greater depth.

The third case study centred around property and ownership rights. Merrill and Smith (2001) discuss property rights, and Coase's impact on our modern understanding of property rights and their role in the economic system. Property rights create duties that attach to 'everyone else' and provide a basis of security that permits people and organisations to develop resources and plan for the future. Ownership rights are expressed by Coase (1998) as a bundle or collection of rights to carry out certain actions with respect to resources and assets. One example following Coase's lead, but many years later, has been the distribution of property rights in the electromagnetic spectrum by specifying certain rights in broadcasting equipment.

Governance choices affect the nature of the transactions that will be carried out. With a transition to e-business, as in Rayport and Sviokla's (1995) marketpace, not only is the infrastructure different but also the nature and content of transactions. In the final case study, the use of information and communications technology (ICT) can significantly reduce costs for transactions, particularly where it can make these transactions less idiosyncratic to reduce their dependency on specific high cost assets. In the case of school age education, the need to secure access to a sufficient level of skill in specific curriculum areas was making the cost of recruitment excessive, if appropriately skilled individuals could actually be found. One school in particular had demonstrated that greater investment in ICT infrastructure and tools, and electronic educational materials, made many educational transactions less idiosyncratic in that this investment allowed pupils to progress at their own pace, and change their dependence on relatively expensive specialist teachers whose role could change from an instructional 'knowledge gatekeeper' to a constructivist 'mediator and guide'.

During the course of the study different forms of the theoretical model were created and discarded. Forms of governance, such as between market and hierarchy and their implications for financing in terms of their effect on the accessibility of external financing, were considered but access to suitable case situations was unduly limited. A version of the four-layer model based on ownership, governance, execution and technology did not allow for the representation of capabilities such as intellectual capital, knowledge as a localised and specialist asset, which was needed in the first pilot study. The need for relevance and a question about the relationship of this research with common recognised management models highlighted the need to be able to communicate with managers in terms and models that were familiar to them, and to recognise that some terms like ‘governance’ and ‘agency’ had very different meanings in particular contexts.

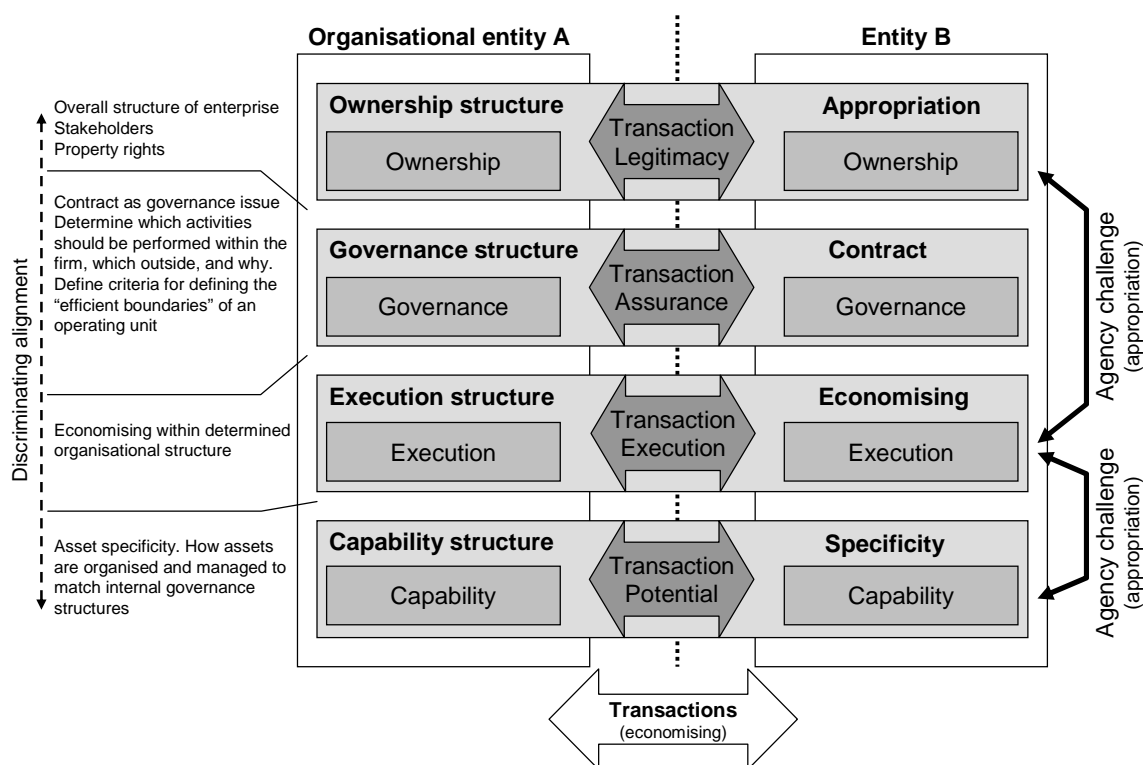


Figure 43: The derived theoretical framework

The theoretical framework was eventually expressed in two parts. The initial three layer framework (figure 10, section 3.5.3) and conceptual map (figure 19, section 6.1.4.1), which were used for the first case, were modified through the experience of the second case to create a four-layer framework (figure 43, see overleaf) and revised conceptual map (Appendix B). These changes, which highlight the importance of property and

agency considerations were tested on the third case before being applied, with PAR, to the final case.

The idea of 'ownership' was used to encompass questions of property rights and the legitimacy of transferring goods or services from one organisation to another. The ownership layer was extended to include organisational form and questions of defining organisational boundaries. This reflects Coase's original stance taking the firm boundary as a decision variable, and raises questions about how organisational boundaries can be defined and enacted to create efficient boundaries.

'Governance' was separated out to recognise problems and costs of uncertainty, search, experience and credence qualities in supply markets (Essig, 2001), and how the choice of governance structure would best address them.

The 'transaction', or exchange, related aspects of the model draw on the law heritage of NIE, and were used to focus on the nature and operation of contracts between organisations as legal entities. Transactions, and their attributes and characteristics lie in a spectrum from one-off spot contract transactions through to the full richness of long term exchange relationships.

The concept of 'execution' was used to encompass the economising activities involved in operating a business that depends on transactional exchange. The concept of 'capability' was used to encompass all those elements required to deliver the goods and services involved in the exchange, including questions of asset specificity, and whether organisations' capabilities were well aligned with the nature of the transactions involved. The 'technologically separable interface' between organisations was investigated to discover whether it represented an 'efficient boundary' or not, so that an assessment could be made as to whether better economies could be achieved by repositioning the boundary, or by changing the nature of the governance structure across it, as is attempted through information technology (IT) outsourcing.

This framework, which extends Madhok's (2002) triangular alignment hypothesis by making explicit reference to property rights and ownership, has strong consistencies with Brockmann's (2001) four-layer model described earlier, but can be related more directly to NIE theory through the conceptual map (Appendix B). Its use with PAR is

consistent with Madhok's (2002) argument that context is important because resources are dynamic and change over time.

7.2.5 *How NIE was used*

Participatory research crosses between two worlds of research and practice, and so has to communicate in the languages of both. This brings a practical need for translation and interpretation between these two worlds. The constructivist paradigm requires that much of the description of the case studies is necessarily presented in the language of the practice setting to keep them authentic to their case context, but this does make them less accessible to those, such as other researchers, who are not familiar with these practice settings. For this reason, a summary of the methodological approach to using NIE, which tends to be implicit in the case descriptions, is drawn out separately here.

The methodological approach was developed and refined through the case studies and subsequent analysis. This section describes its final form as steps which were typically taken by the researcher during the course of the case studies. It should not be taken as a normative description of what should be done. Determining whether this approach can be used normatively would require further research. It is assumed that a case situation has been identified where an e-business is seeking to make a major change to significantly improve its economic performance.

NIE was used as a descriptive theory rather than as a normative theory. NIE concepts were used to explore and map the institutional landscape in each case study, and to identify key elements of that landscape. NIE terminology had to be translated and interpreted into the different languages of the participants, some of whom used business language, some like educators who used a professional language, and others who used the language of technology. The glossary indicates where concepts were used across the case studies, and characterises some recurring aspects of their use.

Although NIE was assumed to be but one theory among many which could be used, the first step was to identify whether NIE was likely to be an appropriate theory for describing the organisational situation when contrasted with alternatives such as those in Appendix D. In this research, the main determining factor was whether concepts more specific to NIE than to the alternative theories available, such as transaction costs, governance arrangements, agency costs, or property rights, appeared to be a primary

concern. If other models appeared more suited to the situation, the case was discarded as an NIE research candidate, and other techniques were used to progress the consulting assignment.

It is well recognised that IT can make a significant difference to the costs of exchange, for example by reducing transaction costs (Downes and Mui, 1998), and that NIE as a theory is concerned with economic performance in the round, including the costs of both production and exchange. The theories illustrated in Appendix D tend to be concerned with the economics of production, whereas NIE extends the production economics view to include the economics of exchange. The first, second and final cases all clearly involved the economics of exchange.

Having accepted a case situation as a research candidate, it was reviewed again to identify a preferred NIE approach. The case situation was reviewed against:

- A theoretical perspective which considered the customary divisions within NIE between transaction cost economics (TCE), agency theory (AT), property rights concerns, governance concerns, institutional arrangements, or boundary definitions affecting the nature of the firm. Any such focus of attention was not taken as exclusive, so other parts of NIE were regularly revisited during the case. This theoretical perspective was mediated through the themes identified in the literature review, namely (a) transaction costs, (b) firms, markets and regulation, (c) behavioural aspects of NIE, and (d) trust, risk and relationships. It should be noted that these various divisions are not completely or consistently defined in the literature, which is why they are described in terms of focus of attention rather than as self-contained theories.
- An empirical perspective which considered the grouping and use of NIE concepts around particular topics as identified in prior empirical studies. The particular topics considered in each case are listed within the case descriptions.
- The four layer framework, derived from the case studies, as a first step towards formalising a limited but usable set of perspectives which would be distinctive to NIE, whilst not losing the holistic view offered by its origins spanning law, economics and organisation.

The purpose of this review was to identify and focus on areas which were of particular concern for the participants within a holistic view of the case situation. The researcher used the different perspectives as a mental guide with the participants rather than as a linear review process. The experience of the first case demonstrated that the process does rely heavily on the researcher having gained a sufficient understanding of NIE concepts from the literature review and, from the subsequent case studies, how to articulate the ideas that these concepts represented in the language of the participants.

NIE concepts have been referenced within the case descriptions to illustrate where the ideas that they represented were observed. In this sense NIE provided a set of terms which could each be used to encapsulate a particular notion, for example the notion of transaction costs and its component set of specific types of transaction cost, or the notion of principal-agent theory and its associated concerns such as agency costs, information asymmetry, and bounded rationality of agents.

The conceptual map (Appendix B) was used as a point of reference to identify concepts which should also be considered because they were, according to the theoretical and empirical literature, closely associated with the focus of attention. At all times the researcher's attitude was towards using fewer, rather than more, concepts within the general intent of gaining deeper understanding of key elements of the case situation, as determined by the participants, rather than the whole. It is the researcher-as-participant's conclusion that this attitude is essential when working with the scale and complexity of the case situations which were the subject of the second and final case studies, and that it is not realistic to assume that one person can understand the whole situation in detail.

The concepts mainly associated with TCE were used to explore questions of discriminating alignment between transaction costs and assets, and typically centred on the nature of the contracts involved and their associated credible commitments or economic hostages. In the first case the process to construct the mortgage contract, and the creation of system assets which would align with this process to minimise transaction costs were identified as central to the case situation, even though the "make or buy" starting point for the case was a governance question between hierarchical and market governance.

The concepts mainly associated with AT were used to focus on circumstances where ownership and control were separated. This focused the researcher's attention on the alignment between the agency agreement as a contract and the associated governance structure, as with the transformational outsourcing agreement in the second case. In this case the programme governance structure was intended to address separation of RetailCo's ownership and ConsultCo's effective day to day control.

The protection of property rights and the governance structure needed to assure this were found to be an effective starting point in the third case study, but the analysis in this case was further developed by considering what boundaries would be efficient for the overall process of competitive re-bid.

The four layer model was used in the final case, together with a transaction-centric view around the provision of "learning transactions" to learners, an agency-centric perspective around the relationship between schools and the Education Directorate, and an "efficient boundaries" perspective on how to organise the provision of IT services in the most economically effective way. It was helpful to consider organisations as a nexus of treaties in this environment, because the nature of the treaties between organisations was projected to change substantially. One question which remained unresolved was that of property rights over electronic learning materials created by individual schools, and whether there should be a mechanism by which they could appropriate value from this investment, whether financial or in kind.

In this way, NIE provided a set of concepts, subsets of which could be used to describe specific aspects of the case study organisations, thereby helping the process of understanding them. This understanding, which was co-generated with participants through the process of PAR, was then available to inform their decision making in respect of the changes that they were seeking. The measure of success was the participants' opinion on the effectiveness of this understanding, and whether they found it helpful in their decision making processes.

7.2.6 Use of reflective practice

Reflective practice was used in developing the theoretical model, and for guiding the selection of case situations, as well as within each case study. These uses of reflection are summarised in tables 13 and 14.

Phase of research	Concrete experience	Reflective observation	Abstract conceptualisation	Plan for next phase
Develop theoretical model (iterative)	Review existing empirical studies. Includes case situations from current study in subsequent iterations	Reflect on whether current state of model appears adequate for next phase of activity	Update model to incorporate reflections	Decide how model will be used and what evidence will be gathered on whether model was effective or not
Guiding the sequence of case situations (iterative)	Carry out case investigation	Reflect on outcomes with participants. Reflect separately on whether model helped.	Update case study process to incorporate what was learnt	Identify suitable next candidate case situation
Reflecting on interim case situations (iterative)	Carry out first cycle of case investigation, including analysis	Reflect on why case could not continue to a subsequent iteration	Update approach to case study to improve likelihood of reflection with participants leading to multiple cycles	Update general case study approach
Reflecting on final case situation	Carry out joint discussions and background analysis developing new model for education Initiate proof of concept project	Carry out reflective review of progress	Update model and approach to programme in response to reflective review	Update forward plan, including production of PR video (Microsoft, 2003a), and finalise co-generated white paper (Ellis, 2003)

Table 13: Reflective cycle applied to research design

In addition, the researcher found reflective practice to be an essential tool for managing the day-to-day challenges of the research, especially the critical and persistent requirement to achieve sufficient separation between the researcher's many different roles. Other professional disciplines such as counselling and nursing use clinical supervision to provide practical help in separating different roles and their associated accountabilities (Ooijen, 2000), so the researcher also drew informally on this approach as a further practical tool.

Case situation, (organisation) and [phase of researcher's cognitive growth]	Timeline and concrete experience	Reflective observation	Abstract conceptualisation	Plan for next phase
First case: Supporting multiple electronic channels in a Financial Services Firm (FinanceCo) [Novice]	Initial meeting February 2001, final presentation May 2001 Public relations (PR) case study finally published in February 2002	Reflection on preference for using non-NIE concepts	Conceptualisation using intellectual capital approaches	Select new case situation that is less novel in NIE terms
Second case: Transformational outsourcing in Retail FMCG (RetailCo) [Advanced beginner]	Project start March 2002 Handover to account team June 2002	Regular and repeated reflection throughout case investigation	NIE concepts structured into concept relationship diagram	Select new and contrasting case situation
Third case: Supporting competitive bids for information technology (IT) contract (GovDept) [Competence]	October 2002 to December 2002 Innovation activities January 2003	Joint reflection session with the account manager used after the main working session	Concept relationship diagram reviewed against the experience of the working session	Select case situation that will bring theoretical, methodological and empirical paths together.
Fourth and final case: Provision of school age education (foundation cycle of activity) [Proficiency]	Initial meeting and interview with business sponsors	Reflection and allied use of clinical supervision to understand experience of initial interview	Highlighted the role of organisational structures and ownership outside the immediate scope of the project	Nearly derailed the project because of strongly negative attitudes exposed within the initial meeting
Provision of school age education (first cycle) LEA	Preparation activities October 2002 Build consortium of partner organisations to carry out first phase pilot projects	Process to build consortium became protracted and benefited from joint reflection on the issues	Conceptualising the situation as a programme of activities led to the appointment of a programme manager	Once the consortium was formalised, the consulting assignment could be planned
Provision of school age education (second cycle)	Carry out consulting assignment Research phase ends June 2003	Reflective investigation/ interview approach adopted	Theoretical model used to conceptualise changes in the economics of providing school age education	Plan needed for dissemination of findings of consulting assignment
Provision of school age education (third cycle)	Joint documentation and publication of co-generated knowledge July 2003 – April 2004	Protracted publication process benefited from joint reflection on the issues	Various audiences for the white paper (Ellis, 2003) were identified and communication shortfalls identified	Participants started the planning process for creating the PR video (Microsoft, 2003a)

Table 14: Reflective cycle applied to case studies

7.3 Findings

7.3.1 *The use of NIE exposes new insights*

The use of NIE was found to expose new insights by raising questions beyond those which would otherwise have been asked, although these insights were only fully appreciated and acknowledged by the few individuals who had a deep and personal involvement in the full complexity of the institutional situations. Others who were only concerned with a part of the picture, or who were not directly involved, considered the analysis excessive. The question of how much analysis is appropriate is not easy to answer, especially in the absence of accepted benchmarks, and raises a serious question about whether managers need to be professionally qualified, as practitioners are in other disciplines.

In the final case, PAR and the NIE framework were used with members of a local authority education directorate and local schools to develop understanding about their organisation and the way it delivered education. This was the only case which achieved full participation and truly co-generated knowledge. It is significant that the use of PAR leading to co-generated knowledge increased the number of individuals who were genuinely interested in the results of the case analysis. Whether this degree of success can be repeated with another organisation using the same approach is a potential topic for further research.

7.3.2 *NIE provides an effective conceptual framework when combined with PAR*

NIE was found to provide a powerful conceptual framework for carrying out deep institutional analysis when combined with the participatory method PAR, as demonstrated by the final case. The participatory method provided access to rich information about the organisation which informed the analysis, and involved members of the organisation in the process so that they were able to make use of the results. In this case NIE was found to be effective for the researcher as facilitator working with groups of participants, including their management hierarchy, who had a strong desire and motivation to achieve e-business related change.

The scope and complexity of NIE, as shown through the theoretical and empirical literature reviews, and especially the extensive work by Joskow (1985, 1990, 1991),

Madhok (2002) and Dyer (1997), together with the practical experience of the two case studies involving transformational change, indicated that NIE is suited to problems which entail architectural organisational change where it is important to understand the economic structure of the organisation in depth, as with large scale e-business transformation entailing changes to the underlying economic system. In the final case, changes to the underlying economic model meant financial and human resources were being allocated in very different ways from before. In this sense, NIE provided an economic theory, rather than a theory of management strategy.

