Managing Across Diverse Networks of Care: Lessons from Other Sectors

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1. Introduction and aims

1.1. Introduction

Public sector policy makers and managers have developed a growing interest in the concept of 'networks'. In the UK NHS, attention has focused on the development of 'clinical networks' that concentrate on the creation of new linkages between primary and, more particularly, between secondary and tertiary care. Moreover, the developing concept of the 'network' at policy level appears to have developed beyond the idea of the 'hub and spoke' model such that the interests of the 'network' as the organisational leader of care provision dominates those interests of individual hospital institutions (Edwards, 2002). The idea of such 'network organisations' is increasingly being drawn into mainstream policy and decision-making discussions, particularly in Scotland where 'managed clinical networks' are being piloted across both specialties (such as neurology) but also diseases (such as diabetes and cancer) (Woods, 2001). Other networks have also developed by client group (such as older people or children). Such managed networks of care have best been described as:

'Linked groups of health professionals and organisations from primary, secondary and tertiary care working in a co-ordinated manner, unconstrained by existing professional and [organisational] boundaries to ensure the equitable provision of high quality and clinically effective services'

(Scottish Office, 1999).

One of the key attributes about a clinical network is that it allows for a continuous working relationship between organisations and individuals to improve the treatment of patients who require care across a range of different institutions. Hence, clinical networks are argued to be potentially advantageous in a number of ways, for example:

- making more efficient use of staff;
- reducing professional and organisational boundaries;
- sharing good practice;
- putting the patient at the centre of care, and;
- improving access to care (NHS Confederation, 2002).

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The emphasis on clinical networks as a system for sustaining access to a range of care is of particularly importance in the debate. Hospitals in the UK, and indeed throughout Europe and other parts of the world, have begun to shed functions to multi-disciplinary community-based health services and such hospitals have begun to specialise as a result (McKee and Healy, 2003). The process has accelerated due to informational and technological advances and because of regulations, such as those on the working hours of doctors, and the use of public, private and overseas providers. Consequently, the notion of a single hospital providing all facilities necessary for a catchment area is no longer tenable (Baker and Lorimer, 2000). The need for integration and the formation of hospital and clinical networks has gained favour as an alternative method. The influential Calman-Hine (1995) report, for example, suggested how cancer services should be delivered through networks of professionals rather than buildings in order to reduce delays in diagnosis and treatment. In theory, the approach should sustain and maintain access to care to patients of those local services threatened by closure while ensuring patients receive a standard investigation locally.

The concept of the 'network' as a way of delivering care is relevant to the much broader policy objective on delivering integrated services. Indeed, the literature on networks is spread across a very wide range of organisational disciplines, to which this research is an attempt at synthesis. Moreover, as Hudson (2003) suggests, the concept is 'slippery' and difficult to pin down. Networks, it is argued, are characterised by 'flat' organisational structures and underpinned by 'soft' values such as trust, worthiness and egalitarianism. The management of such an approach it has been argued, requires a greater emphasis on negotiation and a different strategem from that associated with old command and control structures (Ferlie and Pettigrew, 1996). The creation of new professional and organisational networks will have a major impact on the future quality of health and social care and upon the experiences of users and carers. Better understanding of the leadership and management of networks is vital for the development of sound policy, intelligent management practice and management training.

1.2 Research Aims

This systematic review examines the subject of managing across diverse networks of care by drawing on lessons from various public and private sector literatures .It addresses the following four broad questions:
  - What strategies do organisations use to manage networks, and with what degree of effectiveness?
  - What internal capacities and capabilities are required to support the management of networks, and how are the roles of individuals within networks defined and managed?
  - By what means, and with what degree of effectiveness, can state and other bodies exercise governance over whole-system networks?
  - What are the main criteria by which we should judge the success or failure of strategies of management and governance of networks?

The overall aim of the research has been to derive implications for management, governance, leadership and policy in health and social care. Since the breadth of material on networks is considerable (see chapter 2), the research has focussed on developing an understanding of the key theories and principles that underpin network governance and management. Moreover, four practical case areas were selected for in-depth review: biotechnology (chapter 6), the defence industry (chapter 7), crime, disorder and drugs (chapter 8), and health and social care partnerships (chapter 9). These four sectors were chosen for four key reasons. Firstly, it was considered important to identify lessons from both public and private sectors in order to establish commonalities for network management. Secondly, the research fields could identify lessons on the basis of some cross-national experience. Thirdly, it was important to select fields in which extensive research has been conducted into the nature of inter-organisational relations. Fourthly, it was not only important to examine fields subject to centralised state procurement, regulation and standard-setting (which the NHS has traditionally exhibited) but also fields that are more decentralised. In this respect, the defence industry lies at one extreme, biotechnology at the other, and crime and disorder somewhere between the two. For these reasons, the fields provide variety of key dimensions along which networks and their management could be compared and contrasted.

The research provides the first systematic overview of the literature on managing networks its purpose has been to help managers and policy makers in both health and social care to develop and lead networks effectively. To address this, the research has not just attempted a synthesis of the available literature but has also concentrated on providing an analytical interpretation of the evidence.

1.3 Specific questions and issues within the research

In order to achieve a structured comparison of the different network forms and management styles, the research has examined the literature under the following three key themes:
- Management '*within*' networks;
- Management *of* networks; and
- Governance of networks;

The first two themes make an important distinction in the analysis of the literature between those studies that examine the management *of* networks and those that examine management *within* networks.

1.3.1 Management '*within*' networks

The internal organisational capabilities of networks are important to examine from a strategic management viewpoint since it will be necessary to establish those conditions that enable managers to implement partnership strategies. Key questions for consideration include:

How flexible and opportunistic must managers be to manage such networks?

How do organisations define, institutionalise and sustain innovations that can be successfully recognised, adopted and implemented from other organisations in a network?

When managers seek to influence the organisations and individuals within a network, with what purposes do they do this, and how do they achieve common approaches? How far and when are network concepts explicitly used?

What are the key roles that individuals perform in management within networks – for example, the roles of boundary-spanners, co-ordinators, procurement managers, account managers, and chief officers?

What are the key roles for individuals in a network of peers?

How are networks best co-ordinated to enable the effective management of the network?

How do leadership and management skills within networks differ from those of single organisations?

1.3.2 Management of networks

Unlike management *'within'* networks, the management of a network (or networks) is different since it infers the recruitment and facilitation of constituent members (organisations) within some form of integrated organisational structure. Key questions that arise from this form of network management include;
- How are organisations recruited into the network?
- How and why do organisations wish to participate in such networks?
- How are the boundaries of the network defined?
- What management strategies facilitate the cohesion of the network?
- What are the principal tools for management within such networks, and what can be said about their efficacy?
- How does the behaviour of the partner organisations in the network influence its structure for good or bad?
- Are organisational networks exclusive – i.e. do they create their own identity at the exclusion of potential partners?

1.3.3 Network governance

In addition to the role of managers and management in networks, the third principle aim of the research has been to look specifically at the tools for network governance. In particular, drawing on the categories of tools identified in the mainstream literature on government, how appropriate and effective to networks are governance tools that provide incentives and inducements (in the form of contracts or grants) compared to those based on common values, persuasion and trust?

The overall purpose of this research has been to establish within these three areas the criteria for success and failure in management and governance and

to apply these findings where appropriate to networks in health care. This process requires an evaluation of the main criteria or standards by which one might judge the equity, efficiency, effectiveness and relevance of management and governance strategies.

1.4 Report structure

This main report from the literature review presents an in-depth overview of the study findings along with a structured analysis of the literature based on the information collected. This 'main' report is intended to provide a comprehensive theoretical and practical understanding of network forms and their management and governance needs. A shorter policy report has been developed to complement this main report (Goodwin et al, 2003).

This main report provides a summary of the methodological tools used and the literature researched (chapter 2). The three theoretical papers that follow examine the nature of inter-organisational networks. These include an examination of inter-organisational networks that defines the key concepts and described the multiple network forms that can exist (chapter 3). This is followed by a paper on the management and governance of networks (chapter 4) and on the importance of trust and trustworthiness (chapter 5). The second half of the report examines the four 'practical' studies described earlier. The main conclusions (chapter 10) provide a series of key lessons both in terms of the necessary managerial skills to craft networks and the potential forms and characteristics of networks in the future NHS.

1.5 References

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2. Project methodology

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The methodological processes developed by this literature review have needed to cope with a very great range of literature sources. Given the breadth of material uncovered, the research had to employ an approach that limited the nature of the systematic review in order to provide focused and timely examination of the literature on managing across diverse networks. The research employed two principle methods to retrieve literature sources for investigation: electronic searches of key databases and hand-searches of key journals and subsequent 'snowballing' of references.

2.1 Electronic literature searches

The research process used electronic literature searches of key databases that produced a great wealth of references. However, assessment of such references against the research teams criteria for rigour and relevance (see section 2.3) revealed that their relevance to the study was generally quite limited. As a consequence, the electronic database searches had to undergo a series of iterative modifications to restrict the number of references to be retrieved to manageable proportions. Moreover, the use and purpose of the electronic literature searches became modified over a period of pilot phases.

Initially, a first round of electronic searches was piloted within three key databases (The Health Management Information Consortium (HMIC), Medline and the Applied Social Sciences Index and Abstracts (ASSIA)). Searches were undertaken using a wide range of 'network' synonyms and 'organisational' synonyms using a combination of keywords and descriptors (subject headings). This scoping exercise showed the need to exclude (or focus attention on) certain synonyms from the keyword and descriptor fields as the initial searches brought up too many references, and too many with lack of relevance, for the analysis. The second round of electronic searches was piloted using a restricted number of synonyms, filtering out those that provided the highest and least relevant references. For example, within the HMIC database (a combined database of the Nuffield Institute, King's Fund and Department of Health) the 'network' synonyms which were excluded from the searches included 'inter', 'net', 'web', 'relations' and 'trust'. Furthermore, a number of 'descriptor' searches were also excluded, including 'management', 'professional', 'clinical', 'trust', 'policy' and 'political'. Despite

the reduction in keyword terms used, some 16904 results were obtained. Piloting of searches within Medline that undertook the same process of exclusion still hit 26781 results, while Assia produced 633 results.

Since the numbers of references being returned from the electronic searches was too large for the analysis, further refinement was required to focus the approach. In a third phase of piloting, it was decided to focus the electronic searching within the four key industrial areas outlined in the research brief: health and social care; defence material contracting; biotechnology, and crime, drugs, and disorder. The first subject area for piloting in this third phase was in the area of health and social care partnerships. The range of descriptors and keywords (that varied slightly by the nature of each database) that were used in these searches are shown in Box 2.1.

Box 2.1: Typical descriptors and keywords used in electronic literature searches: health and social care

| Descriptors:

interagency collaboration,

joint working,

inter-professional collaboration,

care pathways,

network;

networks;

networking;

interagency relations,

inter-organisational relationships; | interorganisational working;

interprofessional relations;

shared care;

partnerships;

joint ventures;

cooperative behaviour;

interinstitutional relations;

organizational affiliation;

critical pathways;

clinical pathway. | Keywords:

clinical network,

care pathway,

integrated care pathway,

hospital network,

care network;

critical pathway;

hospital care pathway. |

Taking into consideration that every database varies according to how it is indexed, each search was performed as consistently as possible using a combination of both 'descriptors' or subject headings, taken from the database's thesaurus, as well as 'keywords'. The use of the search techniques of 'truncation' and the utilisation of the term 'adjacent' were also used, as appropriate, in order to be as thorough as possible.

Descriptors and keywords generally needed to be combined from the more generic and less focused descriptors and keywords. These were eliminated during the process of piloting because they produced articles that were of limited value and not necessarily related to the health and social care area. Excluded terms included general descriptors such as network(s), partnership(s), co-ordination, collaboration, collaborative care, connection, teamwork, inter-professional relations, critical pathways, community networks, and inter-agency relations. Despite limiting the searches to the

most relevant keywords, over 9000 references were still produced (Appendix A).

As a further refinement to the electronic search and retrieval strategy, it was decided to place these latter electronic searches into a reference manager package to eliminate the duplicates. Reference manager has subsequently been used for more detailed searches with the help of information and references provided through hand searching (for example, in the field of health and social care, by key author, by project name or approach, and by clinical speciality or disease area - such as cancer). The references have also been searched to try and bring forward those articles deemed to be of greatest rigour – particularly systematic reviews and surveys.

The same generic strategy was employed in the areas of the defence and biotechnology industries, and for crime, disorder and drugs. The number of available references within these sectors was more manageable (Appendix A). In each case, one lead researcher took responsibility for the analysis of each field and prioritised the literature retrieved using the procedure to determine the rigour and relevance of each (see Table 2.3)

The approach to analysing the information contained within the electronic databases has been flexible and pragmatic with the purpose of increasing the degree of focus from its initial broad searches, a methodological strategy that appears to have generic support (see Mays, Roberts and Popay, 2001). However, overall, hand searching proved to be a more productive method in identifying the literature of the greatest relevance to the research.

2.2 Hand searches of key journals

The list of journals that the research team targeted for hand searching is shown in Appendix B. Overall, 20 key journals from 1990 to present were selected from a number of disciplinary backgrounds: health policy, organisational sociology, public administration, institutional economics, and management. In addition journals for study were to be included as suggested by advisory group members. The journals suggested by advisory group members for analysis are included in Appendix B.

Hand searching of key journals proved highly effective in generating relevant literature sources. An initial piloting of the hand searching method was undertaken using the following three journals: Strategic Management Journal, Administrative Science Quarterly and Organisational Studies. In addition to the relevant books and articles that arose from a traditional 'snowballing' method within these journals, some 147 articles and 74 books were identified for further analysis. It was agreed between the researches that in each case the articles and books were of direct relevance to the objectives of the research study. In each case, the literature identified was added within a reference manager package (tagged and prioritised as a hand searched article). The same process was then developed for use with outstanding journals for hand-searching.

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Each piece of literature examined via electronic and hand searches was rated and prioritised by each individual researcher using the following seven-fold categorisation. These ratings of 'rigour' were developed from an assessment of previous policy-based literature reviews (Mays et al, 2001) and methodological arguments (Popay *et al,* 1998). In order of priority, the seven categories to rank literature retrieved were as follows:

- Systematic review
- Representative sample survey or population survey
- Non-representative sample survey
- Multiple or single case-study
- Theory article and/or book – indirect research or theoretically informed commentary
- Expert opinion/think pieces/opinion surveys/ policy papers/guidance
- Opinion leaders/news reports/anecdote

The purpose of the prioritisation was to ensure that the most relevant pieces of literature were examined first. The seven-fold categorisation above was thus the measure of 'rigour' that the research team attached to the literature.

Further to the aims and objectives set out in chapter one, the research methodology also made a number of categorisations based on the relevance of each piece of literature to the different research areas in question. The first of these measures of 'relevance' relates to whether the reference tackles management 'within' networks or the management 'of' networks (or both). A further measure of relevance looked specifically at the activity that was being examined in the article based on the following four activities:
- Influencing or securing one's own position within a network
- Influencing the 'positions' of others and/or the network structure
- Influencing the network 'function' - developing vision and goal
- Influencing 'relations' with others

The overall purpose of the literature categorisation was to enable each article to be ranked (or tagged) in terms of level of rigour and relevance. Of course, it was possible for some articles to be relevant in a number of different fields. The purpose of the categorisation was to enable the retrieval of the 'most important' articles first. The articles themselves were analysed using the four key issues posed by the research team: the external management strategies of networks; internal organisational capabilities for managing within networks; governance of networks; and criteria for success and failure in management and governance.

2.3 Advisory group

The purpose of the advisory group was to enable the researchers to consult 'experts' in the field in order to add value to the research, gain access to sources of grey literature, and to be steered in the direction of the most relevant and useful sources of literature available. The plan from the outset was to gain approximately twelve members, half from within the field of

practitioners in health and social care and a further half within the field of academia aiming at a number of different organisational and theoretical disciplines. A third category of members was targeted from overseas academics and advisors while further members could be added at the discretion of the researchers.

Each member who accepted the invitation to be on the advisory group was asked to advise on appropriate journals or sources of literature that the study should be accessing (including grey literature). Furthermore, the advisory group would provide comment on one of two reports being developed by the research, the first examining the interim report on managing networks (for the academic group) (Goodwin et al, 2003a). The group was also provided with a copy of the short 'policy report' that is a sister paper to this main report (Goodwin et al, 2003b). Further guidance was provided from members of the advisory group and other academics and health care executives at three seminars. These included papers on the theory of inter-organisational networks (6 P, 2003), lessons from the four sectors (Goodwin et al, 2003c), and a policy briefing paper to a Chief Executive Officers forum (Goodwin and 6, 2003). The seminars attracted much debate from the participants and provided valuable feedback to the research team both in further understanding the concept of networks but also in suggestions further literature sources and network topics. The advisory group membership is shown in Appendix C.

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3. Inter-organisational networks: theoretical issues

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The purpose of this chapter is to set out a range of concepts, distinctions, issues and questions that will be addressed in the course of the analysis and interpretation of the literature reviewed in this report. The paper addresses the following questions:
- What is meant by an inter-organisational 'network'?
- What is meant by 'managing across networks'?
- What are the main theoretical traditions offering definitions, taxonomies and accounts of the roots of networks?
- What varieties of networks of organisations are there?
- What are the key forces that shape and sustain the different types of networks? and
- How can an account of these types and these forces be synthesised from the principal traditions of thought?

This chapter presents the main concepts with which the paper will work. The terrain of 'inter-organisational networks' is defined in general terms. Some main theories are identified. The basic ideas of governance over and management within networks are distinguished, and the scope for these activities is briefly presented. The rest of the chapter is devoted to developing an understanding of the ways in which the main types of networks can be characterised. Several basic principles of taxonomy are identified, each of which is rooted in the main theoretical traditions. They are compared, and the differences between the theories in approaches to taxonomy are analysed. In this part, the paper suggests that there is more convergence than at first meets the eye when considering the range of theories. The network typologies have been used to analyse the different network forms identified in the practical analyses of the four sectors (chapters 6-9).

Building on the convergence identified between the network theories presented in this chapter, and using review material from the literature, the focus shifts to the question of the forces that shape networks. The final part of the chapter concludes with a synthesis model of these factors.

3.1 Network concepts

The first part of this paper is devoted to the setting out definitions of some of the key concepts that will be used in the remainder of the report. Firstly, the term 'network' is considered, drawing on the main theories of networks in the social science literature. Secondly, the concepts of management within and governance of networks are distinguished, and the implications of the network theories identified for management and governance.

3.1.1 What is a 'network'?

There are a number of traditions in several disciplinary literatures offering rival accounts of 'networks'. They differ in terms of network variety and each has different implications for management and leadership. For example, strict sociometric accounts allow any system of linkages between nodes to be a network (White, 1981, 2001; Knoke, 1990). Others define a network in ways that specifically exclude both hierarchical forms and/or very weakly tied semi-isolate nodes in favour of internally egalitarian relations (Powell, 1990; Bradach and Eccles, 1989). Hence, definitions differ by whether links are loose or tight, weak or strong, bounded or unbounded, and formal or informal.

For the present, the following will serve to mark out the general terrain. However, in the course of the argument, the account of a network will be progressively refined. Provisionally, we shall use a broad definition which describes an inter-organisational or multi-organisational network as:

any moderately stable pattern of ties or links between organisations or between organisations and individuals, where those ties represent some form of recognisable accountability (however weak and however often overridden), whether formal or informal in character, whether weak or strong, loose or tight, bounded or unbounded.

3.1.2 Theories of networks

Different theories of inter-organisational network forms posit different forces as fundamental, and so argue that different taxonomies of types of networks are more basic. Moreover, some theories regard certain types that may be distinguished by some taxonomies as either empirically unimportant or else as normatively not to be valued or encouraged, at least for certain purposes that those theories privilege. The following are the ten main clusters of theoretical traditions:

1) *rational choice and transaction cost theories* (Coase, Williamson, 1985; Aoki, 1990) argue that the form of network is shaped by the maximisation of individual utility subject to the balance of transaction costs: networks are managed mainly by modulating transaction costs, since utilities are assumed to be given. These theories posit that at least in the medium term, the results of individual and organisation pursuit of interests will typically be efficient, save for very special

circumstances (Williamson, 1994). Pure rational choice theories argue that only individual level interests or utilities explain action, and that reject the idea that the structure of ties can have any independent causal force (Dowding, 1995).

2) *organisation competency and learning theories* (Prahalad and Hamel, 1990; Powell *et al*, 1996; Powell and Smith-Doerr, 1994; Kogut *et al*, 1993; Colombo, 1998) take organisations to be driven less by the minimisation of costs, as transaction cost institutional economics would have it, than by the maximisation of benefits, and especially the benefits of enhanced competencies and capabilities. On this view, to the extent that firms make astute and intelligent judgements of the competence requirements of their field and its future development, the links they will seek to form with other firms will be ones that enable them to enhance their own core competencies and to generate efficient and effective divisions of labour with their partners in order to secure from them the competencies that the focal firms do not need or wish to cultivate internally. One recent development in this tradition is the work on the concept of communities of practice, or networks created to develop and to share learning (Wenger, 1998; Tsoukas, 2002), which is informing current policy in the NHS (Bate and Robert, 2002; McNulty, 2002).

3) *neo-Simmelian perspectives* (Granovetter, 1985, Burt, 1992, 1997) regard organisations as embedded in networks of inherently social individuals (cf. Tilly, 1996, ch.1): influencing organisational networks depends on influencing networks of natural persons (cf. Simmel, 1971 [1907]).

4) *new institutionalist perspectives* (Scott, Meyer and associates, 1994; Powell and DiMaggio, 1991; Orrú, Biggart and Hamilton, 1991, Fligstein, 2001) propose that the form of the network is fixed by institutional constraints, path-dependence, historical period and inertia: this leaves limited scope for macro-management. Work on 'policy networks' in British political science of health care governance is often of this type.

5) *ecological perspectives* (Hannan and Freeman, 1989; White, 1981, 2001) argue that network forms are selected in 'niches' or temporarily combined and available vectors of resources: changing the structure of niches is the key to managing networks. Like the rational choice and the transaction cost theories, these theories propose that networking is fundamentally driven by the need to control niches which are defined as vectors of resources. However, such approaches also have to take *path-dependence* seriously, for on these views the available means by which organisations can secure their positions are more tightly limited by the inherited patterns of networks than would be the case for rational choice and transaction cost theories.

6) *problem / technology contingency perspectives* (Galbraith, 1973; Perrow 1999 [1984]) argue that network form would ideally be shaped – were it not for institutional forces and bounded rationality – to solve particular problems with prevailing technology; managing networks consists in overcoming those institutions.

> *7) macro-economic and technological determinist perspectives* (Castells, 1996) claim that network forms are relations of production that change when the forces of production change, and that the information economy is calling generally for a new dominant network form; there is limited scope for management. These theories are essentially materialist in character. Indeed, Castells' argument is ultimately quasi-Marxist in its claim that the dominance of network forms of economic organisation amount to something akin to a distinct historical 'mode of production'. The form of these networks is driven ultimately by collective interests of fractions of capital and to a lesser extent social movements – unlike the individual interests which are the focus of rational choice and transaction cost theories – and by technology.
>
> 8) *Weberian perspectives* (Weber, Mann, 1986; Simon, 1997 [1945]) argue that macro-social rationalisation produces steadily more efficient, but also more transparent organisational forms; management of networks consists in the constant constitution of authority through ever more routinised, less charismatic institutions. In Weberian theory, social organisation is driven fundamentally by interests, but strongly mediated by institutions which are in turn the product of prevailing climates of ideas and especially worldviews (Schluchter, 1981). However, interests are defined at very high levels of aggregation rather than by particular vectors of resources. Logically, therefore, Weberian theories must classify network forms according to their different institutional forms, defining institutions at a level appropriate to distinct worldviews.
>
> *9) socio-technological perspectives – esp. actor network theory* (Bijker and Law, 1992, Law and Hassard, 1999) regard things, artefacts, technologies, natural persons, and organisations all as nodes in 'actor networks': management is rather limited.
>
> *10) neo-Durkheimian perspectives* (Douglas, 1982a,b; Thompson, 1996, Thompson *et al*, 1990; Gross and Rayner, 1985; Mars, 1982; 6, forthcoming a) identify four basic solidarities, each of which has a distinct network form as its signature, each of which brings distinct strengths and weaknesses: managing consists in seeking to secure requisite variety in the articulation of all four by engineering 'surprises' that can, under specified circumstances, disrupt institutional self-reinforcement in each solidarity. The neo-Durkheimian approach argues that the distinct basic or elementary forms of social networks are each rooted in distinct informal institutions, and therefore the elementary forms of network structures are 'signatures' of those underlying institutions.

It should be noted that this list does not include as a distinct category of theories, the literature on 'social capital'. Rather, each of these provides quite distinct theories of what social capital is. For example, Lin's (2001) model is, like Burt's (1997), essentially neo-Simmelian; Bourdieu's (1986) conception lies somewhere between the institutionalist and the macro-economic; Putnam's theory has become steadily more Weberian (compare Putnam 1993 with Putnam 2000). Some of these theories are micro-level in nature (such as

some of the neo-Simmelian theories), while others are historical and macro-sociological in character (such as the Weberian and macro-technological and economic theories). They often call for very different kinds of evidence.

These theories are not necessarily to be regarded wholly as rivals and as alternatives to each other. There are ways of combining some of these perspectives. For example, there has been a rapprochement during the 1990s between those transaction cost approaches such as North's (1998) which do not claim the general efficiency of whatever network forms actually emerge, the new institutionalist approaches in sociology (Nee, 1998), and some neo-Simmelian approaches. However, the price of such ecumenism in theory is that it becomes harder to define the theories by the level of network phenomena that they deem to be more fundamental and to explore other levels. Indeed, this paper will seek to identify further possibilities for rapprochement, first at the level of taxonomy and then by synthesis.

3.1.3 'Management' in the context of networks

It will be important firstly to have a clearer idea of just what we mean by 'management' in the context of networks. A first distinction to be made is that between the *governance of* and management *within* networks. These can be defined as follows:

Governance of a network. An activity by organisations and/or individuals who are *not* themselves members of the network in question and which is designed to exercise control, regulation, steering, inducement, incentive or persuasive influence over the whole network. The purpose is to influence its structure, the nature of the typical range of ties between members, its capacity for collective action, its openness or closure to new members, its commitment to existing functions, or its ability or willingness to shoulder new tasks.

Management within a network. An activity by organisations and/or individuals who are members of the network. The activity is designed to exercise control, regulation, steering, inducement, incentive or persuasive over some but not necessarily all other members of the network. The purpose is to change the particular position of that organisation or individual within the network; to change the ties with other members in which that organisation or individual is a node; to change that organisation or individual's role in any function or collective action; or to change its own membership status.

Management within a network might be undertaken to provide the basis for subsequent management affecting the whole network in the situation in which an organisation or an individual seeks to secure a position of *centrality* (Wasserman and Faust, 1994). There are many centrality concepts in the mathematical graph theory of networks. However, a simple one is that an actor has greater centrality the more ties that the actor has to the other actors in the network. Where only a few actors or, in the limit case, just one actor has high centrality, the network as a whole exhibits high centralisation (Wasserman and Faust, 1994). An actor that can use techniques of management within a network to achieve high centrality might thereby be

able to exercise techniques for management affecting the network as a whole. However, *management affecting the whole network* should still be distinguished from *governance of the network*, because in management affecting the whole network the process is still undertaken from a position of membership, whereas governance is exercised externally. Certainly, an actor with high centrality in a highly centralised network (see below) can be predicted to be able to exercise greater leverage over bodies able to carry out governance than actors in other situations might.

3.1.4 The scope for governance and management of networks: theories

Each of the main theories suggests different accounts of the scope for governance of networks and for management action by organisations within networks. Table 3.1 summarises the main implications of each of these theories for these. Certain features emerge from this table. In general, those theories that privilege interests and take them to be more or less exogenous, tend to allow the greatest scope for governance of networks. Those theories which stress the role of informal institutions allow less scope, and least scope is granted by those theories which stress informal and individual-level network structures as capable of working around and undermining formal institutions. The same rough clustering of theories also divides views on the nature of, but not so much the scope for, management within networks. Interest driven theories focus on management around more or less readily measured variables, while institutional or structural theories focus on the (either explicit or, more often, implicit – because less blatantly instrumental) role of management around less readily measured factors of social structure.

Table 3.1: The implications of the major theories of inter-organisational networks for governance and management

Theories	Governance of networks can be exercised effectively…	Management within networks can be exercised…
Rational choice, transaction cost	by modulating transaction costs with regulation, by defining the resources available for pursuit by individuals and organisations	by controlling transaction costs, by choosing between opportunism with guile or longer term more cooperative enlightened self-interest
Organisation competence and learning	to a limited extent because of the limited capacity of those outside the networks of organisations in particular fields to be able accurately to predict the changing competence requirements of those field	by defining key competencies and learning benefits to be sought and identifying sources for these and determining which should be internalised and which leveraged through alliances or other external ties
Neo-Simmelian	to a limited extent, because informal network forms will emerge to get around formal restrictions imposed by governance, and because there are limited means available for governance using informal means	by micro-manipulation of the available social structure to use existing ties, to reach new ties
New institutionalist	limited: by the defining of institutions for coercive isomorphic processes, by the development of standards for mimetic and normative processes (DiMaggio and Powell, 1983)	by following prevailing normative institutions or not following them at the risk of sanctions or disadvantage, unless institutions permit defiance to be organised on such a scale as to enable institutional change
Ecological	by using regulatory power to define available resources	by making basic choices between specialist and generalist strategies, growth or stabilisation strategies, etc, on the basis of assessment of niche lifecycles and stage in the cycle of the community of organisations
Problem and technology contingency	to some extent, by regulatory control of available technologies	by seeking to optimise network form for contingency of technology, problem, task etc
Macro economic and technological determinist	in limited ways, because governance bodies can have limited power over wider trends in network forms	by standard economic competition for relative position and for absolute quantities of resource
Weberian	by the use of rational regulation	by the adoption of ever more standardised, rationalised processes and ever deeper commitment to instrumental rationality as a world view
Socio-technical (actor network theory)	[unclear]	[unclear]
Neo-Durkheimian	some scope, but most effective when institution-making and informal institution-building is undertaken working on informal institutions to secure settlements between the basic solidarities	by formal and informal action differently selected according to the prevailing forms of solidarity that define each of the basic network forms

3.2 The forms of network

More useful than the initial definition of a network is the development of a taxonomy of network forms. The approach helps to distinguish between network forms in respect of the opportunities, constraints and resources for management within, management affecting and governance of networks. Moreover, each network has a different context for the making of meaning, recognition, understanding, and sense-making around these management activities since all networks do not a exhibit a single pattern of relationships between the member organisations or individuals, despite the claims of some writers and theorists.

This part of the chapter sets out the main bases that are used in the literature for classifying types of networks, and considers each in turn. The approaches to classification are derived from the basic claims of the main theories, for each theory argues that one should classify types of networks on the basis of those variables that it considers to be causally most important. In particular, typologies will be considered that focus on the structure of ties, the content of resources passed along ties, the institutional forms that shape structure and select content, style of learning, and type of activity undertaken.

3.2.1 Strategies of classification

Despite arguments which claim that network forms are wholly distinct from those of markets and hierarchies (for example, Powell, 1990), there are many empirical studies which have quite properly used the term 'network' to describe patterns of relationships between organisations or individuals;

- which are neither vertically integrated nor subject to direct forms of authority, but which are still in their underlying accountabilities markedly hierarchical in the basic accountabilities; and /or
- which are not simple and transient transactions in a spot market and where the forms of influence between the elements are based on much richer flows of information, resources and ideas than can be expressed by simple changes in the relationship between prices and budgets, but which are, in their basic accountabilities, rooted in certain kinds of markets.

As an example of the first, consider Stinchcombe's (1990) study of 'contracts as hierarchical documents', in such fields as the aeroplane and automobile industry and even building construction. Stinchcombe shows that functional equivalents of each of five basic elements of hierarchical accountability can be found in structures of patterned relationships between organisations which are expressed in contracts and which are settled in markets. The five basic elements include: authoritative control of labour, fiduciary relations, incentive structures organised around status, standard operating procedures with sanctions, and meetings with governance roles. Many studies of relational contracting have also shown that there are genuinely market-like forms in many networks, despite the appearance of commitments and accountabilities that are not characteristic of ideal-typical market forms, and which can

reasonably be said to be 'networks' (Macneil, 1974, 1980; Williamson, 1985). In the management literature, it is common to speak of a 'swollen middle' of organisational forms between market and hierarchy (Hennart, 1993), but this is hardly satisfactory, for it effectively abandons even the modest aim of describing and distinguishing forms, and certainly gives up on hopes for explanation.

At the very least, then, it needs to be recognised that there are 'hierarchical networks' and 'market-like networks', rather than suggesting networks are distinct from either hierarchy and market as forms of organisation. Certainly, sociometric methods of network analysis can be used fruitfully to understand hierarchies and markets, and therefore it is not very helpful to reserve the term 'network' for anything that is neither of those (Podolny and Page, 1998). O'Toole and Meier (1999) even define anything that is not a hierarchy as a network. This argument suggests that the basic nature of the accountabilities involved in inter-organisational and in single organisational systems may not be fundamentally different in character. This research builds upon both of these insights in the course of its arguments.

There are many ways in which we might classify the types of networks. At the simplest level, we need to distinguish between social networks of different elements, nodes or actors. Networks can comprise individuals, organisations, or (provided that the nature of the ties between them are quite tightly specified and limited) both. Within these general types, however, a relatively small number of ways of classifying types of networks are generally used when trying to understand networks in the context of management. For these purposes, we might classify them by;

- internal *structure* – e.g. by degree of centralisation, by degree of density (the number of potential ties between members where there are actual ties), the strength of ties, the extent of structural equivalence between different segments of the network (isomorphism in the density, strength etc between different clusters), the extent to which the network is organised into distinct clusters or cliques of high density linked by sparser ties across the 'structural holes' where individuals of high 'betweenness' can broker relationships between cliques, etc.
- *content* – that is, by the nature of what is passed along the ties that make up the network (information, capabilities, money, authorisation, emotional support: one can even map networks of hostility). A tie between two organisations or individuals is deemed *multiplex* if more than one kind of thing is passed along the same tie;
- *symmetricality* – that is, by the degree to which there is equality or inequality in the net value of the content passed from A to B and back from B to A (this is in fact a specific measure of a certain combination of structural and content features);
- *functions* – that is, by the degree to which common tasks can be and actually are undertaken by members of the network across particular dyadic, triadic or multiple ties;

- *institutional form* – that is by the degree to which structure, content and functions are prescribed by either formal or informal rules, norms, established and entrenched or sanctioned expectations; where such rules define structure, they will probably specify the *boundaries* of officially recognised cliques and hence of a local concept of 'membership', which in turn may or may not correspond to the boundaries of actual cliques of informal ties;
- styles of *learning* – that is, by the nature of the learning and management of knowledge that organisations either seek to pursue through their external ties or in any case practice through those ties, (even if it were incidental to the principal purpose or driving force behind those ties); and/or
- types of *activity* conducted with partner organisations – that is, by the stages in the production process jointly engaged in or acquired or accessed through ties.

Some of the most important and interesting questions about the types of networks and the scope for management and governance arise about the relationship between structural, content, functional and institutional forms. Institutions, structure, content and functions can be thought of as levels of description and explanation of network forms.

Theories differ by the extent to which they predict that well-designed and robust taxonomies on each of these dimensions will converge into a single taxonomy, with an underlying theory that one of these factors is the fundamental driver of the others. Respectively, Granovetter's (1985) structuralist claim that all things are embedded in network structure; functionalist accounts deriving from Merton's 1968 [1949] model of manifest and latent functions, content theories such as Pfeffer and Salancik's (1978) resource dependence theory, various institutionalist theories such as Scott, Meyer and associates (1994). However, this part will argue that in practice, there may be more convergence between these different approaches than might first meet the eye.

3.2.2 Structural typologies

The basic measures of structural characteristics used in the network analysis literature are those of density, clique, centrality, betweenness, structural holes between cliques and spanning of those holes, core and periphery, structural equivalence (Scott, 1991; Wassermann and Faust, 1994). Figure 3.1 provides some simple sociogram illustrations of cases exhibiting some of these features.

Figure 3.1: Key structural features of networks

Low density: 1 of possible 6 ties only is realised

Highly centralised network and A alone has high centrality

Network with two cliques, a structural 'holes' between the cliques, spanned by a single 'tertius', who has low centrality, but high betweenness. This is sometimes called "to"butterfly' or "bowties" form of network. The two cliques are also structurally equivalent. However structurally equivalent blocks and cliques are not the same, for several 'tertii' spanning the same structural hole or structurally equivalent holes between cliques would also be structurally equivalent, although by definition, tertii are not densely tied.

High density: all 6 possible ties

Network with core and periphery

Bringing together archetypal forms of these measures in this way shows that there are relationships between them. High density is incompatible with the existence of a periphery while centralisation of the whole network is inversely related to the absence of cliques. Indeed, high density implies that *all* actors have high centrality, which in turn implies that the network as a whole cannot exhibit high centralisation.

One way in which to show the ways in which they are related is to use the taxonomy of elementary forms of network structure derived from Durkheim (1951) and the more recent work of the neo-Durkheimian institutional school. (see Douglas, 1970, 1982a,b; Douglas and Ney, 1998; Fardon, 1999; Thompson, 1996; Thompson *et al*, 1990; Mars, 1982; Gross and Rayner, 1985; Wildavsky, 1998; and latterly, 6 *et al,* 2002). In *Suicide*, Durkheim (1951 [1897]) distinguished between two basic dimensions of social organisation. First, social regulation, or the degree to which social life is governed by rule, role and given fact, which he later (1961 [1925]) called 'discipline'. Second, social integration, or the degree to which social life for an individual is bonded to others and particularly to peers in accountability to collectives or groups. Cross-tabulating these (first done in Douglas, 1970) produces four basic types of social organisation, each with distinct structural characterisations. Consider first the two strongly socially integrated forms. These will, by definition, have more or less bounded networks. Of these, the strongly regulated and strongly integrated must have a core which represents the authority of regulation to the periphery. This gives this network the form

of a something more *hierarchical*. Meanwhile, the weakly regulated will, again by definition, have no core and periphery but instead show an internal pattern in which individuals will be more symmetric – that is, most will be structurally equivalent to most others. This is likely to mean that in this setting, the network will exhibit comparatively high density because the boundary will define the network as a *group* or an *enclave*, with a sharp inequality between members and non-members but no great inequalities between members. The weakly integrate and weakly regulated network form will be one that exhibits no group boundary. Individuals with resources and energy will seek to occupy *tertius* positions (Burt, 1992) between enclaves or hierarchies, in order to maximise the opportunities for rent-seeking from those positions that control passages between resource-rich groups or hierarchies. This is sometimes called a 'bowtie' or 'butterfly' network, from the ideal typical form represented in Figure 3.1. Finally, the strongly socially regulated but weakly socially integrated form is one in which there is a periphery with no core that is represented within the network itself. For the core that imposes the regulation is itself outside this form, leaving only the sparsely bonded individual: the isolate may know other people but has few bonds of accountability.

Indeed, all the ties represented in these four elementary network forms should be read as ties of sufficient significance to amount to some kind of accountability, not just literal acquaintance (see Figure 3.2, this figure might be compared with that offered by Mars, 1999, Figure 2). The four sociograms in Figure 3.2 are of course ideal types, although the institutional forms they represent are understood to be substantive social forces. In practice, of course, many real networks exhibit hybrids between two, three or even all four of these stylised sociogrammatic forms. However, analysis that takes the form of identifying which basic forms are present also serves to identify the scope for management within the network and (with some further argument yet to be provided) for governance of the network too.