NIE was less effective in the first case study when the researcher had no prior experience of applying NIE to practice. It was found that interviewees immediately started to close interviews down when the researcher attempted to widen the discussion and make more direct use of NIE terms, so interviews had to keep to the language of the interviewee's work context. Even so, the attempt to use NIE led to a far deeper analysis than would otherwise have been achieved in the time available because of the different questions that NIE raised.

The value of using NIE as an analysis tool in the second case study was largely lost because a lack of engagement and participation from key individuals, and the premature departure of the two main sponsors, meant that the rich consulting findings and analysis could not readily be disseminated. It became apparent that the distinctions of informational boundedness and computational boundedness did not cover what is commonly termed 'rational ignorance'. This is where managers claim to manage rationally, but limit their rationality by deliberately limiting the information and analysis tools that they apply. Examples were found of managers using familiar but inappropriate and misleading management models in preference to appropriate models which needed additional knowledge. Fewer individuals than expected appeared to have formal training in management theory.

The emphasis placed on participation in the final case, and the considerable time and effort invested up front to achieve this, led to significant joint working and resulted in the production of co-generated knowledge in the form of a joint white paper (Ellis, 2003) which continued to be used long after the conclusion of the research case. It is the researcher's considered view that the depth of analysis achieved in this case would not have resulted if either NIE or PAR had been used on its own.

7.3.3 *Distinguishing between economics and strategy*

It was found important to distinguish between economic analysis and business strategy. This builds on Robins' (1987) argument that TCE may provide tools for organisational and strategic analysis, if the emphasis on causality is removed and if behavioural aspects of organisations are integrated into that analysis, and on Pitelis' (1998) condemnation of TCE as lacking the historically informed and dynamic perspectives which are needed in developing business strategy. Foster's (2000) approach relating TCE to complex adaptive systems is more constructive and highlights how the deep economic structure of the organisation can have a dramatic impact on the success or otherwise of the chosen business strategy.

In the second case study, the institutional economic analysis showed that the governance structures of the consulting organisation and the priorities of the retail business were not aligned. This contrasted with Williamson's (1981b) opinion of the importance of achieving a discriminating alignment between the institutional arrangement, the capabilities of the organisations involved, and the ways in which transaction and agency related costs can be minimised. Madhok's (2002) triangular alignment hypothesis between 'transaction, governance and resource particulars' echoes Williamson's (1981b) opinion. Williamson's (1985) revised question about how exchange relations can be structured to maximise transaction value fits directly with Coase's (1998) rejoinder that the firm's purpose is running a business.

The distinction between economic analysis and business strategy is blurred by a number of authors such as Poirot (2002) who criticise NIE, an economic theory, for not providing guidance on how particular strategic paths emerge or how real change comes about. In the final case study of this research PAR as a method provided an effective bridge between the economic analysis and individuals in the various organisations who were charged with making informed strategic decisions.

7.3.4 *The importance of participation*

One of the strongest findings of this research was of the importance of participation, which revealed itself in a number of ways. At the beginning of the research, there was no particular indication that participation would be a concern. In the first case participation was not an issue because FinanceCo was keen to find out the results of the study, so the major effect that lack of participation would cause in the second case was

unexpected. It had been assumed in setting up the RetailCo assignment that the mandate from senior executives in ConsultCo and SoftCo would be sufficient for the study to proceed as an AR project. However this in itself did not lead to participation within the project. Participation had to be sought at all levels through negotiation and persuasion, and it was this that led to the use of PAR for the final case.

The importance of participation is associated with the complexity of the situations studied. It was difficult to appreciate the full significance of the case study findings without understanding their context and this could only be achieved by participants and researcher engaging fully and jointly with the problem at hand. In this way the combination of NIE as a conceptual tool providing a holistic view and PAR as a participation mechanism brought an answer to the research question of being able to use NIE as a management tool. The second case demonstrated that NIE could be used as an effective tool for investigating and analysing RetailCo's complex IT programme for the transformation of its business. However that in itself did not guarantee that the organisations involved would value the findings, since they were difficult to appreciate without having participated in the investigative process, and translating them into action required further effort and commitment. By contrast, the focus on participation in the final case study meant that commitment to action was tested at all stages of the process, and where it was lacking remedial actions could be put in place.

The time taken to achieve participation should not be underestimated. In the final case study this was facilitated by the researcher's dual role as an external consultant and researcher. The role as external consultant took the researcher outside the organisational hierarchy and politics and made it possible to work simultaneously at many different levels in the organisations involved. The role as researcher made it possible to raise questions and challenge assumptions in a non-threatening way by using the theoretical model to support the need to discuss contentious topics.

7.3.5 *Neither NIE nor PAR should be approached lightly*

Both NIE and PAR require considerable knowledge, skill and commitment if they are to be applied effectively, and NIE in particular requires disciplined experience in using complex theories. NIE as a theory is wide ranging but loosely defined, making it necessary for the practitioner to find their own way of interpreting it, and of deciding which elements of the theory are most relevant, in a particular organisational context.

This is characteristic of the early stages of theory building in management research (Carlile and Christensen, 2004). Each part of the theory leads to a different perspective. The researcher failed to find a general normative theory which would determine which part of the theory had most relevance in a given situation, even despite reviewing many theoretical and empirical studies, although this possibility has not been discounted and is recommended as an area for further research. From a constructivist perspective this is a strength in that NIE did not prefer any one viewpoint, but it does make NIE demanding of the researcher's cognitive and analytical skills.

In contrast PAR as a method is demanding of a researcher's interpersonal and facilitation skills and requires that the researcher stay engaged with the process and participants in the case setting for an extended period of time. The level of commitment needed also puts significant demands and expectations on the researcher's own organisation. This is evidenced by prior cases (Whyte, 1991) and the experience of the final case study which was consistent with those accounts. This makes the combination of NIE and PAR doubly challenging, but since both are appropriate to technically and organisationally complex situations requiring deep understanding and analysis the combination does become very powerful.

There were practical difficulties in using NIE. Determining the appropriate units of analysis in each case was a matter of trial and error, although the experience of the last case in particular suggested that analysis should be undertaken at each of the four levels of the theoretical model. Neither was interpreting NIE concepts trivial. For example deciding on 'the contract', 'the transaction', or 'the technologically separable boundary' were not easy questions to answer, and formed part of the analysis of each situation.

This finding suggests that the full strength of NIE combined with PAR will only be used rarely, and then only in situations where organisational and technical complexity demand powerful analysis tools, as with the examples from the construction industry identified by Brockman (2001) and the final case in this research.

7.3.6 *NIE provides a powerful descriptive theory*

NIE is a broad ranging theory drawing on three separate bodies of literature – economics, contract law and organisation theory – in its holistic view of an institution. NIE is not well-defined in the literature so a conceptual map (Appendix B) was

produced to illustrate relationships and connections between NIE concepts to make it easier for the researcher to decide which concepts to use and when. Prior empirical studies were listed (Appendix A) to make it easier to identify previous studies which might have a bearing on the situation at hand.

Although this research stopped short of producing a normative NIE theory, the competence development process was found useful as a normative theory for building expertise. This process, which was used to guide the progress of the proof of concept projects in the final case through cycles of action and reflection, developed into an e-business management approach of 'strategy as learning' which provides a sixth phase of IT strategy formulation for Burn's (1993) typology (figure 2, section 2.5).

7.3.7 *Theoretical model provides an integrative framework, not a complete theory*

Reviewing the interview transcripts, and progress through the case studies, indicated that the effective cognitive level of the management team, in terms of their ability to work with abstract concepts, was important. NIE concepts, even in their interpreted form, were more accessible to those who were familiar with using and discussing abstract concepts. A general distinction was observed between those who work with the full complexity of enterprise-wide IT systems, such as technical and enterprise architects who are generally used to working with abstract concepts, and those who are more concerned with concrete aspects of running the organisation as a business. One of the strengths found with the theoretical model was that it provided a single integrative framework which spanned these different perspectives, and that NIE concepts at the four different levels, as shown by the conceptual map (Appendix B) and described in the glossary, could be readily interpreted into the language of each. It is recognised that this was only achieved after the initial case study and after the researcher had gained fluency and experience in interpreting NIE concepts, and that this is a limitation. The separation into four levels, which reflected different management and operational perspectives within the organisations being analysed, made it easier to turn to alternative models and theories, such as RBV (Afuah, 2000) and IC theory (Edvinsson and Malone, 1997) in the first case, and industry standard tools like ITIL (Cartlidge, 2004) in later cases, for specific analysis at each level where these provided greater detail than NIE.

7.3.8 *Was this the right research question?*

An unanticipated finding of this research was that in some respects it was asking the wrong question. NIE's concern with alternative forms of governance in TCE and the separation of ownership from execution in AT made it unsurprising that it was easier to apply in the second case study than the first. What was not expected in this second case was the importance of participation, and it was this finding that led the researcher to consider whether this research was addressing the right question. NIE's complexity made it difficult to apply in the first two cases because of the need to develop sufficient researcher familiarity with its concepts. As the research progressed it became increasingly evident through reflection that the effort involved in learning NIE is a significant barrier to its use. Also, in the first two case studies the original intention had been to work closely with managers, introduce specific concepts to them and explore how they could use them. However the need to use the interviewees' language and existing mental models to keep the interviews open and flowing precluded this approach. Their reluctance to use unfamiliar language to express theoretical ideas suggested that an alternative research question investigating why NIE is not commonly used by managers might have led the researcher more directly to an understanding of challenges involved in applying NIE to practice and the importance of participation.

8 CONCLUSIONS

8.1 Research conclusions

This research applies theory to practice through a series of action research ‘intervention experiments’. It explores the use of New Institutional Economics (NIE) for strategic e-business analysis by investigating whether conceptual tools based on NIE can assist e-business related strategic decisions. The question of whether NIE is applicable to e-business in this way is challenged by null propositions that:

NIE cannot be used as a conceptual framework for managers making decisions relating to e-business, and

NIE exposes no new insights when used to inform e-business related decisions.

The first proposition is accepted. It would appear from the research that NIE is too complex and challenging to be learnt and applied by managers when making day-to-day decisions related to e-business. However, the second proposition is rejected on the basis that using NIE can expose new insights when used to inform e-business related decisions. Furthermore, the final case study strongly suggests that the combination of NIE, the research approach based on action research (AR) experiments, and the case study method using participatory action research (PAR), offer a powerful combination for analysing and informing large scale e-business change. This latter conclusion was not expected at the outset of the research.

The role of NIE in e-business related decision-making is not without limit. Although NIE can play a role as a conceptual framework in the context of strategic e-business decisions, the research indicates that it is not universally applicable. NIE can be used as a framework for deep economic analysis of an institution, providing a descriptive theory for analysing and understanding institutions and their relationships within an economic system but, since no normative model was found for determining what should be done, the use of NIE informs rather than drives business strategy. The framework on its own is not sufficient, and relies on a knowledgeable, skilled and experienced practitioner as a facilitator together with the use of a participatory method, such as participatory action research (PAR), to secure access to rich information. It was not appropriate within this research to develop ways of teaching managers about NIE so that they could carry out deep analysis for themselves, because they did not have an immediate and continuing

need to carry out deep strategic analysis. This indicates that the combination of NIE and PAR is more appropriate for specialist consultant/facilitators who build expertise in particular areas than it is for general business managers.

The main academic and practical conclusion of this research is, therefore, that it is possible to apply NIE to powerful effect in some technology rich contexts, but that it is far from trivial to do so:

- NIE can perform a strong role within a theory of the firm where there is a need to understand the underlying economic model.
- The context should encompass a ‘whole system’
- Practitioners should consider the use of other simpler methods and theories in preference if they are sufficient.

A further conclusion is that successful application requires a combination of:

- The theory, articulated in the form of a theoretical framework
- A participatory method, since the application of the theory depends on having access to deep and rich knowledge about the organisation
- A skilled and committed practitioner, knowledgeable in the theory, its previous application to practice, and with experience of applying it
- Committed participants, with in depth knowledge of the local context and the desire to work through the implications of transformational change.

Applying the theory to practice highlights a number of other considerations. Researcher knowledge was developed through the initial case studies and through reflection on them, but was found to be insufficient without a method of applying the theory to practice within a particular context, provided here by the case study method derived from PAR. Although traditional forms of top-down AR were considered, PAR was found to be better aligned to the constructivist paradigm because of the need to work at multiple levels in the client organisation. A further consideration is the importance of identifying suitable case situations. The fourth case was particularly relevant, with its deep-seated changes to the economic model. The way that the number and nature of transactions could alter dramatically as a result of far wider use of IT resulted in very

different assets, and new organisational boundaries associated with changes in governance structure, being needed.

These conclusions demonstrate that NIE can be used as a tool for investigating, analysing and interpreting complex e-business situations, but should be accompanied by a participatory method, such as PAR, for the analysis to lead to concrete action.

A dissemination strategy to communicate the findings of this research started with the publication of interim findings (Ellis, 2004) and continues with this thesis. There is evidence of ongoing change resulting from the final case study. The white paper (Ellis, 2003) resulting from the final case study has since been distributed by the government organisation 'Partnership for Schools' as part of its advice to schools and other organisations in the £45 billion UK national programme known as 'Building Schools for the Future' (Bibliography – DfES, 2003a) which is intended to transform school age education in England and Wales. SoftCo has subsequently formalised its strategic relationship with Kent as a "transformation showcase" and appointed a "transformation showcase" director.

8.2 Research process

One of the major challenges in this research was to manage the researcher's many different roles, and in particular the duality between the primary, post-positivist critical realist, research stance for the overall process of the experimental research and the secondary, constructivist, role that was found necessary within the individual case studies. As the research progressed, separating these roles became more difficult to achieve as the researcher became deeply involved in the case studies and less able to observe the results of the cases objectively. To address this conflict, the researcher took guidance from qualitative clinical research and Miller and Crabtree's (2000) "many-eyed model of mediation" where "qualitative clinical researchers need to learn the discipline of seeing with three eyes – the [clinical] eye, the inward searching eye of reflexivity, and a third eye that looks for the multiple, nested contexts that hold and shape the research questions." The researcher found that he had a choice between reverting to a purely post-positivist approach to the research question, or staying with the planned case study based approach and developing skills in Miller and Crabtree's (2000) "discipline of seeing with three eyes". The researcher chose this latter course but the choice did have implications.

To learn this discipline took the researcher on a painful and time consuming journey through five of Denzin and Lincoln's (2000) seven "research moments". During the literature review the researcher's philosophical stance had been of the "modernist" era, centred around post-positivist arguments, but the process of going through the case studies challenged this. The interpretive challenges of the first case took the researcher into the eras of "blurred genres" and critical interpretation. In the second case the researcher felt the "crisis of representation" as he struggled to find a satisfactory way of representing the qualitative case situation and the research role adequately. Attempts to describe this case using the story-telling of the "post-modern" era led the researcher from a foundational stance, via quasi-foundational, to an anti-foundation stance of constructivism and the "post-experimental" era. This final stance for the case studies actually made the duality of the primary and secondary research roles easier to resolve. The primary stance of post-positivist critical realism and secondary constructivist stance were so different, not being commensurate (table 5), that a conscious effort was needed by the researcher to switch from one to the other.

This conscious effort became invaluable for mitigating the researcher's potential bias in the primary researcher role when interpreting the findings of the case situations. At the end of each case situation the researcher in his secondary, constructivist, role had to form an opinion from that constructivist perspective on whether the use of NIE and its concepts had been useful in helping the participants achieve their desired outcomes, authenticating that opinion and establishing its trustworthiness by reference to evidence co-generated with the participants. The research analysis and findings (chapter 7) reflect the secondary role.

The researcher, switching consciously to the primary role, could then in principle interrogate that opinion from the point of view of the sceptical post-positivist critical realist and form a separate opinion on the credibility and reliability of those case findings. These conclusions (chapter 8) reflect the primary role. However it was only after a significant period of time and reflection away from the case situation, and going through the process of analysing, writing up and reviewing the case studies, that the researcher found it possible to become sufficiently distant from the case situations to become fully impartial.

The need to play multiple roles of consultant, participant-observer and research instrument within the case studies presented a further conflict because there was no clear separation of philosophical stances and at times the researcher had to switch back and forth between roles. To some extent the researcher could use physical location to help separate these roles by acting as a consultant, participant or research instrument when on site with the client and allocating specific time away from the client site for engaging specifically in the reflective observer role. This was not always possible but did help to develop the mental skills needed for the “many-eyed model of mediation” which was needed to separate the consultant role sufficiently from that as participant-observer researcher, and to separate the researcher’s primary and secondary roles.

8.3 Assessment and limitations

Hoskisson et al (2000) raise specific concerns about making research applicable. In response, this research is theory-based in its use of NIE, a theory which has wide previous application in organisationally complex settings, and context rich in its use of a selection of practice contexts. In the final case study, the theoretical framework developed through this research was shown to be meaningful in addressing real problems with senior practitioners involving both commercial and public sector environments. It is recognised that the research is limited by being primarily directed at western, developed economies and has been applied to few case situations.

Academics doing theory-based empirical research normally strive to develop parsimonious theories with a limited number of variables that explain phenomena across a wide range of organizations, settings and contexts, whereas practitioners desire rich prescriptions to be applied in their specific situations that capture the uniqueness and complexity of their own organisational settings (Daft and Lewin, 1990). This dichotomy was felt throughout the research process, with a constant requirement to balance the needs of the research against the needs of the participants, and led to the use of PAR in the final case study, driven by the need to engage more deeply with the participants. Concerns around PAR’s acceptability as a research method are offset by the fact that PAR is used as a case study method within the broader overall research design. Concerns about relying on the researcher as an interpreter between NIE and the practice setting remain, and indicate a need for further research which repeats the approach, but with other facilitators. A fundamental question about the authenticity of

the results was whether the participants should judge the value of the co-generated knowledge, or scholarly researchers who understand the research process, but do not have the same depth of understanding as the participants of the specific organisational context within which the research was carried out. In the case of research which seeks to apply theory to practice, both academic and practitioner audiences need to be satisfied. The real test of authenticity with PAR, in the final case study, was whether the participants believed in and fully subscribed to the co-generated knowledge.