It is important to note that this approach to the taxonomy of networks involves the rejection of a sharp distinction between networks on the one hand and either markets or hierarchies on the other. On this account, there are hierarchical networks and market-like (individualistic) networks, and some real empirical markets will in practice be more hierarchical. For example, monopolistic markets, markets structured by state regulation, markets characterised in production by tightly constraining standards or large, ramified, tightly coupled prevailing technologies that can only support a few large producers in long term stable investment strategies. Rooted as it is in classical social anthropology (e.g., Mitchell, 1969), some writers in the Durkheimian tradition (e.g., Mars, 1982, 1999) would still draw a contrast between a true 'network', meaning an individualistic form, and a group, meaning any strongly socially integrated form.

The taxonomy of network forms presented in Figure 3.2 will be used throughout this paper, as a kind of common medium of exchange in order to compare theories of network organisation. This can be done without attempting to 'reduce' all the theories to this one, and its usefulness for this

limited purpose can be accepted even by someone who rejects the dynamic theory which underlies the static classification. The taxonomy of elementary forms lends itself to this purpose because it is more extensive than the conventional market-hierarchies-networks trichotomy, and specifically because it acknowledges that there are multiple forms of things that different theories will call 'networks'. At various stages in the argument, therefore, theories of authority and costs in networks will be compared to their classifications of forms mapped onto this neo-Durkheimian framework.

Figure 3.2: A structural typology of networks using the neo-Durkheimian institutional dimensions of social organisation

Isolate   Social regulation w

Hierarchy

Acquainted with each other, may even share general sentiment but little commitment

Weaker, sparser bilateral ties among subalterns

Strong tie: kin, close or old friend etc.

Denser, stronger multilateral ties between high status individuals

Social integration u

Strong tie: clique accountability

Weak tie: limited accountability to clique

Boundary of general sentiment, cooperation and shared identity

Individualism   Enclave

3.2.3 Content typologies

Many kinds of thing can pass along ties including tangible resources such as payments of money or credit, the provision of physical goods and services, and practical assistance. Moreover, less tangible resources such as emotional support, information, both tacit know-how and explicit knowledge and more conditional resources such as contingent commitments to insure or provide guarantees can be passed.

One fundamental distinction is ties that are used to pass resources of value only to the individual actors in the networks and those across which resources are passed that are of value to others. For example, the weakly tied network structures through which Granovetter's (1973, 1995 [1974]) job seekers pursued their strategies for job search is an example of the former. Networks characterised by the latter include organisational boundary spanners such as purchasing and procurement or commissioning managers or account managers that acquire inputs or distribute outputs, both of which are of value to the organisation and ultimately to the shareholders rather than to themselves (Birkinshaw *et al*, 2000).

Another basic distinction is that between networks predominantly defined by ties of traded purchase of inputs (factors of production) and sales of outputs, and those where typical ties are either of a non-traded kind, or else the ties are to organisations or individuals who neither supply inputs nor purchase outputs. The first of these types can be described as *vertical* networks, because when the boundaries of one organisation expand to encompass more of such a network, this is known as vertical integration, while the others are varieties of *horizontal network*. More strictly, and encompassing sub-varieties that are not always of great interest for the present research, these distinctions yield four types, and Table 3.2 gives examples of each type.

Table 3.2: A role and financial content taxonomy of networks by tie content

Financial content	Priced transactions	Non-priced transactions
Organisation content	*Transactions made across ties are priced as between any two nodes*	*Transactions made across ties are not priced between two nodes, although all nodes may pay for services from other kinds of organisation to make these transactions possible*
Vertical ties *Transactions made across ties are for the of inputs or the distribution of outputs, with organisations or individuals whose role in the network vis-à-vis a focal organisation is to do one or both these things*	Conventional supply chain network; outsourcing; procurement and distribution or account management *NHS example*: Contractual links with pharmaceutical companies, real estate agents, medical instruments companies	Supply of volunteer labour Gift of outputs: *pro bono* work *NHS example*: Ties between NHS Trusts and university departments for encouraging applications by graduates in clinical disciplines; links with social care providers for referral of patients on discharge; 'collaboratives' working to integrated 'pathways' of care
Horizontal ties *Transactions made across ties are for the exchange of resources, where the focal organisation and the others occupy similar roles in the network*	In-licensing of patented knowledge between companies that might otherwise be rivals Strategic alliances between companies in the same industry for joint research and development at pre-competitive stage *NHS example*: Joint initiatives to develop new specialist services between PCTs or Trusts	Professional networks; trade associations; information sharing groups *NHS example*: Working groups within NHS Confederation, Health Action Zone network

In practice, of course, the distinction between the vertical and the horizontal is not always as straightforward. There are many cases, in both the public and commercial sectors, in which organisations in broadly the same business do infact enter into bilateral strategic alliances with one another, or form multilateral consortia. Within these alliances there is a more or less clear division of labour, though some partners can be more dominant. In these cases, it might be debated whether the model of a vertical or a horizontal structure is more appropriate.

3.2.4 Functional typologies

Functions are not the same as activities. In the strictest 'functional' definition, the underlying and latent (not necessarily intentional) outcomes of empirical

activities are typically at the level of the social organisation involved in the network, rather than at the level of individuals who may capture particular shares of the gains from co-operation (Merton, 1968 [1949]; Elster, 1983; Douglas, 1986; Stinchcombe, 1986). Because functions typically take the form of the implicit reinforcement of institutions, functional classifications of networks tend to be closely aligned with institutional ones. However, some commentators distinguish between functions of networks in other respects including: the transfer of material resources; the transfer of trust or esteem or emotional support; the transfer of specific knowledge; and the transfer of information. For example, signalling quality of performance by being associated with high prestige individuals or organisations (Audretsch and Stephan, 1996).

Whereas content typologies focus on what gets done through networks by examining what is passed along particular ties, functional typologies move to the level of collective action. Hence, functional typologies look at the tasks that bind together the network over time by holding its members accountable for the performance of shared tasks. Here, the term 'function' is used loosely to cover both true latent functions of organisation where actors are unaware of consequences, and actions where consequences are recognised and perhaps even intended (Stinchcombe, 1986). For example, Podolny and Page (1998) distinguish functions of learning, legitimation and status, economic benefits and insuring against risk. This effectively equates the concept of a function with that of a benefit, consciously sought or otherwise.

A basic distinction between functions that networks perform is that between those which are created or at least used for *risk management* and those that are created or at least used for *opportunity management*. Risk management is associated with the defensive activity of protecting existing resources possessed by at least some members of a network against events or processes that might erode the value of those resources. Opportunity management is concerned with the offensive activity of garnering additional resources for at least some members of a network.

Many of the studies of networks in the business and management science literature are concerned with practices of 'knowledge management'. This work focuses on the types of network links that are used to access knowledge not possessed within the boundaries of the firm or organisation, but which can be accessed through strategic alliances with other organisations where that knowledge is possessed. This is generally a case of networking for opportunity management. For example, the literature on networks among biotechnology firms (e.g. Powell *et al*, 1996) is devoted to the analysis of networks of opportunity management in which the key content of the ties is the in-licensing of new biotechnology procedures, complex molecules, compounds with potential pharmaceutical or agronomic applications.

In contrast, some of the studies on the roles adopted by the Japanese *keiretsu* (corporate export trading companies) suggest that the internal networking among the companies within each *keiretsu* is often undertaken in order to manage certain kinds of risk, and to hoard resources within the business group (Westney, 2001). Thus, assets are transferred for optimisation

of tax treatment, managers and other skilled staff moved for career development and for staff retention purposes, between member enterprises in order to protect the resource base of the business group as a whole. Again, Granovetter's (1994) review of the literature on business groups across several continents suggests that one important rationale for their development is the protection of the existing political power of influential families or individuals against political risk arising from changes in political priorities. Equally, many of the studies on informal networks of individuals within organisations have shown that the rationale for such networking is often the protection of resources that might be threatened by management action. For example, by providing lobbying routes for subalterns that are not otherwise available through formal channels, by providing advance intelligence on management intentions, and in particular, for the protection of status.

Since most networks perform multiple functions at this level of functioning, and since these functions are not especially associated with any particular structural form or even exclusively with any particular type of content, this kind of functional analysis is generally more useful in explaining behaviour than in developing taxonomies.

3.2.5 Institutional typologies

Although there are many ways to define the term (Peters 1999), an institution can be defined as either a formal or an informal constraining social rule, convention or norm (North, 1990, 3), which structures interaction, which is recognised by those subject to it (Knight, 1992, 2), and which leads to the forming more or less stable social patterns (Jepperson, 1991, 145). In essence, however, an institution is something which creates an *accountability* (Douglas, 1986).

Many institutional forces are identified in the literature as shaping networks. However, a few have been given most attention. Institutions that might shape networks can be defined at the empirical level: examples include constitutions, religious prescriptions, systems of widely recognised roles that structure the division of labour, quasi-mandatory roles or responsibilities attached to membership of a class or group. This is broadly the level of institutions stressed by 'new institutionalist' theories. Alternatively, institutions can be defined as 'socially expressed' and more or less entrenched prescriptions that flow from particular worldviews. This is the Weberian approach (consider for example, Weber's 1976 account of entrepreneurial networks as the product of the institutional processes that internalise practices of both saving, deferred gratification and risk-taking investment, which he believed to be derived from particular religious outlooks). Other approaches look at institutions as connected with deep social structure, and focus on the more general features of accountabilities. The main tradition using this approach is the neo-Durkheimian.

It is common in the network literature to distinguish between formality and informality in the nature of the accountabilities between individuals in

networks, or 'formal and informal networks' for short. Informal networks of individuals who are employees within organisations have been documented at least since Roethlisberger and Dickson (1939). Formality and informality are variously defined for institutions, by first extension for social ties within networks and by second extension to whole organisations or inter-organisational systems. However, the following set of definitions represent a fair synthesis of the concepts of formality in mainstream social science literatures.

Table 3.3: Definitions of formality and informality for ties, institutions and organisations

	Formal	**Informal**
Social ties	Links of acquaintance or friendship between natural persons, which are specified and approved by some explicit rule of recognition, some kind of accountability for activities undertaken jointly	Links of acquaintance or friendship between natural persons, which are not (e.g., no longer, or not yet) subject to any specification or external accountability for the existence of the ties or of activities undertaken together
	Dedicated to the performance of a specific task or function or set of them; not readily fungible or applicable to other tasks or functions	Not dedicated to the performance of specific tasks or functions (O'Neill, 1996, 195)
		May be fungible up to a point (depending on form, origin, type)
Institutions	Explicit, abstractly codified normative rules, readily transmissible, exercising control over decision-making and oversight of execution of some defined sphere of social action (Stinchcombe, 2001, ch 2)	Implicit, non-codified rules or norms, transmitted by incomplete oral suggestion (e.g., hint), by example, emotion (e.g., embarrassment at non-performance), which can be to some degree tacit, concrete and particularistic in nature, and which singly exercise only incomplete control over a sphere of social action
Organisations	Defined bounded cluster of abstract, codified institutional rules (Aoki *et al*, 1990), which include a rule of membership for individuals bound by those rules, explicitly defined powers and authorities, and accountability for the use of resources to those powers	Cluster of institutional rules that are incompletely codified, partially implicit, in which rules of membership defining those persons bound by those rules, and powers and accountability for resources are not (e.g., no longer or not yet) fully explicit and codified, but where there is still a shared understanding of general rules, roles and norms, membership criteria, etc.

Secondly, it is common to distinguish types of networks according to the tightness of the control exercised over their structure, over the tasks and functions and contents of ties, over the actors' behaviour and their attempts to exercise powers for management within the network, etc, by the prevailing institutions. For example, sometimes networks are only created because their existence are mandated by some formal rule (Doreian and Woodward, 1999), while others are created more or less voluntarily by the actors. Some networks are held tightly accountable for their performance of certain tasks or

functions, while others are not. In the terms introduced in this paper, this spectrum is concerned with the relative weight of governance of the network. While weightier governance may be associated with greater formality, this is not necessarily the case. Tight accountability can in some circumstances and with certain kinds of institutions be exercised relatively informally.

Finally, many writers regard the degree to which bonds of common membership in an institutionally defined and recognised community constrain the behaviour of actors in a network (the extent to which the network takes the form of a bounded group) as a key institutional factor, Where this is absent, this suggests greater autonomy for the individual actor. Structurally, the autonomous actor can be expected to have a dense network of acquaintance but a sparse, perhaps 'bowtie', network of actual accountability. Correspondingly, the member of a community may exhibit a more enclaved or hierarchical network of accountability. This serves to stress the importance of measuring multiplexity with care, for the networks that are often of real importance are those which constrain behaviour through accountabilities rather than simply through a network of known persons.

Degree of accountability is essentially the same dimension as the Durkheimian concept of social regulation used in the structural taxonomy presented above, while the measure of membership in a bounded community is Durkheim's dimension of social integration.

3.2.6 Learning and competence typologies

Competence and learning based approaches to understanding inter-organisational relationships differ sharply from traditional neo-classical economic models. In neo-classical economics, the focus is on allocation and productive efficiency. In these approaches, the main interest is adaptive efficiency (Colombo, 1998). The literature on learning organisations has not converged upon well-developed and settled typologies for the types of network that are produced as a result of learning- and competence-driven networking. However, a number of key variables have emerged in the major writings in this tradition around which work is focusing.

Since the work of Brown and Duguid (1991) and Wenger (1998), one of these concepts has been that of the community of practice, meaning a network of individuals which implicitly or explicitly organises shared learning and dissemination. However, most studies using this concept have concerned networks within single organisations, with exception of some of the studies on NHS collaboratives (Bate and Robert, 2002), or have simply used it as a metaphor or description. Since communities of practice are treated as dependent and not independent variables, the key drivers of the structure, extent, density and role of the 'communities' in question tends to be explained by the nature of the information and knowledge being learned or by institutional variables (Tsoukas, 2002) including the structure of regional economic districts (Brown and Duguid, 2002). At most, the rhetorical use by practitioners of the idea among themselves has been shown to be important,

but as a motivational tool in settings which were ready for such exhortation (Swan *et al*, 2002).

A key learning concept is March's (1991) distinction between exploration and exploitation as two kinds of learning strategies, each of which leads to seeking different kinds of ties, and emphasis upon each of which leads to. Exploration is the experimental search for new competencies or knowledge and involves blue skies research, searching for highly innovative things to do and ways of doing them and being prepared to risk problems of implementation in order to secure competitive advantage. By contrast, exploitation is the application of existing competence and knowledge to secure comparative advantage from being able to use existing knowledge steadily, more fruitfully and expertly. Any individual organisation or linked set of organisation will need some balance of these. Periodic hyperbole in the management literature may suggest that competitive advantage has wholly replaced comparative advantage during high technology booms (e.g. Porter, 1998). In practice, exploitation of at least some skills continues to be vital in any organisational field, even where remaining at the leading edge of technological development in some skill areas is also vital. Over-emphasis on either of these activities therefore risks different kinds of vulnerabilities. A preliminary taxonomy of styles of networking in the competence and learning based tradition is that between organisations which pursue a strategy of links with other organisations which will enable them, internally, to focus on exploration or on exploitation. However, it cannot be assumed that such strategies will always or even typically lead in any direct way to using partner organisations to acquire access to that learning activity that is not to be valued or emphasised internally, in a straightforward 'learning compensation' model. Organisations have different external links in their different main activities. They may choose different kinds of skills among those with which they have links in order to leverage capital, to audit their accounts, to collaborate in product research and development, and to gain legitimacy in one or more fields of their core business. In some of these areas of potential networking, they may pursue policies of 'complementary learning' in their selection of partners. For example, networking for accessing financial resources or specialist services is more likely to exhibit a compensatory pattern, while research and development might, all other things being equal, suggest more complementary networking styles. This suggests a taxonomy of learning-drive networking styles (Table 3.4). However, this tells us rather little about either the content of what might be passed along ties in these kinds of networks, or the institutional character of the ties that support these networking styles.

Table 3.4: Styles of learning- and competence-driven management of external ties

Internal priority for Strategy for external linkages	*Exploration*	*Exploitation*
Compensatory linkages	Exploiters	Explorers
Complementary linkages	Other explorers	Other exploiters

In respect of content, the competence and learning tradition in the understanding of inter-organisational links has given great weight to the distinction between explicit and tacit knowledge (e.g. Tsoukas, 2002). Explicit knowledge is that which is written or otherwise encoded that can be stored, retrieved, and readily shared. Explicit knowledge takes its place as part of a more or less integrated system or body of knowledge, around which a network of expertise or even a profession or discipline can emerge, and which is the product of systematic gathering, ordering and attempting verification. By contrast, tacit knowledge is 'know-how', and is almost necessarily unwritten, is difficult for anyone to retrieve or use save the person who possesses it, and so can only be shared by in-service training and acquisition of expertise and not by classroom teaching. It is usually structured in fairly haphazard and unsystematic ways, only verified in contexts other than the ones in which it is used. The classical example of tacit knowledge is the skill of riding a bicycle which is not acquired by reading texts on the physics of the role of the inner ear in balance and the relationship between motion and balance (Polanyi, 1962).

In general, science-based organisations or science-based divisions within organisations tend to value and cultivate explicit knowledge highly, as do those organisations or parts of organisations such as finance departments and accounting firms that are geared to the processing of structured, formal factual information in more or less prescribed ways. Again, organisations where everyone is strongly dependent on everyone else, perhaps for safety critical activity, and where learning from mistakes is vital, also tend to value and even enforce the disciplines of turning tacit knowledge into explicit knowledge as far as they can. The armed forces, for example, conduct extensive 'lessons learned' exercises after every operation and manage succession carefully by ensuring that key competencies are codified and transmitted (Stinchcombe, 2001). In many safety-critical engineering organisations, the writing of procedures following each case of informal learning is a vital discipline that can save lives. The discipline involved has to be associated with a certain kind of organisational structure and certain structures of accountability, or else people might shirk the obligation to codify and pass on their knowledge through these processes. In contrast, tacit knowledge is more important in those organisations which are craft-based or

in which a great deal of discretion is left to the individual professional about what to work on and how to work. Similarly, tacit knowledge is important in organisations where the division of labour is structured to limit the dependence of people upon others, or where there is a great deal of internal competition for promotion or the control of resources. The building and decorating trades, academic research, some clinical specialties, social work (other than in young persons protection or mental health), management consultancy houses, barristers' chambers and stock brokering firms tend to be of this type. These types of organisation will, in consequence, not only pursue links with others for different purposes, but these linkages will have different institutional characters. Broadly, we can expect the accountabilities required in organisations that emphasise learning of explicit knowledge to be more socially integrated and those which emphasise tacit knowledge to be less so. Those which emphasise the conversion of new tacit learning into new explicit knowledge as new procedures or formal evaluations are also likely to have to develop more social regulation, for this is an activity that requires the continuous institutional pressure to conform to the discipline of knowledge management.

A third variable stressed in the competence literature on organisations is the expected durability of what is learned, which is a function both of the rate of change in the task environment and of the commitments of the particular organisation. In very fast-changing technological environments, where much explicit knowledge is very quickly out of date, and only a core set of both explicit understanding of underlying theories and approaches and practical know-how is enduring, there is little point in trying to learn by capturing and storing a large body of explicit knowledge internally. Rather, it is important to ensure that key personnel can access the most up-to-date explicit knowledge held and developed externally when and as they need it to solve the particular problems on which the organisation is working. This is true at the moment in, for example, genomics, but not true in general surgery or accident and emergency work, or indeed in much of the more routine work on general medical practice. In contrast, in fields where the basic knowledge is reasonably stable or else growing incrementally and reasonably steadily (in any given period), it may make more sense to try to store and manage a body of explicit knowledge for the long term. In much of vernacular architecture, for example, the understanding of the core problems of stresses upon materials and load-bearing do not change very rapidly and can be sustained for the medium term. This suggests that the style of learning and therefore of inter-organisational linkages will be strongly linked with the time horizon which dominates the organisation's strategic activity (see 6, forthcoming b).

The neo-Durkheimian approach to taxonomy was originally developed from within an institutionalist tradition that emphasised constraint and cost as drivers in organisations, rather than benefits. However, in recent years other scholars have attempted to show how it illuminates problems of organisational learning, and it has emphasised the institutional basis of information processing in organisations (e.g., Thompson and Wildavsky, 1986) and of organisational memory and forgetting (e.g., Rayner, 1982;

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Douglas, 1986; 6, forthcoming b). Figure 3.3 shows how, at the level of taxonomy, its approach would capture the drivers of organisational learning and competence that have been identified in this section as driving the different network forms. Underlying this (in neo-Durkheimian theory) is a functional model of explanation in which the styles of learning both express and subserve the underlying institutions which also shape the selection of network form.

Figure 3.3: How different network forms are associated with styles of organisational learning

social regulation w

Isolate

Balance of exploration and exploitation: Neither is more important: one has to be opportunistic in using either, depending on what one actually can do in the situation

Control of learning: Little hope of securing control of learning

Tacit and explicit knowledge: Little point in trying to influence balance of tacit and explicit, but on balance where temporary control of tacit knowledge can be achieved, this may help with short term survival

Time and learning: Focus on learning for the immediate future, for beyond that, all that has been learned will be out of date

Hierarchy

Balance of exploration and exploitation: Over the long term, exploitation is more important: most new ideas and fads are rebadged versions of enduring wisdoms: exploration should be managed over the long-term in well-planned and progressive research and development programmes

Control of learning: Maximise internal control of core competencies, seek to build strong relational terms into any external ties entered into

Tacit and explicit knowledge: Focus on ensuring that as much learning as possible in explicit form in order to ensure transfer over time

Time and learning: Seek to institutionalise learning for the long term future: the future will be built on the basis of the past

Individualism

Balance of exploration and exploitation: Ongoing exploration is more important, because conditions change quickly, others may secure control of knowledge, and no knowledge can be exploited indefinitely

Control of learning: Maximise proprietary control of core competencies and knowledge; outsource non-core competencies on spot or relational terms as required

Tacit and explicit knowledge: Ration efforts to turn tacit into explicit knowledge to that which is essential

Time and learning: Seek to learn and forget competencies as task, environment and event contingencies require

Enclave

Balance of exploration and exploitation: Ongoing exploitation is more important, because it is important to focus on the principles that bind the group or organisation: exploration is only important in the early stages to develop core skills with which to pursue those principles

Control of learning: Maximise internal control within an organisation or within a densely tied, mutually accountable and bounded group-type network over all competencies

Tacit and explicit knowledge: Focus on ensuring as much learning as possible is made explicit because of the difficulties of trusting those using tacit knowledge

Time and learning: Seek to institutionalise only until the principal purpose of the group is achieved

social integration u

3.2.7 Activity typologies

It is possible to distinguish types of networks by the various categories of tasks or activities that people undertake using them. Since the empirical variety of activities carried out in networks of multiple organisations is as

wide as that undertaken in single organisations, and since nothing is learned
by simply reproducing lists of industries defined by outputs complicated by bi-
, tri- and multi-lateral combinations of industries in cross-industry networks,
it is necessary to look for activities defined at higher levels of aggregation.

Most studies on inter-organisational relationships in the private sector work
with fairly simple distinctions between the main stages of production and
distribution. So, for example, many studies examine networks (consortia,
partnerships, alliances, etc) for research only, or research and development,
or development only, in-licensing of technologies already researched and
developed, marketing, sales, and so on (see Powell and Brantley, 1992;
chapter 4). However, stages in production are only on dimension by which
activities can be distinguished. It is also possible to classify types of networks
by the level or work status in the organisations where linkages are sustained.
Thus, studies on the private sector may focus upon 'interlocks' or board
members with multiple and overlapping memberships between companies, or
professional links between professionals in the same discipline (for example,
microbiologists in different biotechnology companies, or clinicians in
hospitals). Other staff links might be vertical (for example, sales managers in
firm A tied with procurement managers in firm B), or horizontal (for example,
middle managers in joint technical committees)(Rosenkopf *et al*, 2001).

Studies on inter-organisational relations, either wholly within the public
sector or else involving both public and private sector, tend to encompass a
slightly wider range of activities, reflecting the policy making and co-
ordinating role of government agencies. In their study on economic
development networks in US cities, Agranoff and McGuire (1998) distinguish
three basic activity types of networks, recognising that some cases will
combine two or even all three types. These three types were those engaged
in policy and strategy making, those involved in resource exchange (basically
grant making, approving loan guarantees, awarding contracts, in order to
procure services) and those involved in managing or over seeing particular
projects. Project-based networks may be temporary or may endure for longer
periods and themselves become institutionalised, developing entrenched rule-
like structures in relation to other networks or other actors (Powell and
Smith-Doerr, 1994, 380.) It is not quite clear where Angranoff and McGuire
would place those networks that are concerned to share information and
knowledge or best practice. If knowledge is defined as a resource, then the
second category might service, but if sharing knowledge is defined as a
project, they might be listed under the third.

From the point of view of the structural and the institutional taxonomies of
networks, each of these activity classifications are inherently limited because
they were all developed to describe *groups*, or bounded networks with
determinable memberships, which share awareness of a common task. The
weakly integrated network forms – those with individualistic or isolate
institutions – lack this shared recognition of a task and lack defined
membership boundaries. Consequently, the extent that the network can be
said to undertake activities are dependent upon the different intentions and
actions of the individuals or organisations who are linked in the relevant

ways. In individualistic networks, a broker (or '*tertius*' - Burt, 1992) with high centrality may be able to secure a niche in which to impose on others their own preferred priorities, but this is contingent upon others being willing to accept this on the terms offered by the broker.

3.2.8 Theories and taxonomy

Just as each of the main theories takes a distinct view about the 'manageability' of networks and the nature of the management challenge, so each adopts a different principle or basis for classifying the types of networks available. This is because each takes different features of networks to be causally most important and, in general, theories will argue for the superiority of different principles of classification on the basis that one should always undertake taxonomy around the causally most important dimensions or types. Table 3.5 summarises the ways in which the theories proceed.

Taken at face value, Tables 3.1 and 3.5 suggests that there is very substantial disagreement in and between the social sciences about what kinds of networks there are, how they are structured and how amenable they are to being influenced. However, there is a broad mass of empirical findings in the literature that is not in dispute between the theories, even if the interpretation of those findings is the subject of disagreement.

Table 3.5: Theories and their approaches to classifying types of networks

Theory	Driving force shaping networks	Classify distinct forms of networks on the basis of
Rational choice and transaction cost	individual interests in securing resources	*content*: because interests are concerned with what passes along ties
Organisational competence and learning	interests in securing competences and knowledge	*content*, because competencies and items of knowledge are content
Neo-Simmelian	ties between individuals (organisations)	*structure*: because ties form structure
New institutionalist	Institutions	*institutions*, at the empirical level
Ecological	interests, in controlling vectors of resources	*content*, modulated by path-dependence
Problem / technology contingency	environment: structures of resources and institutions	*institutions*, at the level of institutional characteristics of problems
Macro economic / technological determinist	collective interests	*content*
Weberian	ideas, as shaped by and themselves shaping institutions	*institutions*, but at the level of institutions selected by worldviews
Socio-technical	unclear	unclear
Neo-Durkheimian	informal institutions	*institutions* at the deep structural level

Moreover, it would be wrong to suggest that there are no points of general agreement. It has been shown that, whatever the theoretical claims about the driving forces, roughly comparable types seem to emerge in many of taxonomies. This can be mapped onto the taxonomy offered by the neo-Durkheimian approach, even though the claims about the directions of causation may differ from those proposed by neo-Durkheimians. It will be argued in the next part that the logic of the transaction cost approach can be extended in ways that converge with the neo-Durkheimian taxonomy. This part has already shown that the main types of structural linkage stressed in the sociometric traditions also identify the network 'signatures' of the same basic forms. It has been suggested that the best means of making sense of

the various ways of thinking about the taxonomies emerging from the competence and learning based theories of the organisation is to use the logic by which they derive the commitments to each of these styles in ways that very readily and naturally map their classifications onto the neo-Durkheimian.

The most important finding from this analysis is that the '*markets, hierarchies and networks'* framework should not be regarded as an analysis between mutually exclusive categories*.* It is clear that the arguments being made very widely at the beginning of the 1990s - that inter-organisational networks in general must be contrasted with single organisational hierarchy or vertical and horizontal integration of all kinds, and with markets, is problematic and there has been considerable rethinking in the debate to reflect that. For example, the recent volume edited by DiMaggio (2001) distinguishes continental regional dominant types, but does so in ways that appeal to the kinds of basic types around which convergence has been diagnosed here. For the markets, hierarchies and networks framework led to the lumping together of too many very different forms, and ignored the ways in which the basic features of markets and hierarchies are often and readily reproduced in many kinds of inter-organisational systems. It may be that some of the writings of that period were implicitly distinguishing a form that has been referred to as 'enclave' in this paper. However, it is clear from the empirical studies conducted that many of the things called 'networks' and studied under that label did not possess the key features of enclaves. Many are marked by forms of authoritative control designed through contract (Stinchcombe, 1990) or by price- and incentive-governed structures with a small number of dominant purchasers, and the role that 'reciprocity' or non-priced collaboration plays is quite modest. It is clear that most empirically observed systems will in fact be hybrids or combinations of each of the basic forms distinguished here. However, very often what really matters in order to understand them, and to appreciate the different scopes they may offer for governance and management, is the *relative weight* of these four basic institutional imperatives.

3.3 The factors shaping networks

Having set out the principal ways in which it is possible to distinguish types of networks, it is necessary to move closer to theory by considering the range of forces that shape networks. These shapers include forces that influence network creation, the determination of network type, and influence the typical life courses or trajectories of networks with different initial forms.

The aim of this section is to highlight some of key shaping forces, recognising that each of the main theoretical traditions identifies important aspects. The main theories identified earlier are used, since each of them posits a certain kind of variable as being most important in shaping inter-organisational relations. However, in order to minimise the repetition of those forces already discussed at length in section 3.2, many of the themes dealt with here are ones that run through several theories, and where some of the same drivers

are discussed as were analysed in the account of taxonomy, the argument is taken on a step.

Firstly, a number of aspects of power are considered, because power both constrains networks from without (governance) and shapes them from within (management). Then, because many of the interest-driven theories attach such importance to them, economic variables are considered. In this section, particular attention is given to transaction cost factors. Since the 1960s, great stress has been given in organisational behaviour to the external environment of organisations, including the 'task environment' or specific features of the problems to be tackled in particular industries or of the technologies deployed. Clearly, there are also other environmental features, including external institutional and governance power and indeed the prevailing prior networks in the organisational field and larger historical trajectories of development in particular industries. In recent years, a number of types of theory have given particular weight to information. Competence and learning theories are often presented as being sharply distinguished from information theories of organisations and networks (e.g. Colombo, 1998). In practice, the distinction between information and knowledge is not always easy to keep sharp, since it is the search for and the use of information that invariably matters most. This leads to a consideration of expectations and, briefly, trust (see Chapter 5). Finally, some consideration is given to those dynamic models of inter-organisational systems in the literature that give great weight to path-dependence, or the constraining weight of the past, both in respect of inherited network forms and institutions. The conclusion to this part offers a preliminary appraisal of some of these factors.

3.3.1 Power in networks

Managing within and governance of networks both require that the organisation or actor engaged in management or governance can achieve a position with which to exercise power. Sustaining that power requires that it be legitimated, which in turn involves some kind of consent to its exercise as constrained by the prevailing institutions that define the network. Legitimate power defined and constrained under institutions is, in effect, a schematic and formal definition of authority. In those forms in which authority is vested in an individual occupying a role, that authority is sensibly parsed as a relationship between leaders and followers.

Power is not always well defined in the context of inter-organisational networks. Conventionally, power is defined within a single organisation by systems of accountability articulated through the accountabilities of direct employment in the case of individual staff, of ownership in the case of superior and subsidiary organisations, or relative voting power in the case of partial ownership. Therefore, in these inter-organisational structures, power may be expressed and mobilised through other means. Since several types of networks have been distinguished, it is reasonable to allow the possibility that power may take different forms or at least be constituted as differently weighted combinations of a number of basic forms, according to the type of network.

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The classical literature in the social sciences is strikingly convergent in the ways in which the basic instruments of power are distinguished. This is despite the well-known underlying theoretical problems in understanding how and when power is used and in defining the appropriate counter-factuals against which to determine when power has been exercised (Lukes, 1974; Clegg, 1990). For example, Etzioni (1961) distinguished coercive, remunerative, normative power (taking direct organisation and steering of other organisations as both coercive). French and Raven's classical (1959) theory of organisational power similarly identified coercive power, reward power, legitimate power (based on beliefs, norms, traditions), expert power (another variety of persuasion based on technocratic information), referent power (based on identification, which actually seems to be another kind of legitimate power). In the later literature on the tools of government, these same forms of power came to be analysed through instruments rather than activities. Hood (1983) calls these basic tools of power respectively organisation (substitution), authority (steering), treasure (incentive, negotiation), nodality (information and legitimation). Likewise, de Bruijn and ten Heuvelhof (1998) distinguish regulatory, financial and communicative instruments. Recently and more graphically, Bemelmans-Videc *et al* (1998) speak simply of 'sticks, carrots and sermons'. (see 6 *et al*, 2002, p.86 for a more finely grained synthesis of the tools literature). The literature on strategic management in fact works with a classification of styles which is not fundamentally different. For example, Mintzberg and Waters' (1994) present a very complex taxonomy, but many of the forms they distinguish can in fact be shown to be hybrids of just four of their types:

- planned and deliberate strategy (executed using command and control, etc.);
- entrepreneurial strategy (executed using pricing and incentive);
- ideological strategy (executed though persuasion); and
- imposed strategy or pure emergency (executed through more or less opportunistic coping).

Summarising this convergence, it can be said that the basic instruments of power are;

- *control* (direct authority, substituting internal organisation, mandation, prohibition and permission of other organisations);
- *inducement* (incentive, pricing, compensation, purchase, contracting, lending and granting tangible? resources such as money);
- *suasion* (use of information, appeals to norms, values, arguments, ideas, identification, traditions, standards and expertise); and
- *coping* (opportunistic behaviour to secure survival in situations where the other instruments are unavailable or ineffective because others have greater capacity to exercise them than does the actor in question).

The exercise of each of these basic instruments of power will incur different kinds of costs in different organisational and institutional contexts. It is true

that control is most readily associated with hierarchy because there the institutions are *explicitly* geared to its exercise. Similarly, in community-like or enclaved forms, suasion is the principal means of ensuring cohesion, precisely because other tools are unavailable or have been deliberately eschewed. Coping is in fact one of the most intelligent things to do in a context in which one has few options. This is because the other instruments are controlled by others so that the environment is structured heavily by what are from the point of view of the actor, given facts and where the possibilities for collective action with peers are very limited. This is the situation of isolates. Thus, the four basic forms of organisations and of multi-organisational networks distinguished here have *elective affinities* with each of the basic instruments of power.

However, control can be exercised, as Stinchcombe (1990) showed, in the absence of hierarchy, but it requires quite complex design of contracts. Equally, within bureaucratically organised systems, it is possible to introduce internal market systems of pricing and to make them work without fundamentally removing all hierarchy, but this requires careful institutional design. Moreover, in many organisational settings, these instruments are not used alone but with at least some of the others because the instruments are interdependent. For example, many markets are given more or less stable structure and trust is signalled to consumers by conformity with agreed standards. These are essentially instruments of persuasion to enrich the rather thin information that is given by prices and what the consumer can observe of quality in advance of purchase. This means that power will be exercised in networks not only by the instrument with which the network form has its main elective affinity, but also by using some differently weighted combination of all four instruments (Figure 3.4).

Figure 3.4: Relationships between inter-organisational patterns and the tools of power

	instruments of power / type of strategy			
	active, strategic – extensive intent			*passive – pure emergence or limited intent*
type of network	*control pure deliberate, planned strategy*	*Inducement entrepreneurial strategy*	*Influence ideological strategy*	*coping; imposed strategy'*
	authority, substituting direct provision steering, regulating, establishing status	negotiating, brokering: contracting setting prices, lending, granting, setting incentives	informing, persuading, legitimating, creating norms, traditions	finding short-term expedients, reacting surviving
hierarchies	███			
markets		███		
enclave			███	
isolates				███

Note: Cells marked in grey are those that exhibit 'elective affinities'

The distinction between control and inducement is perhaps not always as sharp as the table might suggest. Very strong inducements may be irresistible, as the film gangster's stock phrase about making someone 'an offer he or she couldn't resist' reminds us. Conversely, control is costly to enforce, and there will be some free-riding where incentives to avoid control are strongest. As the costs of inspection, monitoring, and enforcement in regulation rise, those upon whom control is being exercised will be more likely to calculate the costs and benefits of compliance against those of non-compliance. This equation is influenced by the probabilities of being caught and actually punished for non-compliance and of the gains from such behaviour, in just the same way that they will calculate the value of inducements. Thus at the purely instrumental level, control can be regarded as the strongest case of inducement.

Being principally instrumental in its effect and being designed to elicit a practice of calculated rationality or even formal cost-benefit analysis among those targeted by power, inducement is subject to a law of diminishing returns. For example, suppose that a government wants to induce its citizens to replace their older polluting cars with newer, low emission vehicles. In addition, suppose that to achieve this, the government seeks to use a combination of road tax, petrol tax, tax on the purchase of cars, mileage treatment in tax for company cars and tax treatment of car manufacturers and petrol retailers and retailers of alternative fuels. It will find that the cost to the taxpayer and to individuals and companies will rise sharply in order to

induce the last ten per cent of vehicle owners to buy a new low emission vehicle.

Nevertheless, the symbolic meanings of control and inducement are importantly different. A decision to use control indicates effectively the much greater moral weight that is attached by policy makers to the targeted risks and opportunities than does a decision to use inducement. For example, when radical environmental groups object to decisions made to substitute taxes on polluters or tradable pollution rights for older systems of coercive regulation, what they fear is not only that the inducements will be less effective but that the signal a relaxation of social and political concern. In this way, control can be seen, at the level of its symbolic meaning, not as the limit case of inducement but as the limit case of influence.

Figure 3.5: Instrumental and symbolic powers of tools of governance: relationships between tools
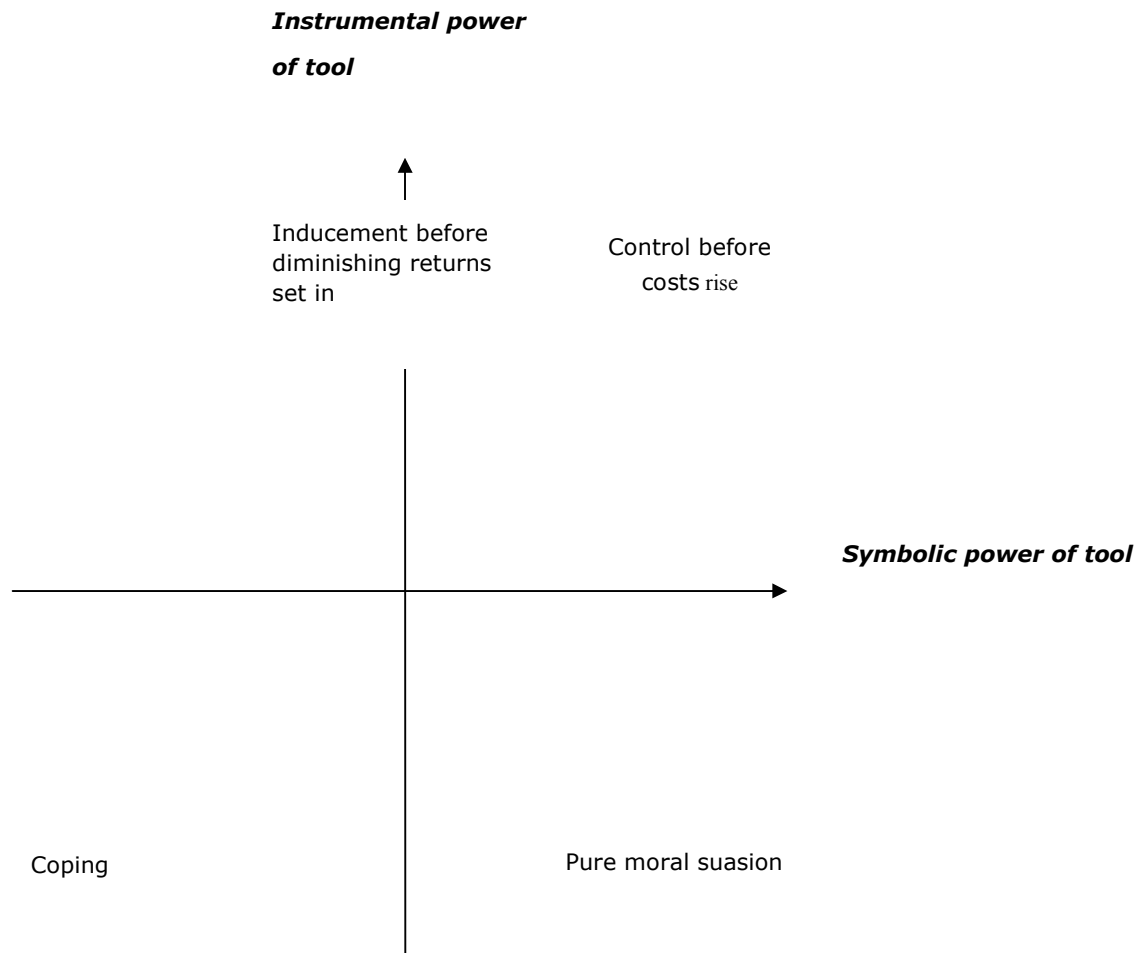
Instrumental power

of tool

Inducement before diminishing returns set in

Control before costs rise

Symbolic power of tool

Coping

Pure moral suasion

Distinguishing between the two levels at which the instruments of power can work, and showing that control can be read as the limit case of the other two active instruments, this suggests that the relationship between the tools may typically look something like that set out in Figure 3.5. Thus in both the contexts of governance of, and management within, networks, the same limited repertoire of basic tools is appealed to, for the design and execution of governance and management interventions.

3.3.2 Regulation

It was noted above that Stinchombe (1990) demonstrated that market based inter-organisational forms can readily replicate the core features of hierarchy to form hierarchical networks. In recent work, Gulati and Singh (1998) take the argument to the next stage in a study of data on strategic alliances in biopharmaceuticals, new materials and automobile industries between 1970 and 1989. The study revealed that hierarchical controls were (in a significant number of cases) produced through contractual and other alliance mechanisms, to produce forms of effective regulation within these strategic alliances, even within inter-organisational relationships where the initial decision to enter the alliance or partnership or group is wholly voluntary.

One form of power which is strongly associated with governance of networks, but which plays a more limited role in management within networks, is explicit regulation. Explicit regulation is the defining and setting of standards that network members are required to meet either using legitimately coercive means or voluntarily adopted systems (Brunsson, Jacobsson and associates, 2000),and the enforcement of those standards using some means of detection of violations, and sanctioning. Means of detection may include active inspection or passively providing individuals aggrieved with means of redress, for example through the courts.

In most forms of regulation, network members are subject to some kind of discipline by which they provide information to others, signalling their role in the network and their status in relation to consumers. Sometimes organisations are subject to accreditation, and sometimes simply to the assessment of market analysts and rating agencies, but in either case, they must behave in ways that will impress those who receive information about the network if those information-receivers have quasi-regulatory or standard-monitoring powers and capabilities.

The simplest form of regulation for highly socially integrated networks is the set of membership rules imposed by clubs. In less socially integrated networks, lacking internal means of regulation, regulation (n the strict sense of the term) is effectively sourced externally.

3.3.3 Contract

In many types of networks, explicit contracts may be used. In vertically organised networks, the procurement and sales relationships are typically organised through contacts. However, as is well known, the concept of a

contract covers a wide variety of ties (Macaulay, 1963). These range from long term relational contracts involving high trust and relatively limited explicitness, to short term spot contracts with low trust and extensive detailed explicit provisions (Macneil, 1974, 1980; Williamson, 1985).

To understand the range of such means, it is helpful to draw on the taxonomy of elementary forms developed in the neo-Durkheimian tradition. Figure 3.6 summarises the commitments to the balance of types of contract and regulation that emerge from the different basic institutional forms that the theory posits.

Figure 3.6: Forms of accountability in different kinds of network: the neo-Durkheimian approach

Social regulation

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Isolate	Hierarchy
Balance of authority, regulation and contract: acceptance of balance given externally, as something about which little can be done, with little faith in the efficacy of any of these means	*Balance of authority, regulation and contract*: preference for authority where possible, especially in the core of the network
Allocation of types of contract: acceptance of balance given externally, as something about which little can be done, with little faith in the efficacy of any of these means	*Allocation of types of contract*: relational contracting preferred in important functions
Individualism	**Enclave**
Balance of authority, regulation and contract: preference for contract where possible	*Balance of authority, regulation and contract*: preference for authority and regulation
Allocation of types of contract relational contracting only preferred where previous experience suggests that the balance of risks and transaction costs lies in its favour	*Allocation of types of contract*: where contract has to be used, preference for spot contracts, in order to mark the boundary between insiders and outsiders more clearly and to minimise the dependence of the enclave on outsiders

Social integration u

What is being argued in Figure 3.6 is that the form, and more importantly the *meaning,* of contract will differ according to the underlying institutional conditions to which the form of inter-organisational relationships prevailing is a more or less intelligent response. Contracts are essentially institutions that express and define (as far as is found practicable under conditions of uncertainty and unavoidable incompleteness of foresight for contingencies) *accountability* in dyadic contexts. These accountabilities are shaped in response to a wide range of pressures including current capabilities, past experience, the dominant institutions in the field, the contingencies of the task, the technology prevailing in the field, and so on. The type of, and meaning of, contracts used to exercise some governance over inter-organisational relations therefore exhibits, in the most readily measurable form, the nature of the accountabilities offered, expected and against which performances are committed to be measured.

3.3.4 Authority and leadership

In order to understand scope for governance over, and management of, networks it is important to consider the kinds of authority and leadership that may be exercised in different kinds of networks. The tradition in social science that has devoted most attention to forms of authority is that descended from Weber. Indeed, this tradition is still the most fertile source of thinking about authority and leadership, and the one which is drawn upon most frequently in the social science literature, although less so in the purely managerialist literature. In his monumental *Economy and society* (1978), Weber set out to analyse the varieties of social organisation by the distinct forms of power and authority that he diagnosed in each. It is not necessary to accept his very elaborate, and at times highly speculative, model of developmental history to recognize that his taxonomy of forms of authority is useful (Schluchter, 1989). The model is useful in thinking about inter-organisational contexts, because it is concerned with broad social, economic and political leadership and not greatly interested in management within organisations.

Weber's approach to understanding authority is complex, but several strands can be picked out here. He generally begins by asking how each form of authority is legitimated, which leads him to explore the style of argumentation to which it appeals. Secondly, he always explores the manner by which each kind of authority achieves control or discipline (which he defines to means the habituation of consent under given institutions) in whatever form of social organisation it sustains. These two modes of authority are brought together in his concept of legitimate order, which consists in the institutional form which is sustained by the form of argumentation (including beliefs and ideas) and the style and extent of discipline. Additionally, he classifies forms by the extent to which power and authority is individualised in a leader, to the degree at least of a figurehead with some autonomous decision-making power, or is collectively held in some group. The main forms that he distinguishes are all ones that have been exercised across networks of some kind or other.

His principal distinction is forms of argumentation is between the 'traditional' and the 'rational'. In many ways, this is the weakest element in his approach, although it is still widely used in social science to explore the nature of authority. He then goes on to distinguish between those styles of rationality which are instrumental or utilitarian, those which are 'value-rational' and which recognise the importance of certain actions and institutions in their own right as expressions of certain fundamental commitments which cannot be reduced to simple utility, and 'affective' rationality. More useful are his distinctions in the form of discipline between rule-bound (explicit law), expertise-defined (professional) and voluntary (democratic). Clearly most inter-organisational systems involve some element of each of these.

Finally, he distinguishes several forms of authority that are, more or less, individualised. The best known forms are the merchant adventurer, the patriarch, the patrimonial leader, the charismatic leader, and the bureaucratic manager. For Weber, the charismatic leader scores most highly on affective rationality, being the patriarch on the traditional form of that, while the

bureaucratic manager scores most highly on instrumental rationality and both rule-bound and expertise-defined systems of discipline. The others appear to be intermediate cases: the patrimonial form is additionally defined, in a slightly *ad hoc* manner, as more tightly attached to geographical territory than the others. The patriarch is the individual leader whose rule is sustained by some greater explicit and institutionalised norms than the pure charismatic leader. The patriarch's control is essentially sustained by the individual's ability to secure control of resources and to sustain continuity over time. The patriarch therefore seeks to cultivate some enduring institutions rather than solely secure resources for personal use as the merchant adventurer does. Indeed, dynastic means were the historically used strategy for investing in and sustaining continuity over future time, but this is presumably not essential to the definition of the patriarchal form. Patrimonial forms consist in the accretion to this of modest bureaucratic rule and classification of followers and greater division of labour between the accountabilities of different groups within the patrimonial leadership's jurisdiction. For Weber, the process of institutionalisation is one of increasing rationality and routinisation, terminating in instrumentally rational bureaucratic forms of authority being steadily extended over the whole of the social system. Although Weber was most interested in historical periodisation, it is not difficult to discern cases in contemporary organisations of each of these types. Equally, although his interest in leadership was limited only to the supreme leaders of social structures, there is every reason to believe that much the same repertoire is available at each level of organisations and of inter-organisational networks as at the very top.

In fact, these basic forms can be mapped relatively readily onto the neo-Durkheimian taxonomy that has been used as an organising device in this paper (cf. the simpler version offered in Douglas and Isherwood, 1979, 24). Figure 3.7 shows that indeed, the patriarchal and patrimonial forms are indeed intermediate or hybrid.

Weber sometimes writes as though charismatic leadership is a strong form. However, in fact this is not the case, and his argument about the routinisation of charisma implicitly recognises that it is not a strategy that is sustainable for very long. However, when we consider the problems of holding together a strongly socially integrated but weakly socially regulated network, it becomes clear that charismatic leadership is the obvious solution. For weak regulation rules out bureaucratic means while strong integration interdicts individualist solutions. Charisma, and the claim to additional degrees of an insight that in principle anyone committed to the network may have, makes most sense when the network consists within a densely tied group with internally egalitarian arrangements but exclusive relations with outsiders.

None of these forms is, of course, a psychological type or even a personal style. Rather, each is an organisational style that responds to the institutional conditions that define the scope for authority and leadership. Mapping these forms onto the neo-Durkheimian framework enables us to see what is missing and why. This can be seen clearly when consideration is given to the nature of authority in each of these institutional settings. In any network, authority

must come from the basic forces that hold the network together, for there is no other source. Whatever the personal characteristics which anyone 'would fain call master', without the institutional basis, these traits cannot be recognised let alone be expressed effectively. In hierarchical networks, for example, authority for the individual must come from status, and status must derive ultimately from rule and role, of this is the nature of the fundamental accountabilities that define and hold the network (or, for that matter, single hierarchical organisation) together. In networks with highly individualist institutions, authority can only come from the degree to which ability to control and access resources is centralised by the entrepreneurial individual. This individual must signal to others an ability to distribute those resources, or show that others must work through her or him to obtain them. However, on the negative diagonal, authority is often a little more fragile. In enclaved networks, the 'common cause' is what holds the network together. Hence, common values, ideas, norms, information, and commitment underpin relationships. Therefore, only the ability to personify, express and mobilise around that, among others who – under these institutions - have no greater status or access to resource than any potential leader, can secure the somewhat fragile authority afforded by the context. Authority, understood as the *legitimate* right to exercise leadership, is most problematic in isolate settings. Limited possibilities for collective action are present due to weak accountabilities between those within the network and the extent to which control of the instruments of power lies elsewhere. This means that either authority must be exercised externally and with very limited legitimacy at all ('despotism') (see Coyle, 1994, 225-227) or that a prominent individual may wield 'authority' over a brief duration ('celebrity'), or else the 'authority' is wholly ironic in character (the 'carnival queen'). In short, in isolate settings, authority (in so far as there is any) either comes from without or else from luck or occasion. The hybrid forms of authority, patrimonialism and patriarchalism, arise with similar logic from institutional contexts which exhibit combinations of these solidarities.

Figure 3.7: Forms of authority and leadership: Weberian forms mapped onto neo-Durkheimian taxonomy

Social
Regulation w

Isolate   *Hierachy*

Despotic

Celebrity   Bureaucratic

[Carnival]

Patrimonial

Social
integration
u

Patriarchal

Merchant adventurer   Charismatic

Individualism   *Enclave*
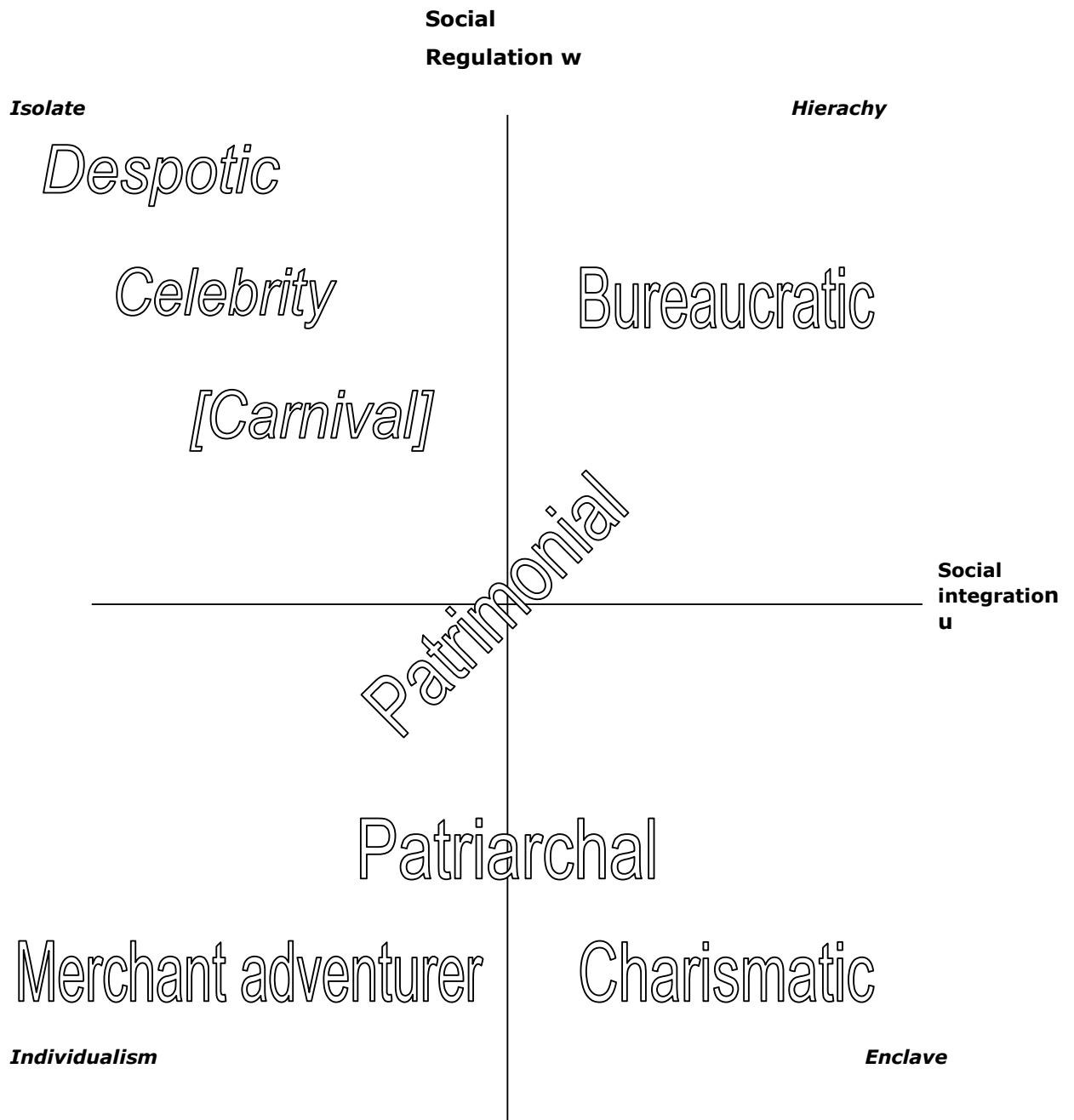
These forms can be seen as the origins of the more fashionable contemporary distinctions in the forms of leadership used in the management literature. Charismatic leadership styles continue to be the focus of study (e.g. Bryman, 1992), although still too often mistaken for a personality trait rather than understood correctly as an institutionally shaped style adopted in response to a particular organisational problem. Contemporary concepts of 'transformational' leadership (Burns, 1978) most neatly map onto the styles shown in Figure 3.7. These are possible in the more socially-integrated quadrants, for it is in these institutional settings that there is the greatest scope for leadership agency to influence the definition of the task, the structure of accountabilities and ties between individuals or organisations, and above all, the preferences. In contrast, in the less integrated contexts, it is harder to shape the preferences of those who are or might become followers, and therefore they must be taken as given. Theories of transactional leadership, popular some years ago but now rather less so, have greatest application in contexts structured heavily by individualism as only here will the individual-level calculation of the value of offers in negotiation be effective, upon which this style depends. However, without a measure of hierarchy, the wider institutional environment is unlikely to be stable enough for this work. Therefore, we should expect to find transformational leadership in two-way hybrids, in which individualism is the dominant element, and hierarchy the subordinate. In weakly integrated but highly regulated contexts, it will be difficult to distinguish leadership as adaptive response from leadership as the authorisation of technical response or simple management (Heifetz, 1994), and therefore in these settings task-orientation in leadership is more likely.

It was noted above that these forms of leadership can be found at almost any level in organisations. Much of the literature on individual roles in inter-organisational networking is concerned with boundary spanning roles (Thompson, 1967). In studies on vertically tied networks, some key boundary spanners in private sector organisations are procurement and purchasing managers for upstream linkages and account managers and sales staff for downstream linkages. Where there are contract-like arrangements in the public sector for internal markets or for contracting-out, roughly corresponding functions will exist. In addition, project managers who work in client-facing roles are increasingly important boundary spanning staff in many organisations. The Weberian approach to understanding leadership enables us to understand not only chief executives or chairs of boards, but also to comprehend the ways in which these boundary spanning staff in more subaltern roles in organisations might be able to operate.

3.3.5 Economic factors in the governance and management of networks

The 'new institutional economics' has provided important new frameworks for analysis of the management and governance of inter-organisational relations. Williamson's (1975, 1985) models took the form of building on Coase's (1937) initiating argument about why firms exist at all in market economies.

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Coase suggested that firms are rationally chosen over a system of interacting individuals because the costs of negotiating, monitoring and enforcing contracts, and the costs of sustaining purely individual contract-based organisation to deliver contracts for complex goods and services are so high that they would be uneconomic. Williamson extended the argument to suggest that vertical integration might be not only rational but superior in many cases. Therefore the *per se* rule in competition and antitrust law which casts suspicion on monopoly may in many cases be misguided because it may force inefficient and excessively competitive structures upon some industries. Williamson's account of monopoly as sometimes transaction cost-efficient can readily be extended to some forms of oligopolistic and even cartel network forms. This provides a schematic transaction cost account of how horizontal integration network forms might be both justified economically and, to the extent that people act with at least bounded rationality, might be brought about in response to the balance of costs and benefits.

However, no capitalist economy contains just one big firm, and this is explained by the fact that beyond a certain point, the transaction costs of hierarchy begin to rise. Specifically, as Williamson argued, incentives are impaired and therefore productivity and innovation begin to fall beyond a certain point. This leaves space for a variety of network forms based on contract. In particular networks connected by medium or long term, medium or high trust relational contracts might well be more efficient in reducing the transaction costs of spot contracts, and so networks based on these forms would often be superior. In this way, Williamson's theory provides a schematic model of how vertical network forms might be justified and given the right sort of rationality, actually emerge in those areas where they would be efficient.

There are two correlated problems with the theory, at least in Williamson's formulation. One is the danger of the Panglossian view that whatever actually emerges very nearly must turn out to be transaction-cost efficient, unless the assumption of universal or at least general bounded rationality is abandoned. The second is the instability of the concept of a transaction cost. If we want to explain why any particular form has come to be adopted, it is always possible to deem whatever negative (i.e. non-benefit) considerations either could have been or were taken into account to be a kind of transaction cost. In this way a transaction cost can become almost any opportunity cost that is not measured as a conventional cost of production. In order to salvage the theory from Panglossianism or tautology, it is probably necessary to allow greater variety in the forms of rationality than Williamson's economistic model does. One way to do this – which would be resisted in the mainstream economic tradition but is common in sociology, and indeed is specifically proposed in Durkheimian theory and may be implied in some readings of Weber's theory – is to allow rationalities to be determined by the prevailing institutional forms. This introduces a greater degree of inertia and 'stickiness' into the nature of the institutions that define network forms, and allows that by the standards of one of the rationalities, the recognition of transactions costs by people in other institutions may be regarded as inefficient, and *vice versa*. Moreover, Williamson (1994, 92) acknowledges that in focusing on transactions, the

model works best at the level of dyadic analysis of contractual relations. At this level of analysis, it is not very easy to identify any distinct effects that arise or emerge from the different nature of multilateral relationships.

There are some links between the neo-Durkheimian approach to institutional taxonomy of network forms and the institutional form of taxonomy developed within the transaction cost theoretic tradition of new institutional economics that flows from Coase and Williamson (Douglas, 1986). Ouchi (1980) argued, consistently with Williamson's (1985) theory, that the central challenge of all economic and social organisation is to enable agreement to produce goods and services of some kind despite the opportunism and bounded rationality of individuals. This, therefore, either constrained the tendency toward divergence in goals or else to work around it, in conditions in which goods and services differ in the ease with which the performance of providers can be evaluated in respect of quality and trustworthiness. His thesis was that where performance can be relatively unambiguously evaluated, great divergence in goals can be tolerated in market-like networks. As ambiguity rises, bureaucracy or hierarchical networks have to be adopted in order to deal with market failure. However, above a certain level of ambiguity, even these solutions will fail, and it becomes necessary to create organisations that either recruit likeminded people who will share the same goals and commitments, enabling them to economise on the costs of monitoring. The shaded cells in Figure 3.8 represent Ouchi's (1980) schema.

Figure 3.8: Ouchi's (1980) schema of organisational forms predicted to be efficient (or at least sustainable) in different conditions of performance ambiguity and goal incongruence

	Low performance ambiguity	Moderate performance ambiguity	High performance ambiguity
High goal incongruence	A Markets	B [Isolate]	C No organisation sustainable]
Moderate goal incongruence	D Markets	E Bureaucracy	F [Isolate]
Low goal incongruence	G Markets	H Bureaucacy	J Clan

However, Ouchi was largely silent about what kinds of organisation, if any, might be available (even if not necessarily fully transaction-cost efficient) in cells B, C and F of the matrix. Presumably, organisations requiring co-operation of any kind is likely to be very difficult indeed in conditions of very high ambiguity. However, cells B and F might sustain some minimal level of organisation because here at least one of these variables only presents moderate difficulties. The neo-Durkheimian argument would be that it is in these two cells that we should expect to find 'isolate' forms, which are to be regarded as true, if minimal forms of organisation. In that sense, an isolate is *not* a person or an organisation who knows no one else, or has no ties at all. Rather, the isolate situation is one of impoverished ties that require accountabilities to peers, and therefore few possibilities for collective action (in Ouchi's terms, at least moderately high goal incongruence). Isolates are

strongly constrained by external institutions or organisations that limit choices or that make the environment strongly opaque (in Ouchi's terms, at least moderately high performance ambiguity). Isolates have little choice but to be opportunistic and even guileful (Banfield, 1958) given the goal incongruence between them and between them and those with power over them. Therefore trust problems are very serious, but they can survive and exchange some goods and services on a short term basis and sustain thin networks provided they concentrate their efforts on fairly basic goods and services where performance ambiguity is not excessively high ('survivalism': Thompson *et al*, 1990). Essentially, the isolate form is a coping style of minimal organisation in conditions where high transaction costs have to be borne, but those costs are too high to sustain other forms of organisation. With this addition (entered in square brackets in Figure 3.8), the two traditions become fully convergent in taxonomy.

The remaining key difference between the two theories then concerns that determination of goal incongruence and ambiguity in the evaluation of performance. The new institutional economics tends to take ambiguity in performance evaluation as a more or less intrinsic feature of particular goods and services. For example, that health care services are intrinsically more difficult for consumers (or even regulators in hierarchical organisation) to monitor. The neo-Durkheimian approach argues (with path-dependence models in other kinds of institutional economics) that the difficulties in evaluating performance are affected by the current form of organisation, which produces certain biases in perception of performance. Ouchi accepts that at least at the margin, clans can discipline ('socialise' in his terms) their members into sharing or continuing to share goals, and so, in economists' terms, to endogenously shape preferences. This affords some scope for management as an activity within clan-like networks, albeit restricted by the limited differentiation of status and power that means that it is not easy for individuals to secure legitimacy for attempts to monopolise their control of that management activity to shape preferences and interests. However, the neo-Durkhemian theory allows the same scope for the type of organisation of networks to influence preferences to institutional processes in individualistic and hierarchical networks too. Whereas transaction cost economics posits a linear causation process between the conditions of the individuals and of the goods and services on the one hand, and the institutional forms of organisation on the other, the neo-Durkheimian approach offers a systems model with feedback loops between these elements and is more interested in the inter-relations between the institutional forms where they are all present than in the degree to which they are alternatives.

Continuing the strategy of mapping the theories of network organisation onto a common taxonomic framework, it can be shown that a transaction cost account can be given of at least some of the dynamics of the basic forms of organisation identified by the taxonomy used in the neo-Durkheimian institutional tradition. Again, the point is not to reduce other theories to the neo-Durkheimian, but rather to use its taxonomy as a heuristic device in order to show the points on which there is common ground.

Figure 3.9: Transaction cost strengths and weaknesses of elementary forms of networks

Fragmented competition s **Monopoly / Regulation w** **Limited competition contestability r**

Barter Market	Williamson - Coase Hierarchy
Independent firms with limited cooperation or competition, thin market	Network form: business group, stable and structured coalition, vertical integration
Limit case: self-production, autarchy	Limit case: single firm
Probabilities of low transaction costs created by the form:	Probabilities of low transaction costs created by the solidarity:
costs of externalisation	costs of contracting
Dangers of high transaction costs created by the form:	Dangers of high transaction costs created by the form:
high costs of any kind of large scale organisation	costs of internalising processes and costs of collective decision-making rise over time
	diminishing returns to organising
	Other cost / productivity problems: Lower productivity and weaker cost control because incentives from property rights are attenuated

Spot contracting v (left vertical label) **Relational contracting u** (right vertical label)

Hayek-von Mises market	Ouchi 'clan' or Buchanan 'club'
Network form: shifting portfolio of strategic alliances	Network form: club, trade association, cartel, horizontal integration
Limit case: individuals trading	
Probabilities of low transaction costs created by the form:	Limit case: commune
costs of decision-making	Probabilities of low transaction costs created by the form:
costs of internalisation	internalising some externalities, economising on need for some (otherwise) public goods
Dangers of high transaction costs created by the form:	
costs of keeping information proprietary	Dangers of high transaction costs:
costs of co-ordinating multiple ties and limiting conflict of interest or commitment	exclusion of benefits, esp. as members rise and congestion sets in
diminishing returns to mainly bilateral ties (alliances)	Other cost productivity problems: Lower productivity and weaker cost control because incentives from property rights are attenuated
costs of externalisation	
costs of negotiation to substitute for collective decision making	
Other cost / productivity problems: High costs of establishing and enforcing property rights, without risking feud, if not defined externally (e.g., by hierarchy)	

u Neo-classical competition **Fragmented organisational field / Deregulation x** **t Limited competition: generalised co-operation t**

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Paying attention to transaction costs in this way brings out a key issue in the theoretical consideration of the determinants of inter-organisational networking. The four forms of network that are identified in the neo-Durkheimian taxonomy are essentially inter-organisational versions of the same basic repertoire of forms that single organisations can take. In this sense, this particular theory suggests that the underlying and fundamental institutional character of inter-organisational networks is not different in nature, but rather in tautness and tightness, from the institutional order in the single organisation. Both organisations and networks are driven by the same dynamics, and move to the same few positions on the map of available forms of social organisation, in response to the same kinds of pressures.

The transaction cost approach enables us to explore more about the constraints and incentives that will tip the choice between separate organisations working autarchically, within inter-organisational networks, and/or the emergence of single organisations to dominate the field through merger and acquisition. In Figure 3.3, it was noted that in each of the four elementary types of case identified in the neo-Durkheimian theory, the limit case might be either a single organisation or very large numbers of organisations. These limit cases are defined on the basis of the conventional theory. However, in each of these institutional situations, an individualistic network may be heavily contingent not only on the balance of transaction costs, but on the capacity of people working in organisations in each of these institutional settings to recognise, take seriously and act upon different kinds of transaction cost. This requires allowing the stylisation of bounded rationality to be endogenous in the organisational and inter-organisational system. It is in this respect that the neo-Durkheimian theory offers something of real importance with which to supplement and complete Williamson's transaction cost model.

Figure 3.10 below presents a reworking of Figure 3.9 above to show how this neo-Durkheimian revision of the transaction cost model would work. This figure preserves from the transaction cost approach the idea that there are transaction costs which militate in favour of various outcomes, and that these transaction costs emerge from the prevailing institutions. Therefore, each main cell shows the three possible outcomes. However, in allowing that the institutions will stylise rationality in each, this version shows how the basic forms of power institutionalised as privileged in each of the elementary forms will skew the outcome. It also shows that the balance of forces making for these transformations are also likely to be ones that generate forces for hybridity between these forms, for the pressures of sustaining either network systems or dominant systems will lead to pressures to incorporate institutional features from the other three.

Figure 3.10: The balance of forces making for inter-organisational networking, separate organisations or a field-dominant organisation, where stylisation of bounded rationality is endogenous and so the recognition of transaction costs is institutionally determined rather than universally fixed

Fragmented competition or divide-and-rule S

Exercise and experience of control drives balance between fission or fusion W

Limited competition contestability R

Search for access to resources drives balance between fission or fusion V

Search for legitimacy drives balance between fission or fusion U

Isolate

Pressures for multiple separate organisations to exist: few pressures for collective action, lack of trust coping pushes organisations toward nicheing and autarchy

Pressures for organisations to form ties: resource dependence

Pressures for a single organisation to emerge: externally imposed regulation

Transaction costs and benefits most likely to be recognised, ceteris paribus: in favour of complying with or working within externally imposed (inter-)organisational order

Hierarchy

Pressures for multiple separate organisations to exist: incompatible styles of control

Pressures for organisations to form ties: greater legitimacy from cooperation: greater access to control enables more legitimate organisations to discipline others into membership of structured-group like network

Pressures for a single organisation to emerge: aggrandisement in order to exercise control more effectively

Where networked form emerges, likely to develop hybrid forms e.g., some individualist elements

Transaction costs and benefits most likely to be recognised, ceteris paribus: in favour of using or creating or sustaining dominant organisation

Individualism

Pressures for multiple separate organisations to exist: inducement-driven competition, innovation, niche-ing

Pressures for organisations to form ties: resource dependence, competitive pressures select which ties on the basis of inducement

Pressures for a single dominant organisation to emerge: aggrandisement of organisations with high centrality and betweenness: most powerful organisation is able to accumulate greatest resource base and so exercise greatest inducement

Where dominant organisation emerges, likely to develop some hierarchical features (Weber: 'bureaucratisation')

Transaction costs and benefits most likely to be recognised, ceteris paribus: in favour of vertical network

Enclave

Pressures for multiple separate organisations to exist: fissiparous character of enclave, rival possibilities for suasive influence

Pressures for organisations to form ties: costs of collective action fall when costs can be pooled for action in the common interest: persuasion is the tool for bringing others into membership of the group-like network

Pressures for a single organisation to emerge: successful suasive influence achieves cultural hegemony

Where dominant organisation emerges, likely to develop some hierarchical features (Weber: "routinisation of charisma")

Transaction costs and benefits most likely to be recognised, ceteris paribus: in favour of separate organisations each pursuing hegemony

Neo-classical competition or success leads to monopoly U

Pursuit of goals under greater voluntary (individual or collective) choice drives balance between fission or fusion X

Limited competition: schismatic conflict or generalised cooperation T

3.3.5 Problem / technology contingency models

In his well-known analysis of the organisational and technological conditions under which organisational-technological failures occur, Charles Perrow (1999 [1984]) argued that the nature of the problem to be tackled, including the technology to be operated, should lead to the avoidance of certain organisational forms as undesirable. This general approach can of course be applied to forms of networks as much as to single organisations (indeed, some of Perrow's original cases such as marine accidents do involve more than one organisation). Essentially, Perrow's is a version of contingency theory in the organisational behaviour tradition. That is, that the form of organisational arrangements should be, to the extent that people are rational and capable of effective action in institutional design, selected to meet the contingencies of the environment and the problem (Galbraith, 1973; Lawrence and Lorsch, 1967). Contingency theorists stress the degree of complexity and uncertainty in the environment. As complexity rises, numbers of divisions within a single organisations or the number of functionally specialised members should rise. As uncertainty rises, a preference for flexible generalist organisations with some protection of slack resources against unforeseeable events should rise in response. Moreover, as environments change, perhaps in documented trajectories over the life of a project (Scott, 1992 ch.9). so too will the level of complexity,. Perrow developed the argument by cross-tabulating the complexity of interactions and the looseness or tightness of the coupling of particular relationships to define a space in which to classify types of tasks and technologies to be managed. His argument was that the combination which represents the highest risk of failures and accidents, but for which the set of well-suited organisational and inter-organisational forms is tragically null, is that of high complexity and tight coupling. This has been denied in the studies on 'high-reliability organisations' (Roberts *et al*, 1994; Rochlin, 1996; La Porte and Consolini, 1991; Weick and Roberts, 1993, Roberts, 1993; Schulman, 1993) although by and large the 'high reliability' theorists have not followed contingency theoretic logic nor are they strongly interested in inter-organisational structures.

However, as Scott's (1992, ch.9) review makes clear, empirical studies have not unambiguously borne out contingency theory approaches. A key problem is that people are only likely to create the forms of organisations or networks that the theory would predict if they can readily and reasonably cheaply obtain information about just how complex and tightly coupled the environment actually is. Moreover, it would need the ability to obtain reliable unambiguous indications about how other people and organisations will act. Moreover, without an appreciation of the biases that people bring to the perception of their environment, it is very difficult to make contingency approaches very powerful in predicting, or even explaining, the organisational and inter-organisational forms that emerge in particular contexts. In order to do this, it helps to begin with information theoretic approaches.

3.3.6 Information models

One important strand of theorising about how organisational and inter-organisational forms are shaped is through the pieces of information about opportunities, resources, benefits, rights and risks, costs, and duties, and about procedures for capturing the resources and for reducing the risks. In short, organisational and inter-organisational forms are solutions, of better or worse kinds, to information problems (Stinchcombe, 1990).

Networks of different types are created used and, over time, reshaped in order to secure access to information of kinds that each organisation in its segment of the network finds relevant. The information searched for, the costs of search and the organisational locations in which one must search will therefore heavily influence the type of the network.

In their simplest form, information theories of organisation are very much like transaction cost theories, and exhibit some of the same strengths while suffering from some of the same weaknesses. For example, problems of trust arise in principal-agency relationships where the agent possesses more information than the principal about the benefits available to be captured in the course of the agency relationship. Economists refer to these as problems of information asymmetry. One solution to these kinds of problems is vertical integration between principal and agent as a way of overcoming the problems of incentives to keep information from principals. Others include attempts to write ever more detailed contracts, a strategy that sooner or later is sure to fail because eventualities will arise that were not foreseen in the contract.

Some theories begin with the nature of the information generated by the problem that the organisations in a given field must work with, because that information is generated by the problems that they face. For example, information about the opportunities created by the market, or information about the environmental conditions, or about the intentions of other actors. Most information theories of organisation focus on a limited number of variables to describe the most important features of the information that shapes the environment in which an organisation or an inter-organisational arrangement, such as a type of network, might arise. March and Olsen (1976) stress the importance of what they call 'ambiguity': by this they actually mean 'opacity', or the degree to which the information that an organisation could feasibly obtain about its core problems, challenges, resources and environment is unavoidably uncertain. There is a relationship between opacity and explicitness, which may not be immediately obvious. A situation in which information is readily and typically made explicit (written down, codified, organised in ways that support structured comparisons and analysis) is one in which opacity can be reduced much more easily and at lower cost than one in which information is generally tacit (kept in people's heads, not structured, represented in the form of skills or know-how rather than knowing-that).

However, the degree of uncertainty is not the only consideration. The second variable which most theories stress about information is the ease or cost with which it can be kept under proprietary control. Indeed, information is often most valuable when other organisations or other groups of organisations

cannot readily obtain it. Some information is almost unavoidably public. Information about the weather, about local or regional trends in public health, about last week's stock market trends or recent trends in the wage levels for clinical or managerial staff, is readily available to almost anyone who wants it while other kinds of information (who is really committed to doing what, who believes or intends what, whose ties to whom are really important) are much more readily kept under the control of particular organisations or even individuals within organisations. It is this variable which is most generally stressed by economists interested in information asymmetry and in principal-agent relationships.

Once again, cross-tabulating these two dimensions in the neo-Durkheimian taxonomy presents solutions to the problems that the different combinations of opacity and ease of proprietary control present. The argument behind this matrix (Figure 3.11) is that the nature of the information about the environment for an organisation or a field of organisations and the difficulty or cost of keeping that information proprietary (which is itself also in part a function of the nature of that information as being either tacit or explicit, embedded in skills or discrete) in part shapes the priorities that organisations will have in trying to make use of that information. Inter-organisational arrangements are as much driven as are single organisations by imperatives to make the best use of scarce information (Stinchombe, 1990).

Clearly, this is not presented as a complete account of the forms that organisations and inter-organisational networks will adopt or develop. Where there are other countervailing institutional or other factors, no doubt these pressures can be, and are, resisted, but they remain significant.

Figure 3.11: Informational conditions to which inter-organisational forms are intelligent solutions

Information about core problem for the organisation exhibits low ambiguity / opacity – high explicitness w

Isolate priority to secure own access to information that almost anyone can control and use	Hierarchy priority to increase proprietary control despite ease of capture and use information by outsiders
Individualism priority to exploit situations that may only appear to one individual as opportunities	Enclave priority to control among insiders, information about 'soft' matters e.g., commitment, belief despite cost of control

Low cost of keeping information proprietary v (left)

High cost of keeping information proprietary u (right)

ξ **Information about the core problem for the organisation exhibits high ambiguity / opacity – high tacitness x**

Information must also be rejected as either irrelevant, as noise, as misleading, as biased, if organisations are to make intelligent decisions (Thompson and Wildavsky, 1986). Working out what to reject requires that organisations internally recruit, or else can access through networks, people who are skilled in the assessment of banks of information in order to determine what is useful information and what is noise (Stinchcombe, 1990; Sabel, 1982). When entering a new market or developing a new product or service many strategic alliances are undertaken because each party needs the skills of the others in understanding, for example, what is useful information and what is not. The efforts that organisations must make to identify where those skills are to be found, and the configurations of power that emerge between suppliers and demanders of skills in telling information from noise in turn shape the nature of the networks they form.