Lewin developed quality criteria for judging a theory based on its ability to support practical problem solving in real-life situations (Greenwood and Levin, 1998):

“In action research, we believe that the way to ‘prove’ a theory is to show how it provides in-depth and thorough understanding of social structures, understanding gained through planned attempts to invoke change in particular directions. The appropriate changes are the proof.” (Greenwood and Levin, 1998)

Nonetheless “such an approach does not excuse ... constructivists from striving for theoretical clarity and methodological rigor in their analyses” (Checkel and Moravcsik, 2001). In this research, theoretical clarity derives from the use of NIE as a conceptual model, and methodological rigour derives from the use of a research approach based on recognised scientific process as described by Greenwood and Levin (1998). Rigour within the individual case studies is limited by the use of AR and PAR as case study methods. It is recognised that, although they are accepted as research methods in other fields of academically based professional practice, their acceptability as research methods continues to be debated in the social science field of management research. PAR in particular is challenged. The main question is whether it is defensible as research. For a constructivist, it provides a way of achieving in-depth engagement with the members of an organisation, but the method used must involve the generation of a contribution to knowledge if it is to be classed as research and not just action or participation (Denzin and Lincoln, 2000).

The final case study, which demonstrates that a knowledgeable, skilled and experienced practitioner can apply NIE to the full uniqueness and complexity of a specific organisational setting if used with PAR, provides such a research contribution with immediate and very real value to practice. The case study method using PAR and participant observation connect well to the constructivist paradigm providing rich and

multiple perspectives on the case situation, but does mean that with a range of conclusions derived from individuals' differing life worlds (*lebenswelt*), there is no single 'correct' conclusion. A significant subsequent challenge for the group, with the researcher as facilitator, was in reconciling different conclusions to present a sufficiently representative single view of the co-generated knowledge (Ellis, 2003). This published single view was created for commercial rather than academic purposes and is authentic to the participants rather than being academically rigorous. The earlier case studies are more limited, so are better described as pilot studies. They were used to develop and refine the case study method, so were less well defined, and had limitations.

Lack of participation within the second case study exposed a need to understand the research concepts of control and voice. In the expert research model all authority over, and execution of, the research is controlled by the expert researcher. In PAR, authority over and execution of the research becomes a highly collaborative process between expert researchers and members of the organization under study. It was the research decision on control and voice which ultimately demanded the use of PAR for the final case study. This case considered social improvement, not just efficiency improvement, and raised many questions about the roles of researcher, research and other social agents of change in the enhancement of the human condition, concerns also raised by Denzin and Lincoln (2000) about phenomenological research. It also raised basic questions of professionalism and the responsibilities that it brings which were far beyond the scope of this research.

For practical reasons, and the need to understand close-up whether the theoretical model could be used as a conceptual model, the researcher used himself as the research instrument, using participant observation and reflective practice as research tools. These raise their own challenges and concerns. By becoming a member of the group to be studied the researcher can achieve a higher level of understanding of their behaviour, feelings, values and beliefs. However the research intention with PAR, which is specifically to use a conceptual model to influence events, means that the participant-observer researcher has to be able to switch between roles with an emphasis on participation and advocacy at one time and an emphasis on observation at another. The researcher's responsibilities make the use of reflective practice critically important as a tool for escaping from being a participant into an observational and analytic role. The researcher also drew informally on the method of clinical supervision, a method which

is well established in other professional disciplines such as counselling and nursing (Ooijen, 2000), although this was limited by organisational circumstances within SoftCo. This limitation was a direct result of choosing to reduce company reputation effects on the research results by carrying out the research from a company which does not typically work in the consulting field of strategic change.

The responsibilities of participation may mean that the research has to be put to one side if the organisational circumstances demand it. This is in line with established scientific protocols where theory is put to the test, as for example with drug trials where the well-being of the patient is paramount. In the third case the research had to be put to one side when the researcher's role changed to take a leading role with a particular bid, making it inappropriate for the researcher to maintain close involvement with SoftCo's bid governance team. As a result the third case was less complete than it might otherwise have been.

The participatory approach with the researcher as research instrument does leave the results of this research open to challenge. It is not clear to what extent the results are dependent on the specific consulting and technical skills of the researcher. The fact that NIE has been used successfully in one case situation by a particular researcher does not prove that it can be used elsewhere, a view reinforced by the experience of others who have used PAR successfully in one situation yet have failed to get sufficient participation in another. Use of a different facilitator was beyond the scope of the current study but should be explored through further research.

The finalised research protocol combined formalised and ad-hoc activities. Semi-structured interviews based around the theoretical framework were complemented by informal and often ad hoc communications such as email, telephone and meetings. This made it challenging to maintain sufficient rigour. Rigour was sought through contemporaneous transcription and subsequent analysis of notes from these various forms of communication, and reflective practice to interpret events as they unfolded, but at times this was delayed by a commercial requirement to follow up practitioners' issues quickly.

Finally, the researcher believes that this research does largely meet the eleven characteristics of qualitative research design recommended by Janesick (2000). The case narratives, as an authentic, although partial, record of what occurred and the views

of the participants, demonstrate that the research is holistic, looking at the larger picture and searching for understanding of a whole. The research was not constructed to prove a point, or to control people, but to explore whether NIE could fill a perceived gap in knowledge about managing e-business. It certainly looked at relationships within systems and cultures, focusing on understanding given social settings without necessarily making predictions about those settings. In line with Janesick's view, the researcher spent time through each case study on reflective practice, and on sharpening his skills of observation and face-to-face interview. This meant staying in each setting for a period of time, and then spending significant time in ongoing analysis using the theory to develop a model of what occurred in that social setting. One caveat is that the researcher's role is not discussed in detail within the case settings which means that the researcher's own biases are not drawn out strongly, although ideological preferences are stated through the constructivist stance.

In summary, this research does not guarantee that the combination of PAR and NIE will necessarily be successful in another situation, but has shown that NIE can be used as a conceptual model for e-business analysis with PAR providing a case method.

8.4 NIE as a way of thinking

The methodological approach using NIE that was developed through this research has now become a natural and integral part of the way the researcher approaches new case situations involving strategic change. In respect of economic performance, each situation is considered in terms of the economics of exchange as well as the economics of production. It is also considered in terms of whether there is a discriminating and effective alignment between "execution" representing production and exchange within the network of organisations involved, the "capabilities" of those organisations in terms of their specific assets, the "governance" structures which assure economic effectiveness throughout the network, and the boundaries of "ownership" and associated property rights which determine how economic rents from the productive effort are distributed. These are then assessed against a question whether there is an imbalance between the economic rents appropriated by principal and agent, working assumptions that bounded rationality and opportunism exist, and whether the nature of the contracts within the network is significant. In this respect, the researcher has found that NIE provides a specialist language which can be used for describing and thinking about complex case

situations such as those in the second and final case studies. The method as developed through the case studies provides a specific way of using this language.

8.5 Contribution to knowledge

There is a *prima facie* case for research which applies theory to practice. Lincoln (1998) has identified a shift in social research, beyond interpretation and understanding (*verstehen*) towards social action, and constructivist and phenomenological models, in response to a widespread non-utilisation of evaluation findings and a desire for forms of enquiry whose recommendations can be converted into meaningful action plans. This research follows the trend, taking an established scientific approach (Greenwood and Levin, 1998), and applying it to the social science of management through AR intervention experiments, and so makes a methodological contribution to knowledge by demonstrating how complex theory can be applied to the rigours of management practice.

In addition, this research make a theoretical contribution in applying NIE to strategic analysis of e-business in a context of transformational change. Many studies apply parts of NIE, with most concentrating on transaction cost economics (TCE). Ghoshal and Moran (1996) comment on the extent to which TCE had become important for the analysis of strategic and organisational issues of importance to managers. This research takes that idea forward by demonstrating similar value from the wider theory represented by NIE, and shows success with the wider theory which offsets Foster's (2000) concerns that TCE is a theory suited to economists and economic policy makers with limited relevance to business strategy. However, the results from the case studies do reflect Ghoshal and Moran's (1996) concern arising from the common use of TCE which fails to recognise that organisations are not mere substitutes for structuring efficient transactions when markets fail. It supports their view that organisations possess unique advantages for governing certain types of economic activity through a logic very different from that of the market. Including agency theory (AT) in this research, by using NIE rather than just TCE, brings a theory that is much more attuned to Ghoshal and Moran's 'organizational economy'. Also, using TCE and AT together leads to insights that would not be achieved with either on its own, challenging the *ceteris paribus* assumptions of so many quantitative TCE studies which only consider a

limited number of concepts, even from TCE, and do not explicitly control for the influence of AT concerns.

An empirical contribution is demonstrated by showing that NIE can provide a powerful conceptual framework when applied, in combination with PAR as a behavioural method, to the deep economic and strategic analysis of e-business. However, since both NIE and PAR require deep knowledge and skill and the case study method depends on having a knowledgeable and experienced facilitator for its effective use, the approach is suited to use by specialist consultants rather than by general managers. The requirement for deep and detailed knowledge makes NIE unduly sophisticated for less challenging situations, which suggests why NIE is not widely used.

This research makes an indirect theoretical contribution to IT strategy formulation. It explores NIE as a strategic framework in the context of Burn's (1993) typology, and shows that deep knowledge in the form of NIE, strong tools in the form of PAR, and a method of using them based on AR intervention experiments to learn and progress, can be used to handle the full richness of the relationship between business and IT in e-business transformation. This means that Burn's (1993) typology can be updated and extended with a new phase of information technology (IT) strategy formulation, 'strategy as learning' (figure 44).

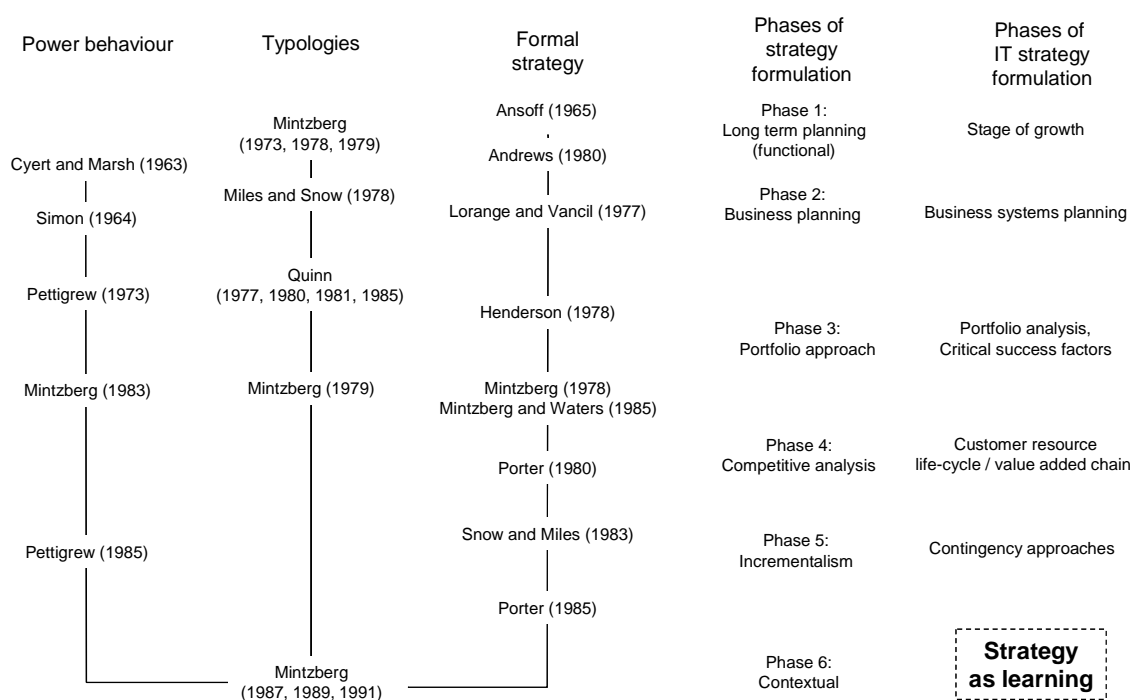


Figure 44: Typology of approaches to strategy (after Burn, 1993)

Finally, McCloskey (1998) contends that many have missed the point that Coasian economics centres around what happens in cases where transaction costs cannot be neglected in institutional analysis. Coasian economics assume a real world where, for example, not all relevant prices and costs are known, and getting the entitlements right is often difficult. This research has explored that real world and demonstrated that NIE can realistically be used, but that it is non-trivial to do so.

8.6 Recommendations for practice

It is a recommendation of this research that managers, and management advisers, consider the level of theoretical and practical knowledge that they need to manage an e-business if it is predicated on a different economic model from the original business. They should judge whether standard management models and traditional micro-economics are sufficient for their needs, or whether they need a more wide-ranging theory that is also concerned with law and organisation. Those who do not have sufficient knowledge to judge this for themselves have two main courses of action. They can engage in management training to gain sufficient knowledge, or use a professional adviser who does have sufficient knowledge. This repeats the TCE governance question of whether to develop capability or to buy it from the market, with implications for transaction costs. Developing capability takes time and effort, whereas buying it from the market is quicker. However buying capability does incur searching, monitoring and policing costs, and is likely to introduce agency risks. At present, there are few advisers with knowledge of NIE, and of how to apply it to e-business. Thus a further recommendation for practice is that e-business advisers who are involved in transformational change should familiarise themselves with NIE, and how it can be applied, so that they are in a position to judge for themselves whether it is necessary or appropriate as part of their professional knowledge.

Working directly, and in depth, with participants raised questions of what could be assumed as a body of management knowledge when dealing with individuals across different organisations. As more businesses become e-businesses and critically reliant on complex IT systems, managers and their advisers need to be able to debate, in depth, the issues and challenges facing them. This debate can be strengthened by using a rich language with well-defined concepts. This research shows that NIE has the potential to fulfil this role.

The final recommendation, which is potentially the most significant, is that the methodological approach using AR intervention experiments appears to have merit as a practical way of achieving large scale transformational change if PAR is used as the method with NIE providing a conceptual framework.

8.7 Further research

Carlile and Christensen (2004) describe a process for theory building in management research, derived by reviewing and synthesising much existing work on the topic. In their view theory building has two major stages – the descriptive stage and the normative stage. This current research explores NIE as a descriptive theory, and exhibits a cycling around each of Carlile and Christensen's (2004) three steps in the building of descriptive theory – observation, classification and defining relationships – as can be seen from the case studies and the NIE conceptual map (Appendix B). Carlile and Christensen (2004) discuss how theory can be advanced by seeking anomalies in the research domain, as in the current research where PAR is adopted in place of AR as a case study method because of the 'anomaly' represented by a lack of participation.

This current research is a step along the path towards wider practical application of NIE. It has demonstrated that the theory can be used to advantage, but that further research is needed to determine the organisational conditions under which it should be applied, and whether management researchers and consultants can realistically be educated on the theory and taught to apply it. In Carlile and Christensen's (2004) model, this next stage of research consists of developing a normative theory.

In the absence of this normative theory, other complementary management tools were used with the case study organisations to take the strategic analysis into action. Research is needed to determine the best way of achieving this, which tools are most appropriate, and whether a normative theory based on NIE is possible. Meanwhile, further research is also needed on the facilitator skills needed to apply NIE through PAR, the conditions under which it is applicable, and the extent to which the findings of this research are specific to the case situations and this researcher. Some of these could be achieved by repeating this research with different organisations and different facilitators to establish whether the same degree of success as in the final case study can be achieved with another organisation, and whether it can be re-created with another facilitator with different skills.

Other ideas for further research include investigating the impact of the researcher as interpreter between NIE and the practice setting, investigating more specifically why NIE is not commonly used by managers or their advisers, and investigating whether other conceptual frameworks, such as Neumann's model (1994), or other variants of institutional economics like Veblen-Commons (Williamson, 1996c), could be used as an alternative to NIE.

Finally, Pitelis' (1998) criticisms that NIE lacks history, dynamics and historically informed perspective have not been directly addressed, so there remains an opportunity for further research to investigate whether these concerns could be alleviated in a practical sense by linking PAR more formally with NIE.

8.8 Reflections on this research

“A profession meets public needs that are vital, by attaining knowledge which is furthered by research and skill that is above the ordinary. But mere competence does not distinguish the professional in the eyes of the man in the street; it is not skill that wins public trust but something that is harder to define.” (Baly, 1980)

In considering whether the theory could be used to improve management practice, it became clear that there is no accepted definition of 'normal management practice'. This meant that it was not possible to assume a base level of understanding on the part of interviewees and participants. E-business information systems, which are generally complex, can create far-reaching consequences if they do not perform adequately suggesting that criteria of professionalism should be applied to e-business management, particularly in the context of e-government and its impact across a wide population. As such technical subjects become more esoteric and their sciences more unintelligible, even to the educated lay person, it is not clear how a client can be convinced that their own individual good is not being sacrificed to other interests. As progress towards greater specialisation renders the lay person more vulnerable, clients need to be sure that they can trust their professional advisers to act for their individual good.

Parallels can be drawn with the practice of medicine. The subject of medicine is too complex for the lay person to reasonably understand. Doctors study to understand this subject to a depth that enables them to carry out specific interventions on behalf of a patient, interventions that may put the patient's very life at risk. Society allows doctors

to practice on the understanding that they will at all times endeavour to act in their patient's best interests, even though the patient is not able to judge whether this is the case. In return for this licence to practice, doctors have to maintain a body of knowledge and evidence that will enable them to practice effectively and deliver outcomes that are acceptable against the standards of current practice and, as professionals, have a personal responsibility to ensure that they are competent to practice and to know the boundaries of their area of competence.

The creation, implementation and operation of information systems is now a subject that is too complex for the lay person to reasonably be expected to understand in detail. In this context, the lay person may be taken to include general business managers. Perhaps it is now time to require a level of professionalism in the management of IT intensive businesses, so that those who are dependent on these businesses know that anyone involved in a management capacity takes responsibility for acting professionally at all times and for looking after the lay person's best interests. This requires a maintained body of knowledge and evidence that will enable them to practice effectively and deliver outcomes that are sufficient against accepted standards of current practice whilst always striving for excellence (Denzin and Lincoln, 2000). This body of knowledge will need a language with which a lay person can communicate with the professional to indicate what outcomes are desired and how they might be measured, even without the lay person understanding the details of how those outcomes will be achieved. At the heart of such a language will be a collection of commonly understood concepts and relationships, a cognitive framework. Although NIE as a theory is not generally recognised, it did provide a language for discussing many issues which arise in e-business, particularly those involving transformational change to the underlying economic model. The experience of this research demonstrated that NIE's many rich concepts and ideas can, although they are not generally familiar, be used to good effect in thinking through some complex situations, if they are used as a working language. However, it did appear that trying to define them in detail in the language of the case context too early in the process of investigating a particular situation risked losing NIE's strengths as a descriptive theory.

It is, perhaps, not surprising that this research, as it progressed, drew ever more similar to clinical research as practised in the medical field, and as characterised in the nine

premises of Miller and Crabtree's (2000) qualitative clinical model of mediation which are paraphrased here.

This research is centred in a clinical world of management practice, and focuses on a question which arose there. It acknowledges what already exists of value and, seeks to highlight what is missing, holding quantitative objectivism in one hand and qualitative revelation in the other. It continues a historical path, acknowledging traditions from information systems and management practice settings, is participatory, and implicitly celebrates anomalies as levers for transformation. "Truth" is emergent, not pre-conceived. Finally, the researcher, who sought to demonstrate humility and patience, shaped the research to respect the need for coherence voiced by participants and meet the oft-repeated management plea for clinical action.

This research has been a challenging personal journey, and it has taken me to some unexpected and fascinating places. I have explored the research process in ways that I did not expect, and have had my own fundamental beliefs and values challenged. I certainly did not expect to find myself adopting a constructivist philosophy, and yet I now find it a natural way of viewing my working world. So much so that I find it difficult to remember how I viewed that working world at the beginning of the research. I also find it hard to remember why the project which initiated the whole process was so challenging and realise how much I have since learnt.

Finally, the real practical benefit that I, as a researcher and practising e-business consultant, have achieved from this research is having a conceptual framework that provides me with access to an extensive body of knowledge around economic, organisation and law, and enabled me, in a practical way, to bridge the chasm between the worlds of IT and business in e-business.

APPENDIX A Summary of empirical studies

Many of these are as cited by Shelanski and Klein (1999) or by Rindfleisch and Heide (1997). The relevance of these studies to the case studies in this research is indicated by the annotations (1), (2), (3) and (4) which refer, respectively, to the four case studies.

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Acheson (1985)	Complex contracting and 'hybrid modes': Informal exchange relations	Long term bi-lateral relationships	Maine lobster market. Large number of small, specialised firms which have established long-term bi-lateral relationships	Opportunism, lack of vertical integration, long-term bi-lateral relationships (neither market nor hierarchy). Risk, uncertainty, volatile prices and catches. Negotiations, agreements, prices, market power	Illustrates complicated network of social and commercial relationships. Complex value chains and dependencies. Web services could lead to complex network of service relationships between smaller organisations in complex and changing value chains. Trade off between short term and long term decisions (2)
Afuah (2001)	Vertical integration in face of technological change	TCE and knowledge based view of the firm	Computer manufacturing - adoption of reduced instruction set computing (RISC) technology	RISC technology, high uncertainty. Boundaries between organisations.	Evidence that research topic is already being explored. Questions whether firms that are integrated into a new technology perform better than those which are not. Highlights the need to pay attention to the impact of technological change on firm boundaries. Uses both TCE and resource-based view (1), (2), (4)
Alles et al (2002)	Feasibility and economics of continuous financial assurance vs continuous auditing	Continuous assurance, real time audit, payment infrastructure	Audit, accounting profession	Capturing transactional data, monitoring and analysing it, communicating the outcome of the analysis. Stakeholders, monitoring, transactions	Potential change from annual to real time accounting. Assurance is potentially valuable for a far wider set of transactions and stakeholders than are currently served by mandated financial statements. Flags up the potential of a substantially different business model for auditing and financial assurance enabled through IT and the capability to record/monitor transactions in real time. (2), (4)
Alston et al (1984)	Complex contracting and 'hybrid modes': Land tenure agreements	Contracts, supervision costs, opportunism	Land tenure agreements	Develops, explores and tests mathematical model	-
Alston and Higgs (1982)	Complex contracting and 'hybrid modes': Land tenure agreements	Contracts	Land tenure agreements	Contractual 'mix' and risk. Wage contracts, crop sharing agreements, fixed-payment contracts. Form of contract determined largely by ability/willingness of parties to supply capital, provide supervision, or assume risks	Nature of service contract between economic actors. Quantitative analysis of complex contractual mix demonstrating challenges of quantitative approach. (4) Tight labour markets, increasing enforcement costs, worker's opportunity cost of honouring full terms of contract as alternative employment opportunities become more lucrative.

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Anderson (1985, 1988)	Performance effects of vertical integration, including forward integration into marketing and distribution	Asset specificity, behavioural and environmental uncertainty, transaction frequency	159 sales managers in electronic components industry. Sales force integration - sales function in-firm (vertically integrated) vs independent sales force (market contracting). Actual and opportunity costs of transacting under different governance structures.	Transaction-specific assets, difficulty of evaluating performance, environmental unpredictability. Unit of analysis is sales district. Transaction specificity of assets (company nature, products, confidential information, need to know accounts, customer complexity, customer loyalty, importance of key accounts)	Discussion of 'metering problem' - lack of clarity as to how well an agent performs may be more crucial to the issue of contracting than market unpredictability. (1) comparative assessment of using intermediaries vs direct employment, (2)
Anderson and Coughlan (1987)	Multi-national expansion and the structure of foreign trade	Asset specificity	Foreign market entry by US semiconductor firms	Service requirements affecting channel selection. Need for high level of service (pre or post sale) suggests channel should be integrated to ensure that service will be performed. Performing services can be specified in contract with independent entities but ascertaining whether the independent adheres to the contract can be difficult and costly. Would expect integrated channels to be used more often for products with high service requirements.	Discussion of integrating distribution. (2) (3) - discussion of competitive bids
Anderson and Schmittlein (1984)	Forward integration into marketing and distribution	Asset specificity, behavioural and environmental uncertainty, transaction frequency, transaction specificity of assets	Considers two marketing alternatives for electronics component manufacturer. 145 sales managers	Integration of marketing function. Question of whether firm can break even over fixed cost of integrated function (easy conceptually but difficult to express empirically). Size of firm shows strongest correlation with use of direct marketing approach.	Formulates marketing as a logistics function. Discussion of specialised vs unspecialised human assets. (1), (2), (3) relevance to IT outsourcing as IT becomes customer facing. Separates environmental uncertainty (unpredictability) from internal uncertainty (difficulty of measuring individual productivity)
Anderson and Weitz (1992)	Relationship specific investments - the use of pledges to build and sustain commitment in dyadic relationships	Idiosyncratic investments	378 manufacturer-distributor dyads among Fortune 500 companies	Provides model of commitment and pledges between manufacturer and distributor. Concludes that concept of pledging plays important role in creating and sustaining commitment	Exploration of concepts. (1),(4) - conceptual model of commitments and pledges

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Armour and Teece (1978)	Comparative study of organizational forms	Relationship between M-form structures and profitability (testing validity of Williamson (1975, chapter 8) which posits superior performance for particular organisational forms)	Multi-divisional organisations in the petroleum industry	Concludes that there are characteristics associated with M-form organisation that lead to superior firm performance	Quality of research strategy. Discussion of bias in empirical studies. (1), (2), (4) – relevance to multi-divisional (M-form), unitary (U-form) and networked (N-form) organisations. Adoption of different organisational forms.
Armour and Teece (1980)	Performance effects of vertical integration on technological innovation	Links between integration and research and development (R&D). Human asset specificity	US petroleum industry 1954-1975	Hypothesises that R&D expenditures are a function of firm size, liquidity, technological diversity and degree of vertical integration	Discusses merits and form of integration between different parts of production process (4)
Bajari and Tadelis (2001)	Theory of procurement contracts	Contracts, transaction costs, negotiation, incentives	Private sector construction industry. Compares with evidence from other industries including software and government procurement	Presents detailed mathematical model of contracting alternatives between cost-plus and fixed-price. Applies model to the make-or-buy decision	Important aspect of contractual arrangements is the ability to accommodate adaptation, creating trade-off between transaction costs due to changes and incentives to reduce costs (2), (3), (4)
Balakrishnan and Fox (1993)	Capital structure, firm ownership and governance	Asset specificity, firm heterogeneity, capital structure. Principal-agent conflict. Relationship between firm specific assets and capital structure	295 single business firms operating in 30, 3 digit SIC industries 1978-87	Information asymmetry between firm's insiders and outsiders. Modigliani and Miller (1958) assumes costless and symmetric information. Agency theory and debt. Propositions relating firm's leverage to investments in tangible and intangible (firm-specific or reputational) assets	Unique firm specific assets and skills are the most important determinants of capital structure. Managerial ownership and control are intrinsically related to agency and transaction cost issues (2)
Balakrishnan and Wernerfelt (1986)	Performance effects of vertical integration in the context of competition and technical change	Economics of integration, competition, transaction economics, specialised assets	93 manufacturing industries. Technological obsolescence	Presents mathematical model relating firm's integration strategy to competitive considerations, market transaction costs, bureaucratic diseconomies and technological instabilities	Presents and discusses a number of theories of vertical integration. (1) integration of value chain

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Barker and Chapman (1989)	Complex contracting and 'hybrid modes': Labour market contracts	Contracts, labour transaction costs, bounded rationality, opportunism, measurement, hostages and termination costs	New Zealand labour market contracts and regulation	Labour market contracts as transactions which involve the transfer of property rights over the use of resources and the income from that use	Discusses the practical application of NIE and relevance to the setting of government policy. Where contract termination costs are significant the mutual holding of hostages will be a means of enforcing the contract (implicit or explicit) (3)
Barney (1999)	Effect of firm capabilities on boundary decisions	Level of transaction specific investment	Rapidly evolving high technology firms	In TCE, governance is the mechanism through which a firm manages economic exchange and mitigate threats of opportunism. Firm capabilities do not play a significant role in traditional transaction cost analysis of boundaries.	Explores firm's ability to create capabilities in a cost-effective way, concluding that socially complex capabilities are generally beyond the ability of managers to change in the short term. Conclusion that under conditions of high uncertainty firms prefer to gain access to another firm's capabilities through longer term relationships (1), (2), (4)
Baysinger and Butler (1985)	Firm ownership and governance	Corporation law, theory of the firm	2,200 corporations tracked by Standard and Poor (S&P) in 1983	-	-
Baysinger and Zardkoohi (1986)	Analyse structure/ composition of board as an economic input for controlling decision makers	Corporate control and governance, property rights	Public utility firms	Composition of boards of public utility boards should differ systematically from boards of general industrial firms	Role of director as decision maker, controller, supporter or legitimiser. Role of board to protect equity investments, allocate resource, PR. Preparation for structured interviews (2), (4)
Bhattacharjee (1998)	Managerial influences on intra-organisational IT use	Principal-agent theory	Laboratory experiment using students	No evidence provided to support use of students in laboratory as proxy for managers in industry	-
Blackwell et al (1994)	Comparative study of organizational forms	Internal performance evaluation	Texas banks	Turnover of managers negatively correlated with accounting performance, internal promotions positively correlate	-
Brickley and James (1987)	Firm ownership and governance	Takeovers, ownership structure	891 US banks	No clear conclusions	-
Brinig (1990)	Complex contracting and 'hybrid modes': Informal exchange relations	Relationship-specific investment. Governance structure	Purchase of diamond engagement rings	Some evidence of engagement rings representing an extra-legal contract guarantee	Contrasting use of pledges to bind contract (2), (3)
Bucklin and Sengupta (1993)	Co-marketing strategies	Asset specificity, behavioural uncertainty, transaction frequency	98 co-marketing alliances	Organisational participants will judge commitment by the level of resource contributions made by partner firms, such as failure to allocate the expected management talent in numbers or stature	Informational asymmetry could be complemented by a governance power asymmetry (as with alliances between small and large organisations). Strategic relationships between organisations (1), (2), (3) particularly where they are of unequal size

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Burton and Obel (1988)	Opportunism, comparative study of organizational forms	Opportunism, incentives, M-form, U-form	Laboratory study, using computer model	Different use of managerial incentives may impact performance differences between U-form and M-form organisations. M-form less sensitive to whether incentive scheme encourages competition or co-operation	Has implications for encouraging co-operative behaviour in outsourcing contracts (2)
Butler (1983)	Comparative study of microanalytic control and governance structures	Workflow	Secondary data (early 1970's) from US aerospace organisation	Presents hypotheses around the relationship between service user and service provider	Microanalytic study
Butler and Carney (1983)	Vertical integration: Studies using multi-industry data	Make-or-buy decisions, transaction complexity and cost, uncertainty, cost of control, trust, substitutability	3 engineering industry case studies	Develops the concept of a managed market. Presents a transaction costs model around opportunism	Incomplete contracts, move from market governance to interdependence in multi-contractor projects. Transaction complexity, uncertainty and interdependence (2), (3)
Cable and Yasuki (1985)	Relationship between business groups, organisational structure and internal organisation	Internal organisation	Japanese multi-divisional firms	No significant relationship detected between M-form organisation and financial performance.	Describes M, hybrid (H), N and U-form organisations
Caves and Bradburd (1988)	Vertical integration: Studies using multi-industry data	Cross-industry measures of integration	Distribution shipments across 83 US industries	Explores roles of contractual and transaction cost factors, and need for industries to share intangible assets. Supports the role of persistent arm's length contracts	Highlights research design problem that possible forms of market organisation range from anonymous spot transactions to full vertical integration, across a variety of persistent market relationships between buyers and sellers. Highlights structural variety of market transactions. (1) (2)
Crocker and Masten (1988)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Contracts, special assets	Cost and limitations of long term contracts. Natural gas industry	Mathematical model of contract design and contract length	Formalised analysis of contract related behaviour. Design of service contracts (2)
Crocker and Masten (1991)	Price adjustment in long-term contracts	Public utility regulation. Contract as legal rules vs contract as legal framework	Public utilities. Long term natural gas contracts	View contracts as a means of establishing procedures for adapting exchange and resolving disputes rather than purely as incentive mechanisms	Value of considering alternative contractual approaches (4)
Crocker and Masten (1996)	Review of empirical literature on franchise bidding, contracting and vertical integration	Contracting, asset specificity, governance, institutional choice	Public utility regulation	Organisational form matters and that, depending on specifics of environment, some modes of governance will be preferred to others	Provides an overview of empirical literature relating to regulatory economics. Contract design. Directly relevant to determining preferred governance approach for supporting multiple companies bidding for government contract (3)

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Crocker and Reynolds (1993)	Complex contracting and 'hybrid modes': Price adjustment in long-term commercial contracts	Contractual incompleteness, opportunism	Air Force engine procurement	Prior opportunistic behaviour results in more complete contracts	Historical implications for contractual relationship. Analysis of defence contracts (3)
Datta et al (1986)	Complex contracting and 'hybrid modes': Land tenure agreements	Agricultural tenancy	Land tenure agreements	Mathematical analysis	-
Davidson and McFetridge (1984)	Multi-national expansion and the structure of foreign trade	International technology transactions, theory of the firm, governance	1376 internal and arm's length transactions, 32 US multi-nationals (1945 – 1975)	Mathematical model of probability of internal transfer. Identified systematic differences in characteristics of intra-firm and market technology transactions	Relevance of transaction mode to theory of the firm. Choice of governance alternatives (4)
DeCanio and Frech (1993)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Relationship specific investments. Complex vertical contracts. Asset specificity, opportunism	Natural gas. Transactions between well-head owners and pipelines	Magnitude of difference in prices caused by complex contracts is important for policy decisions	Discussion of risk of inefficient bargaining. Comparison of contract approaches in multiple bidding scenario (3)
Dnes (1992)	Complex contracting and 'hybrid modes': Franchising and franchise bidding	Contracts and hostages	15 case studies of private UK franchise contracts	Specific investments are protected by contractual devices against opportunistic appropriation	Understanding of franchise relationships as with FinanceCo (1)
Dutta et al (1995)	Use of plural distribution forms – in-house and independent sellers	Lock-in, performance ambiguity	199 representatives in electric-technical and mechanical industries	Transaction cost reasoning can be used to understand plural distribution forms	Understanding technology supplier's use of plural distribution structures (1)
Dutta and John (1995)	Competition as a safeguard	Level of buyer specific investments	120 students playing role of electrical transformer suppliers	Products requiring greater levels of supplier-specific investments are more likely to be licensed	Decision about whether to use laboratory experiments
Dwyer and Oh (1988)	Comparative study of organizational forms	Vertical integration, inter-channel strategies, governance structures	186 US hardware stores	Inconclusive results	Theory more useful for analysis than conclusions
Dyer (1997)	Relationship of transaction costs to relation-specific investments. Objectives to assess the extent to which auto-maker's supplier group was specialised to that particular automaker, and to measure each automaker's transaction costs associated with producing parts from those suppliers.	Transaction relationships. Site, physical and human asset specificity as types of transaction specific investments. Transaction costs incurred by automaker in managing transactions with outside suppliers.	Automotive transaction relationships in US and Japan	Asset specificity, transaction costs, opportunism Explores 5 propositions developed from exploratory study of 50 supplier-auto-maker transaction relationships in the USA and Japan and a mail survey of 156 suppliers. Question – what increases (decreases) the cost of transacting with suppliers (automakers)?	Governance set-up cost involves initial up front investment which creates safeguard which in turn influences ongoing transaction costs. Different safeguards are likely to have different set-up costs and result in different transaction costs over different time horizons. Governance 'set-up' costs incurred to create safeguard which governs the ongoing relationship, including costs of writing contracts, building personal trust, creating financial hostages and so on (2), (3).