The converse dynamic is also important. The nature of the organisation or network form, shapes what is counted as noise, for good and ill. Hierarchical networks will reject information that would suggest reasons for organising in ways other than hierarchy. Individualistic networks will reject information which suggests that, for example, competitive entrepreneurial strategies could be leading to zero-sum outcomes while enclaved networks will reject information that would lead people to think that internal egalitarianism and democratic decision making are inefficient or inappropriate in their particular field (Thompson and Wildavsky, 1986). In these ways, network forms institutionalise themselves.

Information is central to the role of trust in networks. It is a commonplace in the literature to observe that networks are 'high trust' forms. Indeed, many long term strategic alliances that are regarded as 'successful' are indeed ones in which high trust has been built either carefully or in the course of purely

practical collaboration. However, this is not always the case. There are many documented examples of looser networks (in neo-Durkheimian terms, less socially integrated ones) in which the form of network is determined by the low levels of trust between each of the nodes. In the absence of powerful reasons for or ability to trust information provided by any one organisation, the other organisation may preserve a variety of linkages to other organisations, all equally loose, in order to secure access information with which to check what is received from each. Many 'issue networks' (Rhodes and Marsh, 1992) identified by political scientists exhibit this character.

3.3.7 Information, expectations and trust

More sophisticated information theories derive from Merton (1968 [1949]), who stressed the importance of (institutionalised) expectations (which may vary markedly from what might be considered 'accurate' - thereby allowing the theory to avoid the problems of Panglossianism that have weakened transaction cost theories), and information about the expectations of others in shaping the form of social structure. Only where reasonably reliable information about the intentions of others can be obtained, thus enabling stable expectations to be built up, is sustained trust possible of a kind that can stabilise a network. All forms of organisation and of inter-organisational arrangements require trust to function. Despite the commonplace rhetoric, there is nothing special about inter-organisational networks in this regard. - however, trust is placed for different reasons in each of the basic different kinds of institutional settings (see 6, forthcoming). As Ouchi (1980) argued, it is wrong to see the cohesion and co-ordination achieved in clan-like or enclaved forms of networks as uniquely driven by trust. Rather, trust (of a particular kind) is an intermediate variable, produced by the organisational form of strongly bounded membership, dense ties and/or internally egalitarian status systems due to a system of distributing rewards, tied neither to status nor to individual performance. These institutional-structural factors produce co-ordination as long as the 'cause' can provide cohesion, which itself emerges in institutional reaction to the 'failure' of other inter-organisational forms. In the same way, trust is produced in individualistic and hierarchical networks as an intermediate variable. Its latent function is to stabilise expectations.

How then, are either trusting or non-trusting expectations about the future behaviour of others within networks generated? In part, the institutions within the network that define its form and wider social institutions (sanctions for breaking promises, etc) generate expectations of this kind, to the extent that there is reason to think that an individual in question will be bound by them. In economic models, including transaction costs theories, individuals are assumed to be opportunistic and guileful, and to be boundedly rational, and therefore capable of short-term behaviour in violation of institutionalised expectations, unless the institutional forces are of sufficient strength to impose very severe costs upon them for doing so. At a very schematic level, this is no doubt sensible. However, the problem arises in trying to work out

just which institutions will typically be perceived as imposing such 'very severe' costs.

The neo-Durkheimian model, as presented here, suggests a way of at least developing some plausible hypotheses about this. Institutions should afford the greatest opportunity for guileful opportunism when they provide the weakest integration. In weakly integrated contexts, one's reputation with others is less important because one's accountabilities to those others are most limited.

Secondly, reputation is only one kind of incentive for behaving in a way that acknowledges the long-term benefits of pro-social action within networks of any kind. The possibility of eventual material pay-off as a result of investing in one's position in the network, to secure, for example, a *tertius* position as a broker (Burt 1992) between enclaves, is also a reason for long-term behaviour. This suggests that weak regulation is not the factor most likely to exacerbate the effect of weak integration. Rather, the institutional setting in which the possibilities of longer term pay-off to investment in network position are most limited is that which combines weak integration with strong regulation, for here, strong regulation is not combined with any system of structured status or any system of rules allocating rewards for investment in long term behaviour. In isolate settings, it is most difficult to secure reliable information on the basis of which to develop expectations of the behaviour of others, and therefore to trust them, because the external regulation is so strong that their behaviour is often driven by forces over which they have limited control and also these others have few bonds to others in a similar situation. The opacity problem is therefore most severe here. Moreover, because in weakly integrated settings, the costs of keeping information proprietary is low, making guile about one's own intentions a cheaper option. The most Hobbesian and guileful opportunists should therefore be expected to be found in networks of isolates (Wildavsky, 1998).

Indeed, there is empirical evidence that this is the case. In the classical ethnographic study of a small town characterised by isolate institutions, Banfield (1958) showed that 'amoral familism' does in fact emerge as a perfectly rational strategy of coping for individuals in these conditions. In a study of economic organisation among poor Frafra migrants in Accra, Hart (1988) argues similarly that only with difficulty do a minority achieve collaboration with non-kin in the formation of organisations. In studies of organisational behaviour, the same thing is found. Mayntz (1999) examined the behaviour of science academies in countries in the post-socialist transition of the early 1990s and found that the most opportunistic behaviour was to be found among those in the lands of the former Soviet Union, a finding reinforced by the many studies which have detected low levels of trust in those countries during these periods (e.g., Sztompka, 1999). In the present context, ideally, one would want to test the hypothesis by examining studies of failure to form inter-organisational networks or alliances (e.g., Doz and Hamel, 1998); unfortunately, there are rather few such studies. There are of course studies of the breakdown of particular strategic alliances among

companies that have previously entered alliances (and then later go on to form others) , which is clearly not a comparable situation.

In contrast, each of the other institutional settings should afford at least some reliable information on basis of which to build some expectations of the behaviour of others (at least as long as these forms have not yet been radicalised to the point that they undermine their own virtues: Thompson *et al*, 1990; Wildavsky, 1998, ch.10).

3.3.8 Path dependence and embeddedness models

An important development within the broad family of institutionalist theories of organisational and inter-organisational forms has been the recognition that prior patterns of development both constrain and define opportunities for future developments – a phenomenon generally called 'path dependence', and first given emphasis in the context of technological change (Arthur, 1994) and in the economics of technical innovation as they affect market structure (Nelson and Winter, 1982). The irreversibility of history is applied to the forms of networks, the skills and competencies of networking and indeed the actual ties that make up the particular networks, to argue that these constrain future abilities, willingness and opportunities for developing ties. Essentially, path-dependence stresses positive or self-reinforcing feedback dynamics. In contrast, 'catastrophe' theories, self-undermining 'crisis' process theories or 'punctuated equilibrium' theories (Baumgartner and Jones, 2001; True *et al*, 1999) stress negative feedback dynamics, or processes whereby one institutional dynamic elicits a correction, a counter-assertion, a curb, a check, a reverse from a rival institutional process, or (where an institutional dynamic disorganises itself) opens up a space for others to supplant, or at least, curb it.

Garcia-Pont and Nohria (2002) show that the network character of the wider industry or organisational field is a key predictor of propensity to form alliances, stressing the embeddedness of dyadic relations in wider network systems. Gulati (1995) gives particular emphasis to the role of prior ties, not only in the instrumental role of providing experience in the skills of managing alliances, but also in defining a structure of constraints and opportunities for present and future tie formation in networks. Kogut *et al* (1992) and Walker *et al* (1997) offer a quantitative empirical examination of path-dependence in the networks of the US biotechnology industry in the 1980s. They show that first-mover factors were critical, that initial patterns of clustering were steadily reinforced during that decade, and they also find that these cliques steadily increased in density as a result of the reinforcement dynamic.

In the literature on the shaping forces of inter-organisational structures, the path dependence concept has also been expressed using the idea of embeddedness. Originally introduced by Granovetter (1985) to encompass the neo-Simmelian idea that organisational action is located within, constrained by, and shaped by, networks themselves (so stressing interorganisational and inter-individual ties as independent variables), in

more recent work the concept has been used to emphasise that interorganisational ties are themselves 'embedded' in;

(a) wider systems of such ties (following Granovetter's (1985) admonition that Williamson's (1985) transaction cost models still emphasised only dyadic relations); and

(b) inherited structures of previous patterns of ties (Uzzi, 1997).

Studies such as Uzzi's (1997) focus on the balance of benefits and risks for adaptive efficiency arising from embeddedness. To the extent that these benefits can be recognised in advance or else influence people functionally without recognition, they may be shaping factors for networks. However, Uzzi also identifies the extent to which the constraining process arising from path dependence and the strength of the positive feedback dynamic is a function of the efforts people feel compelled to take in order to reduce their exposure to risk. In order to assure themselves of the trustworthiness or investment-worthiness of another organisation, they are likely to follow up multiple ties to and from that organisation, in the process reinforcing those ties and adding multiplexity to ties that may hitherto have been less multiplex. In part, Uzzi's is an information-driven explanation - in conditions of information-impactedness about risk exposure, it makes sense to work with existing ties along which already trusted indications of the trustworthiness of potential new partners are known already to flow, thus reinforcing those ties. From an economic point of view, the gains in adaptive efficiency are achieved at the price of raised barriers to entry, because the path-dependence takes the form of a reputation management network which it is costly for a new player to make use of. Uzzi also introduces the notion of 'overembeddedness', meaning the problem for a given organisation of being linked to too narrow a set of cliques or clusters in the wider industry network system, so that if a core organisation in that clique is undermined, the focal organisation too is damaged (possibly irreversibly) This usage has been followed by Grabher (1993). However, the problem with this extension of the concept of embeddedness is that it tends to run together static measures of tie strength and of dependence on resources passed along particular ties, and dynamic concepts of the irreversibilities of path-dependence.

A problem with path dependence models is that they privilege positive feedback over negative feedback. While they may be plausible for periods of what might be called, following Kuhn (1970 [1962]), the 'normal science' of inter-organisational relationships (for example those where the reinforcement dynamics are more heavily influenced by stable task environment and technological lock-in than by other variables) there certainly are important cases of negative feedback. There are many documented cases of significant change towards more hierarchical, more enclaved or even to more isolate forms of networks after protracted periods of individualistic formation (e.g., Madhavan *et al*, 1998). Sometimes these are the result of major technological change, but in other cases, other factors are more important. In general, however, a theory cannot be convincing which privileges only one of the two basic kinds of systems effects to the exclusion of the other (Jervis, 1997).

3.3.9 Conclusion

The network forms of interorganisational relationships are presumably the result of rather complex causal processes, if each of these factors and each of the theories which give them particular privilege, is capturing something of importance, even if not the whole picture. However, from the previous analysis of network principles using the neo-Durkheimian interpretation, it is possible to identify a range of different network 'types' and to summarise the key characteristics, strengths and weaknesses of them (see Box 3.1).

However, it may be possible to introduce some order into the complexity. Whereas in the previous part, the neo-Durkheimian taxonomy was used as a heuristic device and the focus was on statics, in this part (where the focus has been dynamics) it has been argued that the neo-Durkheimian institutional approach can be asked to do more work than this. Indeed, it can provide a way of mapping the kinds of conditions and factors – encompassing many of these variables – to which different styles of interorganisational relations appear as intelligent (although not necessarily optimal or efficient) responses.

It has also been argued that, so far from the choices of forms being between 'markets, hierarchies and networks', in fact, the same types of factors work to determine the form of relations between organisations, within organisations and the choice between single or multi-organisational solutions. In this way, it becomes possible to integrate the transaction costs model of institutional choice into a larger framework. The variables reviewed here (power, costs, rationalities of agency, task environment and technology, information and expectations) are neither unrelated nor randomly related to each other nor, in any simple sense, equally influencing each other in a dense but symmetric ring. Rather they influence each other in more or less intelligible ways. The task of the final part of this paper will be bring together these key influences into a more comprehensible model.

Box 3.1: Interpreting networks – key characteristics, strengths and weaknesses

This box summarises the key characteristics, virtues and limitations of the three "active" types of networks, which have been argued in full in the main text.

The structural and organisational characteristics of 'networks' do not follow any uniform or single pattern. Health care networks vary across a range of key dimensions, such as the strength of regulation and integration, and the level of social cohesion and common values. This variation is important in the interpretation of networks since different network forms may be more, or less, suited to achieving different tasks and may predicate different approaches to their management and sustainability.

This review has interpreted the concept by examining differences between networks and categorising them in terms of the level of regulation (authoritative specification of rules and rules, constraint by fixed and given fact) and social integration (common values and recognition of shared identity, sharpness of boundaries between members and non-members). This approach enables a comparison to be made between certain types of network and their strengths and weaknesses, as summarised in the three 'types' shown below:

Enclave Networks

Commonly a close-knit group with a high level of social cohesion, this type of network is sustained through common bonds and by a 'flat' structure in which there is a high level of internal equality between members, but markedly less with outsiders. They have little aptitude to accept central or mandated authority. Many local partnerships and informal networks in health and social care take on such forms, drawing strength in their association from the legitimacy and ownership provided. Principled commitment and integrity are powerful cohesive forces. However, these networks tend to 'fail' when they exhaust the motivation of their members or when their reliance upon principle leads to schism over rival interpretation of principles or when rivalry between members focuses on claims by or for individual members that they are more deeply committed to those principles than others. Such networks can be unstable due to insufficient institutionalisation (such as shared resources). Such networks have great value, for example, in creating and developing 'bottom-up' legitimacy and trust between individuals, professionals and organisations to the sharing of information, ideas and strategies and to new ways of working.

Health care examples:

 - Professional groups such as the BMA;

 - Associations such as the National Pathways Association or Integrated Care Network; Information-sharing groups and policy forums;

 - Local Implementation Teams;

 - Groups of clinicians agitating for additional resources to be devoted to particular conditions.

Hierarchical Networks

These networks have an organisational 'core' which has the authority to regulate the work of its members and they exhibit characteristics similar to single organisations. Hence, such networks are often controlled by steering groups and via direct authorities that, for example, undertake inspection and accreditation. Hierarchical networks also tend to be sustained by clear and authoritatively given rules and roles with defined status, and commonly share values such that individuals and organisations are prepared to accept working to joint agreements or protocols. Such networks, therefore, are most successful in co-ordinating and controlling a pre-defined task such as the minimisation of transaction costs or improvements in quality, and in institutionalisation of capacity for collective action over the longer term. The co-ordinating function of the hierarchical network has the potential to clarify complex divisions of labour for certain tasks. However, such networks may 'fail' through over-regulation and over-bureaucratic procedures that limit the ability to innovate and demotivate their membership. Other reasons for failure include lack of trust from members to the authority with the mandate to organise and regulate the network, or simply that the network does not appear to provide proportional benefits to all of its members.

Health care examples:

- Hub and Spoke arrangements;

- Managed clinical networks (in theory);

- Integrated care pathways;

- Social Health Maintenance Organisations.

Individualistic Networks

Individualistic networks are those in which a single individual or organisation develops an association of affiliates in order to achieve a certain task. Such networks, for example, can be based on the procurement of a 'network' of service providers through the negotiation of contracts or via service agreements. Control of access to, and distribution of, resources provides such central organisation as these networks afford through the use of brokerage positions between clusters where important resources can be found, with the power to exercise leverage and hence shape the network. Such networks tend to be innovative, flexible with the capacity to respond to change as membership is fluid. However, such networks can fail, or remain sub-optimal, due to the high level of transaction costs and the competition and conflict between agencies that can restrict the capacity and motivation for joint working or because they have few internal incentives to commit themselves to long term collective action arrangements..

Health care examples:

- US Integrated Health Care Systems;

- Care pathway commissioning;

- Some Local Implementation Teams

In many cases, actually observed networks will be hybrids between two or three of these types, and no doubt with elements of the isolate form too.

3.4 Toward synthesis

Each of the principal theories of how network forms are shaped clearly has some merit, but it is also evident that none is complete. None of the variables posited to be important is irrelevant, but equally, theories claiming that only a single type of variable is sufficient to account for the character and forms of interorganisational relations appear to be invalidly reductionist.

Broadly, when developing syntheses of theories that seek to avoid invalid reductionism, there is a limited range of approaches one can take. One approach, favoured by Thompson (2003), is to identify the 'minimum set' or an (ideally, unique) subset of at least two of the available theories from which one can generate a complete set of all the interactions. However, this requires that all the interactions specified by all the theories can be fully specified, and it has not proven possible to do this with fully ten clusters of theories. In any case, that would only result in a comprehensive of double-headed arrows, which is no doubt true but yields nothing of interest – rather, we need to know which flows any proposed synthesis claims are most important for most cases of inter-organisational relations.

The main alternative approach to developing an anti-reductionist approach is therefore to make the heuristic assumption that the key variables will be

treated as being at least partly endogenous. However, it must be emphasised that this is a commitment made only for the present purposes in understanding inter-organisational relations, but is without prejudice to larger philosophical debates in social science about the *general* exogeneity of categories of variables. The next stage is to proceed to try to fill in some of the principal directions of causation between the range of variables posited by the main theories, without seeking to be complete.

Figure 3.12 sets out one plausible result of applying this method using the materials generated in this paper. The figure shows a simplified model, with a general category of feedback loop between, on the one hand, the basic determining variables and, on the other hand, both the balance of static forms and the dynamics of their interaction. In order for this to be possible, it is necessary to specify two 'periods' (not necessarily literally distinguishable chronologically), one in which the basic causal variables derived from the main theories are taken to be active, and a second in which the dynamics they produce are played out, to shape the conditions for those same variables to determine forms and dynamics in subsequent periods. Before discussing particular elements and causal hypotheses in the model, a few general points should be made about it.

Although the model is a closed system, this is partially misleading. In the first place, its apparently closed character is an artefact of its high level of generality. In particular cases, we would expect to see environmental influences that are not captured in the large left hand box: however, the claim behind the synthesis is that these should explain a lesser proportion of the variance than each the variables identified here. Secondly, its closure is an artefact of its underlying methodology, which is to work on the assumption of extensive endogeneity of individual and organisational interests, institutions, ideas, network structure, forms of power and governance.

Thirdly, again in large part because of the strategy of endogenising variables, the model does not privilege agency over structure, but, while recognising agency, it tends to emphasise structure as a determinant of agency. In effect, individual agency is an emergent property, taking forms which represent settlements between the four basic styles posited in the neo-Durkheimian theory (cf. Douglas, 1982c; Douglas and Ney, 1998). In the same way, trust in each of the four basic styles is an emergent variable of the model, rather than being an input variable.

Fourthly, it follows that the model begins from the claim that in general, institutions, ideas, interests, social structure and styles of governance and power are all crucial influences upon the formation and destruction, development, current form and changing type of interorganisational relations, and that the task is to model their influence on each other in dynamics (cf. John, 1998).

Fifthly, the arrows represent the most important direct effects. The qualification that the effects captured are direct is critical. For example, consider the lines running from past government action to the task environment (e.g., regulation of technologies, competition law) and current

trends in network structure (e.g., public procurement, mandation of certain types of ties). Certainly, there will be subtle effects of government action upon, for instance, transaction costs or learning requirements, but in practice, these will be less obvious and hard to measure, and often oblique in their causal pathways. Therefore only the most important and direct are shown.

Fifth, this is a model in the proper sense of the word. A model is supposed to simplify and to capture the most salient relationships and flows, not to provide a comprehensive description of every feature and flow. It should be judged not on the standards of completeness – no model can ever be complete without being useless – but by the standards of parsimony, adequacy, relevant generality, and capacity to explain a significant proportion of the variance observed. Necessarily, the fact that the model is a synthesis of theories, giving due weight to a wide range of variables, means that some sacrifice of parsimony is being accepted in order to secure greater generality.

Hierarchical
Form
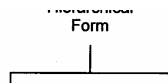
First period

Second period

Weight of the past   **Forces of the present**   **Shadow of the future**

Task environment: characteristics of problem structure, prevailing technology, e.g. loose / tight coupling, and resources to be obtained and disposed (content)

Governmental regulation; institutions at organisational field level

Internal institutional and power configurations within focal organisations

e.g., leadership

Past institutional and network structure of organisational field

Current trends of institutional and network change in the organisational field (structure)

Expectations, anticipations, hopes, risk perceptions in organisational field

Relative weight in the mix, of basic forms of interorganisational relations:-

Isolate	Hierarchy
Individualism	Enclave

Positive feedback dynamics

Path dependence

Balance of transaction costs of alternative inter-organisational arrangements

Information, learning and knowledge requirements

Negative feedback dynamics

Counter-vailing assertion; curbing, gridlock

Focal organisations' prior experience of different types of links with other organisations

Internal capabilities for forming and sustaining external links: e.g. boundary spanning roles, internal co-ordination

Expectations, anticipations, hopes, risk perceptions in focal organisation

The underlying theses that the model represented in Figure 3.12 seeks to capture are the following:

Network forms represent influences that exhibit both 'weight of the past' and 'shadow of the future' effects, in the form of inheritance making for constraint from the past and expectation, aspiration and fear for the future.

In general, the more readily measurable and 'material' the nature of a given input variable, the more likely it will be that its most important causal effects will be upon other variables of a similarly 'material' (or otherwise) character. Thus, the system-critical effects of regulation upon task environments are likely to be greater than those of regulation by more oblique routes, for example, upon expectations.

Both cost- and risk-minimisation on the one hand, and the pursuit of benefits (including competencies and learning) are variables that are likely both to be of great importance.

Each of the four basic solidarities is likely to produce positive feedback dynamics in the second period, or self-reinforcement, but at some point, each of these will tend to disorganisation, thus opening the space for others.

Moreover, each solidarity is provoked by the assertion of the others, producing negative feedback.

Settlements between these competing types of pressures are what determine the character of the input variables in the next (third) period.

In the particular flows identified, the model therefore provides embeddedness theorists with the path-dependence they require, including the effect of previous network structure. However, it denies their claim that positive feedback dynamics will generally trump negative feedback ones: it is quite common that certain styles of inter-organisational relationship prove too individualistic, or too enclaved or too hierarchical for some people who cleave to other institutions. Again, the model grants institutionalists much of what they want, because it specifically acknowledges both the regulatory role of formal institutions and the informal structuring role of informal institutions within the network environment and within the focal organisations. For contingency theorists, there is a clear recognition of the importance of the task environment. Transaction costs and competence theories too are given a clear role. Cognitivists concerned about culture in shaping networks are recognised in the shaping role of expectations.

It has to be acknowledged, of course, that the model has not been tested empirically using quantitative data. Indeed, it would be a tall demand of a quantitative data set that it would be rich enough to supply sufficient information on all these kinds of variables on a sufficiently large sample to enable it to be tested in any very direct or conventional way. However, it does capture many of the central

arguments of the main theories reviewed in this paper and it also accommodates some of the criticisms offered of their limitations, and this provides some preliminary and indirect indication of its plausibility.

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4. Management across organisational boundaries: structures, activities and capabilities

Perri 6

This chapter considers the challenges of management and governance across the boundaries between organisations. It builds upon and uses the framework set out in the previous chapter where the taxonomy of basic forms of networks was developed from a range of theoretical literatures. The first section of the chapter is concerned with management '*within'* networks – the activities of positioning and exploiting positions in networks that organisations themselves undertake. In the second section, the governance of networks is examined, by which is meant the use of public power by agencies of government to influence the formation, form and style, management and dissolution of networks of which they are not considered, for this purpose, to form part. The final part draws out some of the key overarching issues.

In analysing management, consideration is given first to the goals of managing across organisational boundaries. However, beginning with goals before moving on to activities does not imply a rationalistic conception of management. It is generally accepted that goals are very often emergent rather than being set prior to decisions about means (Mintzberg and Waters, 1985), and that management is often as much about sense-making *ex post facto* as it about rational planning *ex ante* (Weick, 1995). The purpose of the distinct discussion of goals and means is to focus on a distinction that remains usefully analytically and heuristically even in understanding sense-making, and is indeed unavoidable in any discussion of management, but which does not commit those who use to it any overly rationalistic theory of decision making or to any 'stages' model of actual or indeed ideal management.

The discussion in this paper focuses mainly on strategic management, rather than on, for example, financial, human resource, or project management. This is because strategic management is generally taken to be the core of both the practice and the academic discipline of

management. However, a review of the literature on network management in those other fields would also be worthwhile. The first part of the chapter analyses positioning strategies, which in turn shape and change the form of networks. A crucial part of the argument is contained in the analysis of the activities of management across networks. For here it is argued that the basic activities of managing across organisational boundaries are substantially the same as those of managing within a single organisation. There then follows a discussion of the basic tools and instruments of management, where it is argued that these are in essence managerial applications of the basic categories of power that were analysed in Chapter 3.

In addition to the issues of strategic management discussed, there is also a discussion of some of the internal issues of ensuring capability and capacity for managing across organisational networks. This section focuses mainly on issues of absorptive and disseminative capacity, leadership and boundary spanning roles. A short discussion of the risks of inter-organisational management and the problems that can lead to failure concludes this part.

In section 4.2, that examination of governance is devoted to the main similarities and differences with management. The core of the argument is that essentially the same strategies of goal formation, activities and instruments are required for the governance of networks from without as for their management from within.

4.1 Management within networks

Management within networks is a term used to mean a range of decision- making activities such as resource acquisition and allocation, production, distribution and exchange, co-ordination, positioning, planning and strategy development, collective sense-making, and so on. These activities impact, intentionally or unintentionally, upon the size, structure, and distribution of power within networks of organisations, of peers, and in networks of upstream supplier and downstream customer organisations.

Exercising management or governance across several organisations rather than within a single one might be thought to bring special challenges. In some part, it will be argued, this is true, but in fact, many of the techniques, concepts, strategies and capabilities required are ones that are familiar from and in part developed within systems of management in single organisations.

In general, the goals of management are to arrange and co-ordinate resources, interests, commitments and sense-making to pursue the goals of a particular organisation or agency. This is undertaken within prevailing constraints, such as the limited quantity of resources, legal and contractual limits on the manner by which goals can be pursued, and so on. Management is the activity of trying to shape

organisational ability, individual willingness and resources in order sustain collective action to pursue the goals of either a single organisation or a set of goals through a system of organisations (Eccles and Nohria, 1992, 39). By contrast, governance is the steering or regulation of the whole network from an external standpoint. That is, as an actor not themselves a member of the network being governed. La Porte (1996) distinguishes those exercising external governance as 'network throwers' from 'network riders' with high centrality inside the network, from 'network pullers', who are semi-isolates outside the network seeking membership (or at least more or closer ties).

The basic tools of management are the same in working within and between organisations. It is often said that the crucial difference between the two is that, in the inter-organisational context, a manager cannot exercise authority or legitimate power to command an organisation in which he or she is not employed or where he or she does not hold a board-level non-executive position. However, only a limited number of activities that managers actually engage in (when working within a single organisation) actually involve the straightforward issuing of commands backed by threats so strong as to amount to coercion, even implicitly. Much of what managers do involves rather limited exercise of authority, or combination of authority with other kinds of tools, where indeed authority alone would prove counter-productive. Most managerial time in any organisation is spent on defining problems, persuading people, listening to others and being persuaded, responding to requests and complaints, negotiating finances, hiring people and entering other contracts, writing draft plans, arguing the merits of strategies, measuring and examining achievements and non-achievements, monitoring, developing suggestions, brokering between people and organisations to reduce or at least contain conflict (and sometimes to conduct it)and, more than anything else, making inquiries and asking for information. These are also the main activities to which managers devote their time when they work across two or more organisations. Indeed, both when working in the single organisation and when working between organisations, command and authority tend to be used as a last resort, when all other strategies for securing collective action and commitment have been tried and found wanting. Moreover, managers are well aware that the issuing of command within organisations in the absence of other means of securing commitment brings both risks and costs. Subjected more to authority than to persuasion or incentive, staff may lose motivation rather than be sustained in it, and some may leave; morale may fall, goodwill may be withdrawn, and managers may find that they must work much harder to secure crucial information internally. In hierarchies, the commitment of an organisation to a strategy by managers, may rest in part upon implicit authority and the availability in the last resort of command, but command is a weapon that often weakens effective authority through

its explicit use. That implicit authority can be secured on several bases, and not only on the basis of vertical integration. As we have seen in chapter 3, there are contractual relationships that can sustain it. However, not all networks require the implicit threat of sanctions in order to achieve co-ordination: in many cases, making such a threat explicit can in fact undermine persuasive power. The point is certainly not that authority is never necessary, but that it is not always so, and certainly rarely sufficient.

4.1.1 Goals of management within networks

Success in managing across networks consists in the same thing that success in managing a single organisation consists of. That is, what matters is that effective collective action is secured, that the right assembly of resources is achieved, that shared sense-making is developed among the people involved in the network, and that commitment is sustained as long as is required for network.

A key level at which goals are sometimes formulated concerns the *structure* of the network. In general, people may have goals either to preserve or to transform the structure of a network. For example, someone finding that they are working with a network with an essentially individualist structure might decide that, if they can secure a certain kind of position from which to exercise leverage, they would like to work to preserve that individualistic structure. Alternatively, if they would like to turn the network into some kind of group, with an identity, and therefore with a structural boundary, that may predicate either an enclaved or a hierarchical network. Strategies might include creating a joint decision making body on which all actors would be represented, or, in the case of efforts to create a more hierarchical order, they might try to use mergers and acquisitions or seek additional formal powers for certain organisations in the system. Conversely, facing an enclaved or a hierarchical network, it is quite possible that someone who believes that they can achieve sufficient leverage might seek to transform it into a more individualistic structure. This might involve in the first instance introducing more market-like contractual arrangements and payments that more accurately reflect true prices, allowing members to purchase services from outside the boundaries of the group as freely as from within, introducing greater discretion and weaker *ex ante* scrutiny of action, and the like. However, transformations sought need not be bilateral: in many cases, goals will be to create hybrid structures of two, three or all four of the basic network structures.

It is worth noting, that each of these management strategies for bringing about structural change involves attempting first to bring about institutional changes. In other words, changing accountabilities for example, by weakening authority (merger and acquisition) for

hierarchy, or collectivity of decision making for enclave, or less fettered discretion for nodes in the network for individualism. This reinforces the arguments within the previous chapter that, in the long run, institutions shape structure in networks, rather than the other way around.

None of the basic goals of management over course require that weakly integrated networks be turned into strongly integrated groups. Individualistic networks can, like the others, sustain collective action under certain circumstances, and subject to certain risk and weaknesses. A major challenge for network management is to make the judgement of whether the circumstances constrain the possibilities for transformation of a network to the point of effectively eliminating choice, and if not, whether the risks of any of the forms outweighs any benefits expected to flow from it.

However, it is not necessary for management across networks to be effective for those exercising it to have explicit goals about the network structure. In many cases, the conscious and deliberately adopted goals in dealing with other organisations will be framed in quite other terms, but their pursuit will still have consequences for the network structure. Apart from being framed *structurally*, then, goals may be framed;

- *instrumentally*: that is, in terms of resources to be secured from other organisations in the network, such as information, capital or revenues, specific inputs, knowledge or ideas, or people to be 'poached', or in terms of outputs, such as joint assessments, joint projects, joint appointments, joint oversight committees;
- *relationally*: that is, in terms of the relationship sought with a particular other, in the context of the dyad or another small number group – for example, seeking a long term strategic alliance not necessarily seen in terms of particular resources wanted for work to be undertaken in the immediate planning horizon; and/or
- *narratively*: that is, in terms of sense-making – that is, for convergence upon or divergence from commonly recognised bonds, roots, ideas, worldviews, narratives of remembered history and anticipated futures. Organisations often seek to work with particular others because it is important to their sense of their own mission, trajectory, loyalty and identification that they are associated with certain other organisations or at least certain kinds of organisations; for example, any organisations join trade associations, campaigning federations, chambers of commerce, professional colleges and institutes, etc., on the basis that they need to demonstrate to themselves and to others with which others they belong.

The pursuit of instrumental, relational and narrative goals will have the consequences of ether reinforcing or transforming the structure of the network. Conversely, structural change will have consequences for the flow of resources, the pattern of dyadic relations and the kinds of narrative sustained.

However, these levels at which goals for network management can be formulated operate over different time horizons. The instrumental pursuit of resources can be quite short term. Relational goals can be for the short or long term, depending on the nature of the relationships sought. However, narrative goals tend to be relatively long term, for they describe the fundamental character, purpose and mission of organisations and of networks, which are relatively enduring – at least, as long as the organisational field persists. Structure, then, will change at different rates and with different degrees of dramatic transformation or of remarkable stability, depending on whether it occurs in response to agency framed by goals in instrumental, relational or narrative terms.

4.1.2 Structure and the capacity for goal formation in managing within networks

That agency is of course constrained by the institutions that define the structure within which people seek to exercise management over networks. This immediately raises the following question: *Who* has explicit, conscious goals for networks? In general, those with sufficient leverage within the initial network structure to be able to conceive of taking action to pursue their goals will be most likely to convert their preferences, aspirations, resentments, disappointments into goals of this kind. Those who have or feel that they have little or no leverage will hardly bother. Using the understanding of network structure presented in Figure 3.2, we can identify relatively readily where these organisations or individuals will be likely to be located.

We may begin with the weakly integrated and weakly regulated structure, and the strongly regulated, strong integrated one. For in these cases, it is relatively clear just which network positions afford the leverage required.

In an individualistic network, those who occupy a 'broker' position, spanning a 'structural hole' between two cliques (which may be enclaved, hierarchical or even further individualistic networks) will have the greatest leverage (Burt, 1992), for the easiest way for someone in either clique to reach the other clique is go through that broker. For by the definition of the broker position in the structure, the cost of creating for a clique member of creating a new direct tie will be greater than the cost of using the broker. It is this relative cost advantage that gives the *tertius* this leverage, in the absence of any bounded accountability.

In a hierarchical network, those in the core of the star-shaped structure will be best placed to have the leverage to make it worthwhile to develop clear goals. Their ability to easily reach much of the periphery in the core-periphery structure of this network form gives them leverage over much of the system. The fact of the boundary in the accountability system provides them with this leverage.

Isolate networks, by definition, afford very limited leverage for anyone to secure collective action among the scattered and weakly bonded organisations or individuals within the frame of consideration, which, of course, lacks any boundary of accountability or clear definition of 'membership'. Therefore, to the extent that anyone in the frame has goals for more collective action than is sustained by individual coping, they must seek to do or secure things that will transform the network in some way.

The enclaved network structure presents peculiar challenges for management generally and in particular for the formulation of goals. Like hierarchical networks, and unlike individualistic or isolate networks, enclaved ones are groups. As such, they have a membership boundary, and already have some narrative about what binds their members together. Unlike hierarchical networks, no single organisation or individual has any greater network centrality than any other, for all have high centrality. Therefore, no sub-group of authorised leaders has any greater right to leverage than any other member organisation or individual in the network. Thus, any putative leader must seek to emerge by demonstrating slightly greater commitment than the other organisations or individuals in the network to the principles which define the group and its membership, but without the advantages of either authorised asymmetric greater status, asymmetrically greater resources or asymmetrically greater centrality. This leads to the solution of charismatic leadership. The problem that the charismatic leader faces, then, is to formulate any goals that might change, rather than simply conserve the direction of the enclaved group. This is the problem faced, for example, by many terrorist leaders of enclaved radical movements who try to negotiate terms with states or businesses their network has been opposing. In such cases, the terrorists cannot be sure that, on return to their network to propose a compromise, they will not be rejected. The reason is that, within an enclave, they have no authority with that group other than their marginally greater but flamboyantly demonstrated commitment to its existing principles (which is what charisma fundamentally consists in). Therefore, it is very difficult to introduce goals for such enclaved networks without at least trying to change their structure toward some kind of hybrid with at least one of the other basic forms of network structure.

Each of these basic forms have both strengths and weaknesses. Often the most appropriate strategy, if it can be achieved, is to try to

compensate for the weaknesses of each by creating networks that are hybrids of all four of these basic types. There is a place for management to limit the fissile of enclave and to discipline the waywardness of individualism. Equally, excessively hierarchical forms require tempering with the conscience and motivation of the enclave and the imagination of the individualist context, and without some element of articulation of the isolate form, there are real dangers of hyperactivism and exhaustion.

4.1.3 Positioning strategies

For the organisation or individual seeking to exercise management across a network, the first challenge to is understand their initial position within the network, the structure of the network they are located in, and the scope afforded by the institutions that shape the network for 'changing their own position' within it. In network management, the crucial point is that 'salience is what gives leverage'.

For in individualistic and hierarchical networks, one can only gain leverage over a network by first changing one's position within it to one that is more salient, securing a *tertius* position to exploit a structural hole or to secure a central position, respectively. In enclaved and isolate networks, such *robustly* salient positions are not available. In these configurations, therefore, it is necessary either to work to preserve the form of the network or else to transform it. In the isolate network case, preservation means simply pursuing the survival of one's own organisation within the system and taking opportunistic advantage of one's contacts with others. By contrast, enclave affords the option of exit (isolates have, by definition, nothing to leave) or else of working within the network through a charismatic strategy to secure a position of *fragile* salience. Chapter 7 on defence procurement is of an isolate network, in which each national procurement system seeks to secure its autonomy but in an international environment in which all face heavy constraints. Here salience is the fragile achievement of temporary hegemony. At present, the United States of America (USA) has achieved some salience in defence procurement, but even the USA has been unable or unwilling to secure coordination even within the North Atlantic Treaty Organisation (NATO) on defence purchasing and specifications or standards.

The empirical research on inter-organisational linkages within the biotechnology industry (Chapter 6) usefully identifies some of the ways in which salience is achieved. In some cases, in what are essentially hierarchical networks, salience is in effect *inherited* by virtue of size, internal diversity of product and capacity for purchasing products and services and capacity for lending reputation by endorsing smaller organisations. Some of the larger pharmaceutical companies appear to have acquired salience in this manner (Powell and Brantley, 1992; Owen-Smith *et al*, 2002). In the early years of new dedicated

biotechnology firms (DBF), some leading universities such as Stanford found themselves occupying salient roles. They were able to provide 'incubator' services for spin-off companies initially located on their own business parks, staffed by their own academic research staff, supported by their knowledge transfer and business development agencies (Walshok *et al*, 2002; Walsh *et al*, 1995). In the defence field, salience has often been achieved through mergers and acquisitions and through the control of subcontracting by the large prime contractors.

In more individualistic networks, of which again the US biotechnology industry also provides good examples, salience has to be achieved by steady and entrepreneurially building ties to other clusters and cliques. For example, a start-up company is set up perhaps by a university-based researcher, which is then able to develop molecules, of the potential usefulness of which it can persuade a variety of backers including prestigious individual scientists, venture capital firms, pharmaceutical or agronomy giants, marketing specialists, and so on. In turn, with some luck and competent management of both research and development and of the business processes, this may attract more investment, which should bring in new talent, enabling more molecules to be developed, and so more patents to be obtained, and so sustaining growth. This achieves a degree of network centrality (Smith-Doerr *et al*, 1998). In the ideal-typical case of an individualistic networking strategy within an individualistic network, this would be done by minimising redundant multiple links to the same clique. However, the ideal-typical case may have become less common as the biotechnology industry matured through the late 1980s and early 1990s. For as the first-movers established network salience, they increased either the measure of social regulation or the measure of social integration within the network. This means that future new entrants would form clusters around the first-movers either in hierarchical or in enclaved form, increasing the density of the network structure of the industry as a whole (Kogut *et al*, 1992; Walker *et al*, 1997).

Networks with an enclave structure affording only fragile can sometimes be found in the public services. Sullivan and Skelcher (2002, 64-71), for example, review the experience of local partnerships in the UK over more than two decades for the promotion of coordination in activity to combat crime and social disorder. During the Conservative administrations led by Prime Ministers Thatcher and Major, the emphasis was on largely voluntary partnerships. They show that in such conditions, some localities achieved much with dense groups of the very committed, and others much less in the absence of such committed activists. The Conservative governments rejected various proposals for a statutory basis of duty for this work, perhaps on the basis of their distrust of local government and their view that this should not be a major priority for the police. Sullivan and Skelcher

argue that this made the achievement of salience within local partnerships difficult for any single type of agency, leaving only fragile salience to be achieved where local activists could establish it on the basis of demonstrated organisational and personal commitment.