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Eccles (1981)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Existence of quasi-firm. Governance structures, uncertainty, transaction frequency	26 home building firms	Need to consider internal contracting in a spectrum of governance structures	Alternative modes of governance (3)
Eccles and White (1988)	Effects of vertical integration: Performance effects of vertical integration	Price, authority, inter-profit centre exchange and transactions	Transfer pricing policy. 13 manufacturing firms	Comparison of mandated full cost, mandated market based, and exchange autonomy transfer pricing in multi-divisional firms	Informative discussion of internal pricing policies
Erramilli and Rao (1993)	Foreign market entry	Asset specificity, idiosyncratic services	Foreign market entry decisions of US service firms	Underscores the complexity and suggests that superficial examination of relationships could be misleading	Transaction cost framework needs to recognise alternative institutional arrangements. Researchers need to develop strategies to analytically disentangle underlying relationships (2)
Fishback (1986, 1992)	Vertical integration: Company towns and company stores	Opportunism between employer and employee. Ownership	Economics of company housing and stores in coal industry	Transaction cost explanations have more explanatory power than alternative hypotheses	Agency and appropriation issues between employer and employee. (4) Employer-employee relationships
Gallick (1984)	Complex contracting and 'hybrid modes': Exclusive tie-ins and specific leases	Exclusive dealing contracts. Opportunism	US tuna industry	-	(3)
Gates (1989)	Firm strategies and technological co-operation	Perceived transaction costs. Exchange of proprietary technology	52 semiconductor firms across North America, Europe and Japan	Product specialised firms are vulnerable to opportunistic behaviour from licensees. Vertically integrated firms encounter high uncertainty in licensing proprietary technology. Innovative firms create temporary monopolies with their new technologies and need to maintain them long enough to receive a commercial return	Implications for top management – negative perceptions of attitudes towards technological co-operation may hinder the effectiveness of joint efforts. (1), (4) Development of new value system in education. Directly relevant to working relationships in multiple bid scenario
Gatignon and Anderson (1988)	Multi-national expansion and the structure of foreign trade. Degree of vertical integration	Asset specificity, behavioural and environmental uncertainty	1267 foreign subsidiaries of US multi-national corporations. Control over foreign subsidiaries	Level of integration with subsidiaries depends on riskiness of environment	Socio-cultural perspectives and cultural distance – relevance to autonomy of schools as 'subsidiaries' (4)
Gifford (1993)	Complex contracting and 'hybrid modes': Informal exchange relations	Economic organisation. Monitoring, reputation, opportunism	17th to 19th Century whaling and shipping	Analysis of protection of property and appropriation rights in context where contracting is costly	Property rights and appropriation of rents

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Globerman and Schwindt (1986)	Vertical integration: Focused single industry study	Vertically related transactions	30 forest-based enterprises in the Canadian forestry industry	Transactional considerations like asset specificity are robust empirical determinants of governance structures	Appropriation of quasi-rents and counter-intuitive relative vulnerability within the supply chain
Goldberg and Erickson (1987)	Price adjustment in long-term contracts	Opportunism, expropriation	90 contracts for petroleum coke	Analysis of complex contracts showed non-obvious non-linear pricing characteristics	Need to apply due caution in assessing implications of contract terms
Grandy (1989)	Government and social contracts	Specialised investments	19th Century railroads in New Jersey	Greater opportunities for opportunism in long term contract than one-off transaction. When the state is party to a relationship both explicit and implicit mechanisms are necessary to constrain opportunism.	Distinction between contract as one-time transaction and contract as framework for long-term relationship. (3)
Gulati (1995)	Repeated ties for contractual choice	Alliances		-	-
Hagedoorn (1993)	Strategic technology partnering	-	Technology co-operation agreements	-	(1), (2)
Hallwood (1990)	Multi-national expansion and the structure of foreign trade	Transaction costs	Multi-national corporations	-	-
Hallwood (1991)	Complex contracting and 'hybrid modes': Auctions	Organisational arrangements. Measurement cost and rent appropriation	Off-shore oil gathering	High levels of asset specificity were associated with vertical and quasi-vertical integration. Market arrangement was selected on the basis of both rent-appropriation and measurement cost economising properties. Idiosyncrasy and complexity can play an independent explanatory role in the choice of organisational arrangements. Auction is a favourable market device for exchanging idiosyncratic products	Qualitative explanation based study
Harrigan (1986)	Vertical integration: Studies using multi-industry data	Uncertainty and probability of integration	Cross-sectional sample of 192 firms	Uses degree of integration, process stages upstream or downstream involved, breadth of integration and organisational form	Detailed analysis of vertical integration strategy. Application of vertical integration strategy to multi-party bidding process (3)
Harris (1983)	Comparative study of organizational forms	Organisational forms	Large organisations	-	-

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Heide and John (1988)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Asset specificity	199 manufacturer's agents in electrical and process equipment industries	Agencies with more specific assets invested with their principal tended to bond themselves more closely to their accounts to safeguard those assets leading to a lower dependence on the principal.	Understanding effects within multi-channel distribution models (1)
Heide and John (1990)	Alliances in industrial purchasing: Empirical study on alliances using a normative TCA approach	Asset specificity, behavioural and environmental uncertainty	155 manufacturing firms	Contrasts with Porter's normative position (that firms should acquire the maximum amount of control in a relationship) and suggests that firms should structure relationships in a discriminating way depending on circumstances	Key is to be protected against abuse of control. Where relational norms are not established buyer may need mechanisms other than control for safeguarding specific assets (3)
Heide and John (1992)	Norms in marketing relationships	Asset specificity, relational norms	155 manufacturing firms and 60 supplier firms	-	-
Helfat and Teece (1987)	Effects of vertical integration: Financial market effects of vertical integration	Risk reduction	Financial markets. Explores relationship between vertical integration and uncertainty.	Uses Capital Asset Pricing Model. Suggests that vertical integration reduces systematic risk suggesting that enterprise managers can reduce an investment's exposure to risk in ways which portfolio managers cannot and hence that vertical integration has wider performance ramifications than commonly supposed.	(2)
Hennart (1988)	Vertical integration: Focused single industry study	Upstream vertical integration, opportunism	Compares aluminium and tin industries	Behaviour of these markets is consistent with predictions from transaction costs theory	Describes the transaction cost model of vertical integration. Example of case-by-case discussion
Hennart (1989)	Multi-national expansion and the structure of foreign trade	Counter-trade (barter, commercial compensation, industrial compensation, offset)	International trade and multi-national corporation	Counter-trade can be seen as a device to reduce transaction costs in the international market for intermediate products, distribution services and technology	Wider interpretation of contract. Use of offset in government contracts
Hill (1988)	Comparative study of organizational forms	M-form as internal capital markets and controls	156 large UK multi-divisional firms	Negative relationship observed between M-form and profitability except for unrelated businesses	Deeper appreciation of organisational forms. Relevance of relationships and controls in complex organisational structures (4)
Hill and Pickering (1986)	Comparative study of organizational forms	Organisational forms	144 large UK firms	Empirically tests the relationship between organisational structure and financial performance. Advocates decentralisation of operating decisions	Relationship between organisational form and strategy (2)

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Hu and Chen (1993)	Foreign ownership in joint ventures	Socio-cultural distance, economic risk, environmental uncertainty, industry-related factors	1456 Chinese joint ventures	Empirical investigation of factors	Introduces idea of socio-cultural distance
Hubbard and Weiner (1986)	Price adjustment in long-term contracts	Long term contracts	US natural gas markets	Tests mathematical model with empirical data. Type of transition to deregulation likely to be important.	-
Hubbard and Weiner (1991)	Price adjustment in long-term contracts	Contracts and market power	US natural gas industry in the 1950s	Looks mathematically at long-term contracting as a bargaining problem	-
John (1984)	Effects of vertical integration: Performance effects of vertical integration. Understand reasons for opportunistic behaviour in inter-firm exchange	Opportunism, inter-firm relationships, marketing channels	151 franchised dealers of major oil companies	Shows importance of social contract in maintaining efficient exchange. Increased dealer perception of rules, authority structures, and monitoring erodes positive attitudinal orientations and increases opportunism.	(1), (4)
John and Weitz (1988)	Vertical integration: Forward integration into marketing and distribution	Asset specificity, behavioural and environmental uncertainty	88 manufacturers of industrial products	Firms less likely to use reseller channels when specific assets levels, environmental uncertainty or behavioural uncertainty higher	Both production costs and transaction costs implicated in a firm's decision to integrate into the downstream channel (1)
John and Weitz (1989)	Salesforce compensation – salary versus incentives	Behavioural and environmental uncertainty	161 manufacturers of industrial products	Conceptual framework for salesforce compensation	Quantitative study showing TCA constructs
Jones (1987)	Comparative study of organizational forms	Optimal governance structures. How characteristics of transactions (uncertainty and ambiguity) between organisations and their clients affect internal governance structures	62 service organisations in one city	Organisations develop flat structures with wide spans of control when transaction uncertainty and performance ambiguity are low. Numbers of levels in hierarchy are increased and reduce span of control to increase accountability in less predictable environment	Provides evidence for relationship between environmental uncertainty and organisational structure. Quantitative study - measures are relatively unsophisticated
Jones and Pustay (1988)	Complex contracting and 'hybrid modes': Informal exchange relations	Inter-organisation co-ordination	Airline industry 1925-1938	Argues that when transaction costs get too high for voluntary co-operation, firms seek third party or hierarchical solutions for managing inter-organisational exchange	Analyses costs of inter-firm co-ordination (2)

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Joskow (1985) (2 studies)	(1) Vertical integration: Focused single industry study (2) Complex contracting and 'hybrid modes': Long-term commercial contracts	Physical proximity of contracting firms for site specificity.	Vertical integration and long term contracts in coal burning electricity generation. Factors that determine institutional relationships between input suppliers and their customers. Extensive range of contracts	Long term contracts rather than vertical integration is the preferred governance structure. Suggests contrasts between different forms of generating plants. Contends that detailed knowledge of buyers and sellers seems essential for applying and testing transaction costs theories empirically	Key reference for 'testing' validity of framework. Overview of the transactions cost approach. Found the transaction costs framework to be an extremely powerful vehicle for gaining a better understanding of the nature of vertical supply relationships. Analysis of vertical supply relationships in (2), (3)
Joskow (1987)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Asset specificity, physical proximity of contracting firms for site specificity	277 contracts between coal suppliers and electric utilities in 1979	-	-
Joskow (1988a)	Nature of the firm, structure of vertical relationships	Site, physical and human asset specificity, dedicated assets, incomplete contracts, transaction costs, long term contracts	Electric power industry. Coal contracts	Nature of the firm and the nature of market relationships has attracted much theoretical interest. Relationship-specific investment, asymmetric information, and the costs of writing, monitoring and enforcing contractual relationships have emerged as key factors explaining 'non-standard' vertical relationships	Key reference. Detailed discussion of the theory and using it in practical terms. Contends that good empirical work aimed at testing the theories requires that we know a lot about the characteristics of the firms and products that we rely on in our empirical work (1)
Joskow (1988b)	Price adjustment in long-term contracts	Physical proximity of contracting firms for site specificity	250 coal industry contracts	Mathematical model of price relationship. Concludes that written terms in contract are related to systematic differences in transaction prices between contracts	Discussion of contract terms and relationship to pricing. Quantitative study
Joskow (1990)	Price adjustment in long-term contracts	Physical proximity of contracting firms for site specificity	Coal industry	Concludes that contract terms can be written and enforced to protect relationship-specific investments made by buyers or sellers, or risk allocation arrangements agreed to ex ante	Detailed discussion of implications of strict contract terms that did not allow for subsequent trading environment changes. Qualitative study (2), (3), (4)
Joskow (1991)	Anti-trust and public utility regulatory policies	Transaction costs and regulatory process	Wide ranging discussion	TCE represents a rich and useful framework for understanding a wide variety of issues of anti-trust and public utility regulatory policies	Discusses applicability of the theory at some length (3)

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Kaufmann and Lafontaine (1994)	Complex contracting and 'hybrid modes': Franchising and franchise bidding	Economic rents	McDonald's franchises	Shows that there are important levels of ex ante and ex post rents in contrast to most incentive-based theories of franchising	-
Kenney and Klein (1983)	Complex contracting and 'hybrid modes'. Exclusive tie-ins and specific leases. Economics of block booking	Block booking, nature of competition, brand, search costs	Tie-ins and block booking. Regulation of linked pricing	Demonstrates that difficult to explain contractual terms can be analysed rigorously rather than being merely labelled 'non-competitive'.	Mathematical (probabilistic) assessment of buyer behaviour in block-selling situation. Explores how contractual arrangements incompatible with the perfectly competitive model can be explained through transaction costs, information asymmetry and pre/ex post pricing mechanisms
Klein (1988)	Effects of vertical integration: Performance effects of vertical integration	Technical knowledge as specific human capital. Vertical integration as organisational ownership	Fisher-Body – General Motors relationship	Discusses long term contracts, the appropriation of quasi-rents. Critical of Coase's view that contractual arrangements rather than vertical integration can be used to solve hold-up problems	Economic question for physical capital is whether to own or rent, for human capital it is whether to make or buy an input (2)
Klein (1989)	Vertical control in international markets	Asset specificity, environmental uncertainty, transaction frequency	338 Canadian exporters	Survey based analysis of channel structure leaves much of the variance unexplained. Model was estimated based on general current practices in firms, Theory was used normatively	Survey based approach does not pull out the full richness of the channel structures (1)
Klein and Roth (1990)	Channel integration in international markets	Asset specificity, channel volume	477 Canadian exporters	Marketing and transaction cost analysis focus, superficial use of transaction cost framework	Survey as research instrument
Klein and Roth (1993)	Satisfaction with international marketing channels	Asset specificity, monitoring	329 Canadian exporters	No channel structure is best, a priori, so encouragement of export behaviour should not stress particular structural arrangements	Discussion of channel structures
Klein et al (1990)	Multi-national expansion and the structure of foreign trade	Asset specificity, environmental uncertainty (volatility and diversity)	375 Canadian exporters	Looked at four different integration choices – market exchange, intermediate exchange, hierarchical exchange	Research hypotheses around channel volume and structure. Survey questions for asset specificity, volatility and diversity
Lafontaine (1993)	Complex contracting and 'hybrid modes': Franchising and franchise bidding	Contracts as signalling devices	Franchising	Creates mathematical model around franchising and the proportion of company owned outlets. Information asymmetry between franchisors and franchisees.	-
Leffler and Rucker (1991)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Ex-ante measurement costs, monitoring costs	153 timber harvesting contracts	Creates mathematical model for buyer and sellers profit-maximising harvest levels for unit bids	Example of mathematical approach

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Levy (1985)	Vertical integration: Studies using multi-industry data (cross-sectional econometric analysis)	Asset specificity, environmental uncertainty	69 manufacturing firms in 37 industries	Explores relative importance of the different theoretical rationales for vertical integration	-
Levy and Spiller (1994)	Multi-national study	Opportunism, specific investments, regulatory design	Telecommunications regulation in multiple legislations (UK, Jamaica, Chile, Argentina, Philippines)	Detailed analysis and discussion of contrasting regulatory structures. Suggests that successful regulatory policy depends on regulatory governance structure to constrain arbitrary administrative action and induce private investment to take place	Detailed analysis of case examples of regulatory environment. Emphasises governance to limit administrative opportunism
Lieberman (1991)	Vertical integration: Focused single industry study	Vertical integration (backward), supplier concentration, asset specificity	203 US producers of 34 chemical products	Concludes that both transaction costs and demand variability can create incentives for vertical integration. Firms integrated to avoid bargaining problems arising from ex-post lock-in.	Discusses case of large sunk investments in transaction specific assets (2)
Lilien (1979)	Vertical integration: Forward integration into marketing and distribution	Modelling marketing mix decisions	22 companies, 131 industrial products	Reports the results of the ADVISOR2 study aimed at understanding and guiding the marketing mix for industrial products	-
Lyons (1996)	Inter-firm contracts, efficient contract theory	Specific investment	Review of a range of empirical studies	Risk sharing seems to have limited indirect effect on modern contracts between producers, but is an important reason for some of the financial instruments used. Contract theory has a much wider application than simply the contractual relationship between independent firms. The formal law of contract is of only limited relevance for many on-going business relationships where reputation is a powerful enforcement mechanism.	Detailed review of empirical approaches to applying contract theory, referencing TCE and principal-agent theory (2), (3), (4)
MacDonald (1985)	Vertical integration: Studies using multi-industry data	Market exchange or vertical integration	Cross-sectional study of vertical integration in 79 industries	Vertical integration is an important method of exchange within manufacturing and more widespread in capital intensive industries	-

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
MacMillan et al (1986)	Vertical integration: Studies using multi-industry data	Uncertainty and probability of backward integration	Supplier retaliation. 4 years PIMS data on US business units (late 1970s)	Retaliation hypothesis is supported where purchases are heavily concentrated among a few suppliers, and when suppliers are integrated forward.	Firm behaviour and governance challenges in vertically integrated supply chains
Mahoney (1992)	General theory for predicting and prescribing vertical financial ownership	Forms of vertical integration	Vertical financial ownership	Integrates and extends previous work from strategy and industrial organisation paradigms. Synthesises theoretical arguments and empirical findings from the literature to identify relative merit of vertical financial ownership vs vertical contracts	Provides a general framework for predicting the organisational form of vertical control (2)
Maltz (1993)	Private fleet use	Asset specificity, behavioural and environmental uncertainty, transaction frequency	138 shippers in various industries	Highlights governance challenges in using third-party logistics organisations	(2)
Maltz (1994)	Outsourcing warehouse function, logistics activities	Asset specificity, transaction frequency, TCA, Porter competitive strategy	147 manufacturing firms	Presence of transaction specific assets is associated with a lower likelihood of outsourcing, as is increasing firm size. High shipment volumes are associated with third party use	Distinction between private, third party contract, and public warehouses illustrating application of different forms of governance (2)
Masten (1984)	Vertical integration: Focused single industry study (quantitative). Differential efficiency of alternative organisational forms	Asset specificity, environmental uncertainty. Component complexity as proxy for physical asset specificity.	Aerospace industry. 1887 components of an aerospace system	Supports contention that design specificity and complexity are necessary conditions for breakdown of co-operation in market mediated exchanges and subsequent integration of production within the firm. Suggests that TCE paradigm is concerned with issues faced by agents in government procurement activities	Discusses make-or-buy decisions, input procurement, government procurement policies, procurement hazards and remedies (4)
Masten and Crocker (1985)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Contracts. Take or pay provisions	Natural gas	Incentive to provide flexibility in long term contracts is an important consideration in the design of contract terms and nature of terms can be predicted on characteristics of transaction.	Use of mathematical pricing models (3)

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Masten et al (1989)	Vertical integration in the US auto industry	Asset specificity. Relative importance of relationship-specific human and physical capital	118 automotive components. Regression across 3 US auto manufacturers	Investments in specialised technical know-how have a stronger influence than investments in specialised physical assets on the decision to integrate vertically	Quantitative results indicative rather than robust
Masten et al (1991)	Costs of organisation	Asset specificity, environmental uncertainty	74 components for naval ship building project	Offers evidence that integration becomes more likely in the presence of relationship-specific human capital and for very complex components, but that it is because of the effect on costs of internal organisation rather than costs of market exchange	Property and ownership considerations of taking title to specialised tooling in the defence industry
Mitchell (1989)	Performance effects of vertical integration. Probability and timing of entry of incumbents into technical subfields	Specialised assets	Industrial subfields. 30 years data from 5 medical diagnostic imaging subfields	Adds understanding of effects of technological discontinuity. Distinction must be made between core product and supporting assets needed for successful commercialisation	Relationship between specialised assets and firm behaviour under discontinuity (1)
Monteverde and Teece (1982a)	Vertical integration: Focused single industry study	Value of appropriable quasi-rents	28 components of major US automotive supplier. Contractual interpretation of vertical integration	Partial explanation of quasi-integration	Uses concept of quasi-rents
Monteverde and Teece (1982b)	Vertical integration, supplier switching costs	Asset specificity. Worker-specific knowledge as proxy for human asset specificity	133 automotive components	Supports view that transactions cost considerations surrounding the development and deepening of human skills have important ramifications for delineating efficient organisational boundaries	Relevance of human specialised assets in determining organisational boundaries (4)
Mosakowski and Zaheer (1999)	Theory of organisational boundaries	Transaction costs, information asymmetry	Foreign currency trading	No development of TCE concepts, but demonstrates co-existence of two types of firm populations in the same setting	Relevant to theoretical model (see Madhok 2002)

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Mulherin (1986)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Complexity in long term contracts	Natural gas industry	Transaction costs hypothesis shown to be more consistent with the data than competing hypotheses. Contract provisions used in particular producer-pipeline agreements were systematically affected by nature of bi-lateral contracting hazards	-
Muris et al (1992)	Vertical integration: Forward integration into marketing and distribution	Asset specificity	Carbonated beverage industry. Bottlers of Coca cola and Pepsi	Change in organisation driven by competitive conditions and need for close co-operation with bottlers. Anti-trust implications in that change in distribution is driven by need to economise on transaction costs, not raise prices	Detailed use of transaction cost theory (2)
Murtha (1993)	Multi-national expansion and the structure of foreign trade	Credible enticements	National interests versus multi-nationals' interests. 111 affiliates of multi-nationals operating in 36 countries	Findings suggest that host government policy inconsistencies on multi-nationals' relationships with local suppliers lead to transaction costs disadvantages	Structural equation and measurement model to investigate relationships
Noordewier et al (1990)	Industrial buyer-vendor relationships	Environmental uncertainty. Forward integration into marketing and distribution	140 other equipment manufacturer (OEM) purchasers of bearings	Acquisition cost performance is enhanced when firms introduce more relational elements into their purchasing arrangements under conditions of uncertainty	Discusses governance aspects of purchasing relationships, setting relational governance vs uncertainty (2)
Norton (1989)	Complex contracting and 'hybrid modes': Franchising and franchise bidding	Labour productivity	Franchise contracts. 1977 industry data	Configuration of property rights associated with franchising appear consistent with a small number of environmental variables. Attenuation of rights through state taxes and statutes	Addresses limitations of the neoclassical theory of production, with particular reference to property rights and organisational forms
Osborn and Baughn (1990)	Forms of inter-organisational governance	Environmental uncertainty, intent to conduct joint R&D	Factors underlying choice of inter-organisational governance forms for 153 newly formed US-Japan multi-national alliances	Contractual forms may provide flexibility and linkages for technologically intensive areas and limit the flow of proprietary information across boundaries. Joint venture favoured when joint R&D is present.	Discusses agreements as quasi-markets and joint ventures as quasi-hierarchies (2), and optimising relations among transactions, technology and structure (3)

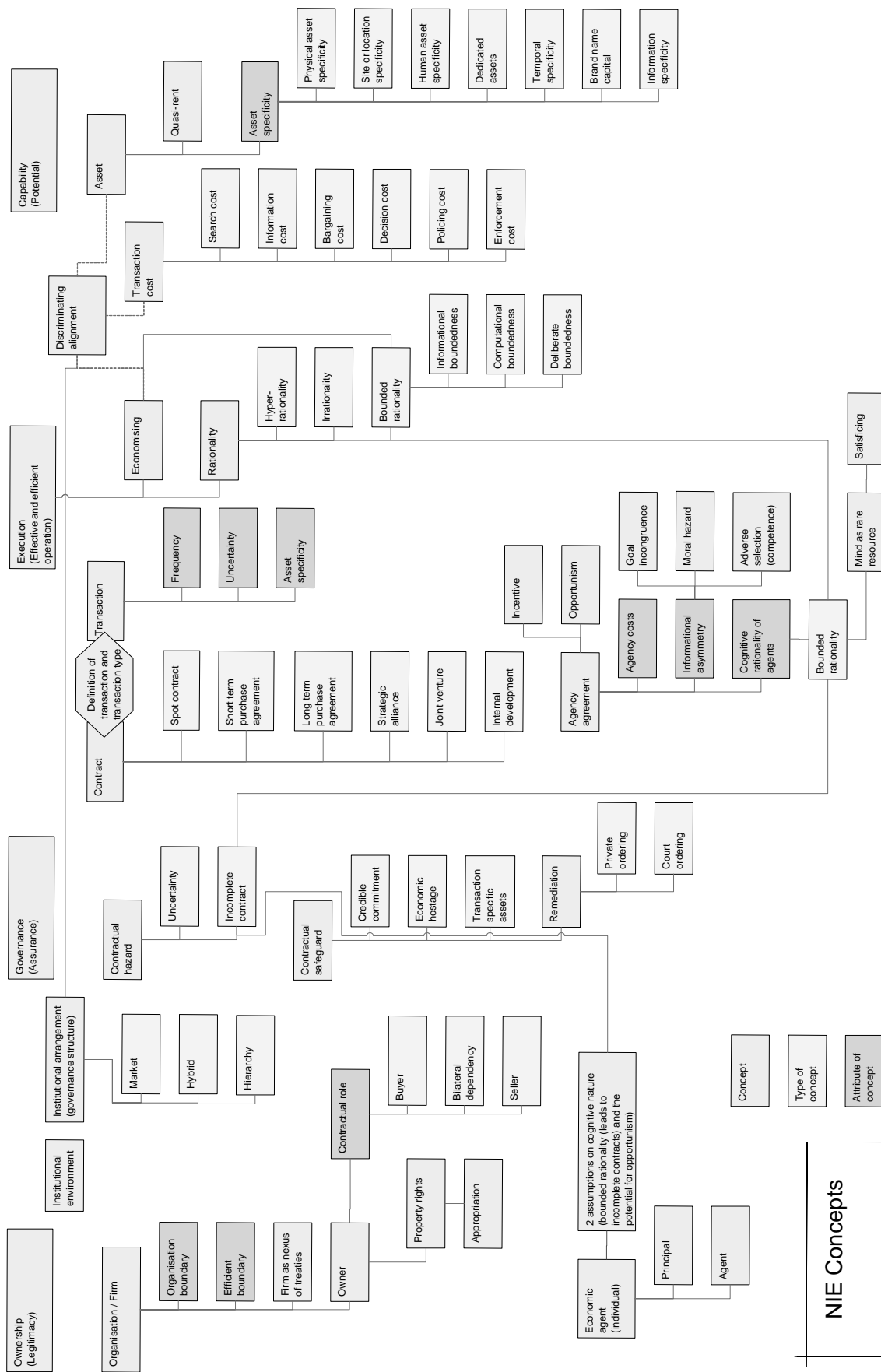
Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Palay (1984, 1985)	Complex contracting and 'hybrid modes': Informal exchange relations. Governance of rail freight contracting	Asset specificity, idiosyncratic investment	51 transactions between rail carriers and shippers	[1984] Details the research [1985] Identifies the use of complementary informal agreements and promises to provide some price flexibility and implement and monitor contractual safeguards, offsetting contractual hazard	Illustrates relationships between the practice of contracting and a regulatory governance regime to mitigate transaction hazards (2)
Parkhe (1993)	Strategic alliance structuring	Opportunism, specific investments, contractual safeguards	111 inter-firm alliances between manufacturing firms	Creates an analytical framework for inter-firm co-operation. Study blends features of the transaction cost paradigm with game-theoretic insights to provide insights into the structuring of inter-firm alliances.	Highlights behavioural considerations suggesting that inter-firm co-operation is complex and embedded in institutional arrangements (2)
Pilling et al (1994)	Relational bonds in industrial exchange	Asset specificity, environmental uncertainty, transaction frequency. Ex-ante and ex-post transaction costs	229 purchasing personnel from aerospace, electronics and defence firms	Creates an analytical framework for a transaction cost based model of relational closeness	Provides an example of an experimental approach to assessing the transaction cost economic framework (1)
Pirrong (1993)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Integrated governance structures. Spatial/temporal proximity	Ocean bulk shipping	Examines how transaction costs affect bulk shipping contracting practices. Distinguishes between situations where high volumes are carried between a particular pair of ports (chunkier shipments, thin market) and ports with a continuity of moderately sized loads leading to a thick market.	Introduces the concept of temporal specificities. Uses quasi-rents. Illustrates circumstances with a contrast between chunky and moderate sized transactions (which may be relevant to web services) (1)
Pisano et al (1988)	Governance: Focused single industry study	Equity linkages in governing exchange	Telecommunications equipment	-	-
Pisano (1989)	Vertical integration: Focused single industry study	Links between integration and R&D. Human asset specificity. Partial equity investments in collaborative relationships	195 collaborative arrangements in the biotechnology industry	Suggests that the use of equity related linkages in biotechnology collaborations is related to potential transactional problems associated with transaction specific knowledge, uncertainty and small numbers bargaining conditions	Behaviour consistent with efficiency goals seems to influence the choice of collaborative governance forms (3)

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Prager (1989)	Degree of competition at bidding stage, sophistication of award criteria, and measures of performance	System construction timing, quality of service, pricing	Cable TV experience of 92 Massachusetts communities 1973 - 1981	Overall experience with franchise bidding was good enough (satisfices)	Discusses bidding and franchise award processes
Prager (1990)	Complex contracting and 'hybrid modes': Franchising and franchise bidding	Opportunism, disputes, state and local regulation	Cable franchises and customers (221 US communities)	Communities more satisfied with large, multiple system operators with non-competitive franchise award process	Discusses bidding and franchise award processes
Rasheed and Geiger (2001)	Boundary decisions that affect governance structures	Intermediaries, external contractors, e-commerce. Asset specificity of physical and human assets	Quantitative study of 113 firms doing business on the internet	Suggests that firms experiencing lower levels of transaction frequency use more types of internet sales methods	Relates TCE and resource based perspectives through asset specificity. Explores how firm resources and exchange attributes impact inter-organisational governance structures for specific value chain functions. (1), (3)
Shelanski (1993)	Comparative study of organizational forms	Transfer pricing	Internal exchange	-	-
Shelanski and Klein (1995)	Review and assessment of empirical research in TCE	Point of reference for the TCE discussion	Review of empirical studies	Empirical studies of TCE cover a broad range of phenomena. In each area there are results that contradict fundamental TCE arguments, and others that provide only weak or tangential support. Researchers in TCE must address empirical challenges to the theory. Much economic activity aligns with transactions as predicted by the theory	Key reference for empirical investigation using TCE
Spiller (1985)	Effects of vertical integration: Financial market effects of vertical integration	Physical proximity of contracting firms for site specificity	Comparison of asset-specificity and market-power explanations of vertical merger	Develops an econometric model to show the effect of a vertical merger on the systematic risk of the firms involved	-
Sriram et al (1992)	Buyer-seller collaboration	Asset specificity, perceived transaction costs	65 purchasing managers in large manufacturing firm	Combines resource dependency and transaction cost analysis perspectives.	-
Steer and Cable (1978)	Comparative study of organizational forms	Internal organisation, profit	Cross-sectional analysis of 82 large UK companies	Results indicated that internal organisational structure exerted a statistically significant and large influence on profitability. Also found a significant interaction between internal organisation and firm size.	-

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Stuckey (1983)	Vertical integration: Focused single industry study	Joint ventures	Aluminium industry	-	-
Stump and Heide (1996)	Controlling supplier opportunism in industrial relationships	Asset specificity, incentives and monitoring. Technological uncertainty, specific investments, monitoring	165 chemical manufacturers	-	-
Teece (1980)	Effects of vertical integration: Performance effects of vertical integration	Economies of scope	Efficiency based theory of multi-product firm. Diversification in the US petroleum industry	Diversification is an efficient way of organising economic activity if economies of scope are based on recurrent use of proprietary intellectual capital or specialised and indivisible physical asset	Relates to resource based view of the firm, considering specialised and non-specialised knowledge, proprietary and non-proprietary, and specialised and non-specialised application. Discusses transaction governance implications
Teece (1981)	Comparative study of organizational forms	Internal organisation	Principal firms	-	-
Thompson (1981)	Comparative study of organizational forms	Internal organisation	-	-	-
Walker and Poppo (1991)	Complex contracting and 'hybrid modes': Long-term commercial contracts	Asset specificity, level of market competition, comparative transaction costs	99 supply relationships of a large US manufacturer	Concludes that corporate decentralisation and relational contracting in the market diminish the role of asset specificity as a necessary condition for low transaction costs in-house and high transaction costs in the market.	Concludes that it is unclear how the theory should be used as a predictor of shifts in the current boundary of the organisation. Presents structural equation model relating transaction costs to asset uniqueness, technology newness, investment in technology, and supplier market competition, which is then extended to include engineering change and materials costs.
Walker and Weber (1984)	Vertical integration: Focused single industry study	Environmental and volume uncertainty. Influence of transaction costs on make or buy decisions	60 make-or-buy decisions in a large US automobile manufacturer	Comparative production costs found to be the strongest predictor of make-or-buy decisions. Volume uncertainty and supplier market competition have small but significant effects	Presents structural equation model of make-or-buy decisions. Make-or-buy decision relates to supplier competition, supplier production advantage, buyer experience, technological uncertainty, and volume uncertainty. (1), (4)
Walker and Weber (1987)	Vertical integration: Focused single industry study	Environmental and volume uncertainty. Make or buy. Includes measures of market competition	60 make-or-buy decisions in a large US automobile manufacturer	Follow on from previous study. Highlights switching costs, adjustment costs, and transaction costs resulting from opportunistic supplier behaviour.	Presents path diagram for multiple indicator model predicting make or buy decisions, based on volume uncertainty (volume fluctuations and uncertainty of volume estimates), technological uncertainty (frequency of change in product specification, probability of technological improvement) and comparative production costs (annual savings from making component).

Reference	Topic of interest	Concepts	Industry/focus	Commentary/conclusions	Applicability to thesis, including case studies 1-4
Weiss (1992)	Financial market effects of vertical integration	Asset specificity	Implications of firm specific capital in 29 mergers of US firms	Results are not conclusive but encouraging that firm specific capital is a factor	(1)
Weiss and Anderson (1992)	Converting from independent (indirect) to employee (direct) salesforces	Asset specificity, idiosyncratic investments, behavioural uncertainty	243 sales managers of electronic component manufacturers	Relates perceived overall switching costs to likelihood of converting indirect to direct sales force in sales district	Presents a model of manufacturer likelihood of converting to a direct salesforce. (1)
Williamson (1976)	Complex contracting and 'hybrid modes': Franchising and franchise bidding	Franchise bidding, natural monopolies	Qualitative study of cable TV franchising, California	Franchise bidding for natural monopoly (CATV in 1970) suffers from contractual difficulties and so does not appear to work well	Draws parallels with defence contracting and regulation. Suggests that franchise bidding for incomplete long term contracts is a more dubious undertaking than suggested by Demsetz' discussion. (3)
Williamson (1981b)	Comparative study of organizational forms	-	Modern corporation	-	-
Wilson (1980)	Complex contracting and 'hybrid modes': Informal exchange relations	Adaptation to uncertainty	Intensive study of New England fresh fish market	Concludes that market is far from perfectly competitive. Despite many buyers and sellers, low barriers to entry and exit, homogeneous products and adequate market information, identifies considerable uncertainty in market conditions, and private ownership of facilities which precludes spot markets.	Practical difficulties in operating a perfectly competitive spot market.
Zupan (1989a, 1989b)	Complex contracting and 'hybrid modes': Franchising and franchise bidding	Relationship-specific investments	Public cable franchise agreements (66 cable systems)	Rates tend to be lower with more competition during franchise bidding. Non-price concessions to local government resulted in significantly higher prices for both basic and premium services	Unforeseen circumstances rather than opportunism were primary motivation for re-negotiation (3)

APPENDIX B Conceptual map of NIE concepts



NIE Concepts

- Concept
- Type of concept
- Attribute of concept

APPENDIX C Evidence from cases

First case study – Technology change in financial services company

Introduction for interview – telephone call

<Callee>, this is Andy Ellis from SoftCo. I am working on a high profile PR activity, sponsored by <sponsor>, between FinanceCo and SoftCo, to get an in-depth assessment of the value of .NET for SoftCo, and produce a PR case study for publication in February 2002.

The immediate focus is the MAI part of POSM and I will need to talk to a number of key people. I would like to schedule a meeting with you as soon as possible as part of this information gathering part of the study.

Please could you call me on <telephone no> so that we can schedule a time that would be convenient. Thanks.

Introduction for interview – supporting email

The value of this study for FinanceCo is that it will provide an in-depth assessment report of the business value and potential issues of .NET technologies for FinanceCo, which should offer an advantage in terms of suggestions for improving FinanceCo's approach.

The purpose of this email is to provide a formal commencement of the study. The SoftCo Business Value approach normally starts with a Kick-off meeting to

- Agree the scope and nature of the study
- Identify key stakeholders
- Identify areas of the business that would be affected by a proposed technology deployment
- Confirm participants, roles and schedule
- Confirm expected deliverables.

In this case, to minimise time demands on FinanceCo staff, this process will be undertaken by email. Please would you review and confirm agreement to the following project details.

Scope

The study will look at the MAI subproject of POSM with an objective of measuring and understanding the business value that Tech Dev generates, both for Tech Dev staff and especially the business community, for example by identifying the potential business value associated with migrating parts of the ProcAuto tool and associated development methods to Microsoft .NET technologies. Implications for the time and nature of migration will be considered.

Stakeholders

It is understood that key stakeholders whose interests should be considered by the study and associated report and PR are:

- ... (Business ownership of POSM)
- ... (Divisional Director, Technology)
- ... (Executive sponsor of business value study)
- ... (Controller, POSM)
- ... (POSM Project Leader)
- ... (Chief Architect)
- ... (Senior Development Manager) (day-to-day point of contact)
- ... (Media Relations Manager)

It would be helpful to know of any other significant stakeholders whose interests should be considered.

Areas of the business impacted

The main area of the business impacted will be the POSM project, but others might be relevant. For example configuration management and infrastructure would be involved in a step change in capability for Tech Dev as an in-house solution development provider.

As POSM MAI metadata and processes are, or will be, re-used by Project Discovery and <another project> these may also fall within consideration, although outside the immediate scope of the study

Participants and roles

The study will be conducted through semi-structured interviews with FinanceCo staff. An initial list of potential interviewees has been compiled with assistance from FinanceCo and an interview schedule is being constructed. The time taken with FinanceCo staff will be carefully managed to keep within the time limit.

Schedule

The timescale for this study is challenging and will be dependent on timely access to relevant FinanceCo staff.

Deliverables

Report

Formal presentation of findings

Case study (for publication)

Third party audit.

Second case study – Transformational outsourcing in a retail business

Detailed terms of reference

Context

RetailCo and ConsultCo have entered into a Partnership to provide world class leadership in Retailing, with an especial focus on best in class business practices and the innovative use of technology to drive both incremental revenues and to reduce operation costs.

SoftCo values RetailCo as a customer and also has a joint venture company, JVCo, with ConsultCo. There is a very strong relationship with ConsultCo and SoftCo. Most notably SoftCo's CEO is also a board member of ConsultCo.

In discussions between ConsultCo's Global Retail Leader and SoftCo's General Manager UK it was agreed that SoftCo will invest a month of consulting to deeply understand the organisation, technology, objectives of the RetailCo Partnership and will come back to ConsultCo with proposals to add value to the operations.

These proposals will cover implications such as return on investment, business process fit and compatibility with existing systems.