When an organisation has achieved some kind of salience in a network, the structure of the network thereby becomes more centralised (even if only slightly) as in the case of the dense enclave type of networks. This serves two distinct functions. Firstly, it represents an important achievement of network management in its own right, because a central node in a centralised network has access to resources from others in the network that less centrally located nodes do not. Secondly, it provides a base from which to mount future operations, and from which to develop goals for management of the network, through the manipulation of the resources that can now be reached through the ties achieved.

It is helpful to distinguish between two kinds of network management strategy that can be pursued from a position of some salience, often simultaneously. Firstly, an organisation can pursue a *defensive* network management strategy. This involves focusing resources and energies on trying to preserve and existing network position, whether one of salience or peripherality against perceived threats. This might include both bolstering existing ties and trying to block rival salient organisations from securing direct links, without going through one's own node, to other resources with which one has priority links. The second is the more positive or *offensive* strategy of seeking to improve one's network position (for example, by cultivating new ties to cliques or clusters not already linked with). There does not appear to be much research on the conditions under which these strategies are more or less likely to be pursued or in which they are more or less likely to be achieved.

Each of these strategies for achieving salience represents a step away from the isolate form, and in many cases, though not all, will involve the attenuation of enclave. For it is the situation of the individualist broker and the hierarchical authority from which greatest influence can be secured. The challenge is to make sure that one avoids a simple two-way hybrid between individualism and hierarchy, for this will tend to reject unwelcome but important information that only the internal articulation within the network of enclave and isolate experience can provide. Without that information, the danger is of external shocks from people articulating those concerns much more forcefully.

4.1.4 Influencing network form

The extent to which managers can by their own efforts influence the form of the organisational network in which their own organisation is situated is constrained by the prevailing institutional forces. One of the most important constraints is the inherited pattern of inter-

organisational relationships with which they must begin, and the degree to which that is institutionalised through informal practices and tacit rules and norms. One feature of that pattern will be the salience of their organisation in the network and the fragility or robustness of that salience, vis-à-vis other organisations, as measured (for example) by network centrality and centralisation. Other constraints will include the preferences of forces external to the inter-organisational network, such as those of public policy governance, and the strategies of other organisations in the network. Positioning strategies to secure a measure of salience provide the greatest chance of agency through leverage over structure, but these positions too are often vulnerable to the strategies of others and to institutional constraints. Finally, events in the industry will reshape institutional constraints, enabling loosening or tightening of networks (Madhavan *et al*, 1998). Some studies suggest that managers can relatively easily choose which inter-organisational structure is most appropriate for their purposes and simply work to put it in place (something like this seems to be implicit in the work of Chiesa and Manzini, 1998 for example).

Some support can be found in the literature for the merits of networks exhibiting features of each of the three 'active' forms – that is, for individualistic, enclaved and hierarchical network forms. As we should expect, which form a given study commends will depend in part on the criteria being used in the evaluation from a management perspective. For example, if the criteria in use are those of the capacity for oversight and steering of the network, then it is not surprising that studies will conclude that hierarchical networks are superior. Provan and Milward's (1995) and Milward and Provan's (2000) work on networks of purchasing and providing in US mental health services is a good example of this. Focusing quite specifically on the effective delivery of services and the minimisation of transaction costs, they conclude, as does Williamson, that network structures with clear principal-agent relationships are superior.

In contrast, if the criteria in use stress *innovation* or dynamic efficiency, flexibility and the capacity to respond with organisational and service change to changed conditions, then individualistic networks tend to be preferred. The key body of literature from this perspective is that which examines inter-organisational links from the perspective of the promoting of organisational *learning*. Summarising much of this work, Powell *et al* (1996) find that learning is best promoted by network forms that exhibit a good deal of fluidity of membership and freedom for each organisation to terminate particular ties and seek others, and where each organisation can seek to secure positions of centrality in both horizontal links with peer organisations that may be both competitors and collaborators on different projects and vertically with organisations providing finance, manufacturing, research and development or marketing as appropriate.

Thirdly, if the criteria to be used for the appraisal are those of securing *legitimacy*, then it is not surprising that enclave or clan forms are found to be both preferable and typically actually preferred, because the internally egalitarian structure and the limited capacity of each organisation to secure proprietary control of resources provided by the others enable a certain type of trust in those situations where jointly produced goods and services would not otherwise be produced, and where defensive strategy is more important than offensive. For example, in the commercial world, trade associations, some research and development networks and lobby groups find this form to be superior. Doz and Hamel (1998, 225ff) document the SEMATECH alliance in the US in the 1980s and the Japanese Ministry of International Trade and Industry promotion of the Very Large Scale Integration network in the 1970s. Both were established to pool expertise in response to perceived defensive threats to technological leadership, and in both cases, dense multilateral structures were required, in which there were carefully designed agreements to ensure that no single firm dominated or was felt by others to be exploiting the intellectual property of the others. Again, Weisenfield *et al* (2001) draw a sharp distinction between the densely internally networked and internally egalitarian structure of industry platforms organised around horizontal ties on the one hand and the smaller structure of virtual companies organised around vertical ties on the other, showing that the industry platform is appropriate to conditions in which information sharing is sought between those who would otherwise fear exploitation. In public services, many of the local partnership structures documented by Sullivan and Skelcher (2002) take this clan-like form for essentially similar reasons – namely, that without it, it would be difficult to secure acceptance, legitimacy and trust between organisations that might otherwise feel unacceptably dominated.

Which type of criteria, or what weighting of these types in combination, is most likely to be adopted when managers consider their strategy for network management, will be in large part a function of the institutional factors. These are not however limited to constraints and forces making for inertia. Rather, it is the institutional configuration that will specify the visibility of opportunities for network change. Those opportunities for change of form are most likely to be found in situations in which the inherited network structure is hybrid, for these provide institutional capacities for change of direction than more monological organisations and networks can.

4.1.5 Activities of management in networks

The peer-reviewed literature provides richer accounts of the specific activities or mechanisms of managing within networks, than it does of strategy. In part, this is the result of the fact that it is easier to detect ties through survey data and to observe activities either ethnographically through observation or through surveys. In part, as

Agranoff and McGuire (2001) state, it reflects the now institutionalised ambition of organisational sociologists and public management scholars in the field to find an equivalent for inter-organisational management of the Planning, Organising, Staffing, Directing, Coordinating, Reporting and Budgeting (POSDCORB) sequence of activities identified by Gulick and Gulick (1937) in the classical literature on managing single organisations.

The majority of the studies on activities, however, are conducted on more or less clearly bounded *groups* – that is, in the terms used in this paper, on hierarchically and enclave structured networks. Therefore, they are focused more heavily on the processes of group formation, operation and dissolution, rather than on the processes by which, for example, isolates use their restricted networks for short term coping or individualists move more freely between ties.

Most of the accounts of activities organise them into sequences from initiation to termination, while acknowledging that actual networks do not necessarily mechanically follow a set order of 'stages', but instead conduct some activities simultaneously or backtrack at various points, or skip stages, and even terminate and re-form more than once. For example, Lowndes and Skelcher (1998) are typical of both these approaches when they distinguish four stages with distinct activities:

> 1) *pre*-partnership *collaboration*, including developing trust and identifying common purposes;
> 2) partnership *creation*, including the definition of procedures and rule and of decision-making authority for the network (this, in the terms used in this paper, presumes that a measure of hierarchy is more or less expected in the course of network management as Lowndes and Skelcher understand it);
> 3) partnership programme *delivery*, including contracting, securing resources, jointly producing services or sequencing flows of service production and delivery activities between members of the network; and
> 4) partnership *termination or dissolution*, which may means either a full stop, or else the transfer of staff, resources and commitment to other agencies.

Agranoff and McGuire (2001) and McGuire (2002) attempt a synthesis of North American public management research on the activities of network management, and they too distinguish four categories of activities, although they omit termination, and they insist more heavily on the simultaneity of these activities. Again, their main interest is in bounded groups. Their categories are:

> - *activation*: identifying participants and their interests, tapping their skills, knowledge and resources, arranging an initial network structure, facilitating leadership roles albeit of a fluid

kind at this 'stage'; they also include *deactivation*, meaning rearranging a structure found unsatisfactory, introducing new members;
- *framing*: establishing the operating rules, influencing the prevailing norms and values, persuading people to change their perceptions and ideas, celebrating shared purpose and vision:
- *mobilising*: inducing members and potential members to commit to the new undertaking, selling the idea, developing clear shared objectives and the commitment of the coalition to them; and
- *synthesising*: creating a favourable environment, blending participants' perceptions and skills into a pattern conducive to working well together, establishing information exchange,, changing incentives to encourage co-operation, developing rules and roles for interaction, helping the network to become more self-organising.

Controlling for the more American focus on 'values and visions' and the British emphasis on setting rules, framing, mobilising and synthesising seem to correspond fairly clearly to some of the main stages summarised in Lowndes and Skelcher's 'creation' category.

In the Dutch tradition of public management research, Kickert and Koppenjan (1997) distinguish the following network management activities (they use the word 'strategies', but more in the sense of 'strategems' than in the sense of grand strategy):

- activation, or interacting interaction to solve problems;
- arranging, or making implicit or explicit agreement to participate;
- brokerage, or allocating problems and resources to each other;
- facilitation, or creating favourable environmental conditions;
- conflict mediation and arbitration; and
- restructuring or tinkering once created.

Examining the management of strategic alliances in the private sector, Doz and Hamel (1998) do not set out a single overarching classification but their argument is structured around a distinction between

- *initiation*, including recognising need for collaboration, identifying suitable partners. Mobilising them, defining common ground, making initial formal mutual commitments
- *design*, including developing agreed structures for decision-making, clarifying contributions to and benefits from task integration, developing governance mechanisms, ensuring that control systems are compatible with learning; (for them, the basic design options are between 'co-optation', 'co-specialisation' and 'learning and internalisation', in order of

deepening mutual involvement, or, in the terms used in this paper, of increasing integration); and
- *re-evaluation*, *adjustment* and learning over time.

While each of these represents a slightly different way of slicing up the activities, there is clear convergence between these differing descriptions and classifications, notwithstanding some underlying differences of theoretical approach. The following seem to be the common elements:

- *initiation*: each begins with some kind of initiation process involving selection and recruitment;
- *objective negotiation*: each recognises a set of cognitive activities, in which aims, objectives, norms, values, worldviews, goals and objectives are worked out;
- *design*: each proceeds to identify one or more activities of preparation, negotiation, rule-making, structural design, conflict management;
- *environment management*: each recognises that some work needs to be done outside the confines of the group to secure external resources and legitimacy and acceptance from key stakeholders;
- *joint production*: almost all identify some features of collaboration in the process of producing the services or goods or knowledge that is the shared task;
- *adjustment*: most recognise a set of activities involved in making changes in the course of the life of the group;
- *termination, transfer or fundamental change*: many recognise a set of activities around fundamental change which might lead to termination and dissolution, or to transfer of functions elsewhere, or to very large transmogrification and rebirth in a largely new guise, either with changed members or changed activities (changing both would of course amount to termination of the original network).

There are some differences between these classifications. Agranoff and McGuire stress the importance of the selection of network or alliance members, whereas Lowndes and Skelcher begin their classification at a later 'stage'. Yet we know that selection is crucial to the strategic shaping of networks. To reinforce the point that these activities are not undertaken in strict sequence, it is worth noting the findings of the few longitudinal studies of network change over time which have stressed repeated re-selection as critical for network shaping (e.g. Lorenzoni and Lipparini, 1999).

Perhaps the most remarkable thing about these activities is just how *un*remarkable they are as these are precisely the same activities that would be found in any ideal-typical schema of activities for managing a single organisation. Most of what gets done on a day to day basis in

managing across networks looks very much like what gets done on a day to day basis in managing within organisations. Boddy *et al* (2000) analyse in ethnographic detail the day-to-day and week-to-week process of managing the relationship between Sun MicroSystems and one of its suppliers in Scotland, Birkby Plastics. They report initial negotiations, the greater authority specification by the more powerful purchaser of what is to be done together, the existence of regular sequences of meetings between people with key boundary spanning roles, the location of each other's personnel on each other's sites for ongoing liaison, a set of standard document forms for handling flows of transactions, reporting and control, and so on.

Nor should this close similarity between managing networks *of the type* studied in this majority strand of the literature and managing a single organisation be considered surprising. For these are studies of the formation of bounded networks, which are in effect *interorganisational organisations*. It is certainly true many writers on managing network claim that there are big differences between the activities involved in single organisation management and in network management (e.g. Agranoff and McGuire, 1998). In making this claim, they place great emphasis on the activities of persuasion, negotiating, understanding others, writing agreements, sequencing activities through several agencies, and the absence of the tool of simple authoritative command. However, the claim of clear and fundamental difference between inter-organisational and single organisation management is not based on empirical research designed specifically to test just how important these activities are in each type of management work. In practice, exclusive reliance on authoritative command in single organisation management has been known to be ineffective for many decades, and at least since the work of the human relations school in the 1950s, and most texts on single organisation management now stress many of the same activities of empathy, persuasion, negotiation and agreement writing that writers on inter-organisational management give such weight to. In particular, the movement in recent decades in management thought to stress the importance of organisational culture and the role of management in influencing it (e.g. Schein, 1992) place greatest emphasis in defining effective single organisation management on exactly these tools and activities.

The public management literature on the activities of management of unbounded, more individualistic networks is much sparser. By contrast, studies on the private sector, which are often framed as examining 'portfolios of alliances', can be easily found. As we should expect from the discussion in the previous section on positioning, these studies stress many network structural issues. Doz and Hamel's (1998) chapter on managing portfolios emphasises the importance of minimising redundancy in multiple ties to the same cluster (esp. p.238), ensuring separation between alliances in order to optimise

one's own control over the portfolio by 'divide and rule' – the classical *tertius* strategy. Perrow (1992) also stresses the importance of tertius strategies of separation for exploitation in his study on small firm networks. However, Doz and Hamel also note the tendency of at least some 'portfolios' gradually to mutate into more bounded and internally structured competitive blocs or business groups, and so to be expected to go through the kinds of activities identified by the writers on 'stages'.

Some of the activities listed for groups are of course relevant for managing the particular *bilateral* ties that make up the portfolio of ties in an individualistic network which is not itself a group. Some kind of initiation, negotiation, design, environment management, joint production, adjustment and termination is required for each of these ties. However, what may be different from more strongly integrated networks that do (eventually) form groups at the level of the particular bilateral ties is that, firstly, it may make more sense to the agency seeking to perpetuate its freedom of manoeuvre an the individualistic character of the network, that it should fight shy of too many very long term agreements. For if the long term strategy is to position oneself as node in a pattern which is expected to have to change its membership over time more fluidly than would a group, then a shorter time horizon is more appropriate. This more instrumental attitude to ties in portfolios is stressed, for example, by Doz and Hamel (1998) as important in their private sector case studies, but the point is valid independently of sector. Secondly, environment management may become if anything even more important than in the managing group-like networks. More resource and attention has to be devoted in individualistic networks to the ongoing search for new potential partners, and to securing acceptance from others for the particular links sought and used at any one time.

It is important briefly to consider the question of just how far it is necessary that the activities of network management should be transparent, open and palpable to all the members of the network. There is a very large literature which suggests that this is absolutely required for trust (e.g. Huxham, 1996; Sydow, 1998a, Coulson, 1998). The argument for this proposition is that where tools are deployed in less than open ways, this will eventually be discovered, trust will be lost, and will be very difficult to rebuild (e.g. Sitkin and Stickel, 1996). However, there is some evidence to suggest that having lost trust in each other on some particular dimensions, organisations may not necessarily flip into wholesale distrust. For example, 6 *et al* (2002) found that some networks in the provision of public services were established with apparently quite modest aims, but where the lead organisations deliberately misrepresented the ambition of their longer term goals. They sought to lock their partners into the arrangement by building up asset specificities and sunk costs, so that by the time they realised the true scale of their commitment, they would be reluctant to

withdraw. This strategy did not necessarily fail. This suggests that there is some scope (albeit certainly not unlimited) for guile in the use of tolls in managing within networks, at least provided that the goals pursued with guile are within the penumbra of the officially stated goals, and are not perceived to run immediately and deeply contrary to the partners' own long term interests.

4.1.6 Evolution and change over time

There are some studies which examine the ways in which networks of various kinds evolve and change over time. Van de Ven (1992) argues that there are essentially only four basic 'paradigms' or model mechanisms for change over time in organisational and inter-organisational studies. These are,;

- evolution: non-linear, non-deterministic, driven by adaptation to environmental forces (Darwinian), possibly also incorporating inherited learning (Lamarckian);
- dialectics: non-linear, non-deterministic, driven by conflict between rival forces, catastrophic, oscillatory;
- teleology: linear, deterministic, sequential, progressive; and
- life-cycle: linear, deterministic, sequential, circular.

Some studies of change are focused narrowly on post-formation changes in governance structure (e.g. Reuer *et al*, 2002) and do not necessarily adopt any of van de Ven's categories of dynamic models.

Some of the studies are indeed framed in terms of life-cycles, such as Lowndes and Skelcher's (1998) diagnosis of transitions between market, network and hierarchy, which are plotted onto the course of something reminiscent of the standard life cycle of a project in conventional project management, with phases corresponding to managerial tasks (criticised as inadequate and too much based on closed system models by Bouchikhi *et al*, 1998, cited in Faulkner and De Rond, 2000). Others are framed in terms of evolution but in fact boil down to life cycle accounts (e.g. Doz and Baburoglu, 2000). Many life-cycle models are in fact even simpler, and really only have two possible outcomes – continuation at the end of the period studied, or else termination: Oliver's (2001) study of life-cycles in networks in the biotechnology industry is of this kind.

There are many happy teleological models in the literature which tell stories of deepening cooperation, leading to greater trust and closer mutual commitment (some of Doz and Hamel's 1998 case studies of successful alliances are of this kind; likewise, Wenger's 2000 arguments about the benefits of communities of practice). These are matched by the many dialectical studies of collaborations that have failed (of which, in the public sector, Challis *et al*, 1988 is perhaps the

best known). Of the public sector studies, probably the subtlest and most qualified of the teleological models of change is offered by Bardach (1998, 2001), who stresses momentum dynamics (positive feedback), but allows for extensive contingency through variations in individual 'managerial craftsmanship' as sources of 'commotion', but nevertheless focuses on models of change in which capacities for deeper collaboration are cultivated and reinforced over time.

All serious models of change allow for important elements of path dependency, and therefore for institutional limitations on the scope for managerial agency: that is, prior experience, network inheritance, capabilities already cultivated heavily constrain the menu of options for change over time in interorganisational relations (Gulati, 1995). However, the scope for individual managerial agency clearly differs according to the type of network. As the theory set out in chapter 3 would predict, empirical studies confirm that the more individualistic the network structure, the greater the possibilities for managers to use *tertius* strategies to broker network change in interorganisational relations, because both regulation and integration are at their weakest in networks of this type (e.g. Steier and Greenwood, 2000). These are contrasted with the denser, more 'embedded' (in one use of the term) networks, where structural change certainly occurs – not least as a result of deformation – but less as a direct result of individual managerial manipulation (Hite and Hesterly, 2001).

Teleological models tend to stress positive feedback mechanism of change, except where they allow negative feedback to limit detours from the destination goal. Life-cycle models allow for negative feedback to bring the organisational system back to its starting point but are often presented as providing for a conflict-free conception of this negative feedback, as something automatic and homeostatic. The problem with conventional evolutionary models is that in practice, they can be used to find some environmental circumstance to which almost any change must have been adaptive, which produces a Panglossian style of explanation. Narrowly incremental and gradualist evolutionary models therefore fail to encompass high conflict situations of great volatility. However, dialectical models give too limited space for positive feedback, because they allow only highly conflictual negative feedback processes.

What is required then, are more open-ended models, allowing for multiple possibilities but more clearly specifying the prior conditions that are more likely to elicit particular mixes and imbalances of positive and negative feedback effects, and therefore eliciting either gradual or catastrophic change. The neo-Durkheimian theoretical framework (Figure 3.2) offers precisely such a theory of change (Thompson, 1982, 1992, 1996).

4.1.7 Tools of management within networks

The tools available to managers and organisations with which to exert power and influence over networks are essentially the same general tools of power that were identified in Figure 3.4. In order to decreasing strength or coerciveness upon those organisations and people to which or whom the tools are directed, the basic options are those of;

- *commanding* an organisation or people, or creating substitute organisations that can be commanded (including mandation, prohibition, authoritative permission, and the background activities of putting in place the institutional conditions under which these specific powers can be exercised);
- providing *incentives* for organisations and people (including purchasing, selling, negotiating and setting prices, negotiating and determining wages, and a range of non-monetary rewards, and includes negotiating and settling the institutional agreements under which incentives of these kinds can be administered);
- using *information* of various kinds (including setting norms and standards, exercising persuasion, providing background information on the basis of the possession of which, people are likely to behave in certain ways, establishing and sustaining traditions, granting status, using rituals, creating and spreading reputations); and
- *coping* (including a variety of more or less short term adaptations to circumstances that are taken as given).

Then, there are various combinations of two, three or four of these options. It was argued in Chapter 3 that each of these is easiest to use in networks which are already, respectively, hierarchical, individualistic, enclaved and isolate in form. However, the argument of the previous section has shown that achieving a salient position in the network structure can permit organisations and individual managers to use command, incentive and information even in networks that are hybrid but in which the corresponding form is a secondary element in the mix.

Although it is commonly said that the tools of authority are unavailable to be used across the boundaries between organisations, it was pointed out in Chapter 3 that this is not really true, for it is quite common to use combinations of tools to enable the use of command. Stinchcombe (1990) showed that contracts can be written that allow one firm to exercise authority over another. Indeed, many long term relational contracts allow for this: the many studies of seamless supply chain systems beginning in the 1970s with studies on Japanese firms have shown that contractual relations often provide that large companies purchasing inputs from smaller companies acquire the rights to exercise command deep into the productive 'core' of the supplying firm (e.g. Westney, 2001). Joint ventures in the field of defence contracting are typically hierarchical in form, and use

contractual relations to allow prime contractors to exercise command over their sub-contractors in the specification of standards, interoperability, processes, quality control and the like (Kelley and Watkins, 1998).

Monopolistic organisations (and also oligopolistic cartels) can effectively force suppliers to work with them, for lack of any alternative. This has a huge impact on the shaping of the network and the only tool available to the suppliers is that of coping. What the monopolist does to structure the network can be read at one level as a limit case of incentive, in that there is always the option for the suppliers of exiting the market altogether, and they will be paid for their services albeit not at the rate they would prefer. On the other hand, it can be read as a liminal case of implicit command, since the option of exit is one of absolute last resort for most organisations. Conversely, monopolistic suppliers can also achieve huge power, as is shown by the continuing power of large local NHS Trust hospitals over their local Primary Care Trusts (PCTs), despite the PCTs holding the purse-strings for the vast majority of the work that the hospitals undertake.

The straightforward use of incentives through purchasing and selling is most common in vertical ties, but is not unknown in the context of horizontal networks. For example, many clubs charge membership fees and offer valuable goods and services in return which members can use to set themselves apart from others, and which therefore function as incentives. For example, Doz and Hamel's (1998) examples of clan-like multilateral technological research and development network involved the payment of fees and contribution of some intellectual property to the co-ordinating structure in return for access to a defined body of shared knowledge.

4.1.8 Institutional instruments

If the previous section has described the basic strategic tools with which networks can be managed, deploying these tools require managers and organisations to secure some degree of formal commitment between the organisations involved. At the extreme corner of all four types, this may be avoided for various reasons. In the loosest forms of individualistic network, actors may prefer to avoid formal commitments precisely because they intend to pick and leave particular ties with the lowest exit cost. Similarly, there are hierarchical networks in which the lead organisation prefers not to be tied down to any commitments, leaving those located in the periphery of the network structure to operated by coping mechanisms, Moreover, there are clan like networks in which formal documents are avoided because of the fear that the negotiation process required to agree them might undermine the fragile trust between the parties. However, most individualistic market systems require contracts and many

hierarchical networks and clubs of organisations adopt formal constitutions.

In neither the practitioner literature nor in the academic research is there a generally accepted and entirely stable taxonomy of the kinds of formal arrangements that can be entered into by organisations. Terms such as 'partnership', 'alliance', 'strategic alliance', 'joint venture', 'consortium', 'coalition', 'group' are often used interchangeably, and to cover arrangements with very different financial liabilities and exchanges, degrees of mutual involvement in decision making or exchange of personnel, different durations and liabilities. Among practitioners, of course, there are good strategic reasons for this instability of vocabulary: representing an arrangement to potential shareholders and to competitors as looser or tighter than it really is, may have important competitive advantages. There have been some scholarly attempts to fix definitions of a wide range of terms (e.g. Grandori, 1997; Grandori and Soda, 1995; Gulati and Singh, 1998), but these have not been widely successful in disciplining the practice of other researchers.

However, solely for the present purposes without any hope of influencing the general usage, it is helpful to offer some distinctions between the kinds of formal instruments that are available to be used. Figure 4.1 below offers one way of tidying up the vocabulary. Arrangements can be distinguished for which instruments are required, that define liabilities for a single *transaction* (which, in the case of some services, might last for some time), those which govern a involvement in a *project* and those which define commitments to a new *organisation*. A transaction is the simplest form of exchange, in which one organisation provides goods or services for a consideration – in the simplest case, a monetary price. Projects are more protracted endeavours in which both parties commit resources other than the simple transfer of payment to the development, production, installation or operation of something. An organisation is a distinct set of institutions capable in its own right of entering into new transactions and projects with some form of independent action – in the most obvious case, with legal personality of its own – independently of the 'parent' collaborating organisations which retain some kind of indirect influence or control over its decisions (e.g. through ownership).

On a second dimension, the figure distinguishes between arrangements for which instruments are required, which are for a specific and limited set of activities, typically (although not necessarily) bounded in time, and which are to be defined in the instrument, and those which are to cover an indefinite range of activities, often (but not necessarily) indefinite in time, and where the instrument cannot or is not intended to set boundaries around those activities.

Those activities which are the subject of joint action by two or more organisations may be clustered into a single function, or they may range over many functions. By 'function' in this context, we mean a whole category or a stage in the production process, such as research and development, manufacturing or service delivery, marketing and sales, market research or publishing. This distinction is of most importance at the project level because, by definition, a new organisation is involved in many functions (or must enter into arrangements with others for those functions which it will outsource or in some other way rely upon others for) and because a simple one-off or 'spot' contract will typically be for a single activity. The distinction may be relevant however for longer term and more open-ended or 'relational' contracts.

Finally, it is important to distinguish between arrangements requiring instruments which are between two organisations – a dyad – and those which are between three or more organisations, where the collective action challenges often become greater and where the institutional arrangements required for ensuring compliance are more complex, and for which, therefore, distinct kinds of instrument are used. Cross-tabulating these two dimensions provides us with a way of defining how some of the key terms will be used from now on.

Figure 4.1: Key types of formal instrument for the specification of types of liabilities entered into between organisations

Level	Scope	
	Specific in purpose/ bounded in time	*Generic in purpose / indefinite in time*
Arrangements for dyadic relations		
1. Transaction	Spot contract	Relational contract (including most franchising, many cases of technology licensing)
2. Project		
- single function	Collaboration / joint venture	Partnership
- several functions	Alliance	Strategic alliance
3. Organisation	Joint subsidiary	Merger or acquisition
Arrangements for multiple relations		
1. Transaction	Consortium	Coalition
2. Project	Alliance block	[Partnership]
3. Organisation	[Joint subsidiary]	Business group

The allocation of these terms is not arbitrary. The distinction between spot or 'one-off' contracts and relational contracts is well established in the literature (see e.g. Macneil, 1974, 1980, 1985; Williamson, 1985). A distinction between a simple alliance and a strategic alliance should surely relate to the scope of purposes for which it is entered upon. The concepts of a joint subsidiary and a merger and acquisition are well-defined. In general, the term 'consortium' is used for a group of organisations greater in number than two which, for example, bids for a major contract but the members of which might well compete with each other on other contracts. Whereas it would hardly be used for a group that regularly and routinely works together on a wide range of activities and functions over a protracted period, for this, the term 'coalition' seems well suited. Granovetter (1994) defined the concept of a business group to cover everything from the whole nexus of companies within, say, the General Motors empire or the Virgin system, through to Japanese *keiretsu* and Korean *chaebol* (a conglomerate of many companies clustered around one parent company) structures. The concept of alliance blocks has been developed in academic research to explain the patterns of interfirm collaborations in industries where rival standards emerge and firms cluster in groups according to the standard to which they cleave, for as long as the prevailing technology requires them to adapt their products to that standard: Vanhaverbeke and Noorderhaven (2001)

use the term to explore the structure of the computing industry working with rival standards of Reduced Instruction Set Computing (RISC) microprocessors.

The more problematic terms are those of 'partnership' , 'joint venture' and 'alliance'. Although many arrangements described as partnerships are dyadic, many 'partnership firms' of lawyers, accountants and architects have many partners. Some arrangements described as 'joint ventures' are projects and some are subsidiary organisations. However, for the present purposes, it is helpful to observe these distinctions.

These distinctions do not only apply to private sector bodies, since few of these arrangements require the ability to enter into private law contracts in order to give them effect. There are public sector equivalents, even where the particular agencies have to rely on service agreements or other public law instruments. For example, concepts of partnership and joint venturing are common in the literature on 'joined up' working in British government.

A variety of theories are available in the management literature which offer to predict which of these might be chosen in particular kinds of circumstances. Broadly, theories divide into what might be called 'objective contingency' theories, 'Machiavellian interest and contingency theories', and 'subjective bias' theories. The first two group presume at least bounded rationality on the part of at least some of the participants in the network. Objective contingency theories predict that under conditions of bounded rationality, people will choose the structure that best fits the needs of their environment and their interests as they understand them, given their anticipated estimates of the costs, risks, benefits and opportunities of each of the available forms. Transaction cost theories are of this type: Gulati and Singh (1998) offer a theory of the selection of structures which is of broadly this type. The second category is really a special case of the first, because it presumes that one member or a few members of the network are more rational or less boundedly so, more knowledgeable, more strategic than the others, and can manipulate the perceptions of the others of the likely costs and benefits in order to secure agreement (perhaps even under conditions of deception) to the structure that best suits their private interests, in which – if they came later to see it necessary to do so – they might exploit the less informed others in the network. The third variety makes much weaker assumptions about the rationality of the participants, focusing instead on the biases and blinkers that each brings to negotiations about the structure for the network, and predicting that these will shape the selection made. Theories of organisational culture as pre-eminent are of this type, as are theories of framing - for example, Doz and Hamel's (1998) argument about the initiation of co-operation focuses (esp. 147ff) on how various ways of framing the problems for which network forms are presented as solutions, and various biases in expectations and

understandings of the capabilities and commitments of others, can all skew the settlement of structural instrument chosen.

4.1.9 Internal capabilities for external linkages

Organisations require specific internal arrangements, roles and capabilities, if they are to make the most of the networks in which they find themselves, let alone if they are to seek to transform those networks. Some of these capabilities for forming and sustaining relationships are important but hardly specific to the management of ties. For example, in their study of Korean high technology start-ups, Lee *et al* (2001) define the internal capabilities required for the acquisition of resources externally as consisting principally in entrepreneurial orientation, technological competence and initial financial investment made during development. These are of course quite generic capabilities.

It is convenient to divide the more specific internal capabilities into four areas. The first two of these systems are specified at the level of individual people, their personal networks with other individuals, and the use that they can make of these. There is a body of literature examining the roles of individual staff members in organisations, which sustain their occupants in the work of managing external relations of various kinds. These roles are often called 'boundary spanning' roles (other terms for their occupants include 'reticulists', and even 'boundroids').

The second concerns the capacities that organisations require in order to *receive* inputs from other organisations. Where the priority resource to be taken into the organisation is knowledge, information or ideas, then, in Cohen and Levinthal's (1990) terms, this is their 'absorptive capacity'. Capacities for receiving flows of payments, individual recruits or physical stocks are well-understood matters for finance departments, departments of human resources and inventory control, and do not raise such interesting issues for the present purpose, but they are in essence absorptive capacities for inputs other than knowledge. The correlative set of capacities for *providing* knowledge, information and ideas to other organisations in different network structures is much less studied and less well understood, however, it might be called 'disseminative capacity'.

4.1.10 Leadership and boundary spanning roles

A vast prescriptive leadership stresses that leaders matter in networks, as 'champions', 'catalysts', persuaders and loci of authority (Huxham and Vangen, 2000: Luke, 1997; Gray, 1996). Studies on leadership for many decades have examined the importance in leadership of cultivating, shaping and organising personal social networks of individuals within the same organisation (Bass, 1990 [1974], ch.30), but rather fewer on the nature, skills, dynamics and consequences of

leadership in and across inter-organisational networks. However, the general findings of Bass' review of that literature are no doubt relevant to inter-organisational contexts – that effective leaders need to achieve network centrality, defined areas of influence, and spanning of structural holes in Burt's 1992 sense). The large literature on supply chain network management is mainly concerned with contract specification and management rather than with leadership, although in stressing the importance of leadership in strategic planning, coordination and mutual exchange, this work reinforces findings from the wider inter-organisational network literature (e.g. Day *et al*, 2001). A variety of normative writings call for the development of a discipline of 'external leadership', including the guide for NHS managers, (Stewart, 1996 [1989]) and some more recent writings on leadership in the NHS (e.g. Goodwin, 1998; Conner, 2001). There are many studies which find that leadership makes a difference to the success with which inter-organisational networks can operate. Volkoff *et al*, (1999) show that the successful development of interorganisational data systems is importantly dependent on product champions working across organisational boundaries. In contrast, Sydow (1998b) finds that centrally located leaders in successful hub-and-spoke networks for franchising have limited importance because of their limited span of control. Very few studies have defined very exactly just what kinds of leadership are available and what difference they make and how. For example, in their study of local partnerships in US public administration involved in the joint adoption and use of Geographical Information System (GIS) based technologies Brown *et al* (1998) find that their measures of the presence of active leadership was a statistically significant and positive factor for all their measures of outcomes, but were unable to say anything more finely grained.

Bardach's (1998) analysis of his case studies led him to suggest that 'effective' leadership was important for network success, both in his interviewees' estimation and in his own research evaluation (esp. 224f). He distinguishes between facilitative or more neutral, consensus-building approaches, and advocacy approaches which are more partisan and more likely to leave people out of coalitions. Bardach is not able to demonstrate the different conditions within networks for efficacy using each type of leadership. However, it seems plausible that advocacy styles would be more likely to be effective in individualistic or hierarchical networks, and facilitative styles more likely to be legitimate in enclave type networks.

However, one fruitful way to think about leadership (once it is recognised that it is to be found at every level in organisations and networks and not just at the level of top management) is to look at the structural position of leaders in their personal networks, and to consider their role in organisational networks through the lens of the interaction between their personal networks and the

interorganisational structure. This suggests that we should look at leaders in the present context as 'boundary spanners'.

The origins of the concept are to be found in Thompson's and Lawrence and Lorsch's work in the 1960s. Thompson (1967) presented a model of the organisation as consisting in a core of throughput activities (which he conceived as principally technical in character, although this is not essential to the model), the boundaries of which are buffered by certain functions which protect the integrity of the core, but also spanned by certain categories of role-holders charged with bringing in certain resources and inputs or taking out outputs. These roles may be involved in both buffering the core from external threats, and in bridging boundaries. Thompson distinguished between cases in which the boundary spanning function worked to highly prescribed rules on transactions with external organisations, and those where the boundary spanners have discretion. Reflecting the assumptions of relatively rigid mass production and mass processing which dominated large organisations in the period in which he was writing, Thompson argued that great discretion for boundary spanners could create internal problems, for the rest of a large organisation could not, it was then widely believed, be expected to be highly flexible. In his model, therefore, managerial efforts to exercise control over boundary spanners were of great importance for viability of the organisation. To the extent that changing technologies of both manufacturing and service delivery have enabled greater flexibility and even personalisation in recent decades, the balance between bridging and buffering of organisational cores, and therefore between organisations operating alone or with others in networks of any kind, is now driven more by considerations of the search for competitive advantage and knowledge and by the imperative to minimise transaction and other costs, than by technological imperatives for protecting the technical core.

Thompson went on to distinguish between three strategies of boundary bridging; contracting or negotiation for inputs from outside, co-opting or absorbing organisational elements from outside, and coalescing or creating joint ventures or temporary combinations. Contracting covers a wide variety of actual network forms. Equally, co-optation does not only comprise mergers and acquisitions but also board-level interlocks (Scott, 1992, 199-201). Likewise, joint ventures can range from very loose to very tight arrangements.

In the later development of Thompson's ideas in resource dependence theory (Pfeffer and Salancik, 1978) and then of population ecology theories of organisational fields (Aldrich, 1979), boundary spanning roles and activities came to be seen as functions that were critical both to the structure and competence of each organisation, but also to the structure of the whole organisational field, for they are seen as the individuals in whom the inter-organisational network is represented, and by whom it is changed. Insofar as there is scope for agency to

change these structures, that agency came to be seen as lying, at least in the proximate analysis, more with boundary spanning staff than, for example, with senior executives or strategists. In later resource dependence and population ecology accounts, much greater flexibility in core organisational capacities came to be recognised as possible and often desirable, making the problem of core managerial control over and limiting the discretion of boundary spanners less salient than in Thompson's model. In Thompson's work, boundary spanning was defined functionally, and is done as much by groups as by individuals (see Ancona and Caldwell 1992 for a recent study researching boundary spanning groups).

A strand of strategic management research has examined the importance of boundary spanning units or agencies, located at the periphery of large organisations, and shown that their local decisions are often critical in shaping the strategy of the whole (e.g. Regnér, 2000). Certain types of role are often defined within organisations as dedicated to boundary spanning, such as account management (Birkinshaw et al, 2000) or procurement management. Then there are specialists in boundary spanning which are not attached by direct organisational accountability (such as employment or exclusive retention by a single client) to a member of the network across which they supply connecting services, and which are not just members of the network like the others, because they are involved in, for example, upstream vertical supply to the rest of the network of a crucial resource, or else I the pure case, in supplying nothing but access to social ties. Thompson (2003, 141-3) points out that the studies on certain sub-types of venture capital firm, business angels and business introduction services seem to be of this type.

In much of the more recent literature, however, boundary spanners are defined as individuals, whose social networks, whether informally arranged and conducted or specifically sanctioned in their authorised roles are important to the management of inter-organisational relations. Those who take a neo-Simmelian view of interorganisational networks hypothesise that organisational linkages are embedded in personal social networks (Granovetter, 1985), while institutionalists tend to predict the reverse direction of causation.

Examples from commercial organisations would include account managers who are responsible for managing downstream vertical ties with customers, and purchasing and procurement managers charged with handling upstream vertical ties along the supply chain (Katz and Kahn, 1966). There are also boundary spanners responsible for horizontal network maintenance, because they are charged with liaison with particular inter-organisational groups, representing the organisation externally, or forming coalitions (Aldrich and Herker, 1977). Often these staff have quite generic job titles. In organisations providing services to the public and where there are ongoing relationships rather than simply a series of transactions with particular

clients (general medical practitioners, case social workers, probation officers, etc), frontline staff may be considered as spanning these boundaries, although these staff are not of interest here.