Objectives

- For SoftCo to work with ConsultCo to understand the business drivers and objectives of the Partnership.
- For SoftCo to understand the technology platform and architecture that is being implemented to support the running of the retail business and facilitate business change.
- For SoftCo and ConsultCo to jointly identify and propose project opportunities to drive revenues and/or deliver new efficiencies within the organisation.
- For ConsultCo/RetailCo staff to gain a deep appreciation of SoftCo technology, strategy and capability, within the context of the current operations.

Expected outputs.

Primary output is a 40 minute PowerPoint report containing approximately 20 slides.

Secondary output is a summary document of approximately 30 pages.

Areas of investigation

It has been agreed with ConsultCo's Chief Architect that the study will focus on the following project areas:

- Retail point of sale, demand forecasting, warehousing, retail online, enterprise application integration (EAI and B2B), Enterprise DataWarehouse, customer relationship management, HR management system, store based resource planning, store rescheduling, and software development.

Assumptions

The following assumptions are adopted to set the scene for the study:

- This is a non-trivial study of a complex environment which is seen as a starting point of a journey, not a purely self-contained activity
- The contractual intent of the Partnership is about achieving win-win and that this is not a zero-sum game
- The business drivers and business requirements are understood by the domain architects and that they can therefore represent the views and needs of the relevant parts of the business
- All involved are excellent in their field and are working for the success of the Partnership.

Approach

The study will consider three different perspectives:

- A contractual / ownership level. The prime concern at this level is to understand, in broad terms, the value adding basis for the Partnership, how it relates to the current and anticipated business environments, and what makes the transformational progression a competitive strategy. This pertains to the clarity of purpose and clarity of priorities, such as the role and nature of the services to be provided and how they are expected to change over time to maintain competitiveness. This is a complex contract, and as complex contracts are unavoidably incomplete, one concern is to understand the intended mode of contract execution. This relates to project and programme governance and management considerations in understanding aspects such as project priorities, risks and mitigations, and project governance practicalities that will be critical in bridging from strategic intent to effective implementation.
- A business model and business process level. This aspect is about understanding who the key stakeholders are and their priorities with regard to the business changes to be supported by technology. Also how, in broad terms, these business changes address the Partnership's business drivers and investment objectives, including the rationale behind the desired changes and the motivations for them.
- Technology architecture level. This aspect is about understanding how the service delivery targets will be delivered through the technology architecture and technology choices, and the rationale, in broad terms, as to why they are the most appropriate to run the business and facilitate future business change. This is likely to include development and implementation practicalities and how they will meet the architectural approach, implementation principles, and operational priorities.

Scheduling of Interviews

It is intended that a short meeting/interview will be scheduled with the key Partner responsible for each area to be investigated, followed by focused interviews with any key individuals that they recommended.

In the event, the interview schedule was adapted to respond to critical situations within the programme which limited the availability of some Partners, and the interview content and structure was adapted according to the knowledge and concerns of the interviewees.

Interview structure

Different guidance was provided to each interviewee according to the focus of the interview. The interview structure was derived from the concepts within the theoretical model and drew on the researcher's prior experience with large IT projects.

Guidance for interviews – Contractual/ownership aspect

The objective with this aspect is to achieve sufficient understanding of the 'big picture'.

What is the scope of the transformational agreement?

- Breadth – which parts of the RetailCo corporate family and relationships fall within scope? (as well as the obvious, others such as the US supermarkets, RetailCo Bank, RetailCo Developments Ltd, RetailCo Property Co, and the various Joint Ventures)
- Depth – where do the boundaries of responsibilities lie in terms of operating and improving business processes
 - Are these within scope for the Partnership ie to what extent is the agreement transformational on the business as well as the IT?
- Structure – how is the project structured in terms of:

- Division of responsibilities and accountabilities
- Retail business delivery
- Overall architectural structure of the business, the technical solution, the change programme and the project approach

What is ConsultCo's view on the contractual intent?

- What is the intended value adding basis – how is the approach intended to provide competitive advantage to RetailCo, and how is that value to be delivered, both in the short term and subsequently? (For example, is the intent to make specific time-based step changes to key parts of the business, and if so what are these main phases?)
- Project delivery – what are the critical project issues, what must go well, what must not go badly, what are the important decisions to be made in the next 2 years?

What is the contracted mode of delivery?

- For example, is this a staged delivery of contractually defined services with payment by results?
- What are the governance mechanisms for raising, resolving and escalating the hierarchy of issues (from minor day-to-day issues through to major issues)?
- What are the mechanisms for monitoring service levels and compliance concerns (from both supplier and purchaser perspectives)?

How is project governance delivered?

- Ownership. Where do the ownership and accountability boundaries lie, in broad terms? Who are the key individuals?
- Responsibility. What is the practical allocation of domains of responsibility? Again, who are the key individuals?
- Strategic direction. How will the bridge between strategic intent and effective delivery be achieved, bearing in mind the level of project complexity? How is clarity of strategic direction maintained across such a large and diverse project?
- Informed decision making. What are the mechanisms to ensure that decision making is sufficiently well-informed without being unduly onerous (this is an issue of scale with large projects)? How will sufficient technology knowledge be maintained within RetailCo?
- Project harmony. How will the tensions between provider and purchaser be harmonized?

How are project and service delivery expectations managed?

- For example, how are trade-offs between the day-to-day business operations and the implementing/deploying of changes managed?

Guidance for interviews – business model and business process aspects

The objective with this aspect is to understand the main business models in place, the main challenges with the current operational business activities, and how these are expected to change. Also to be aware, for each business area considered, who the key RetailCo business stakeholders are, their priorities with regard to the business changes to be supported by technology, and the main constraints that these impose on the enabling technology. Additionally, in broad terms, to appreciate how these business changes relate to the Partnership's business drivers and investment objectives, including the rationale behind the desired changes and the motivations for them.

It is expected that these aspects will be familiar to the lead architects of each business domain considered.

For the domain(s) under consideration:

Where does the domain fit in its value chain and supply chain, who are the key stakeholders involved, and what are their priorities?

- What are the main business drivers (internal and external)?

- How do these relate to the definitions of service requirements, guarantees on service delivery, monitoring, feedback and correction?
- Can the business model (business architecture) be readily described, for example a business domain might be part of an automated supply chain?
 - What is the conceptual business solution, including quality of service?
 - What is the logical business architecture?
 - How does technology enable the physical business architecture?
 - Is there a primary focus such as customer intimacy / product leadership / operational excellence / organisational agility?
 - What main interdependencies are there with other parts of the business?
 - Is there dissatisfaction with the current status (to understand strength and ownership of any change initiative)?

What are the main business changes (new ways of working), if any

- What is the primary rationale and motivation behind any intended/desired change
- How does it differ from what is currently done
- How is it enabled by technology (to understand the significance of enabling changes in technology and non-technology areas)
- What are the main business risks attendant on technology change and main mitigations (for example timing of changes may be critically important)

Guidance for interviews – Technology architecture aspects

There were several objectives with this aspect

- To achieve sufficient understanding of the architectural ‘big picture’ for the technical solution:
 - Conceptual solution, logical architecture and implementation architecture (including relationship to work packages and migration)
 - Technical and technology governance principles and standards, and how they were localised to specific business imperatives
- To understand how business specific service delivery targets would be delivered through the technology architecture and technology choices, and the rationale, in architectural terms, as to why they were the most appropriate to run the business and facilitate future business change.
- To achieve sufficient awareness of development and implementation practicalities and how they related to the architectural approach, implementation principles, and operational priorities.
- To achieve sufficient understanding of the programme’s business and technical architectures.

Questions were asked for each of the technical domains under consideration, adapting the questions according to the level of understanding of the individuals being interviewed:

Where does the domain fit in the architectural ‘big picture’, who are the key stakeholders involved, and what are their priorities?

- What are the main business, operational, technical and technology drivers (internal and external)
- How do these relate to the definitions of service requirements, guarantees on service delivery, monitoring, feedback and correction

- What is the domain's positioning in the portfolio of applications supporting the business, in terms of high potential for future competitive advantage, strategic, key operational, or application providing supporting functions?
- Can the architecture be readily described
 - Conceptual solution, including quality of service considerations
 - Logical architecture
 - Relationship of architectural approach to portfolio positioning
 - Main technology choices, and rationale
 - How do these influence the physical architecture
 - How specialised is the technology solution
- Are there any particular project methodology considerations and relevant project challenges and dependencies in this domain?
- From an operations point of view, what are the main operations management considerations and challenges?
- From a software and systems development point of view, what is the primary rationale and motivation for the change?
 - How does it differ from what is currently done?
 - What are the main technical risks attendant on this technology change and main mitigations?
 - What is the intended source of benefit (improved inputs, improved process, improved outputs, or improvements in cost, quality or speed)?
 - What is the expected timing of benefits to be realised from the change?

The interview with the contract executive within RetailCo was much more focused.

Questions for meeting with contract executive

In broad terms the areas that I would like to cover at our meeting on Monday pm would include:

- Scope of the transformational agreement - breadth ie which parts of the RetailCo corporate family and relationships fall within scope (as well as the obvious, others such as the US supermarkets, RetailCo Bank, RetailCo Developments Ltd, RetailCo Property Co, and the various Joint Ventures), as well as depth ie where do the boundaries of responsibilities lie in terms of operating and improving business processes (Are these within scope for the agreement - I have been led to understand that the agreement is transformational on the business as well as the IT – is this correct?)
- The contractual intent from RetailCo's point of view
 - Intended value adding basis – the impression I have so far is that RetailCo decided to use this approach as a way of making a step change from IT as encumbrance to the business forward to IT as strategic advantage – and how that value is to be delivered. For example is the intent to make specific time-based step changes to key parts of the business and if so what are these main phases.
 - The contracted mode of delivery – for example is this a staged delivery of defined services with payment by results, what are the governance mechanisms for raising, resolving and escalating the hierarchy of issues (from the minor day-to-day issues through to major issues), what are the mechanisms for monitoring service levels and compliance concerns.
- Governance considerations
 - Ownership – in broad terms where the ownership boundary lies (my understanding to date is that the agreement is service based so assets are owned by the service delivering

organisation) and, in broad terms, the mitigations for the service delivery risks attendant on third party ownership of the assets.

- Responsibility – the responsibility boundaries and the practical division of responsibilities are less clear to me so I could do with clarification on these.
- Strategic direction – how it is envisaged to bridge between strategic intent and effective delivery with such project complexity
- Expectations – for example how the trade-offs between the day-to-day business operations and the implementing/deploying of changes are managed

Final case study – Transforming school age education

Terms of reference for sponsor meeting

Introduction

Objective is to deeply understand what Education in Kent is aspiring to achieve, initially in the context of 'The School of the Future', and identify ways in which Kent and SoftCo can work together to make progress towards this aspiration.

Organisational overview

Kent is the largest Local Authority in the UK. The Education Department serves a population of 1.3 million, with over 600 schools, 4 universities and 8 colleges as well as an Adult Education service with twice the national average of enrolments. There is a network of 678 computers in libraries with free access to the Internet.

Standards of education up to school leaving age vary from excellent to poor. Each school has its own plans for improvements, as does the County Council in the Education Development Plan (EDP). More young people need to achieve academic and vocational qualifications to support business development and attract successful businesses into Kent. One in five people in Kent has problems with basic literacy or numeracy skills. There are also gaps in ICT skills.

The decline of traditional industries has left people without local employment opportunities in the jobs they are trained to do. Employment growth has often been in manual or unskilled occupations, adding to the belief that learning is not needed for a job. Many people in the poorer parts of Kent do not believe that learning is for them. There are gaps in good quality education opportunities for Kent's large rural areas.

Organisational objectives

The overarching objective is for transformational change rather than incremental change but within a heavily constrained budget. The immediately relevant key themes appear to be 'economic success that is shared by all' and 'learning for everyone'.

Initial approach

The focus of the first meeting is on starting the process in terms of

- developing understanding - for the sponsors to understand the process and for the consulting team to start understanding their vision, and of
- working through the practicalities of making it all happen.

Scheduling of interviews

It is intended that focused meetings/interviews be scheduled with key sponsors and champions for each area to be investigated, followed by focused interviews with key individuals that they recommend.

Figure 45: Terms of reference for sponsor meeting

Reflections on sponsor meeting as a critical incident

Reflections on exec level meeting at KCC, 29 Oct 2002

Critical incident - 8am Monday morning meeting between researcher and KCC at Maidstone

Present (from KCC): Leader of Council, Chief Executive, Strategic Director (Organisation and Resources), Council Member for Strategic Direction (sponsor for SoftCo into KCC).

Present (from SoftCo): Consultant-Researcher, Business Manager (BM)

This was a one hour meeting, set up by at short notice (squeezed in before a KCC dinner to be attended by SoftCo on the Tuesday) to explore and develop the potential for a strategic relationship between KCC and SoftCo by testing the value proposition of KCC senior staff giving up time to work with SoftCo's Consultant.

The meeting was a follow on to a tough but successful and enthusiastic initial meeting between SoftCo and KCC two weeks previously with two Members (for strategic direction and for redevelopment) and two Officers (eChannels and

Finance). It was agreed at this preceding meeting that we would work towards a memorandum of understanding between SoftCo and KCC that could be discussed, if not signed, at a dinner on the Tuesday evening to which SoftCo's General Manager had been invited by KCC. SoftCo's Director, Public Sector (not General Manager) and Business Manager would be representing the Vendor at that dinner.

Our understanding was that KCC were interested in the prospect of working with SoftCo and that this meeting would be a round table discussion to secure commitment and buy-in from these senior executives by giving them the chance to meet the consultant and also discuss how to move forward towards a Memorandum of Understanding.

Reflections on the meeting

In the event the meeting did not follow an agenda, even though we had prepared and had an outline memorandum of understanding, as it was not clear who owned the meeting and hence who was nominally in the chair. In retrospect the atmosphere was cautiously negative to begin with, although I do believe KCC were open to being convinced by a compelling and clearly articulated value proposition. I expected the scope of interest to be focused on the Broadband Kent prospectus, and had prepared arguments around this transformational change. In the event this area of focus was quickly excluded by the Leader of the Council who moved discussion rapidly to the county wide agenda and SoftCo's existing record in major transformational change, and by the strategic director who was concerned to know exactly what we proposed to do with KCC, how we would proceed, particularly in relation to the many existing projects going on such as their call centre changes and in relation to their existing supplier relationships in the area of organisational transformation. The strategic director appeared to be distinctly unimpressed by having to attend this meeting at short notice and at an inconvenient time.

Background

SoftCo has been developing a relationship with KCC based on technology pilot studies in education. The Business Manager has developed relationships with a limited number of Head Teachers and with the Assistant Director for Resources, and recently spent time with the Assistant Director for Resources at SoftCo's recent Education Leaders Conference.

KCC had been identified as a target account for SoftCo's Business Productivity team for joint PR and joint projects. The Business Productivity team had apparently given the Business Manager the impression that there were sufficient days of investment funding to carry out a substantive Business Discovery engagement to develop SoftCo's understanding of the account and to identify likely PR case study targets.

Reflections on the process

It turned out, after the first meeting had taken place, that only 15 days funding could readily be allocated (from a total of 100 days allocated for technology deployment case studies) and that these should be targeted towards technology deployment on the desktop. Considerable effort was then expended internally to:

- explore whether those 15 days could realistically be allocated to exploring opportunities and developing a relationship
- gain a degree of commitment to those days
- explore whether any further days could be made available, Eventually a further 10 days were identified, although grudgingly.

To date no actual formal commitment to any of this investment funding has been established.

During the extended internal discussions it became clear that there were conflicting expectations and objectives from the different internal parties involved:

- Business Productivity team looking to develop higher level customer relationships with associated joint PR
- Technology deployment PR case studies
- Consultant has revenue, utilisation and credibility (both internal and external) challenges
- Business Manager has sales targets

No (internal) executive sponsor championing this activity

This made it very difficult to work out a revised proposition to KCC that would build on the previous meeting and yet move the relationship forward in a way that would be sufficiently acceptable to all parties involved (both SoftCo internal and KCC).

Late on the Friday before the meeting we discovered in passing that there had been other recent SoftCo projects at KCC of which we were unaware. It appears that these are undocumented (in account terms) so it is not easy to identify what had been done, who was involved, and what the outcome was. Plans were put in place to get a brain dump on one of these projects, but this was not possible before the Monday morning meeting due to time constraints.

Learning points

Consultant checklist for senior exec meeting

- Agenda (with options)
- Ownership of meeting

Chairmanship/governance of meeting (including minuting)
Objectives
Value propositions
Why is the meeting valuable use of their time (particularly if it is at an unsocial time)?
What is the proposition on the table (what are the attendees committing to as a result of the meeting)?
How will the proposition be translated into action?
Why is that proposition valuable (to each attendee)?
What is compelling about the proposition?
Scope – be clear on what could be within scope for vendor's capabilities and what should be out of scope
Recognise that attendees may have very particular existing views towards vendor
Know sufficient background on the organisation to underpin the value proposition and link it to the organisation's objectives
Know the background to each of the attendees
Know the power relationships between the attendees
Know each attendee's agenda
Identify how existing relationships will be protected
Exit/bail out strategy (in case of emergency)
Rehearse meeting, possible outcomes, and risk mitigations beforehand
Be sufficiently prepared to take ownership/chairmanship of the meeting and steer it to successful outcome
Be prepared to postpone meeting if the purpose, objectives and ownership are not clear. Work to protect the position and reputation of your sponsor.

Figure 46: Reflections on critical incident

APPENDIX D Synthesis of alternative management theories considered

Figure 47 represents the synthesis of management models and theories which was used as an initial reference point on business strategy for the research (Moore, 1992; Harding and Long, 1998). Areas of focus for NIE have been highlighted.