A boundary spanning individual works most effectively when she or he occupies the fulcrum point in a 'bowtie' or 'butterfly' structure network – that is, when he or she occupies a *tertius* position between two clusters representing their own and another organisation (Conway, 1997). For the boundary spanner, such a position is highly valued although empirically, the value of such people to the members of the network as a whole depends on whether he or she facilitates the flow of information and resources and transactions, or acts as a bottleneck (Cross and Prusak, 200)

Much of the research on boundary spanning has focused on the requisite skills, the actual or believed characteristics and the experiences of the people who occupy these roles, when and only when they contribute most value to the network as a whole, rather than on, for example, the organisational structures and the managerial practices that might sustain them. Some of the research examines people with inter-departmental roles within organisations rather than inter-agency roles. It is not clear from the literature whether the nature and pressures of spanning internal and eternal boundaries differ in important ways, and if so, how. Very little of the research on stress is comparative, and so it is not really possible to determine whether in general or in particular types or cases, boundary spanning work is more or less stressful than other kinds of work, for example, being a chief executive, being a harried front line junior service provider, or indeed being unemployed, all of which are also known to be stressful.

The studies on requisite skills tend not to be based on the actually measured skills of particular individuals, but on the requirements of particular posts or types of posts, examined deductively in part independently of the post-holders. To the extent that network management is conducted by boundary spanners, then it is possible to determine deductively at least some of the ideal-typical skill requirements, and this was the approach taken by Friend *et al* (1974) who used the term 'reticulist' to describe the skills of forming ties on behalf of organisations, sustaining those ties through inter-personal relationships and working contacts to gain information, cultivate appreciations of problems and possible solutions, understand the perceptions and values of others, undertake negotiation and understand other organisational cultures (cf. Hosking and Morley, 1991). Other approaches stress entrepreneurial skills, creativity, lateral thinking and capacities to generate trust in organisational commitment through trust in themselves as individuals (see Williams, 2002, 110-111) for a review of some of this literature on skill requirements).

A body of work has examined the hypothesis that they face peculiar stress arising from role ambiguity and even role conflict because of the pressures placed upon them both by their own organisation and the others with which they develop linkages (Robertson, 1995; O'Toole, 1998). Unfortunately, the research is neither extensive nor very satisfactory. It can be hypothesised that, in Merton and Barber's (1976) sociological terms, boundary spanners would often exhibit high structural ambivalence in their accountabilities, because of the potential conflicts and tensions in their roles, having pressures both from their employing organisation and from the organisations with which they develop links. This should be expected to produce certain emotional challenges in the labour process (Pratt and Doucet, 2000) which may well require distinct kinds of emotional labour (Hochschild, 1983), but there is little comparative research to examine whether these emotional processes are qualitatively different or different in consequences from other ambivalent situations and emotions.

It is important to note that nothing in the boundary spanning literature shows that there is anything particularly distinctive either about the activities or about the skill sets of boundary spanners working between organisations from those working between departments within an organisation. Essentially, the same process of initiation, negotiation, diplomacy, problem-solving and strategic development, and the same tact, ability to move between accountabilities, abilities to motivate others, are required in both settings. Indeed, much of the literature moves seamlessly from the inter- to the intra-organisational context.

4.1.11 Absorptive and disseminative capacity

Organisations learn from each other across a wide variety of both vertical and horizontal ties. They may enter into interorganisational relations principally for the purpose of explicit or tacit learning, or it may be a by-product of seeking credit, legitimacy, prestige, outlets, outsourcing or other things. In order both to know where to devote it limited resources for working its ties to other organisations for information, and in making use of what it finds, an organisation needs some quite specific capabilities.

In a very widely cited article, Cohen and Levinthal (1990) introduced the concept of 'absorptive capacity', meaning the organisation's ability to recognise the value of new information, assimilate it and apply it to their organisational purposes. This means much more than the presence of people or units charged with keeping up to date with the latest developments in the field, or even the presence of an in-house research and development function, because that alone would hardly secure the capacity to make good use of what is learned. Cohen and Levinthal argued that it must include features of the organisational culture, such as its style and utilisation of shared memory and the extent to which there are shared vocabularies and tacit

understandings and explicit disciplines, and the instrumental systems by which knowledge is transferred from those in the organisation who might first acquire it to those who must make use of it, which may involve transfers across some geographical, grade and departmental distance. They hypothesised (on the basis of other literature on knowledge management) that the general form of an optimal absorptive capacity would have to consist in the series of internal units possessing partially overlapping knowledge underpinned by non-overlapping distinct bodies of knowledge, in order to support effective communication, and therefore that specialisation should be limited (190, 134). Absorptive capacity makes outsourcing of some functions possible, but cannot itself wholly be outsourced. Absorptive capacity is, they propose, amenable to more or less deliberate investment and is at least potentially cumulative over time. Pennings and Harianto (1992a,b) confirmed that cumulative experience with an industry or a technology matters greatly in absorptive capacity. Organisations with strong absorptive capacities are predicted by Cohen and Levinthal to be more pro-active in working their networks to secure new and useable knowledge, and conversely organisations with weak absorptive capacity are expected to be more reactive.

However, as Cohen and Levinthal see it, this capacity tends to be specific to a particular domain. Lane and Lubatkin (1998) argue that absorptive capacity is even more specific than this – that it varies with each tie to each other organisation in the focal organisation's network. They find that levels of learning are higher from ties to organisations with a high degree of similarity in basic knowledge and lower management formalisation.

It is not always clear just which of these features of an organisation's absorptive capacity are found in it by virtue of Cohen and Levinthal's definition, and which are empirically and contingently associated with it. However, some features are clearly contingent and important in network management. For example, Scott (2003) finds that entering into research partnerships does expand absorptive capacity. More recently, some research has suggested a typical trajectory over time for small firms making use of ties to research institutes, suggesting that they begin with fields with 'low information gaps' from their starting point and as their absorptive capacity grows, they are able to tap 'high information gap' areas, stretching their absorptive capacity much further. A study on strategic alliances among biotechnology firms found that absorptive capacity explained much of the variation in the relationship between characteristics of the alliances and the performance of the member firms (George *et al*, 2001).

Unfortunately, may of the studies on absorptive capacity measure it in precisely the way that Cohen and Levinthal said was inadequate – namely, the presence of an in-house R&D group (e.g. Veugelers, 1997) or by other indirect proxy measures. Rather few studies provide much rich information about the internal processes that support

absorptive capacity. Vickers and Cordey-Hayes (1999) suggest that organisations taking in learning about cleaner production technologies benefit from an 'organisational culture (which) encourages a pluralistic and participative approach', which suggests an internally enclaved form. However, it is not clear how far this finding can be generalised. For example, Cockburn and Henderson's (1998) study of pharmaceutical research and development suggests that individual level incentives for investment in learning and research are very important, which might suggest a more individualistic form of internal organisation. Although Lane and Lubatkin's (1998) measure of low management formalisation might be an indicator that strong internal hierarchy predicts poor absorptive capacity, even this cannot be assumed to be generally applicable, because there are health care and indeed military organisations with strongly hierarchical systems that have shown strong abilities to absorb new *explicit* knowledge over many decades, although they sometimes find it more difficult to absorb new the associated tacit knowledge which requires subtle changes in practice (see Fountain, 2001, chapter 10, on organisational learning associated with technological change in the US military).

March's (1999 [1991]) distinction between two basic styles of organisational learning explored new knowledge, frameworks, approaches, skills and techniques, and that of exploitation, or the deepening application of disciplines, knowledge and capabilities already possessed to some degree. Whilst every organisation undertakes some of each type of learning, March argues that the combinations that organisations typically achieve between these two are usually weighted markedly toward one or the other. March's conceptual framework should be of help in understanding the nature of an organisation's absorptive capacity. Organisations with styles and practices of learning that emphasise exploration would, as was argued in chapter 3, be more likely to be located in individualistic networks of organisations, because these network structures provide greater opportunities and more fluidity of access to resources across the system of ties than can the more bounded network forms. Conversely, exploitation would be predicted to be the dominant strand in more hierarchical and enclaved networks. To date, there has been limited empirical testing of this hypothesis.

The logical corollary of the thesis that organisations need certain capabilities in order to receive information and knowledge across ties from other organisations and make use of it in organisational learning, must be that particular capabilities are also required to organise information and present it in a format that other organisations with which they are tied, can make use of it, in what might be called organisational teaching. This calls for a concept of what might be called 'disseminative capacity'. Presumably, like absorptive capacity, this too would typically be specific to a domain or even to particular ties, and would be grounded in the possession of at least some

overlapping bodies of knowledge between the originators of the knowledge in the organisational core and the boundary spanners at the periphery who are charged with its dissemination to other organisations in the network. Unfortunately, there appears to be very little empirical research directly on the measurement, content and institutional origins of disseminative capacity. Sabel (2001, cited in Thompson, 2003, 124) argues that communication skills required for effective dissemination across networks include the development of 'pidgin conversations' using vocabularies the combine the languages (and recognise the underlying organisational cultures) of both the disseminator and absorber organisations.

4.1.12 Risks and failure

All organisational and inter-organisational arrangements fail, sometimes in different ways and sometimes in much the same way. 'Failure' here denotes several quite distinct phenomena. Failure can mean inadequacy of activity or unwanted activity or unwanted patterns of distribution of goods and services. For example, there is an extensive economic literature on market failure – focusing on such things as the under-provision of public goods because it is difficult to create incentives where access cannot be controlled and charged separately and the problems of externalities such as pollution which is hard to charge polluters for. In practice, many cases of market failure arise from features of inter-organisational relations. For example, where there is under-provision of investment in infrastructure or training by purely commercial entities. This is often due to the highly competitive structure of markets. In some oligopolistic industries, such as oil extraction and pharmaceuticals, the inadequacies in commercial investment infrastructure and training are much less significant. Equally, 'government failure' and 'voluntary failure' in the law and economics literature tend to be cases of inadequate or unwanted activity (Wolf, 1988; Salamon, 1987). That is to say, failure in this sense is measured by public policy concerns about impacts on the general public and, for this reason, it will be referred to as 'public failure'.

There can also be 'network failure', and each of the kinds of networks identified in this paper can exhibit different types of public failure. For example, enclaved networks can be very exclusive and particularistic (cf. Salamon's 1987 account of particularism as a vice of voluntary organisations both separately and working together) while individualistic networks can exhibit typical symptoms of market failure, and so on. That is to say, essentially the same factors are found to be at work in inter-organisational networks of each kind in explaining public failure as are found to be at work in explaining public failure in single organisation settings.

Failure can also mean simply the perceived unsatisfactory nature of an arrangement – whether the creation of a single organisation or of an inter-organisational structure of some kind - to the parties involved, leading to its dissolution prior to their originally expected target date for termination. This can be described as 'private failure'. The literature on strategic networks is full of discussions of such private failures. Anecdotally, the literature suggests that failures of this type are very common (Kogut, 1989, Anderson, 1990; Reuer and Koza, 2000), although it is often difficult empirically to tell terminations on satisfactory completion of task from terminations from failure (Anderson, 1990), not least because firms have reasons to represent their management as more successful than in fact it may be (Gulati, 1998). Some studies suggest that failure rates for strategic partnerships are higher than failure rates for single firms (Bleeke and Ernst, 1991, Das and Teng, 2000), although these are not based on quantitative analysis of large or representative samples.

There is a large literature on reasons for failure, identifying all the factors that one would intuitively expect to matter – inappropriate selection of partners, mismanaged evolution or response to shocks, weak absorptive capacity and disseminative capacity, selfish strategic behaviour, inadequate planning, misaligned incentives, incompatible cultures, decisional overreach and excessive ambition, etc (see e.g. Doz and Hamel, 1998). Ahern (1993), for example, discusses a case where the advantages of a strategic alliance were not symmetrically appropriated by the members, leading to a worse outcome for one, and raising the possibility of earlier termination than originally planned. Kogut (1989) analyses the 'stability' of strategic alliances in terms of such risks of asymmetric benefits and risks and the possibility selfish strategic behaviour leading to collapses of trust. Indeed, whole theoretical arguments have been developed in the transaction cost and resource-based traditions to explain private failures of this types (see e.g. Tallman, 2000; Reuer and Koza, 2000).

Most of the factors that explain private failures in inter-organisational relationship structures are structurally very similar to those which are used to explain private failures. For when single firms fail, problems of incompatible internal culture, poor information flow and communications, misaligned incentives, overreach, lack of continuity in boundary-spanning personnel, are among the key factors that are typically cited (see e.g. the studies in Anheier, 1999). There is however no general and comprehensive theory of all the factors that might lead to organisational and inter-organisational private failure. The range of relevant contingencies is simply too large, and in any case, perceptions of what counts as private failure can differ widely between different stakeholders, relative to their expectations, leading to the continuation of arrangements long after some people might expect that they might be abandoned, despite their low performance (Anheier, 1999). Gulati (1998, 306) describes the management

literature which seeks to identify the principal causes of private failure and the kinds of thing that might protect against these factors as driven by a quest for a 'magic formula' but yielding little more than 'wish lists'.

However, some order can be introduced into the shapeless lists of factors by distinguishing a number of distinct clusters. At a first cut, we can distinguish between external factors and internal ones. External factors that can create risks of private failure include unanticipated shocks, changes in the environment that are beyond the control of the partner organisations and to which any organisational arrangement would be expected to have some difficulty in adapting. Internal factors can be divided further into factors to do with the individual organisations in the network, and factors arising from the nature of the arrangement between them. However, typically, these must interact before they can represent a significant threat to the stability of the inter-organisational arrangement. Consider the case, for example, of selfish strategic behaviour by one of the parties to the arrangement. This would only be a serious threat to the inter-organisational structure if the incentives, controls, and intelligence-gathering and behaviour-revealing institutions put in place by the strategic alliance, club or other structure were insufficient either to deter or discipline such behaviour or to enable automatic adjustment to it. In the same way, a mismatch between the cultures of the organisations, of the kind stressed by Doz and Hamel (1998), only matters if the cultural mediation systems put in place (or *not*) by the alliance are too feeble to broker understanding and adaptation. For example, Mohr and Spekman (1994), in a study on the characteristics that make for success in partnerships, identify conflict management institutions in the network system as one of the most important elements, quite separately from the characteristics of the individual member organisations. Therefore, internal factors typically must represent incentives, commitments, norms, pressures, for one or more of the member organisations or for the group as a whole that prove dysfunctional, and which are *uncompensated* by the inter-organisational institutions.

Each of the institutional types of network identified (Figure 3.2) is associated with particular trajectories of disorganisation, which can lead to both public and private failure. The neo-Durkheimian cybernetic theory suggests that these dysfunctions are produced by positive feedback dynamics, or self-reinforcement which produces radicalisation, in which people in essence continue to follow the prevailing institutions. Hierarchy in networks therefore radicalises to produce baroque, even Byzantine systems of rules defining membership rights and obligations and systems of decision making.. Individualism ends with ruthlessly strategic exploitation by the stronger of the weaker parties. Isolate behaviour leads to short term coping and too casual commitment to sustain the relationship. Enclave

leads to focus on principle and suspicion of authority, leading to schism as each member tries to prove themselves more committed to the principle that binds the club together than the others. The result may be either public failure, in which the network continues but performs poorly – or what Seibel (1989) calls 'mellow weakness' or 'successful failure' (1999) and Meyer and Zucker (1989) call 'permanently failing organisation' – or else to private failure, in which the arrangement is abandoned. Figure 4.2 contrasts the key strengths of each type of network with the main kinds of failure to which it is peculiarly vulnerable (see e.g. Thompson *et al*, 1990; Mars, 1994 [1982]; Chai and Wildavsky, 1994; Coyle, 1997).

Figure 4.2: Types of failure to which each type of network is peculiarly prone

Social regulation w

Isolate	*Hierarchy*
Strengths: Enables valuable coping behaviour and survival during adversity, prevents excessive aspiration during periods when this might be destructive *Type of failure*: Limited ability to sustain collective action or tackle complex problems, chronic mistrust, inability to innovate; instability to due simultaneous over- and under-institutionalisation	*Strengths*: Enables clarity and complex divisions of labour *Type of failure*: over-regulation and low productivity, limited ability to generate prosperity; gridlock due to baroque procedures; the system of rule and role can become so Byzantine as to be illegible; risks demotivation of the 'lowerarchy' through denial of access to superior authority and denial of sufficient validation; instability due to over-institutionalisation
Individualism	*Enclave*
Strengths: Unleashes powerful motivations of aspirant self-interest, enables focused instrumental activity *Type of failure*: zero-sum competition, instability due to insufficient institutionalisation, high transaction costs esp. in defining and enforcing property rights, severe conflict between powerful individuals, demotivation of weaker groups through insecurity	*Strengths*: Empowers passionate principled commitment and supports integrity, unleashes powerful motivations of protection *Type of failure*: demotivation through exhaustion and burn-out; schism, feud; instability due to insufficient institutionalisation, inability to sustain negotiation with outsiders due to inability to support effective authority internally, poor productivity due to greater emphasis on distributional than productive values

Social integration u

A situation that may occur is when the peculiar types of failures associated with each style of network organisation begin to set in, and this is not anticipated because some members of the network have local organisational styles that do not match the institutional style of the network-wide institutions. Thompson *et al* (1990, ch.5) define this situation as one of 'surprise', because the mismatch creates a condition in which the emerging deformations are ones for which people in local organisational conditions have peculiar blinkers, but also where certain kinds of information become palpable even to those with the specified blinkers. Applying the Thompson *et al* (1990) approach (originally developed for environmental policy conditions) to the situation of network management, we would derive the following taxonomy of types of surprises in private failures of inter-organisational networks (Figure 4.3).

Figure 4.3: Types of 'surprise' in network private failure

Either network institutions or other members of the network turn out to be... Networks are institutionally presumed or assumed to be…	Isolate: Capricious, short term, casual	Enclave: Factional, schismatic, focused on principle at the expense of either benefit or legitimacy	Individualism: Short-term, opportunistic, focused on benefit at the expense if either principle orlegitimacy	Hierarchy: Rule-bound, pernickety, procedurally baroque, focused on legitimacy at the expense of benefit or principle
Isolate: based on individual, opportunistic coping		Predict: isolates will peel off, leaving core(s) of enclaves	Predict: individualists will exploit isolates	Predict: hierarchy will seek to contain isolates at periphery
Enclave: based on equal voluntary commitment of all and only members to each other collectively			Predict: Enclaves will reject individualists; some may occupy precarious brokerage positions between enclaves	Predict: enclaves will revolt against hierarchical system
Individualism: based on sequences of voluntary bilateral transactions between				Predict: hierarchy will seek either to individualists to central positions or else to use as boundary spanners; individualists will exploit position within hierarchy through informal networks
Hierarchy: based on regulation of status, role and systems of explicit rules				

Following each type of 'surprise', organisations may be able to act to try to reshape their networks in the light of the information that events have made available, given their initial biases. It is at these points in the dynamics of inter-organisational relations that the use of the available tools is most likely to be important in managing risks and failures.

4.2 Governance of networks

In this section, the governance of networks is considered using a specific definition: that governance of networks means the use of public power by agencies more or less legitimately possessing rights to wield specific measures of public power. Governance (intentionally or unintentionally) affects the size, structure, and distribution of power within networks of organisations. Governors seek to influence public policy (in their role as policy networks) or to provide goods and services (in their role as delivery networks) or to secure resources, but where the agency using public power is considered, for this purpose, not to be a peer organisation of those in the network.

It is a commonplace of the political science literature on networks that it cannot be assumed that a polity exhibiting diverse, powerful policy networks is necessarily particularly democratic, for networks can be exclusive, selfish, and be signs of producer capture (e.g. Rhodes and Marsh, 1992; although Hudson, forthcoming represents an exceptional case of a positive, even rosy normative view of networks as enhancing the flows of information - but his view descends from a highly corporatist view of democracy). Therefore, it can be expected that there would be a normative case for being interested in the question, whether it be networks amenable to governance, either in the narrow sense in which the term is used in this paper or in the broader, more fashionable sense. A currently influential theory propounded by one of the leading lights of British political science argues that they are not.

Political science studies of decision making and of the structure of power affecting the executive have devoted extensive attention to networks of organisations in the last twenty years. In the British empirical tradition, the concept of 'policy networks' has been refined as a part of an attempt to understand the linkages between organisations and individuals which define the distribution of power, opportunities to participate in governmental decision-making and shape the content of policy (e.g. Rhodes and Marsh, 1992; Marsh, 1998a). A classification of types has been developed by Rhodes and Marsh and their collaborators ranging from tightly and densely linked, small, cohesive policy communities through to loose, casual issue networks with constantly changing memberships. A debate has been conducted between those who consider the concept principally descriptive (Dowding, 1995) and those who consider that it can help to specify the institutional constraints that shape both preferences and action (Marsh, 1998a).

As theory in political science has shifted away from understanding public power as rooted in government towards understanding its roots in all the sectors of organisations, the policy network concept has been recast as providing a framework for understanding governance, understood more broadly than it is used in this paper, to encompass all the structures of power, spanning sectors and organisational forms,

by which patterned action is achieved (Stoker,1998; Rhodes, 1997; Pierre and Peters, 2000; Pierre, 2000). In Rhodes' influential account, networks (including lobby networks and networks of service providers and networks with both functions) are not so much governed by other agencies with power as themselves the ungoverned subjects of governing (Bevir and Rhodes, 2003). In Bevir and Rhodes' revised 'differentiated polity' model of British governance (which is in fact importantly different from Rhodes' original 1988 differentiated polity thesis), management within networks is possible and common, and management of networks by dominant actors possible and sometimes observed, but the exercise of anything other than the most indirect, weak, fallible and contingent activities of steering over networks by public power independently of those networks is hardly possible at all, for on this view, these networks just are or at least hold public power. Indeed, Bevir and Rhodes' (2003) account argues that the near-dominance of governance capabilities by networks is an unintended consequence of attempts to exercise public power to introduce market principles into public and private services, which now all but completely constrains the possibility of government ever achieving sufficient independence from the networks of organisations in which it is now ensnared that would be required to exercise more than the most minimal governance over them (for example, mainly by the weak tool of coping). The present approach of seeking to understand instruments of management and governance and their interaction is one that Rhodes (2000; Bevir and Rhodes, 2003, 200-201) rejects as 'managerialist', and both empirically incorrect (because any instruments available are weak or blunt) and misguided because 'steering networks is not…even the most important question' (Bevir and Rhodes, 2003, 201). On Bevir and Rhodes' view, the most that can be attempted practically by politicians and civil servants is the use of some 'stories' among many others (using the taxonomy proffered in this paper, information-based tools) by which socially and politically to construct rival versions of reality in which networks might operate. That information based tools are of critical importance and that the use of all other tools depends on their grounding in 'stories' is one that can readily be admitted, and is indeed one that is key to the approach used here (6, 2003). For this helps us to understand how tools of governance can be mixed and combined – an issue that Bevir and Rhodes admit to be crucial (2003, 137), but about which they have little to say.

As Bevir and Rhodes (2003, 201-203) correctly note)in the view of the present author) their whole approach seems extraordinarily fatalistic. Such fatalism is, it will be argued, unwarranted. That there are unintentional consequences of any act of governance, no one need or should deny. However, it does not follow that the nature of those unintentional consequences will always be so damaging that it is futile to try to exercise any influence whatsoever. In essence, Bevir and Rhodes (2003) have produced another (admittedly non-reactionary)

variant of the 'futility' and 'perversity' tropes that Hirschman (1991) identified as so common in certain kinds of political reasoning.

It also seems to go far beyond what the empirical evidence – even that qualitative, documentary, interview and ethnographic evidence which their own 'interpretive' social science epistemology privileges – would support. Indeed, the studies collected by Marsh (1998), Rhodes's sometime collaborator, show that a variety of strategies are being used with varying degrees of success and varying unintentional consequences, not all of which are fatal to any hope of exercising some leverage. For example, Bomberg (1998) shows that certain directorates-general of the European Commission use persuasion (information), manipulation of purchasing and grant aid (incentive), and re-direction of attention to other networks (using authority), to influence the system of networks which seek to influence European environmental policy. McLeay (1998) studies the impact of centralisation in New Zealand policing systems as a way of trying to use the tool of authoritative regulation to influence the structure and role of the internal networks within the policing system of that country while Cavanagh (1998) in the same volume shows the authoritative definition of property rights and structuring of markets in the oil extraction industry.

A point that Bevir and Rhodes would no doubt make in reply would be that the centres of public power which are attempting to use these strategies are themselves enmeshed in and dependent on other networks. Certainly, this is often true, and need not be denied. There are no centres of public power that are wholly autonomous from all networks either of individuals or organisations, and which can deploy the tools of their power without let or constraint, nor has anyone ever suggested otherwise. (Nor is this a recent phenomenon, as Bevir and Rhodes claim - although they stress the importance of history in their programmatic statements and their arguments are studiously vague about dating the change 'from government to governance' that they claim to diagnose - certainly, political and administrative historians know of no wholly autonomous state in any period.) The point is that an agency (A) with a differential degree of relative autonomy from one set of networks (B) but dependent on others (C), can nevertheless achieve sufficient leverage to influence B, provided that B and C are not in close alliance and that B has no complete veto over A's attempt to secure room for manoeuvre.

Part of the explanation for the fatalistic turn in Rhodes's later analysis seems to be related to his loss of interest in the differential structure of networks which so informed his work in the 1980s (e.g. Rhodes, 1988) early 1990s (e.g. Rhodes and Marsh, 1992), and which, contrary to Dowding (1995), he then argued mattered for the shaping of preferences, institutional opportunities and constraints. The argument of the present paper and the companion paper on theory is precisely that closer attention to these structural differences will

enable clearer identification of the scope for and limitations of strategies of management and governance.

It is argued that the goals, activities and instruments of governing networks from without are structurally very similar to the goals, activities and instruments of managing within them. That is to say, the first goal is typically to secure the position of leverage from which to deploy instruments of any kind. The main activities are those of management and governance as they are conducted in respect of single organisations, but applied to inter-organisational fields and linkages; and the tools available are the same basic instruments of power that are available, to some degree at least, at almost any level. Finally, the failures of governance of networks are the ones that we could expect from the limitations of the available tools, but they are neither so comprehensive, nor so inevitable, that they can be said in general or in advance to render any attempt at governance futile or perverse.

This part of the chapter will consider the goals, the activities and the instruments by which the governance of networks is conducted. This distinction is of analytic and heuristic status only. That is to say, the argument emphatically does *not* imply any kind of 'stages' model. It is not suggested that goals are typically or indeed ever settled prior to choosing instruments: that goals are emergent in governance is a truth established decades ago by Lindblom (1959, 1979), and 'stages' models of the policy process have limited credibility today (Sabatier, 1991). Nor is it implied or suggested that the choices of particular goals, activities and instruments typically reflect conscious and deliberate decisions by policy makers, still less that where there are such cases of deliberate decision making, the decisions will be framed by policy makers in terms of the governance of networks rather than decisions on substantial policy matters, or the design of consultations, or many other terms. The governance of networks is typically much more implicit as a process within the policy making arena than such naïve conceptions would have it. Nevertheless, it remains analytically and heuristically useful to distinguish these elements at a functional level, just as in biology, it remains useful to distinguish types of adaptation and their function within an ecosystem even though neither the individual nor the species can be expected to intend, by, for example, their sexual selection choices, the function identified by the biologist.

4.2.1 Goals of governance of networks

Agencies invested with a measure of public power seeking to exercise governance over networks of organisations in their jurisdiction do not automatically possess the positioning from which to exercise leverage over those networks, or the skills to do so. Therefore, the first goals of governance are often to secure those resources of position and skill.

Not all vantage points outside the network are of equal worth in seeking to exercise external governance. For example, that of the peripheral semi-isolate is not a position from which to deploy the tools of governance effectively. That was, for many years, the position of British local authorities in respect of any attempt they might have hoped to make to exercise governance over their local health care systems. The recent introduction of the duty upon councils of scrutiny over local health care may begin to change this, and is presumably intended to provide them with some of the means of exercising a very modest leverage.

Equally, an agency with public power and located externally to a network cannot hope to achieve effective governance over that network, if the position they occupy in relation to the network is not one from which that putative governing agency can gather timely and relevant information and intelligence. This has long been the key challenge facing regulators (e.g. Hutter, 1996). Therefore, at least some linkages have to exist or else be put in place between the agency and the network to be governed, through which information can be sought and passed. Thus, although the governing agency may be external to the network in the sense that it will occupy a different role, and its ties to the members of the network will be ones along which different kinds of resources will pass than the ties between those members, certain connections will be critical. The literature on regulation (e.g. Hawkins, 1984; Hutter, 1996; Day and Klein, 1987) suggests that those linkages have included informal as well as formal routes, if sufficient variety.

As Power (1997) stresses in the context of audit and regulation, a preliminary goal of governance is to render the network to be governed itself governable, and this requires that it be pressured first to organise itself in ways that render it palpable and legible to the agency seeking to exercise governance over it. This may involve the use of authority, for example, to mandate the keeping and publishing of certain types of records. It may involve working with the network to develop standards that are more or less voluntarily agreed (Brunsson, Jacobsson and associates, 2000), or it may involve the strategic use of public purchasing or subsidy to buy initial mutual understanding, as may have been the case with the development of government relations with the voluntary sector in many countries in the post-war period (6 and Kendall, 1997).

Next, governing agencies need to follow goals – however implicitly set – of acquiring specific skills and competencies in understanding the network and in selecting and deploying the instruments of governance to be used. Capacities for governance have been studied mainly in the context of regulation, where they have been found to include intelligence gathering, case management, exercise of judgement in inspection and determination, negotiation and bargaining, as political skills in managing client relations and in mobilising countervailing

forces from wider networks to deal with unwanted assertions of autonomy or power by the regulated (Hawkins, 1984; Reichman, 1992; Hutter, 1996; Clarke, 2000).

The political science literature on the policy process commonly places great emphasis on the intermediate goals of developing relationship between policy-making agencies in the core executive and the policy networks, in order to enable flows of information to the policy makers about the preferences and commitments of key actors in the policy networks, enabling policy-makers to know when key 'windows of opportunity' are opening and closing for the introduction of policies they might seek to introduce (Kingdon, 1995 [1984]).

The substantive goals of governance of networks are extremely varied. Where a network is considered in respect of its political influence and its impact upon policy, a common goal for governance is to try to limit the veto power of key members of such networks, for example by diluting the membership of the network or by reconfiguring the balance of power within it. Ham (1999) and Klein (2000) document, in their histories of British policy on health care and the development of the NHS, the continuous efforts made by politicians and civil servants both to negotiate with and also to outflank the British Medical Association representing the interests of doctors. This has involved at various times trying to expand the size of the policy community in health care policy – for example by trying to build up a body representing the employers, seeking to appeal (typically with limited success) over the heads of clinicians to the public, giving para-clinicians of various kinds greater roles and independence from the detailed supervision of doctors and encouraging them to develop their own representative bodies. In other situations, the key goal may be almost exactly the reverse – namely, to build up a network *ab initio* that can provide expert policy advice. This appears to some extent to have been the case in the 1980s when AIDS came to be seen as a major public health problem, or in the same period when it became a central commitment of policy to introduce lay management into the NHS. In these situations, policy makers may seek to go beyond professional groups in order to direct support to voluntary bodies or to private sector.

When networks (often the same sets of agencies) are considered in respect of their role in policy implementation, sometimes different goals for governance emerge, which can often be in some tension with the goals that emerge when the networks are considered in the context of policy formulation. For governments are resource dependent (Pfeffer and Salancik, 1978) upon a wide variety of agencies , the network structure between which makes up the 'implementation structure' (Porter and Hjern, 1981), for information, for willingness to undertake roles, for coordination, for creativity and innovation, and for a variety of implicit political goods (Rhodes, 1988). These facts lead policy makers to try to build up capabilities among networks which

cannot be divorced from political capabilities that they may find inconvenient at times. It is this tension which sets up the dilemmas of designing appropriate, workable and meaningful accountability systems for networks of agencies charged with implementation. On the one hand, excessive reliance upon overly detailed accountability for inputs can demotivate implementers leading to Goodhart's Law effects whereby the targets set cease over time to be valid or reliable measures of the underlying phenomena for which they are proxies, and frontline staff's coping mechanisms will undermine or subtly shift the goals of the policy-makers (Lipsky, 1980). On the other hand, weak accountability mechanisms can equally lead to drift and distortion or economising upon effort. The dilemma is not amendable to once-for-all resolution (Carter *et al*, 1993).

4.2.2 Activities of governance of networks

Although they vary significantly according to the instruments selected, the activities of governance of networks by external agencies with public power are not fundamentally different from those used in management, for, as this paper has argued, many of the same basic challenges of inter-organisational relations are common to management and to governance.

Typically, both the introduction of public power into a field for the first, and the resolution to use public power to recast a field in a quite new way, require some act of *initiation*. This will typically involve the selection and definition of the field in which public power may be used legitimately and acceptably. In recent times, for example, the development of biotechnologies and in particular the development of applications in the field of human genetics have represented a challenge that called for selection and definition by governments of the proper scope for their intervention, irrespective of the particular instruments they have selected. In the UK, the Nuffield Committee on Bioethics (a charitable rather than a governmental body) brought together a number of independent commentators, policy makers and people with a background in relevant interest groups, and its work laid the intellectual foundations for many of the policy initiatives in the field. The creation of the Government's own Human Genetics Advisory Committee and its early work to define the scope for regulation represented the culmination of the work of initiation of governance in this field.

Secondly, a process of *negotiation* enables fundamental differences of interests, institutions, cultures, values and worldviews to be identified. Ham's (1999) and Klein's (2000) histories of the formation of the National Health Service (NHS) in the United Kingdom show clearly the complex series of strands of negotiation between political parties, civil servants, clinicians, the voluntary hospitals movement and the local authorities from the late 1930s to the late 1940s during which this

process of negotiation to clarify the scope for governance and the depth of potential opposition to various candidate approaches to increasing the role for governance in the field of health care.

A crucial activity which, like the others, is by no means to be expected to follow in a standard sequence, is that of *selecting the instruments*. The internal process within the core executive that led to the decision by the Conservative administration in 1989 to pursue the internal market reflected deliberations on the political and fiscal risks of moving instead toward a more fully privatised system, of increasing managerial control, and various other options. In the same way, the Blair Government's decision to centralise certain aspects of rationing through the creation of the National Institute for Clinical Excellence (NICE) a regulatory instrument that had not been designed in any detail while Labour was in opposition – was the product of a deliberative process both within the core executive and involving some of the health care policy community to select instruments by which to tackle what ministers spoke of as 'the postcode lottery of care', and to the governance of the network of NHS purchasing and providing bodies.

Management of the policy *environment* is crucial to any attempt to govern networks. In the case of very controversial and high-profile attempts to reconfigure networks, such as the introduction of the NHS internal market or the development of PCTs as principal commissioning bodies or foundation hospitals, the management of the media and public relations are central to this work. The management of the political environment is also important, encompassing the management of parliamentary business in order to secure the passage of legislation as well as the preparation of legal defences to any potential challenge in the courts by way of judicial review of decisions that are expected to impose the greatest potential losses or costs upon key members of the networks affected by the governance strategy.

Securing the *cooperation* of at least some of the key players in the policy and delivery networks for governance is crucial in the medium term. Most governments with a significant majority in the legislature and a bedrock of public support are able to confront one or two major interest groups within the policy networks at any one time, but few can hope to take on all the key interests at once and be confident of retaining support within their party, the media and the country. For this reason, strategies of 'divide and rule' are often very important in securing cooperation. The Conservative Government's strategy of building up general practice against the interests of hospital consultants in designing the internal market is a case in point.

Most of the day-to-day work of governance of networks involves more incremental *adjustment.* The routine contact between the Department of Health, NHS bodies, professional institutes and representative bodies, contact with health care specialist journalists, and so on which

structures most of the private meetings that civil servants and junior health ministers attend provides the face-to-face basis, and potentially the information flow and perhaps a measure of conditional, fragile trust, for this adjustment (Ham, 1999).

These are of course the very same activities that are involved in management within networks. Like those of management, the activities of governance do not form a standard sequence of 'stages' mechanically followed, but most governance of networks calls for nearly every one of these activities to be undertaken, whether simultaneously or otherwise.

4.2.3 Instruments of governance of networks

It is sometimes said that voluntary collaboration (in the terms used here, individualistic or enclaved forms of networks) cannot be mandated – that is, instituted by hierarchical means, and therefore that there are very strict limits to the governability of networks.

However, it is clear from empirical studies from many countries that this is not really true. 6 *et al* (2002) and Sullivan and Skelcher (2002) both document a wide range of initiatives take by the new Labour administration to cultivate collaborative working across organisational boundaries in the public services. These initiatives have used a full range of tools. Even when they are backed by the use of authority, the most immediate and direct means have often been those of inducement, persuasion and standard setting through professional bodies. Often authority has been used to insist on some kinds of collaboration, but not necessarily to specify which agencies shall be partners, nor to specify the precise form of collaboration. In the same way, the Dutch work on managing networks in the public services (Kickert *et al*, 1997) shows that central government often mandates collaboration but leaves the detailed choice of partners and arrangements to frontline staff and local agencies. To be sure, as Challis *et al* (1988) demonstrated in their major evaluation of the Joint Approach to Social Policy, mandation of networking alone will never be sufficient to ensure successful collaboration. Much more work has to be done to overcome all the range of barriers that almost every study identifies to agencies working together. But some of that ground-clearing must itself often be done from the centre, and one can reasonably make the case that what Challis and her colleagues really showed was that JASP failed, not because it was centrally mandated, but because the centre did little more than provide the mandate.

The instruments available to public power with which to exercise governance are essentially the same as those available for management, as the extensive literature on the tools of government shows. Most of the classifications of the tools of government in the literature converge upon the four basic categories of authority and direct substitution of organisation, incentive and contract and pricing,

information and norm-setting and status-definition and persuasion, and coping. In their synthesis of the classifications in the literature (drawing especially upon Hood, 1983; Salamon with Lund, 1989; Bemelmans-Videc *et al*, 1998; and Peters and van Nispen, 1998), 6 *et al* (2002) distinguish the following principal tools (Figure 4.4):

Figure 4.4: The power tools of government

Types of power tool	Tools, ranked strong to weak
Effectors (for producing changes in culture or behaviour)	Authority: direct government provision government-owned corporations, regulation, mandation, permission, prohibition, rights and systems of redress
	Incentive: contract purchasing, loan guarantees, grants-in-aid, matching grants and tax expenditures
	Information: persuasion, propaganda, example, demonstration projects, education and training
Collectors (for obtaining money and other resources)	Authority plus incentive: taxation, direct or indirect levies, service fees and charges
	Information: appeals
Detectors (for acquiring information)	Authority: requisition and inspection
	Incentive: purchasing, barter and rewards for information
	Information: appeals
Selectors (for managing, selecting, analysing, presenting information)	Authority: audit, cost-benefit analysis, performance indicators and measurement, cost measurement, resource budgeting and management and review
	Information: scenario-building, risk assessment

While the selectors play a subordinate role in the governance of networks, and while collectors of financial resources in countries such as the UK which have only a few hypothecated taxes tend to be related to governance capacity as a whole rather than to particular programmes, all of the effectors and detectors listed are of importance in exercising governance over both policy and delivery networks. Here, we need focus only on effectors

Authoritative tools are often important in specifying the conditions under which government will grant sufficient recognition to interest groups and organisations to enable it to enter into dialogue with them, either directly or indirectly, over specific issues. For example, at various times, Governments have refused to deal with certain public sector trades unions, as Secretary of State for Education Charles Clarke has done with the National Union of Teachers (NUT), with a view to strengthening the relative influence of each teaching unions. The use of governments' power of purchasing, subsidy and their denial or reduction are important in reshaping networks. In the NHS, the

creation of a cadre of fundholding GPs was principally achieved through the reorganisation of the flows of finance, and more recently, the return of a commitment that 'money should follow the patient' through activity-based commissioning reflects in part the Labour government's efforts to increase the power of purchasers over providers in local health economies. Authoritative tools have proven of limited effect in defence procurement (Chapter 7) partly because of the international character of the industry and the isolate character of the procurement agencies and partly because of the commercial strategies of the prime contractors. However, when *combined* with the use of incentive on an ongoing basis, they can be effective, as shown by the UK Department of Health's combination of funding of a variety of collaboratives, to which the department has then given extensive 'guidance' which has the force of a command. In the same way, the department has used its purchasing power (incentive) with the pharmaceutical companies to make effective greater regulation of their outputs, including both price control and quality approval procedures.

Typically however, tools from different categories are combined, because of their interdependence. Often, the signals provided by price are blunt without extensive use of information-based tools in order to secure that funds made available are used for at least some of the intended purposes, and to try to mobilise shame and mutual surveillance to control the tendencies of those offered funds to engage in strategic behaviour to maximise the financial returns for the least effort on the activities that are wanted. Often, governments must use regulatory instruments to define eligibility for financial resources offered, and to ensure that detectors and selectors can be applied appropriately *ex post*.

Although the principal tool for the reshaping of networks in the US defence industry was Pentagon procurement or purchasing (Chapter 7), this was backed by a complex array of authority-based tools ensuring that government remained the dominant monopsony purchasers, that industry standard-setting processes worked to meet governmental objectives, and that at times of crises, governments have resorted to coping strategies. However, contract-based procurement alone does not seem to have been sufficient to ensure that governments secure leverage over the producer networks. Authoritative pressure and more persuasive work with existing joint ventures and consortia has been required in order to encourage the mergers that were the object of policy in the US and elsewhere during the 1990s.

It has not been possible to review the entire corpus of political science work on the policy process across a wide range of fields of policy in order to say much with confidence about the conditions for the successful use of various combinations of these tools in different constitutional, institutional and political circumstances for the reshaping of policy and delivery networks. Unfortunately, most of the

literature on policy networks has developed within the paradigm of interest group studies rather than public policy studies, is so concerned with the question of how, how much and why various interests in networks matter in explaining policies that come to be adopted and therefore in how they substitute for government in governance, rather than in the question of how and how far governments can and do successfully seek to use their tools to reshape those networks (see Marsh, 1998b). In this sense, it reflects the influence of Rhodes' work, as one of the most important initiators of policy networks in the British context.

One recent review of the literature on policy instruments generally came to the conclusion that little can be said about the prospects for successful of particular tools, because contextual variables of, for example, political culture, constitutional system, expectations, degree of media scrutiny, continuity of key personnel (including key ministers), polarisation and administrative capabilities, produce huge variation (Linder and Peters, 1998). A few general phenomena are reasonably well understood about the limitations of each of the types of tools. Authoritative tools, being the most coercive, are the most difficult to legitimate. Incentive-based tools can prove expensive to deploy for ambitious goals as diminishing returns start to set in at some point, and they are much easier to deploy in order to provide benefits than to withdraw them or impose costs, because those who perceive themselves as losers typically mobilise more readily than those who perceive themselves as winners. Information-based tools used alone tend to be relatively weak. However, accepting these limitations, there clearly are cases of reasonably successful reshaping of networks achieved by governments using the toolkit available to them, given the goals that can be assumed to have been set.

Certainly, Bevir and Rhodes (2003) are right to stress the unintended consequences of all policy action including the uses of tools to re-shape policy and delivery networks. In Chapter 7, the outcome of US procurement policy (namely, a highly concentrated but not very efficient and rather protected industry) was not in at least two of those three respects, unintended and unwanted, even as a price to be paid for other benefits such as political oversight and distribution of spending across localities based on the politics of the pork-barrel. However, it does not follow from this that all of governments' instruments with which to influence the structure of their defence industries are blunt or that none of their goals can be achieved, nor does the empirical evidence on the defence industry suggest any such thing.

The policy analysis literature on 'policy success' is much smaller than the body of work on fiascos, failures and abandoned projects. However, one recent major cross-national collaborative effort was between scholars examining six European countries, comparing managing the downsizing of the steel industry, health care reform and

deregulation in banking with responses to the problem of Human Immunodeficiency Virus (HIV) infected blood supplies (Bovens *et al*, 2001a). In several of these policy areas, recasting of the policy and delivery networks of organisations was either a necessary condition for success or something considered useful in several of the countries. The comparative analysis conducted by the editors of the findings of their authors' country case study papers focused, among other things, on a dimension of 'policy style' represented as a spectrum between 'imposed' and 'consensual' (Bovens *et al*, 2001b). It is a reasonable reading of the studies to suggest that these styles can be considered to represent relations between governments and policy networks ranging from those based on allowing more power to those networks to those allowing less, on the one hand, and a bias for weaker or stronger instruments on the other. Allowing policy and delivery networks more power is something generally associated with the use of less coercive tools to reshape them, and with imposing fewer costs or sanctions upon the key players in those networks.

As one would expect, Bovens *et al* (2001b) did not find that either imposed or consensual styles were uniquely and generally superior for all the four policy fields. The comparison provisionally suggests that prior political culture and expectations in the country and the particular field matter greatly in determining which style contributes more to success. That Scandinavian countries both used consensual style and experienced some success with them therefore does not mean that other countries with different traditions could adopt those styles with similar political results. The authors of the comparison find that consensual styles, and hence greater power for policy networks and perhaps less attempt to reshape the networks at the same time as pursuing the substantive policy, were found in all the countries in financial services. In health care reform, the declining political power of the representative organisations of the medical profession in the health policy communities was a common feature, but not something that could be put down to successful government manipulation of those networks alone. Indeed, they suggest that the 'divide and rule' strategies of governments toward doctors were but one of three major factors and the only one directly under government control. In the case of managing the HIV infected blood supply problem, they found some evidence that more consensual strategies seemed generally to be associated with greater success.

4.3 Conclusion

What, if anything, is different about managing across networks from managing within organisational boundaries?

This chapter has argued that there are some important similarities between inter- and intra-organisational management. More specifically, it has been suggested that the *activities* of management

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are essentially the same, that the basic categories of tools by which mangers secure information about events and conditions and by which they attempt to induce change or indeed continuity in the behaviour of others, are also essentially the same in each context. Finally, it has been suggested that these are by no means unimportant respects in which to find similarity. On the contrary, the selection and deployment of activities and instruments are at the heart of management.

Nor indeed does this exhaust the features of management that are common to intra- and inter-organisational contexts. Many of the key general categories of goals of management are also common, such as the pursuit of co-ordination within and through a division of labour, cultivating learning, securing accountabilities to some shared tasks and common projects, the pursuit of efficiency together with effectiveness and legitimacy, and so on.

If many goals, most activities and all the tools of power are common to both contexts, then many of the skills of management must also be common. However, this is not to deny that there are some differences between the two contexts which can be important. The main differences, fairly obviously, flow from the nature of the *scope for selection, structures*, *boundaries* and *accountabilities* which define the two contexts.

As Agranoff and McGuire (2001) point out, a simple key difference is that organisations have different kinds of choices in the selection both of partner organisations and of the kinds of structure they want to govern the partnership, than they have in the selection of linkages between departments. Although organisations can choose whom to hire in the finance department and how flat an organisation chart to have in the finance department, they have rather limited choice over whether to have a finance department at all, and over the kinds of relationships of reporting and authorisation that the finance department will have with the operational departments. By contrast, in at least many fields, organisations have a choice about whether to form external links at all, or to try to integrate functions vertically and internally, and some choice of potential partners.

In Figure 4.1 above, there is set out a taxonomy of the main types of structural instrument for the definition of formal linkages between two or more organisations. Clearly, the spectrum of inter-organisational structures identified there differs significantly (save one extreme) from the spectrum of relationships that can typically be found between the different functional divisions or departments of a single organisation – at least, provided that organisation is viable as a standalone entity. The extreme at which the range of inter-organisational relations converge with single organisational structures is of course the limit case of merger. The qualifier, 'typically', in the previous sentence may seem to be a weasel word. There may, however, be exceptional periods when economic conditions mean that even this is not strictly

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true, and when organisations can survive as more or less single organisations despite having internal structures linking their respective parts in much the same way that inter-organisational structures link distinct organisations. In the 1960s and 1970s, for example, market conditions appear in at least some industries in some developed countries to have permitted the survival for a time of a number of huge conglomerates operating in many different industries, united mainly in the fact that a single headquarters organisation or holding company handled relationships with shareholders for them all, and provided some overarching board level direction. Within the conglomerates, there were a range of bilateral and multilateral ties between companies or divisions for some joint work, but often these were rather loose alliances. Nevertheless, this seems to have been an exceptional period in business history, and one that was ended relatively quickly as market conditions became more competitive.

The boundaries between distinct organisations are often said to be becoming 'fluid' or 'blurred' as a result of deeper mutual involvement though the greater use of strategic alliances, joint ventures, and many of the other structures for inter-organisational coordination. However, as Kraakman (2001) has argued, it would be quite misguided to draw inferences from the evident trend in many fields towards close collaboration, exchange of personnel, stationing of staff on each other's sites, joint decision making bodies between organisations at the *operational* level, to any necessary merging of underlying *strategy* or any much grander decay of the boundaries of *accountability*, especially in the context of the importance of organisational boundaries for defining *property rights* in organisations. Moreover, the facts that ties take so much effort to negotiate and that so many ties between organisations are temporary, and are terminated either in abandonment or else with a feeling of their having performed their function, suggests that boundaries are far from being blurred at the strategic level.

The basic accountabilities of distinct organisations, across which inter-organisational management has to be carried out, are indeed distinct from and more challenging for managers, than are the boundaries between divisions or departments within the same organisation. However, the fact that the same activities and tools have to be deployed in both contexts suggests that the two kinds of boundaries still have to be breached, to the extent that they are breached in the course of collaboration, in many of the same ways. Indeed, at the *operational* level, the same kinds of obstacles to collaboration are found at both kinds of boundaries – different professional disciplines, competing priorities, different legal obligations, incompatible cultures, personal rivalries and so on are all cited in the studies of problematic co-ordination both within and between organisations.

If the main differences between managing within and between organisations are those of selection, structure, boundary and

accountability, it is also clear from this discussion, that these differences, even when they are large, are ones of *degree*. For the choice of potential partners is never unlimited, and equally there is always some choice of how to organise internally. The competing internal accountabilities of different organisations are legally buttressed by the powers of shareholders, boards, Secretaries of State, etc., yet the very facts that they are permeable at the operational level using the same tools and activities as those deployed for internal co-ordination, that the same kinds of obstacles to co-operation are reported at both kinds of boundaries, and that vertical integration is always at least a theoretical alternative to external networking, all go to show that in *operational* and even *strategic practice* (if not in legal and economic theory) boundaries between organisations are of the same kind of phenomenon as those within organisations, differing in order of magnitude and severity rather than in nature. Again, the fact that some of the more deeply integrated structures in fact represent new organisations, wholly or partly owned by the constituent partners, shows that at the level of governing structural instrument, the differences represented by the spectrum in Figure 4.1 from the types of structure that define the single organisation, are matters of degree.

4.3.1 The management challenge

The evidence gathered from a wide range of literature here is powerful that there is, if not yet a full discipline of inter-organisational management, at least a body of knowledge and practice which exhibits at least some convergence in its core propositions, both between public and commercial services and between the processes of management and of governance.

In general, as we might expect, texts written partly for practitioner readerships (such as Doz and Hamel, 1998) tend to be most optimistic about the efficacy of the techniques of inter-organisational management, while those written by political scientists (such as Bevir and Rhodes, 2003) are most pessimistic and indeed disdainful of what they sometimes call the 'managerialism' of those who argue for the possibility of intelligent work to co-ordinate between agencies (see 6 *et al*, 2003 for a critique of political science fatalism about inter-organisational co-ordination). Most organisational studies research, whether by organisational sociologists or by management researchers, falls somewhere in between these poles. The mainstream position is one that recognises that there are significant challenges, real problems and obstacles to be overcome, skills deficits and unintended consequences of using each and all of the tools available, but nevertheless considers that there are some things that competent managers can do and know how to do, and which will at least have some of the desired results.

Most attention has been devoted in the literature to the nature of the *external* linkages, and there remains much to be learned about the *internal* capacities and capabilities that have to be cultivated in organisations, in order to make the best use of whatever external links might be available. Although concepts of boundary spanning and absorptive capacity have been defined at least roughly, the state of the both empirical research and indeed modelling on the determinants, alternative forms, consequences, and relative significance of these phenomena remains weak.

Also poorly developed are the dynamic models of change in network structure, culture and form, and of the conditions under which those dynamics might be amenable to action to influence them. The neo-Durkheimian approach developed by Thompson (1982, 1992, 1996; Thompson *et al,* 1990) is promising but has yet to be worked up and explored empirically in detail.

Theories in organisational sociology and management studies broadly divide into two groups. One group of theories see both organisations and inter-organisational systems as *resources*, and accordingly they take an instrumental view of them, focusing on cybernetic understandings of organisational processes, and they look for managerial action to optimise on key variables. This tradition includes Weberian theories of rationalisation, principal-agent theories (Jensen and Meckling, 1976), transaction cost theories (Coase, 1937; Williamson, 1985; Aoki *et al*, 1990), bounded rationality theory (Simon, 1955); early behavioural theory (Cyert and March, 1963), contingency theories (Galbraith, 1973; Lawrence and Lorsch, 1967), organisational fit (Miles and Snow, 1984) technology fit theories (Perrow, 1999 [1984]), exchange theory (Emerson, 1972a,b), resource dependency theory (Pfeffer and Salancik, 1978), some network theories (Burt, 1992), and their derivatives in organisational ecology (Hannan and Freeman, 1989) and, in management studies, the 'resource-based view' (Conner, 1991) and business process reengineering programmes (Hammer and Champy, 1993). While human factors are by no means irrelevant, the basis of the relationship between organisational factors and performance is that processes for the governance of the organisation to achieve performance should be *rule*-bound and the organisation is regarded as a set of better or worse tools for this. Organisational form and inter-organisational structure, then, become something to be optimised in the same way. This outlook privileges the roles either of those charged with negotiating outside the organisation to acquire resources to achieve growth to optimal size, or else those empowered to monitor output and resources in the organisational process by which performance is produced. On these views, the task for inter-organisational management is a technical of designing structures that will deliver appropriate allocation of resources, skills, capabilities and information at the least direct and transaction cost.

The other set of approaches emphasise factors to do with *meaning* as key to a collective capability and shared learning conception of how performance is elicited*.* The tradition includes the human relations school, institutional theory (Selznick, 1980 [1949]; Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Perrow, 1986; Stinchcombe, 2001), power-centred approaches (Pfeffer, 1981; Mintzberg, 1983), theories of the centrality of organisational culture (Silverman, 1970, 1984; Schein, 1993; Hofstede, 1991; Martin, 1992), organisational ambiguity theory (March and Olsen, 1976), models of the reflective practitioner (Schön, 1983), emergent strategy models (Mintzberg and Waters, 1985), single- and double-loop learning accounts (Argyris and Schön, 1978), and organisational sense-making (Weick, 1995, 2001). While these theories need not dismiss as irrelevant the resource and cybernetic aspects of organisation, they see the relationship between organisational or inter-organisational process and performance as mediated by managerial *sense-making* or even *narrative*. Cybernetic aspects are of interest only in understanding the constraints upon the kinds of sense that can in practice be made. Organisational form in these views is a less readily changed variable than within resource-instrumental views. Although it is never so institutionalised as to be unchangeable, form is regarded as something with which key stakeholders have to feel comfortable if they are to be committed. This sets limits on the extent to which it either can or should be changed purely to fit task requirements. Within these views, shared organisational historical narratives and collective organisational memory are important for sustaining commitment and motivation, sense-making and the sense of membership, and for defining capabilities. On these views, the challenge for organisational management is one of developing a viable and intelligent sense of a set of conditions that are always to some degree opaque, and by which motivation to cooperate can be mobilised.

In the argument of this paper, it has been implicit that we should not have to choose once and for all between these views. Both styles of management theorising capture important aspects of organisational and inter-organisational life. The central challenge for theory is to integrate the two in ways that show both the scope and the limitations of both instrumental and narrative practices and understandings. For only by doing so can it be hoped that we can identify sets of reasonable expectations of what can be achieved in inter-organisational management across some robust taxonomy of different kinds of empirical setting, against which the blanket pessimism of some of the political scientists and the bland optimism of some of the practitioner-oriented writing can be judged.

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5. Trust and trustworthiness in inter-organisational networks

Perri 6

Trust and trustworthiness has been regarded as an essential characteristic of inter-organisational networks. Indeed, it is commonplace within the social sciences for trust between organisations in alliances, partnerships, networks, and joint ventures to be regarded as a positive attribute. Trust, it is argued,: manages uncertainty (Glückler and Armbrüster, 2003); makes co-operation easier (Doucette and Wiederholt, 1997); enables organisational learning (Ingham and Mothe, 1998); sustains accountability (Tomkins, 2001); enables effective joint project management (Holt *et al*, 2000); secures commitment between parties (Geyskens *et al*, 1996) including those who have very different degrees of power (e.g., Kim, 2000); and sustains industrial districts (Sabel, 1992; Boschma and Lambooy, 2001) and economic development in developing countries (Murphy, 2003). Most of these propositions about general benefits which have been presented in these recent articles were already well known to social scientists up to thirty years ago (see Akerlof, 1970; Arrow, 1974; Fox, 1976; Barber, 1983; and Zucker, 1986).

With the same regularity, trust is regarded as difficult to achieve, especially where the weight of past betrayals and hostility hangs heavy (Rothstein, 2000). However, trust is also made possible precisely by the legacy of the past (Putnam with Leonardi and Nanetti, 1993; Fisman and Khanna, 1999). Trust is especially difficult to develop between peers by comparison with upstream suppliers and downstream customers (Rindfleisch, 2000). Moreover, trust is more difficult to cultivate in some countries than others (Fukuyama, 1995; Dahlstrom and Nygaard, 1995) and most challenging to sustain in periods of social upheaval (Sztompka, 1999). At least in the early years of the internet as a mass medium, it seems to have been more difficult to achieve in 'online' settings without special arrangements to foster it (Pavlou, 2002). Again, the difficulties of achieving trust

between organisations were documented for the public sector many years ago by Challis *et al* (1988), for the private sector by Williamson (1975) and much earlier for organisations generally by Thompson (1967).

However, extensive as this body of work on the beneficial consequences and difficulties in creating trust is, it is hardly satisfactory. For even when there is convergence on definitions of what is meant by trust, most work takes trust to be something that is best treated in a series of levels or degrees. The literature, however, does not adequately connect its determinants with the wider institutional and network structural forces that sustain different formations of trust. For all the recent work, we still lack a synthesis of the understanding of trust with the theories of the dynamic processes by which inter-organisational processes work.

There is a vast literature on inter-organisational trust, and this chapter cannot hope to do descriptive justice to it all as well as offering a distinctive interpretation and application of the literature. Therefore, the aims of the chapter are to introduce some clarity about the definitions and types of trust; to distinguish the main bodies of theory; and then to present an account of how different forms or inter-organisational trust can emerge (and be undermined) in different institutional and network settings. The focus of the paper is not on questions about the consequences of trust (whether benign or malign) but on the roots and determinants. Part of the argument will be directed negatively, showing that it is facile and misguided to claim, as some leading writers did at the turn of the 1980s and 1990s, that networks are uniquely trust-enhancing. This view suggests that networks are a single category and trust a single phenomenon, and both unambiguously good. The argument will be devoted primarily to the positive case that trust of different kinds can be found in all the main institutional contexts for inter-organisational relations, and that understanding the roots of these differences will assist in assessing the strengths, weaknesses and scope for intervention to influence each of them.

The next section (5.1) introduces the basic concepts of trust and trustworthiness. The following sections then show how the two main strands of theory of inter-organisational trust have offered contrasting definitions of trust, rooted in divergent epistemologies. It then shows that in recent years a more catholic approach to epistemology has allowed the emergence, not of a synthesis exactly, but of a willingness to recognise these theoretical approaches as identifying different empirical types. A short section follows which refutes the claim that there is something special about networks that they alone elicit and cultivate trust between organisations. Then the substantive argument of the paper takes up the whole of the second half, in which each of the basic types of institutional setting and network structure is shown to generate a distinct pattern of trust between organisations. In each

case, the literature reviewed empirical evidence as well as for theoretical support. Finally, a short section takes the argument on from the static comparison of forms to a consideration of dynamics.

5.1 Trust and Trustworthiness: Basic Ideas and Importance

The literature on trust and trustworthiness in inter-organisational relations is vast, spans many disciplines and several decades. Major works on the subject still cited today were written in the early 1960s, and some traditions have their roots in human relations approaches developed in the 1940s and 1950s. Detailed definitions can be postponed to the next section because they are contested between theoretical and empirical traditions. However, even without settling upon an exact definitions, it is important to distinguish between trust and trustworthiness, for their roles and importance are quite different (Hardin, 2000).

At this stage, it will suffice to characterise these concepts quite generally. It is helpful to think in terms of principal-agent relations (Jensen and Meckling, 1976 and Fama, 1980). In a transaction, we can distinguish two actors (individuals or organisations), one of whom (or which) puts significant resources at risk, initiates a transaction and requires a service, and one who puts fewer resources at risk, responds to the initiation and provides services. In special cases of reciprocal relations, both parties play both roles. Even contextually rich and deep forms of trust cannot be explained without reference to some kind of agency model, even if one which allows for richer contextual specification than conventional institutional economics approaches would (Sztompka, 1999).

Understood in these terms, trust is the attitude or strategy of a principal who or which must assess (among others things to be discussed below) the reliability of an agent, and to speak of trustworthiness as to do with the characteristics of an agent that make for reliability. Of course, principals can and often do make wrong judgements about agents, so that perceived or subjective and actual or objective trustworthiness can diverge sharply.

5.1.1 Trustworthiness

Trustworthiness is best thought of as task-specific or at least role-specific, where roles might encompass a range of tasks. For example, one might trust their GP for advice on an in-growing toe nail but not actually to perform any surgery that might be required on that same toe nail, and certainly not for financial advice about pension arrangements. In the same way, organisations are typically trustworthy to others, for example, in the provision of some goods and services but not others.

That trustworthiness is important for the possibility of co-operative relations is hardly news. For when people are routinely untrustworthy, social organisation cannot be sustained: Turnbull's famous (1972) anthropological study of the Ik (a tribe in rural Uganda, as they were in the 1960s) shows how dramatic can be the consequences of the erosion of trustworthiness among significant proportions of populations. For Turnbull found that institutions for the cultivation of trustworthiness had all but wholly eroded among the Ik, with disastrous consequences for familial commitment, moral behaviour, trust between friends, capacity for investment, saving and trade and relations with neighbours. Although the details of Turnbull's empirical findings have been contested, the general argument about the consequences of the decay of trustworthiness is widely accepted. Banfield's (1958) ethnographic study of a village in southern Italy found that in conditions in which significant proportions of the population were not trustworthy but where there remained just a few institutions to limit the worst aspects of untrustworthiness found later among the Ik, social organisation fell back to guileful opportunism with commitment only among the closest kin. The argument has been reinforced by journalistic and academic studies on the erosion of social organisation in societies that have experienced catastrophic collapse in core social institutions such as Somalia, Albania and more recently Iraq following the overthrow of the dictatorship.

Trustworthiness in certain respects is also important for stable competitive relationships. For markets are complex systems of social order which depend on competitors respecting certain rules. For example, most firms in the USA can reasonably expect that their competitors will be sufficiently trustworthy, however much they are financially wounded by the successes of their rivals and that they will not resort to assassination, sabotage or arson in order to further their business strategies. Even in post-socialist Russia, to say nothing of failed states, no such trustworthiness can be relied upon, with consequences for the levels of domestic and foreign investment in the country.

5.1.2 Trust

Trustworthiness is not only important for co-ordination, but has a quite general claim to high moral status. Not only is useful that people and organisations are trustworthy, but in general, they ought to be. Only in rather circumstances do we expect people and organisations on moral grounds to be untrustworthy. For example, as Arendt (1963) famously argued following the principle adopted at the Nuremburg trials, it follows from the principle that obeying evil orders is no defence to a prosecution for an evil act, that if agents cannot openly defy those orders or simply resign their roles without facing unacceptable sanctions they, at the very least, should be untrustworthy in the execution of their roles in order to undermine the

evil process of which they are a part. The argument presumably applies to organisational and business ethics as well as to individual morality. The fact that this is a special case is implied by the fact that, as Arendt stressed, we expect people to exercise the capacity for moral judgment to know when this exception to the duty of trustworthiness is mandatory and to limit their untrustworthiness strictly to those cases.

By contrast, the placing of trust in others hardly has the same kind of moral status, Although there are still a few heavily moralistic discussions of trust in the literature, in general, the recent tendency has been to accept that there is no *general* merit in people and organisations being quite casual in the placing of their trust, if not only for the simple prudential reason that some people and organisations are not trustworthy and often self-interest calls for caution, but also for the ethical reason that is wrong to put people and valuable resources at hazard by trusting them to agents too lightly and without sufficient investigation. Moreover, whereas social organisation fails when trustworthiness decays in general, the decay of trusting is the concomitant and consequence of that erosion of trustworthiness, not an independent cause of social collapse: indeed, where few if any are trustworthy, it is still both rational and often moral not to place trust.

Certainly, trust between organisations is not something to be welcomed in every case. Private failures of trust are common: that is, trust may be misplaced and lead to unwelcome outcomes for the organisations themselves. There are also many obvious cases of public failure, in which, for example, trust and trustworthiness between organisations sustains cartels, anti-competitive practices, collusion, cover-up, lack of accountability and so produces unwelcome outcomes for consumers and citizens.

Here placing of trust is important and beneficial in its consequences and it is derivative in two ways upon the benign effects of trustworthiness. Firstly, where agents are available who are trustworthy, it is prudent and often right to trust them, because this is conducive to the positive benefits of trustworthiness. Secondly (and more indirectly and contingently) it is possible that in the presence of background conditions of a reasonable initial presumption of trustworthiness of at least some identifiable agents, placing trust in them might reinforce their trustworthiness by giving them the feeling that their merits are being recognised by principals.

5.1.3 Organisational trust and trustworthiness

Trust in an organisation as an agent or trust by an organisation as a principal is not a straightforward matter to analyse. The observable behaviour of organisations is the activity of their individual members, leaders, staff and clients. When two organisations negotiate a relationship through a contract, it is individuals who handle the

process. Particular managers will make initial approaches. Directors, perhaps, will handle the final negotiations and enter their signatures. A range of individual boundary spanning staff will implement the agreed tasks entrusted between the organisations – account managers, purchasing managers, project managers, frontline professionals, and so on. Trust between two organisations may often grow out of informal social ties between particular managers. Certainly, the inter-organisational relationship will not be sustained unless particular social ties in the context of working relationship or client-supplier relations are made to work and unless some individual trust is also cultivated between those individuals.

Strict methodological individualists such as Hardin (1993) have to regard the description of trust in or by organisations as elliptical and metaphorical speech rather than as a serious claim about the nature of trust relationships. Blois (1999) considers the business and marketing literature on trust weak because of its typical willingness to countenance such ellipsis. Yet, because organisations are collective entities, typically with collective legal personality and limited individual liability for directors, we cannot wholly reduce the behaviour of organisations to that of particular individuals. But the reasons go deeper than this. When we trust an organisation because of its reputation (for example, trust in a brand), we typically know nothing of the individuals who are currently responsible for ensuring the quality of its performance. Managers negotiating a long term strategic alliance may well not know whom in particular their organisation will be dealing with in the later stages of the arrangement to which they are committing the two organisations. The arrangements are entered with and by collectivities binding individuals (including those yet to be recruited) and defining which individuals are to be bound and what counts as being bound.

Still more fundamentally, these individuals involved are acting, deciding to trust to the degree that they do, under collective institutions that define the meaning of what they do. The fact that they are engaged in trusting across an organisational boundary is an institutional fact which structures the procedures they follow, the fact that certain kinds of decision procedures must be gone though, and the significance of the ritual acts of signing contracts, depositing copies with archivists and lawyers. The *accountabilities* which give meaning to organisations' trusting and being trusted are not ones that can meaningfully be described at the individual level (cf. Marsden, 1998).

As Currall and Inkpen (2000, 326) argue, it is necessary to distinguish between the level of theoretical explanation, the level of measurement and the level of analysis. For many theoretical purposes, it is important to attend to the reality of organisational and inter-organisational institutions. However, with the exception of some documentary and archival research and collection of performance

statistics, examining inter-organisational relations to understand trust necessarily involves individual level measurement. The level of analysis will shift according to the principal purpose. When we want to understand the ways in which trust is initiated and sustained, it may be important to conduct analysis of interpersonal relations, but when we want to understand the long-run dynamics of inter-organisational relations, methodological individualism is not sufficient.

In this paper, the argument moves between levels of analysis because there are reasons for being interested both in the inter-organisational level, especially but not exclusively for understanding the genesis of formal relationships, and in the inter-personal level, especially but not exclusively for understanding the informal basis of relations between key boundary-spanning staff or brokers.

5.2 Theories of trust

5.2.1 Defining trust: distinguishing confidence and trust?

Despite the differences between theories, as Hoffman (2002) points out, there are some areas of agreement between the main writers about the nature of trust (Gambetta, 1988; Sztompka, 1999, ch.2; Barber, 1983; Misztal, 1996, ch.1). Hoffman's review suggests convergence on the propositions that trust involves an attitude of willingness to place some of one's interest under the direct control of others, that trusting relationships are behavioural manifestations of trust, that there is variety in the intensity and scope of trust, that trust involves forming beliefs which predict the future behaviour of others (albeit subject to error), that where there is complete certainty about that future behaviour then there is no trust because there is no need for it, and that these predictions are based in some way on at least implicit assessments of probability that their interests will be honoured by those others. In much the same vein, Blois ((1999) suggests that there is convergence on the idea that in trust, the principal places reliance on the agent in situations where the principal's interest are vulnerable to the actions of the trusted agent (Baier, 1986 Rotter, 1980). Swift (2001) develops Hosmer's (1995) argument to point to common acceptance of the principal's optimism about the agent's responsible behaviour, vulnerability to the agent, the condition of willing cooperation between principal and agent, the presence of significant costs and difficulties for the principal in monitoring the agent and enforcing direct control over their actions.

Trust may be deliberate or more or less 'taken for granted' in all but the most extraordinary situations. In the present context, little need be said about 'taken for granted' trust, because it is of limited importance in understanding the determinants and consequences of

cooperation between organisations, although it may matter greatly in understanding organisational culture in the round. It was the ethnomethodologist Garfinkel (1967) who defined trust as the general ability to 'take for granted, to take under trust, a vast array of features of the social order' (cited in Zucker, 1986, 57). His experiments in disruption of people's background assumptions in order to probe the 'taken for granted', non-deliberate levels of trust were not principally aimed at the understanding of cooperation but at exploring the fundamental assumptions that enable people to assume sufficient stability in their environment to be able to act at all.

However, on most views of trust, these features are not sufficient for something that can properly be called trust. The common features can be boiled down essentially to trust as reliance on an agent under conditions of risk, and it is true that some studies of trust in inter-organisational settings do claim to use this definition (e.g., Currall and Inkpen, 2000) although in fact their selection of cases suggests that in practice, these researchers are applying additional criteria. For one can rely on another person or organisation under conditions of risk, without ever contacting them, let alone making any decisions, or having any kind of institutionally specific relationship with them. The ethnomethodologists studied forms of 'taken for granted' trust in which the one relied upon under conditions of risk might be created even where the parties have neither contract nor duty toward one another that is specific to them as parties. After all, when I step outside my front door, I rely upon the firm that laid the path to my gate not to have built it so badly that it will give way underneath me; yet it would be stretching the meaning of the word 'trust' to speak of me as trusting the company that laid the path for decades after the path had been laid. 'Reliance' or 'confidence' would be more appropriate. This lacks any element of decision or choice, which seems to be inherent in the idea of trust. After all, we each have little choice but to live somewhere and therefore to have confidence in some route over which to walk. By contrast, if I come to choose a builder or landscape gardener to replace that path, then a question of trust might arise. Brenkert (1998, 227) argues that the criterion of voluntary decision before something can be called trust is inappropriate, but his argument seems inconsistent since he allows that 'preparedness to trust' matters. In any case, his specific arguments that voluntary decision is not sufficient (which everyone accepts) do not support the conclusion that voluntary choice is not relevant.

However, drawing the line between trust and confidence is not a straightforward matter. There are broadly two traditions of theory about the determinants of more or less deliberate trust in the literature, each offering a different definition of trust and therefore a different standard of what counts as trust and what as confidence, and therefore offering different views about their specific causes and consequences. It is possible to synthesise these accounts, as will be

done here, but no doubt purists in each tradition will consider that in any such synthesis, something important is lost.

One tradition is essentially interest-based, while the other is at heart commitment-based. The *behavioural* tradition defines trust as the *'judgement of confidence by one actor (the principal) that another actor (the agent) will, with very high probability, act in a way both predicted (expected) and desired by the principal on the basis that the actions expected from the agent are in the principal's interest; moreover, the agent is expected to act in the manner which is in the principal's interest not by chance coincidence of the interests of the two but because there are specific incentives for the agent arising from the ongoing relationship between the two which is expected by the agent to continue beyond the particular transaction, but the agent is assumed to be basically self-interested'* (Luhmann, 1979; Lewis and Weisgert, 1985; Zucker, 1986; Gambetta, 1988; Coleman, 1990; Sztompka, 1999; Hardin, 1993; Stinchcombe, 1990, 13-16). Hardin (2002) describes this as the 'encapsulated interest' view, because the agent's judgment of their interests encapsulates the principal's interests. The incentives arising from the relationship which serve to align the interests of the two may be of several kinds, which will be considered in detail below, but these include fear of sanctions, the offer of benefits in future, reputation effects or even some shared institutions between the two within defined communities based on ascribed characteristics. The importance of the behavioural or encapsulated interest view is that it 'reduces complexity' in Luhmann's (1979, 1988) terms, by limiting the incentives for opportunistic behaviour by the agent. In this sense, the tradition is consistent with transaction cost economic views, which argue that the control of opportunism by agents is the central problem that all forms of economic organisation have to solve (Williamson, 1985).

In the second tradition, trust is defined not by the principal's judgement that there are sufficient *external* incentives to align the agent's interests with the principal's interests to ensure a high probability of their acting in the desired way. Rather, in the commitment tradition, trust is defined by the principal's judgement that the agent shows signs of sufficient *internal* commitment to the principal to ensure that they will act in a manner that conduces to the principal's interest. On this view, then, trust is *'the judgement of the principal that the agent is sufficiently motivated by goodwill, commitment, or recognition of a "fiduciary duty" to the principal, rather than mainly by self-interest* (Barber, 1983; Sako, 1992; Ring and van de Ven, 1992); this commitment may arise through the existence of shared norms and values between principal and agent (Ring and Van de ven, 1992; Parsons, 1969), or simply through the principal's assessment of the characteristics of the particular motivation of the agent, where the agent is found to be altruistically motivated anyway (Schurr and Osanne, 1985).

By contrast with the 'calculative trust' of the encapsulated interest view, some commentators talk of the commitment view as positing either an 'affective' or a 'normative' or 'value based' conception of trust (Lane, 1998).

There are fundamental epistemological differences between these traditions, the first being based on behaviouralism and the second on more interpretive and hermeneutic outlooks in social science. Behaviouralists argue that intentions of the kind appealed to by the commitment tradition are unobservable. In contrast, interpretivists argue that the purely behavioural definition does not capture the distinctive nature of trusting relations, and reduces them to mere degrees of confidence about gambles (Seligman, 1997; Uslaner, 2002). From the interpretive perspective, behaviouralism reduces trust to mere calculation, and they regard the absence of ruthlessly instrumental calculation about partners as the very essence of trust (Seligman, 1997). Conversely, from the rational choice perspective, the commitment approach postulates excessively demanding conditions. Indeed some advocates of the commitment view of trust are prepared to accept that their criterion leaves trust playing a very limited and special role, while most actual coordination is achieved on the basis of calculative assessments of others, which might be called 'confidence'. Seligman (1997) is the most explicit proponent of this view. Certainly, if trust is defined to require such demanding standards as goodwill or internal acceptance of fiduciary duties *prior* to joint action or cooperation, then it is clear that trust cannot be a necessary condition for cooperation, or for coordination generally. For, as Axelrod's (1984) study showed in game theoretic terms, cooperation can be achieved simply on the basis of calculation of pure self-interest and the balance of incentives and disincentives offered by the other and countered by one's own decisions to cooperate or refuse cooperation – that is, the thinnest kind of 'reciprocity'. Cooperation under fear of sanctions is known as 'deterrence-based trust' (Lewicki and Bunker, 1996), and is in effect the limit case of calculative, encapsulated interest trust; here, even the 'tit-for-tat' option celebrated by Axelrod (1984) is hardly available.

The two views also differ in their assumptions about motivation. Those who view individuals and organisations as driven by prudent self-interest tend to argue that the commitment view is excessively romantic, while those who argue for the possibility of irreducible altruism regard the encapsulated interest view as unacceptably reductionist. Moreover, each has a different view of the nature of power relationships between principals and agents (Hardy *et al*, 1998). Behaviouralists take power to be the achievement of *instruments* such as sanctions, incentives and institutional constraints, while interpretivists regard power as the achievement of the shaping of motivations and preferences (Clegg, 1989). Trust is of interest for inter-organisational relations because of its contribution to

coordination and the emergence or construction of institutions to stabilise coordination between actors. These two approaches therefore also differ in their understanding of what coordination consists in. Behaviouralists regard coordination as a process of establishing institutions that constrain the range of available actions, but which take interests as given, while many of those who turn to the commitment approach tend to argue that coordination cannot be effective unless it is also involved in the shaping of preferences and defining of interests. Thus, each view tends to be associated with advocacy for different kinds of institutions for achieving coordination and promoting trustworthiness (March and Olsen, 1989).

Notwithstanding the profound theoretical disagreements between these approaches, in more recent years, efforts have been made to develop syntheses of them by detaching the definitions of trust from their epistemological assumptions and treating them instead as types or levels of trust, or areas within a spectrum of forms of trust. This strategy presumably implies an acceptance of the more capacious epistemology of the interpretivist school, since hermeneutic methods allows for more than just behaviour to be researched.

In this vein, the conceptual frameworks in two monographs can be noted. In a study comparing Japanese and western types of contracting and joint venturing, Sako (1992, 37-40), for example, distinguishes within contractual, competence and goodwill trust, the latter being a full form of the type taken from commitment approach. Sako's goodwill trust is what Brenkert (1998, 285) describes as extended trust. Contractual trust also involves an element of commitment, because it implies the judgment that the agent will adhere to the principle of promise-keeping. This corresponds roughly to Brenkert's (1998, 283) category of 'basic trust'. Competence trust (the judgment that the agent will perform their role competently) is described in Sako's work as essentially calculative. In a study on public trust in large organisations to handle personal data in ways that respect confidentiality and data protection principles, 6 *et al* (1998) distinguish between three slightly different cases. Firstly, they identify the pure case of calculative trust, which they describe as prudential or minimal trust, in which the principal treats the agent's statements of intent as credible statements of what they will likely try to do (whether or not the principal welcomes those intentions or has sought to elicit them) in addition to contractual and goodwill trust. Whereas Sako treats the judgment of competence as both a distinct form of trust and the most important element in calculation, 6 *et al* regard each type of trust as involving a primary judgment of intent and secondarily of competence. Lane and Bachmann (1998) distinguish the following types of trust: calculative, value or norm based and that based on common cognition, where cognitive trust is roughly the same as the non-deliberate, 'taken for granted' background trust discussed briefly above.

These types are essentially concerned with what will here be called the 'task' entrusted – that is, with the question, 'What does the principal trust the agent to do or refrain from doing?' In the next section, it will be necessary to move beyond tasks to examine other dimensions which will illuminate more clearly the determinants of trust and trustworthiness.