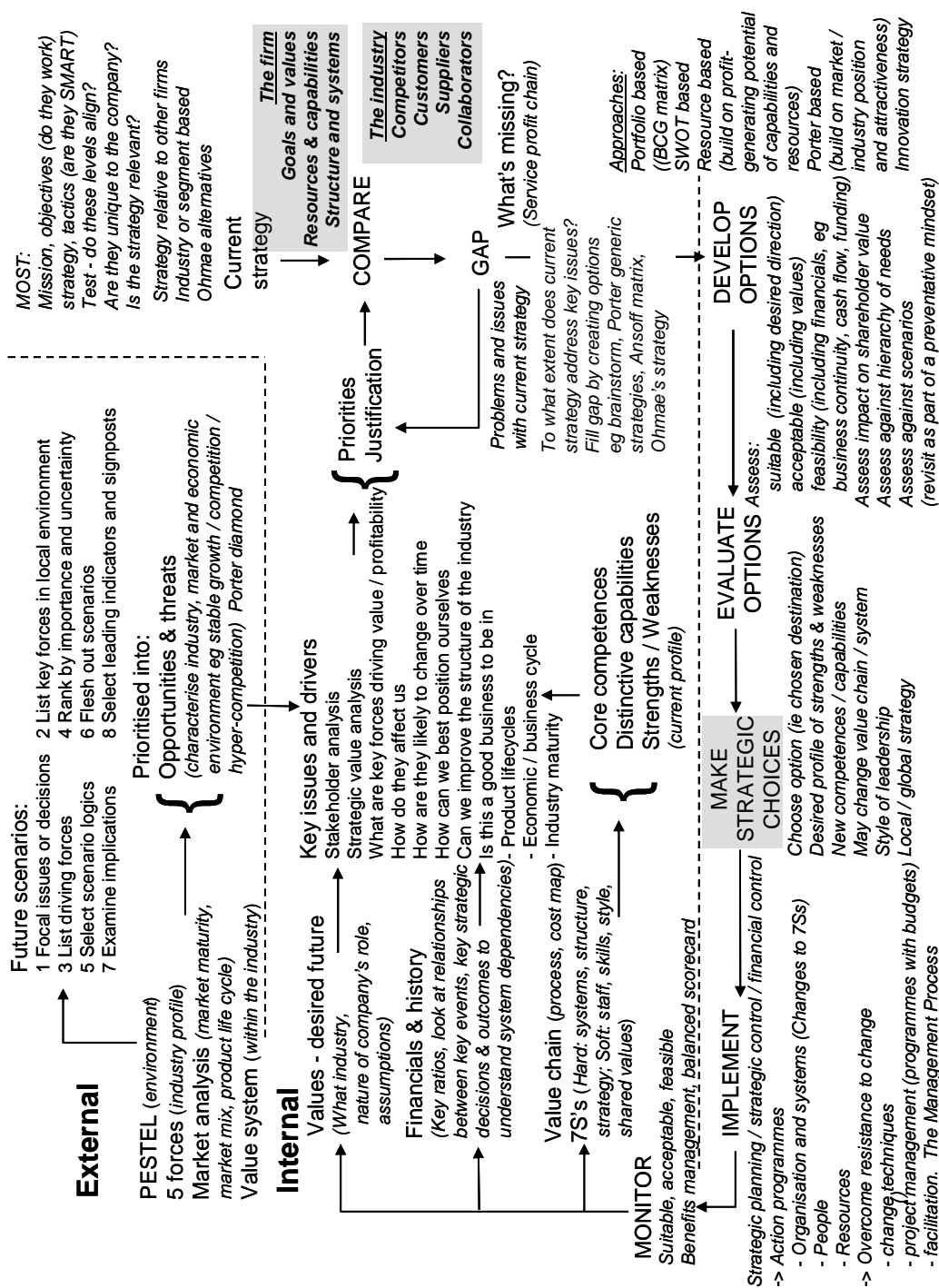


Figure 47: Synthesis of alternative management theories

LIST OF ABBREVIATIONS

.NET	Microsoft.NET – a commercial web service technology
AR	Action research
AT	Agency theory
B2B	Business to business
BTB	Business transformation board
CEO	Chief executive officer
<i>Ceteris paribus</i>	All other things being equal ... (this term is commonly used in the NIE literature)
CIO	Chief information officer
CLR	Common language runtime
Consortium A	Pseudonym for a first systems integration consortium used for confidentiality purposes
Consortium B	Pseudonym for a second systems integration consortium used for confidentiality purposes
Consortium C	Pseudonym for a third systems integration consortium chosen for confidentiality purposes
ConsultCo	Pseudonym for a major consulting company used for confidentiality purposes
COTS	Commercial-off-the-shelf
CST	Critical social theory
DotCom	Popular term for internet start-up companies
e-	Prefix to indicate ‘electronic based’
ETHICS	The effective technical and human implementation of computer systems, a participatory and ethical approach to information systems development
FinanceCo	Pseudonym for a financial services company used for confidentiality purposes

FMCG	A retail company specialising in fast moving consumer goods
GovDept	Pseudonym for a government department used for confidentiality purposes
H-form	Hybrid form of company, neither single divisional, or pure multi-divisional
HR	Human resources
IC	Intellectual capital
ICT	Information and communication technologies
IT	Information technology
ITIL	Information technology infrastructure library
ITVC	IT value committee which allocates funds within the RetailCo outsourcing programme
JVCo	Pseudonym for a joint venture company, set up by ConsultCo and SoftCo, used for confidentiality purposes
KCC	Kent County Council
LEA	Local education authority
M-form	Multi-divisional company structure
MAI	Mortgage application intermediary
MAP	Mortgage application process
MBA	Master of Business Administration
N-form	Company formed of a network of operating divisions
NIE	New institutional economics
PAR	Participatory action research
PC	Personal computer
PFI	Public finance initiative
PMP	Project management plan
PoC	Proof of concept

POSM	Point of sale for mortgages application
PR	Public relations
ProcAuto	A market-leading in-house process automation tool used by FinanceCo
RBV	Resource based view
RetailCo	Pseudonym for a large retail company used for confidentiality purposes
SLA	Service level agreement
SoftCo	Pseudonym for global software company, for whom the researcher worked as a strategy consultant during the period of the research, used for confidentiality purposes
SPV	Special purpose financial vehicle
Supplier A	Pseudonym for a desk-top software supplier used by GovDept, used here for confidentiality purposes
TCA	Transaction cost analysis
TCE	Transaction cost economics
TV	Television
U-form	Unitary, that is single division, form of company
UK	United Kingdom of Great Britain and Northern Ireland
US	United States of America
web	The world wide web of internet sites
web services	An internet technology which allows software applications to be accessed as information services
WSP	Web services project

GLOSSARY OF CONCEPTS

Concept (and use in case studies) (1-4)	Description
Agency cost (1) (2) (3) (4)	The sum of the monitoring expenditures of the principal, the bonding expenditures by the agent, and the residual loss (the reduction in the value of the firm that obtains when the entrepreneur dilutes his ownership). Reflected in ex-ante incentive alignments.
Appropriation of value (1) (2) (3) (4)	The rightful generation of returns from an asset.
Asset (1) (2) (3) (4)	Financial, physical or organisational asset.
Asset specificity (1) (2) (3) (4)	The degree to which an asset can be redeployed to alternative use without loss of productive value. An important dimension for describing transactions which needs to be considered in analysing costs of economic behaviour. This is less about whether there are large fixed investments than whether the investments are specialised to a particular transaction. When items are not specialised users can turn readily to alternative sources of supply and suppliers can sell output intended for one buyer to another buyer without difficulty.
Attitude to risk (1) (2) (3) (4)	The agent's attitude to risk directs their response to behavioural incentives.
Bargaining cost (1) (2) (4)	The costs of negotiating the terms of the exchange, such as the costs of lawyers and consultants.
Bi-lateral dependency (1) (2) (3) (4)	An ongoing dependency relation obtains between a buyer and a supplier when one or both have made durable specialized investments in support of the other. Although sometimes this condition exists from the outset (the familiar bi-lateral monopoly condition), often it evolves during an ongoing contractual relation. Bi-lateral dependency, in which one or both parties specialize for the other, is a much more widespread condition than pre-existing bi-lateral monopoly. Such dependency poses contractual hazards in the face of incomplete contracting and opportunism, in response to which contractual safeguards are commonly provided.
Bounded rationality, in contrast to unbounded rationality or hyper-rationality (1) (2) (3)	<p>This refers to behaviour that is intendedly rational but only limitedly so; it is a condition of limited cognitive competence to receive, store, retrieve and process information. All complex contracts are unavoidably incomplete because of the bounds on rationality.</p> <p>Reflections on the second case highlighted an aspect of bounded rationality in the use of 'pseudo-science' in industry white papers that purport to present research findings, but where the research approach is unsound. For example surveys may be too small to produce significant results, or the theoretical basis for the analysis may be opaque. This point was reinforced by a recent study (Collins, 2001) where unexpected findings are substantiated through sound and credible research.</p>
Brand name capital (1) (4)	Investments made in brand name as a credible commitment
Capability (1) (2) (3) (4)	NIE takes an external view of the capability of firm. The RBV could be used in parallel to analyse within firm (Madhok, 2002). Alternatively a knowledge based view (Afuah, 2001) can be used to discuss business changes resulting from technology change which renders specific technical competences obsolete.

Computational boundedness (1) (2)	Limitations on rationality caused by inability to process information
Contract (1) (2) (3) (4)	An agreement between a buyer and a supplier in which the terms of exchange are defined by a triple: price, asset specificity, and safeguards (assuming that quantity, quality and duration are all specified).
Contractual hazard (1) (2) (3) (4)	Moral hazard occurs when the actions of agents cannot be perfectly observed or contracted for directly, such as the lack of observability of contingencies and the consequence of hidden, unverifiable action within contractual relationships. Includes effects which insurance contracts may have on the behaviour of the insured persons, for example
Contractual safeguard (2) (3)	An instrument which seeks to protect parties from post-contract opportunistic behaviour by partners. The added security features, if any, that are introduced into a contract in order to reduce hazards (due mainly to asset specificity) and to create confidence. Safeguards can take the form of penalties, a reduction in incentive intensity, and/or more fully developed private-ordering apparatus to deal with contingencies.
Credible commitment (2) (3)	A contract in which a promisee is reliably compensated should the promisor prematurely terminate or otherwise alter the agreement. This should be contrasted with non-credible commitments, which are empty promises, and semi-credible commitments, in which there is a residual hazard. Credible commitments are pertinent to contracts in which one or both parties invest in specific assets.
Decision cost (2) (3)	Costs that arise from the participation of a group in the decision process. Due to differing aims and motives of participants of decision groups, coming to a shared agreement can be a very time-consuming process. Also caused by contracts that were not fulfilled in the way they were negotiated or by contracts that were not closed in the intended meaning.
Dedicated asset (1) (2) (3) (4)	Investments made to support exchange with a particular customer which, although not specific to that customer, would result in substantial excess capacity were that customer to discontinue purchases (Crocker and Masten, 1996)
Discriminating alignment (2) (4)	The assignment of least-cost governance structures to manage transactions.
Efficient boundary (2) (3) (4)	As technology that underpins a firm's product evolves, so do the efficient boundaries (Afuah, 2001). Afuah suggests that there is an 'efficient frontier' on which firms perform best in the face of competence destroying, or competence changing technological change. This may be revenue related rather than price-performance focused. Afuah's view echoes Coase's (1998) view of the need to pay managerial attention to the impact of technological change on firm boundaries, taking the firm boundary as a decision variable.
Enforcement cost (3)	The costs of enforcing the terms of a contract. Includes disincentive costs which emerge through opportunistic behaviour of transaction partners or employees seeking to interpret the contract to their own advantage. Includes unannounced high increase of prices by a supplier of products which have a high level of specificity.
Execution (1) (2) (3) (4)	The focus on economising shifts attention away from just the transaction costs associated with organising through the market and incorporating differences in production costs between firms which originate in the different capabilities within firms. This provides a more comprehensive lens into the organisation of economic activity.
Firm (organisation) boundary (1) (2) (3) (4)	Technologically separable interface bounding the firm. Point at which the firm gives way to the market, and vice versa.

Governance (1) (2) (3) (4)	Assessing the efficacy of alternative means of organisation.
Governance structure (1) (2) (3) (4)	The institutional matrix in which the integrity of a transaction is decided. In the commercial sector three discrete structural governance alternatives are commonly recognised: classical market, hybrid contracting, and hierarchy.
Hierarchy (1) (2) (3) (4)	Transactions that are placed under unified ownership (buyer and supplier are in the same enterprise) and subject to administrative controls (an authority relation, to include fiat) are managed by hierarchy. The contract law of hierarchy is that of forbearance, according to which internal organisation is its own court of ultimate appeal.
Human asset specificity (1) (2) (4)	Human capital specificity arises when one or both parties develop skills or knowledge valuable only when dealing with the other (Crocker and Masten, 1996)
Hybrid (1) (2)	Long-term contractual relations that preserve autonomy but provide added transaction-specific safeguards compared with the market.
Incentive (2)	Incentive intensity - A measure of the degree to which a party reliably appropriates the net receipts (which could be negative) associated with its efforts and decisions. High-powered incentives will obtain if a party has a clear entitlement to and can establish the magnitude of its net receipts easily. Lower powered incentives will obtain if the net receipts are pooled and/or if the magnitude is difficult to ascertain.
Incomplete contracting (2)	Contracts are effectively incomplete if (1) not all the relevant future contingencies can be imagined, (2) the details of some of the future contingencies are obscure, (3) a common understanding of the nature of the future contingencies cannot be reached, (4) a common and complete understanding of the appropriate adaptations to future contingencies cannot be reached, (5) the parties are unable to agree on what contingent event has materialised, (6) the parties are unable to agree on whether actual adaptations to realised contingencies correspond to those specified in the contract, and (7) even though both the parties may be fully apprised of the realised contingencies and the actual adaptations that have been made, third parties (eg the courts) may be fully apprised of neither, in which event costly haggling between bi-laterally dependent parties may ensue.
Individual (1) (2) (3) (4)	The unit of analysis for agency theory
Industry (1) (2) (4)	The unit of analysis in the structure-conduct-performance approach to industrial organisation (Williamson, 1996c)
Information boundedness (2) (4)	Limitations on rationality caused by lack of information
Information cost (1) (2) (3) (4)	Costs caused by lack of information in the process of interaction. Includes costs that are caused by the use of different languages (eg translation costs) or by technical problems that disturb exchange of information (eg costs of technical equipment to overcome this disturbance).
Institutional environment (1) (2) (3) (4)	The rules of the game that define the context in which economic activity takes place. The political, social, and legal ground rules establish the basis for production, exchange and distribution
Institutional arrangement (1) (2) (3) (4)	The contractual relation or governance structure between economic entities that defines the way in which they co-operate or compete.
Institutions of governance (1) (2) (4)	The alternative forms of governance, including markets, hybrids and hierarchy

Internal development (1) (2) (4)	A way of organising production within the organisation
Joint Venture (2)	Hybrid form of governance structure
Large and small numbers bidding and supply (2)	A large numbers supply condition may be transformed into a small numbers exchange relation during contract execution and contract renewal.
Long term purchase agreement (1) (2)	Otherwise described as franchise bidding.
Market (1) (2) (3) (4)	The arena in which autonomous parties engage in exchange. Markets can be either thick or thin. Classical markets are thick, in which case there are large numbers of buyers and sellers on each side of the transaction and identity is not important because each can go its own way at negligible cost to the other. Thin markets are characterised by fewness, which is mainly due to asset specificity. Hybrid contracts and hierarchy emerge as asset specificity builds up and identity matters.
Market failure (2)	The test for market failure is that of remediableness – an outcome for which no feasible superior alternative can be described and implemented with net gains is presumed to be efficient. Market failure assumes a world of zero transaction costs.
Nexus of treaties (1) (2) (3) (4)	Alternative view of the firm (Aoki, 1990) as viable clusters of organisations
Opportunism (1) (2) (3) (4)	Self-interest seeking with guile, to include calculated efforts to mislead, deceive, obfuscate and otherwise confuse. Opportunism should be distinguished from simple self-interest seeking, in which individuals play a game with fixed rules that they reliably obey.
Organisation structure (1) (2) (3) (4)	U-form organisation: Unitary organisational form, consisting of single division. M-form organisation: Multi-divisional organisational form N-form organisation: Network organisation
Ownership (1) (2) (3) (4)	The unit of analysis for the economics of property rights (Williamson, 1996c)
Physical asset specificity (1) (2) (3) (4)	Investments in equipment such as tooling or equipment specially designed for a particular customer. (Crocker and Masten, 1996)
Policing cost (2)	The costs of policing performance against a contract. Includes execution costs arising from the collection of overdue performances or payments.
Principal, agent, principal-agent relationship (1) (2) (3) (4)	Agency theory addresses the separation of ownership and control (authority and responsibility). The theory makes a distinction between the principal and the agent. The principal hires or retains the agent because of the agent's specific talents, knowledge and capabilities to increase the value of an asset. In order to increase the value of that asset, all or some of the principal's decision rights over that asset must be transferred to the agent, for a finite period of time. Agency theory assumes that the interests of principals and agents are not, per se, aligned. With a conflict of interests, rational individuals always choose the option that makes them better off, as they see it. The principle can regulate the behaviour of the agent through decision rights (the right to exercise control), knowledge and incentives.
Private ordering (2)	The self-created mechanisms to accomplish adaptive, sequential decision making between autonomous parties to a contract, including information disclosure, dispute settlement, and distributional mechanisms to deal with gaps, errors, omissions and inequities. (Court ordering is normally available for purposes of ultimate appeal.)

Property rights (1) (2) (3) (4)	The right to use the asset, the right to appropriate returns from the asset, and the right to change the asset's form and structure (Williamson, 1996c). Subject to two types of security hazard – expropriation by government, and expropriation by commerce (rivals, suppliers, customers, employees)
Quasi-rent (1) (4)	The quasi-rent value of an asset is the excess of its value over its salvage value, its value in its next best use to another renter. The potential appropriable specialised portion of the quasi-rent is the portion, if any, in excess of its value to the second highest-valuing user.
Rational ignorance (2)	Rational ignorance is the option of an agent not to acquire or process information about some realm. Ordinarily used to describe a citizen's choice not to pay attention to political issues or information, because paying attention has costs in time and effort, and the effect a citizen would have by voting per se is usually zero.
Remediable	A condition is held to be remediable if a superior feasible alternative can be described and implemented with net gains.
Satisficing (4)	Finding a course of action that is good enough, replacing the goal of maximising. An essential step in applying the principle of bounded rationality
Search cost (1) (2) (4)	The costs of searching for transaction partners or alternative actions, such as time needed for the search at special organisations, costs which are caused by the use of telecommunication, online services, special publications, or management consultants.
Site or location specificity (2) (4)	Occurs when a buyer or seller locates his facilities next to the other to economize on transportation costs (Crocker and Masten, 1996)
Strategic alliance (2) (4)	Hybrid form of governance structure
Temporal specificity (3) (4)	Like technological non-separability. Can be thought of as a type of site specificity in which timely responsiveness by human assets is vital (Masten et al, 1991)
Transaction (1) (2) (3) (4)	The microanalytic unit of analysis in TCE. A transaction occurs when a good or service is transferred across a technologically separable interface. Transactions are mediated by governance structures.
Transaction cost (1) (2) (3) (4)	Defined as the resources necessary to transfer, establish and maintain property rights. The ex ante costs of drafting, negotiating, and safeguarding an agreement and, more especially, the ex post costs of maladaptation and adjustment that arise when contract execution is misaligned as a result of gaps, errors, omissions, and unanticipated disturbances; the costs of running the economic system.
Weak form selection (4)	Selection from among the better of the feasible alternatives, as contrasted with selection of the best from all possible, to include hypothetical alternatives. In a relative sense the fitter survive but these may not be the fittest in any absolute sense.

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