5.2.2 Determinants of trust and trustworthiness

Studies can be divided into those concerned with the determinants of personal and (inter) organisational trust and trustworthiness and those concerned with their consequences.

In principle, assuming that people and organisations are not systematically irrational, the categories of reasons that lead them to perceived trustworthiness in agents and so place their trust in them ought to correspond to the categories of pressure upon agents for trustworthiness. That is, although of course people make plenty of mistakes about the true trustworthiness of particular agents, they are unlikely either to look for whole categories of characteristics or processes that typically have no significant effect upon trustworthiness, or to miss whole categories of reasons.

It follows from the nature of an agency relationship, that in order to explain when trust is more likely than not, we need to understand the range of available *reasons* for placing trust in a particular person (as opposed to reasons for needing to find someone to place trust in), and the kinds of *tasks* for which people might place trust and offer trustworthiness. Therefore, trust is quite distinct from esteem (in which no tasks are required) and from respect (where even clear and distinct reasons may be absent). It is a contingent matter whether someone will only trust the people that she holds in high esteem or respects, and *vice versa*, and if so, whether esteem or trust is primary.

The most useful taxonomy of the basic types of reasons is found in Zucker (1986) who's classification neatly subsumes those on offer in the subsequent literature, while the most serviceable general classification of the types of task are to be found in Barber (1983) and Sako (1992).

Zucker (1986: 60, ff.) distinguishes between *process-based* trust, 'where trust is tied to past or expected exchange as in reputation or gift-exchange' (for example, selecting an agent on the basis of what one knows about their track record in matters of the relevant sort), *characteristic-based trust*, 'where trust is tied to a person, depending on characteristics such as family background or ethnicity' (for example, selecting an agent on the grounds that they are a member of the same social circle as oneself), and *institutionally-based* trust, where trust is tied to broad societal institutions, depending on

individual or firm-specific attributes (e.g., certification as an accountant) or on intermediary mechanisms (e.g., use of escrow accounts)'. An example of institutionally-based trust might be deciding to trade with an unknown partner in a foreign state, because that state requires that such people in the relevant industry be qualified, their firms regulated, and because it has a developed system of contract and company law on the enforcement of which one can rely. Brenkert (1998) speaks of trust that is buttressed by appeal to legal institutions such as contractual protection in the event of default as 'guarded'.

It is sensible to split Zucker's first category into two. On the one hand, we might trust on the basis of the principal's own past *experience* of dealing with the person or organisations where they have proven reliable. On the other, we might trust on the basis that the person or organisation has a *reputation*, capturing the experience of others. Reputation based reasons might work in either (or both) of two ways. We might take evidence of that reputation as a kind of reference, trusting on the basis of the reported experience of others. Or we might infer that the person or organisation will value that reputation and behave in a trustworthy way, in order not to damage it. In this case, a reputation acts like a kind of hostage (like an institutional reason) although one built up from experience. Zucker's distinction within institutional factors between 'person-specific' and 'intermediary' is perhaps rather abstract. We might more helpfully speak of *generic* institutional factors such as the availability of legal redress through tort law or contract law in the event of default for these things apply to everyone, and of *specific* institutional factors such as warranties and guarantees or other 'hostages' that the agent may offer.

It must be stressed that institutions, as Zucker is using the term (and as it will be used here) narrowly in relation to reasons for trust, are *formal* institutions. As chapter 3 explained, a full range of formal and *informal* institutions which make up the basic institutional forms of social organisation, also shape the nature, role and meaning of experience, reputation and characteristics in trust and distrust processes.

As Zucker (1986) stresses, many of the 'characteristics' of organisations are institutionally defined ones rather than being simple natural types. This means that some characteristic factors might collapse into institutional factors. For example, if I prefer to deal with someone of the same ethnicity as myself simply because of their ethnicity, and I am Jewish, and what underpins my preference for a fellow Jew is that I believe that fellow Jews can be brought before the courts of the Jewish community, then this has more to do with the institutions than the characteristic. The less clear, direct and task-specific the nature of the accountability which links the identity of the agent to their incentive to be trustworthy, then, the more likely that a truly characteristic-based reason is at stake. Shared characteristics are probably a proxy for capacities for mutual surveillance and reputation

sharing in highly multiplex and dense, clearly bounded networks. The findings of many researchers that in strategic partnerships between western and Russian firms, it is critical that Russian nationals rather than western expatriates are used in key roles no doubt indicates reputation and surveillance processes, but may also serve to indicate long term commitment to the Russian market (e.g., Ayios, 2003).

Some types of reasons are not easy to classify. Sometimes people say 'I just trusted him / her', on the basis of a face-to-face meeting and an immediate decision. Institutions seem largely irrelevant here, and the principal may know little of the agent's track record. Perhaps the immediate eyeball-to-eyeball decision should be interpreted as being based on some hard to define characteristic. In many cases of trust, of course, we have multiple reasons. It should not be imagined that typically people have reasons of only one type for each trust decision.

How, next, are we to classify tasks entrusted, in a suitably general fashion? First, we need some characterisation of the most basic, most minimal, task. Elster, (1989: 274-275), drawing on the game theoretic tradition of the analysis of threats and offers (Schotter, 1981, 1986; Sugden 1989; Dowding, 1991; Dasgupta, 1988, 50-52), defines as 'credibility' the limit case that the agent's threats or commitments to act can be believed by a principal, whether or not the action threatened or committed would be welcomed by that principal. We can call this *minimal* or *prudential* trust.

We now need a way of classifying the more demanding tasks. Barber (1983, ch.2) distinguishes between (a) a general sense of reasonable expectation in the persistence of the natural and social orders, (b) the expectation that other agents will perform specific roles with adequate technical competence, and (c) an expectation that one's partners in some interaction will carry out their fiduciary obligations or responsibilities – that is, go beyond what may be specified in any agreement or duty (if necessary, even setting it aside) in order to act in the principal's best interest. The first is, as I have suggested, more about hoping than about trusting. Much of his study is concerned with the last two, which, as shorthand, he calls *technical* and *fiduciary* trust. As already noted, Sako (1992: 37-8) distinguishes between *contractual* trust 'predicated on both partners upholding a universalistic ethical standard, namely that of keeping promises', *competence* trust, where the principal expects the agent to carry out their role competently in technical terms, and *goodwill* trust, which is 'more diffuse' and 'refers to mutual expectations of open commitment to each other'. Commitment may be defined as the willingness to do more than is formally expected as there are no explicit promises which are expected to be fulfilled nor fixed professional standards to be reached. Instead, someone who is worthy of 'goodwill trust' is dependable and can be endowed with high discretion, as he can be trusted to take initiatives while refraining from unfair advantage taking. Barber's technical and fiduciary trust broadly corresponds with

Sako's competence and goodwill trust. Sako's distinction between contractual and competence trust is one drawn within those situations where the agent is trusted to co-operate, in the first case merely with sincerity or good faith and in the second with expertise. However, there is no distinction in the weight of the task entrusted or the outcome hazarded between contractual and competence trust, in the way that there is between prudential trust, either of these, and goodwill trust. Moreover, technical competence or capability is an important question, whatever the scale of the task or outcome entrusted. In the present context, it is therefore more helpful to treat them together. However, we must also allow that the 'contract' may be entirely implicit or the task committed to may be one that, if there is any remedy for it at all (and often there will not be), would be in tort rather than contract law. Therefore, perhaps it is better to speak of *duty* or *obligation trust,* rather than contractual trust.

Finally, we need a category of the highest end of the spectrum. For we do not trust our closest friends for anything in particular, and certainly not just for conversation or for willingness to keep secrets, or provide us with emotional support. Rather, we trust them *tout court*. We often say that we trust 'absolutely'. Therefore, it is helpful to speak of *absolute* or *moral trust*. Where all the other levels of trust are transitive, moral trust is intransitive as it has no task. For this kind of trusting it is, at the very least unnatural, to say, as Hardin (1993: 506-507) does, that:

Trust is a three-part-relation: A trusts B to do X... Only a small child, a lover, Abraham speaking to God or a rabid follower of a charismatic leader might be able to say "I trust you" without implicit modifier. Even in their cases, we are apt to think they mistake both themselves and the objects of their trust.

Hardin seems to be suggesting that moral trust is irrational. Yet it is hard to see why small children should not, in his own examples, grant their parents, or lovers grant each other, moral trust, and that a rational person will restrict herself to nothing more than goodwill trust. However, in most inter-organisational contexts (other than, for example, spiritual organisations), this level of task entrusted is not very important. Cross-tabulating these categories yields the following matrix (6, 1994, 6 *et al*, 1998; 6 *et al*, 2002, ch.6):

Figure 5.1: The dimensions of trust: reasons and tasks

Tasks Reasons	Minimal (prudence)	Duty	Goodwill	Absolute or moral
Experience **Reputation** **Characteristics**				

Specific institutions

Generic institutions

In many situations, if we trust at all, we will not trust for just one reason, but a combination of reasons. Moreover, if we have reached goodwill trust, then implicitly we have already achieved contract trust, and likewise one cannot place contractual trust without first placing minimal trust. Therefore, we should think of any particular trust relationship as being represented, not by occupying a cell in the matrix but rather by an area of the matrix covered.

In general, change over time in trust relations cannot credibly be represented as simple moves around the matrix that involve vacating one cell and occupying another. Rather, change that reinforces trust and trustworthiness typically looks like ink spreading over blotting paper to the right, with the shrinking of such an inked area to the left representing falling trust, perhaps as the consequence of some betrayal.

It is not necessarily the case that having forfeited our goodwill trust, the person or organisation will retreat all the way to the left hand border of the matrix, or even back to prudential trust. They may still be trustworthy under contract, provided we retain reasons for trust that lead us to think that breaking a contract would;

- be so out of character that even the negative experience of failure to provide goodwill does not lead us to imagine that they would do so,
- damage a valued reputation,
- break some duty owed by virtue of particular characteristics, or
- run risks by way of some institution such as contract law or a prior specific warranty.

The matrix in Figure 5.1 provides a framework upon which a number of alternative possible hypotheses can be defined and prepared for testing, because it enables us to ask such questions as 'What kinds of reasons or combinations of reasons are most likely to yield moral or at least goodwill trust?' and, conversely, 'How far rightward will particular types or combinations of reasons enable a person to move?' For example, in 6 *et al* (1998), quantitative survey evidence was used to estimate several statistical models of the relationships between variables in the different cells of this matrix (in only slightly reduced form) in the context of individuals' trust in organisations for a particular type of task. Although trust in other individuals as potential ties does call for different kinds of information from trust in organisations, many of the same factors come into play. This is especially true in relation to social ties of acquaintanceship and collegial ties in work setting, which is typically understood as a more instrumental relationship, and is often pursued for reasons to do with

securing advantage from within organisations, such as information about, or preferment in, jobs (e.g., Granovetter 1995 [1974], Burt, 1992, Heimer, 1992).

5.3 The Institutional ubiquity of trust

Trust and trustworthiness are important for coordination in *all* kinds of inter-organisational relations. It is sometimes written that networks are uniquely coordinated on the basis of trust, whereas markets are coordinated by prices and hierarchies by command (e.g., Bradach and Eccles, 1989; Powell, 1990). It has been argued in chapters 3 and 4 that this is quite misleading for several reasons. Networks are not a single kind of thing but several, and that there are, among others, hierarchical and market-like networks.

Moreover, it is not true that markets and hierarchical organisation achieve coordination without trust, unless one is prepared to adopt such a very high standard of what is to count as 'trust' that only a limited range of relationships, commitments and attitudes could possibly meet it. Consider markets first. If one has any choice at all about with whom or what organisation one contracts (and sometimes of course one does not), then to enter into that contract requires that one places at least some *confidence* in the particular organisation one has selected to contract with, that they will perform the contract. Moreover, if there is any option about the nature of the contract offered and negotiated or about taking the contract at all (again, sometimes there is no choice), then it seems reasonable to suppose that one must have some confidence that the particular form of contract finally negotiated is one that is valid – i.e. one must place some confidence in the background institutions of law that they would enable one to rely on the contract in the event of a dispute. Ultimately, in the worst case, that confidence might have to cashed out in terms of confidence in particular lawyers and judges. If this kind of confidence is not trust, then the special definition of trust which excludes it requires a good deal of justification. Moreover, markets stabilise on the basis that actors expect to encounter each other again, and therefore they have incentives to invest in their reputations for being reliable, honest, etc. If this is not to be called trust, then we need a very strong argument to exclude it from the definition (Ricketts, 2001).

While in the short run, each transaction within a hierarchy does not rely on voluntarily placed trust between principal and agent,,after all, as Williamson (1985) argues, that is the point of hierarchy, for thereby it economises on certain transaction costs – it is not the case that over the longer run, hierarchy can survive or function effectively without the placing of a good deal of confidence both in its underlying institutions and in particular high status role-holders for the time being. At the level of the individual command or exchange within a

hierarchical system, that system can only function if its members have confidence that a particular command is indeed authorised, comes from the role-holder that it purports to, and that it is legitimate within the operating rules of the organisation. Securing this requires institutions for verification – for example, that the document is indeed a valid Papal bull or military decree – and settlement of queries, which in turn relies on the competence, honesty and reliability of those who conduct the checking. If this confidence is not to be called trust, then once again some special justification is needed to defend the definition of trust implied.

The Soviet Union was in many ways a hierarchical system, in which the power of the party-state nexus to issue command was grounded in a status order authorising senior party officials to dispose of resources and people's effort by direction, without requiring negotiation or true prices. It's collapse is generally explained by the corrosion of confidence in the capacities of both the system and the leadership throughout many levels of the society. The symptoms of that lack of confidence became increasingly visible, including the growth of the informal economy and crime, the steadily increasing importance of bribery and corruption of officials and finally the haemorrhage of population to the west. The collapse of the European empires in Africa and Asia was also a consequence of the long process of the erosion of confidence in the efficacy and inevitability of the imperial system both by officials and by subject populations.

In clubs, clans and enclaves, it is certainly true that trust is important in holding these organisations together. Without the placing of trust by their members in their institutions and in each other's commitment not to free ride, they may dissolve or schism even more quickly than hierarchies. But we have already shown in chapter 3 that trust *alone* is not sufficient in enclave forms. For example, clubs do generate certain fragile kinds of leadership: what Weber called charismatic leadership is often, it was argued, a provisional solution to part of the problem of securing commitment, coordination and action in clubs and clans. This kind of leadership may require the establishment among followers of a certain trust, but it cannot be conceptually reduced to trust. The principle of the rough internal equality of members and the sharp boundary between members and non-members are not just defining structural features of clubs, clans and enclaves, or of the transaction environment to which these organisational and inter-organisational forms are more or less intelligent solutions. Rather, these two features perform real work in enabling coordination. The internal equality helps to sustain commitment and the sharp boundary helps to define responsibility. So, just as 'pure' markets use prices and contracts and transaction-by-transaction negotiation and just as 'pure' hierarchies use commands and status differentiation and clear boundaries between members and others for their coordination and governance,

so clans and clubs use charisma, internal equality and sharp membership boundaries for the same functions.

In each type, the placing of confidence by participants both in those they deal with on a transaction-by-transaction basis and, over time, in the underlying institutions, plays a critical role. The nature of that role is modulated by the nature of the form of organisation, but trust is present and important in each type, but in none is it the sole or unique feature that produces coordination.

5.4 Institutional forms of social organisation and styles of trust

Thus far, drawing on the standard theoretical literature, it is possible to derive a reasonably plausible general account of the roots of trust at the level of the *particular* decision to trust another person or organisation, which affords a conceptual framework supporting a variety of general hypotheses. Indeed, it is possible to identify ways of drawing a series of arrows across the matrix in Figure 5.1 that represent a series of social mechanisms (Hedström and Swedberg, 1998). These would describe types of successful trusting or transitions from low to high trust moving from left to right and the reverse (defaults, betrayals), which differ in the combinations of reasons on which they draw and the distance travelled from left to right.

However, as all the commentators have recognised, institutional setting and context determines the meaning, purpose, likelihood and wider significance of trust, and without a specification of the range of possible contexts, this level of explanation does not help very much for it does not tell us which social mechanisms are more likely in which contexts. Indeed, this is the general problem with those strategies of explanation in social science that confine themselves to the level of social mechanisms.

In order to develop more satisfying explanations, it is necessary to move beyond the individual level of analysis, to take seriously the force of context. For people in institutionalised organisations do not simply enter the decision to trust or to behave in a trustworthy manner as reasons for action; nor are the institutions relevant to trust limited to the more or less formal institutions at stake in Figure 5.1. A wide range of informal as well as formal institutions define what kinds of ties are available, thinkable, meaningful or feasible, and which kinds of people fall under which classifications and descriptions.

Drawing on the theoretical models presented in Chapter 3, it is now possible to develop a richer account of the range of institutional forms of trust syndrome. This range of situations in which the different social mechanisms interact can be plotted on the matrix in Figure 5.1 might be expected. The argument will proceed by way of showing that people in different institutional settings will look for different reasons for trust

and be ready to trust to different levels of task entrusted, as set out in general form in Figure 5.1. The argument of the next part of this chapter is that key network structural characteristics (Chapter 3) explain much of the variance in the forms of trust (for a statement of this general view from a rational choice perspective, in marked contrast to the present one, see Huang *et al*, 1998). In each case, examples are given from the literatures both on interpersonal and inter-organisational trust, because ties between individuals are often very important in shaping or sustaining links between organisations.

5.4.1 Trust in isolate settings

Consider first the institutional conditions that make for isolate forms. As Banfield (1958) showed in the southern Italy of the 1940s and 1950s, the only ties between the peasants that exhibited particularly strong trust were those within relative closely related kin. Hence, he described their trust strategies as ones of 'amoral *familism*' . Between peasants, between peasants and the local shopkeepers, trust was very limited. Indeed, if there was any goodwill trust, then did not extend in most cases much beyond the immediate kin and household members. Acquaintances and friends (to the extent that the Montegranesi practised friendship in any very rich sense) attracted much lower levels of trust. Those readers who might have imagined that the sanctions and accountabilities of organised religion might have provided institutional pressures and disciplines that would lead to trust would have been disappointed in the Montegranesi. In the climate of suspicion and gossip within the town, even reputations could hardly be regarded as reliable sources of information, and were indeed not much relied upon in practical decision making about whom to trust with information, still less credit. The economic institutions that governed peasant life so tightly, and the political institutions of neglectful state authority and occasional organised crime combined with the prevailing uncertain and marginal financial circumstances (the 'given fact' element in their social regulation) to make all but personal experience an unreliable basis for decision-making about trust, and to make much more than minimal or prudential trust (the credibility of actual promises and threats) difficult to achieve.

The international relationships between national defence procurement agencies are essentially isolate in structure (Chapter 7). Each is heavily constrained by domestic law and military priorities as well as by the location of states in the international order, and each has reasons to want the weakest available integration with other states, even with their allies within military coalitions such as NATO. Each distrusts the international arms sales permitted to non-allied states by other countries even within alliances, and each has reasons to want to preserve the capabilities of national firms. Strategic alliances and joint ventures across national boundaries are by no means unknown, but, Peck shows, they tend to be driven by the commercial interests of the

contractors than by the commitments of the procurement agencies. This makes for a system of distrust in defence procurement that is at least in part described by neo-realist theory of international relations. While neo-realism does not capture all of the phenomena observed in the whole of international relations, the narrow field of defence procurement does exhibit many of these characteristics.

Figure 5.2, therefore describes the relationship between reasons and tasks that the isolates find available to them in their patterns of ties. Note that the order of the types of reasons, now arrayed along the horizontal axis, is slightly altered from that in Figure 5.1. This is in order to provide a sequential ordering from those reasons which provide information that is most directly and specifically related to the task entrusted, namely one's own or the principal organisation's relevant experience or that of trusted others encoded in reputations, through to the least directly and specifically related, which are the longstop provisions of generic institutions. The key change is that characteristics (sex, ethnicity, place of origin, religious affiliation, country or region of headquarters or main shareholders for example) provide *less* direct and specific information about any given task than do specific institutions.

Figure 5.2: Trust for isolates
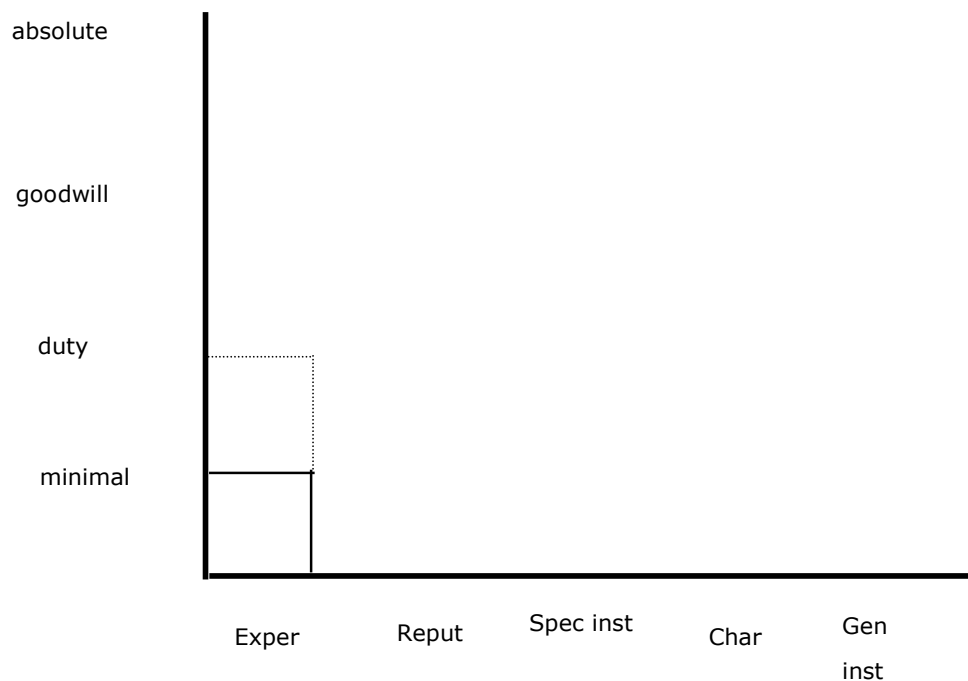
5.4.2 Trust in individualistic networks

Consider next the patterns of instrumental social ties of Burt's (1992) advancement-seeking corporate managers in the US as they 'network' their way through their contacts within the present firms and in other organisations where they might hope for a more senior post than their present ones. Here, reputation effects work in just the way that game theory (Schotter, 1981, 1986) predicts. Reputation follows experience, and, if the institutions are underpinned properly, falsehoods about individuals are often found out (Burt and Knez, 1996).

The individualistic institutions of the North American labour market are by no means unique in the world. Studies of interpersonal ties among those surviving in the illegal and informal markets that characterised much of economic life during the last decades of socialism in central and eastern Europe suggest that the patterns of trust look rather similar, and do so in response to very similar pressures. Those pressures were those of, if anything, even more ruthless competition than in the managerial labour markets of the US, for people in the informal markets on the margins of the socialist order were unprotected by any property rights or redress for violations of agreements. With resources so scarce and uncertain, only the most entrepreneurial and competitive could hope to prosper, and even then

probably not indefinitely as collective action would attract the attention of the authorities and the cooperation of others could not be underpinned by institutions. In short, their situation exhibited in even more extreme form, the basic characteristics of individualism – weak social regulation.

The styles of social ties that are available under individualistic institutions, then, are more complex and contingent than those available under the similarly weakly socially integrated conditions that govern isolates. In these situations, people must make different decisions about investing trust and trustworthiness according to the institutional availability of different kinds of reasons for trust. In the illegal markets of late socialist central Europe in the 1980s, for example (in the worst cases) individualism may have looked little different from the position under isolate conditions, for only immediate family can be trusted.

However, where there are formal institutions of either a specific or a general character that can provide warranties or longstop redress, as in the case of North America or most western countries, individualism affords higher levels of trust, and more long term action. For example, the inter-organisational relationships found among Dedicated Biotechnology Firms (DBFs) in the late 1980s (chapter 6) seem often to have been quite individualistic in this sense. At that stage in the development of the field, there were few constraints upon the choices of partner organisations for research, marketing, manufacturing and even in the selection of large pharmaceutical or agronomy firms. Individual researchers were able at that time relatively readily to create new DBFs or to work with existing ones. Over time, the evidence suggests, this situation changed, but it seems to have characterised the field for perhaps as long as a decade.

Under individualistic institutions, great emphasis has to be laid upon practical experience of others, in order to determine whether they are trustworthy. For in the absence of strong institutions of external regulation or shared membership of a common community, there is little else to go on. Trust decisions therefore are made in the first instance experimentally, and then either continued or discontinued according as the agent is found to be trustworthy or not. Individualistic institutions, then, create imperatives for people to act in ways not unlike those modelled by Axelrod (1984)'s 'tit-for-tat' strategy in solving the prisoner's dilemma problems - one cooperates with those who proved cooperative last time around, and withdraws cooperation from those who withdrew their cooperation on the last occasion of contact.

In the literature of interfirm networks and strategic alliances, Gulati's (1995) is one of the most important examination of just this thesis about the nature of trust in networks which are marked by relatively weak shared characteristics or regulatory institutions and by loose,

sparse ties. According to the tradition of theory associated with Powell (1990) for example, we should expect such networks hardly to exhibit trust at all, at least in any very strong sense. However, Gulati shows that this is incorrect. Rather, what we observe is a distinct signature of trust. Gulati studied data on strategic alliances over almost twenty years (1970-1989) in the fields of biopharmaceuticals, new materials and automobiles. These are all fields in which patterns of alliances are constantly shifting, and in which firms make no great claim to be working on the basis of long term loyalty. His central finding was that strategic alliances were less likely to be equity based (that is, to rely on strong contractual substitutes for hierarchical control) where the alliance was one between partners which had previous experience of working together in strategic alliances. Initially, before such mutual experience had been built up, he found, equity-based strategic alliances were much more common. This is exactly the kind of trust signature that the present neo-Durkheimian theory would expect from an essentially individualistically structured system. Moreover, to reinforce the point that there can be strong trust in individualistic market settings, Gulati provides in the absence of equity shares, a measure of *goodwill* trust.

However, reliance upon experience and a very distinctive manner of using second-hand experience through reputations actually seem to go together (cf 6 *et al*, 1998, studying trust by individuals in large organisations top handle their personal data properly, found that reliance upon experience and upon reputation as a reason for placing trust clearly reinforced one another). Larson (1992) too examined qualitatively, a series of networks of entrepreneurial firms in individualistic structures in such industries as high technology computing, catalogue clothing, telephone equipment, circuit breakers and support sales. She noted the instability of partnerships, the looseness of the ties between partner forms, and the fact that by no means all firms seek partnerships and strategic alliances: these are of course the structural hallmarks of individualistic network structures. However, she found that reputation could provide an important basis for supporting quite high levels of trust. Firms took reputations about potential partners from a wide variety of sources, and not only from their immediate peers or from existing social networks. These reputations served as the basis on which initial experimentation with trust would be made. Trust would evolve, where it did in fact evolve, thereafter on the basis of experience, and could reach levels of goodwill trust, as measured in Larson's (1992, 95) study by the recognition by firms of their partner's sense of moral obligation to them.

Macaulay's (1963) now classical study on non-contractual relations in sales and purchasing decisions by small and reasonably large companies provides a wealth of examples of the informality of trust decisions in individualistic contexts: formal documentation and

planning for legal handling of contract risk was not the principal basis for making trust decisions, and was only used after the decision to place reliance has been made. Trust decisions, Macaulay found, were often made quite experimentally in the initial case, and then continued or not on the basis of subsequent experience. The informality of the trust process proved functional because it enabled managers to economise on the transaction costly and time consuming processes of planning, negotiating detailed contract documents and monitoring. In other institutional settings, as we shall see, the minimisation of transaction costs is a lesser priority, because those institutions create other priorities and pressures. Moreover, transaction costs are most salient in individualistic settings because the transactors themselves bear them in full, whereas in more socially integrated institutional settings, they become less salient as they are shared more widely.

In such contexts, reputation effects can be made to work well, because information can be verified, and therefore can be used as the basis for trust decisions. Experience can be relied upon much more, because the uncertainty of conditions that make induction so unreliable in isolate conditions is partly removed. Both of these reasons can support goodwill trust, because people will have the incentive to behave in a trustworthy manner, with a view to the long term and therefore others will these reasons to consider trusting them. Contracts can be enforced, torts can be remedied, and so many kinds of reasons will work tolerably well for reaching duty trust. Because of the weak social regulation, individualism – like enclaved as we shall – enables and to some degree may mandate a search for personal 'authenticity' as a characteristic reason for trust. This provides a provisionally and potentially sharper barrier between friends and other such as business and work contacts or acquaintances than may be available in other institutional settings. The result then looks something like Figure 5.3.

Figure 5.3: Trust under individualistic institutions
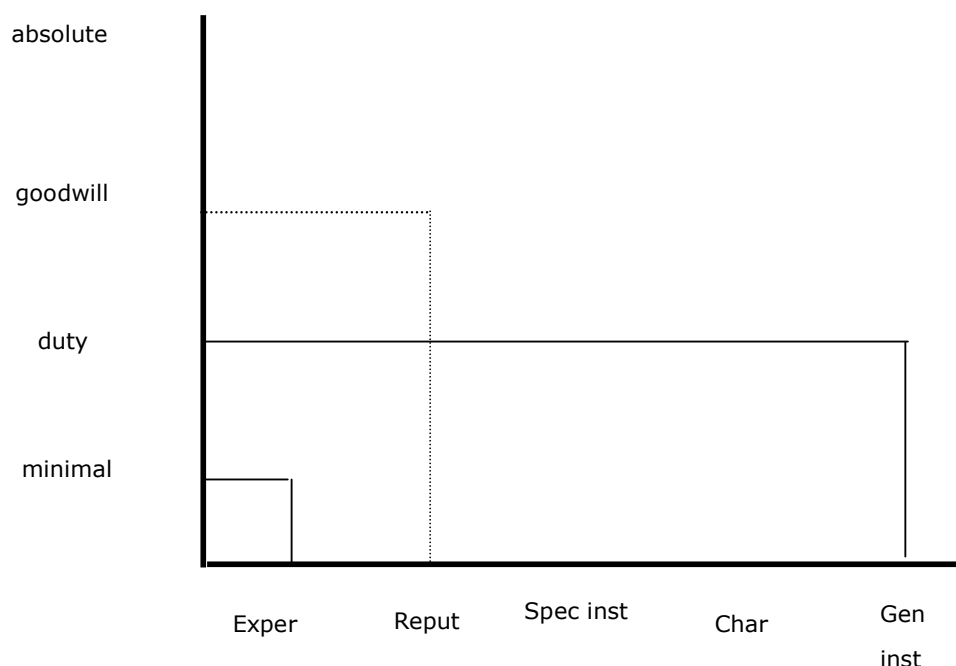
5.4.3 Trust under hierarchical institutions

Contrary to the fashionable claims in sociology that much of the world has been through 'modernisation' or 'postmodernisation', resulting in the irreversible disappearance of hierarchy in favour of generalised individualism in personal relationships (e.g., Giddens 1991; Misztal, 1996), or even that any hierarchical relationship by definition cannot be 'true' or genuine (Wilkinson, 2000), hierarchical forms of both acquaintance and friendship continue to be important. For example, patron-client relations continue to be important social bonds and even defining features of social structure in many societies (Eisenstadt and Roninger, 1989; Roninger, 1998). Certainly, there are individualistic forms of patronage – for example, in the rather economically volatile conditions of New Guinea where the relationships of 'big men' to 'rubbish men' exhibit patron-client forms, but within a wholly individualistic context (cf. Thompson, 1979, ch. 9, using data from Meggitt 1967 and Rappaport, 1967). Roninger's (1998) review of the literature concludes that many forms of patronage-clientelism in contemporary politics are in fact hybrid forms between individualistic brokerage systems and more hierarchical patrimonial systems. In more stable economic conditions than New Guinea offers, where institutions afford strong regulation to protect the position of certain roles, rather than individuals, hierarchical patterns of patronage and clienthood become perfectly sensible forms of social ties.

Hierarchical social ties are common in very large and bureaucratic organisations where strong role definitions prevail, such as hospitals which are dominated by defined hierarchical orders of clinical professions each with internally hierarchically ordered structures of progression and expertise. Religious orders have long developed highly socially integrated practices and institutionalised forms of friendship. Certain 'traditional' academic collegiate environments may continue to sustain institutions in which patterns of asymmetric tutelary relations are not only possible but expected, both between senior and junior staff and between departments and institutes. In true hierarchy, the asymmetry between friends and acquaintances is grounded both in the deeper command of the discipline which the superior possesses which is recognised in her or his status (social regulation), and in the collegial nature of the organisation as a whole (social integration) that gives the tutelary aspect of such relations its peculiar meaning and purpose.

Although in most contemporary western governmental bureaucratic contexts and in most business contexts, this hierarchical element is much less sharply marked and is often overwritten with the signatures of the other institutional forms, it hardly ever disappears completely. Indeed, to the extent that informal ties sustain the capabilities and discipline of such organisations at least as much as the formal transmission of collective memory through tuition and promotion through the ranks on merit and experience, it probably cannot completely disappear.

Hierarchical networks between organisations are by no means uncommon, and they are marked by a distinctive signature to the basis of trust between the organisations within them. For example, there are some important and quite common kinds of relational contract, in which there is a dominant organisation which is located in the centre of a highly centralised network, and in which either external state regulation creates sufficient barriers to entry to protect an incumbent, or through internal and informal regulation by way of *de jure* or *de facto* standards (Brunsson and Jacobsson, 2000). Rugman and D'Cruz (2000) describe these as dominated by a 'flagship firm'. That firm's dominant position, procurement rules and *de facto* standard-setting ability enable it effectively to impose regulation upon the network of suppliers, sometime strategic partners, junior competitors, and so on, and to define the boundaries both of its own 'bloc' network of allied firms as supplier, partners and customers and also often the wider network of the industry through its *de facto* standard-setting capabilities.

In such settings, people are likely to look first for institutional reasons to place trust in another organisation. Those institutions may include both (a) assets provided by the agent at risk under more or less clear contractual arrangements or guarantees as hostages in the event of default, and (b) acceptance of tight regulation through the voluntary

binding of the agent (like Odysseus and the Sirens) perhaps through codes of conduct or legal schemes or surveillance by third parties through auditors or inspectors of the conditions of membership of clubs such as third-party trust certification and accreditation bodies. In turn, these institutions can only be maintained at all in conditions of abbreviated competition. These then are the conditions of hierarchical networks.

Faulkner's (2000) study of eight strategic alliances includes some examples of hierarchical networks, and in these cases, institutional reasons seem to have been very important in enabling sufficient trust to allow the relaxation of more direct controls (which would again have been exercised through contractual mechanisms). For example, Faulkner considers one case in the field of European banking. This is an industry marked by very close regulation at both the national and supra-national level both by states and by the industry, where market concentration is high, and where firms must build trust with consumers and with external regulators through heavy investment in hostage assets and self-binding through compliance with voluntary codes. The Royal Bank of Scotland strategic alliance with Banco Santander was not cemented until equity stakes were taken, and the partners needed the fact that the other was a member of a number of European banking clubs and consortia such as International Banking One Solution (IBOS) which handles money transfer between banks, as institutional hostages in order to make their decisions about each other. Faulkner reports that, by contrast with the kinds of informal trust that other studies find in highly entrepreneurial individualistic or in close-knit enclaved settings, in the RBS-BS strategic alliance, the alliance agreement as a document is given great importance as an institutional structure providing reasons for trust. Moreover, there have been developed some relationship-specific institutions such as joint committees with surveillance powers, some joint senior appointments with powers in both banks, and a formal system of performance measurement for the work of the alliance. Over time, the institutional basis has come to occupy a more background role as experience-based trust has grown, but the document, the committees and joint appointees have not diminished in importance: that is to say, in hierarchical networks, the relationship between institutional and experience-based trust is not one in which the latter steadily replaces the former – rather, experience accretes around the institutions and bolsters the institutions, but the institutions continue to do much of the heavy lifting of interorganisational trust building.

In their comparison of supplier relations between US and Japanese companies, Sako and Helper (1998) demonstrate once again the forms of long term, close relational contracts that are now well-known to characterise interfirm relations in Japanese business. However, their data were collected on the automotive industry, which in Japan (as now in most other countries too) is marked strongly by exactly the

kinds of flagship firm networks that Rugman and D'Cruz describe, in addition to the importance of state *dirigisme* especially in international trade, foreign direct investment and global strategy which have long been the central concerns of the Ministry of International Trade and Industry (MITI) in that country (Best, 1990). Sako and Helper (1998, 394) themselves stress the importance of institutionalised norms which act as informal rules.

The pressure to control or at least handle transaction costs is by no means irrelevant in sustaining the particular pattern of trust in hierarchical networks. Although hierarchical networks do incur the transactions costs of much greater formality than is found in individualistic ones, they also economise on other categories of transaction costs that actors in individualistic settings must bear. For example, reliance upon standard procedures and shared decision making and oversight structures has the merit of avoiding the need to create procedures afresh for each new problem that might call for a separate trust decision - for hierarchical solutions are designed for the long term by players who expect to deal with each other repeatedly. To the extent that the hierarchical formality works as intended (Stinchcombe, 2001), it automates the oversight process and pools the costs between the transactors and indeed across the whole of their organisations, rather than leaving the costs to be borne solely by the specific boundary spanning agents such as account management divisions that initiate or handle the focal elements of the series of transactions.

In such contexts, then, goodwill trust can be secured, and, in certain special cases such as that of the subaltern and the spiritually authoritative superior in the religious context, perhaps even absolute or moral trust can be attained. Goodwill trust is sustained in hierarchies on the basis of a wide range of types of reasons that the institutions support. Characteristics can be important, such as, most basically, membership of the community bound by patron-client bonds or by the spiritual or academic discipline or the corporate accountability of the 1950s-1980s Japanese corporation offering lifelong security of employment in return for complete loyalty (Dore, 1997), or, at a more advanced level, characteristics such as institutionally recognised profound personal command of the discipline that binds the body together. Reputations are sustained not only the flow of personal gossip, as under individualistic institutions, by reference to the checkable and recognised information about trustworthiness and competence that is embodied in the role and status occupied by an individual (Burt and Knez, 1996). Specific institutions abound in true hierarchy, for the system of rule and role provides authorisations for the trustworthiness of individuals and sanctions for their untrustworthiness. Still more important, are the generic institutions of such hierarchies, for they give definition to the conceptions of personal integrity and commitment to the collectivity

which reach far beyond the job-related context into the personal life of the members of the institution. They make social tie acquaintance less bound to institutions of whatever is organised and defined in other institutional forms as the private sphere than is the case under individualistic institutions. For a discussion of different practices of informational privacy under different institutional conditions, see 6, (1998).

Of course, hierarchy has its deformations, just as do the other institutional forms, and social science has become accustomed mainly to focus on the corrupt or self-disorganised forms of hierarchy. The deformations of patrimonalism and clientelism are well documented in the classics of social science (e.g., LaPalombara, 1964; Eisenstadt and LeMarchand, 1981). Roninger (1998, 74-75) is careful to note, however, that it does have advantages. For these reasons, there is, as Stinchcombe (2001) has recently argued, good reason also to focus on what Durkheim would have called the 'normal' form. For it is impossible to understand the deformations without understanding the normal form, which is where the self-disorganising dynamics of each of the institutional forms of social organisation begin. Figure 5.4 describes the trust signature of reasons and tasks in social ties under hierarchy, *stricto sensu*.

Figure 5.4: Trust under hierarchical institutions

Exper	Reput	Spe c i	Char	Gen inst

absolute
goodwill
duty
minimal

.... Special cases - between spiritual superiors and *inferiors*

───────────────── Normal situations
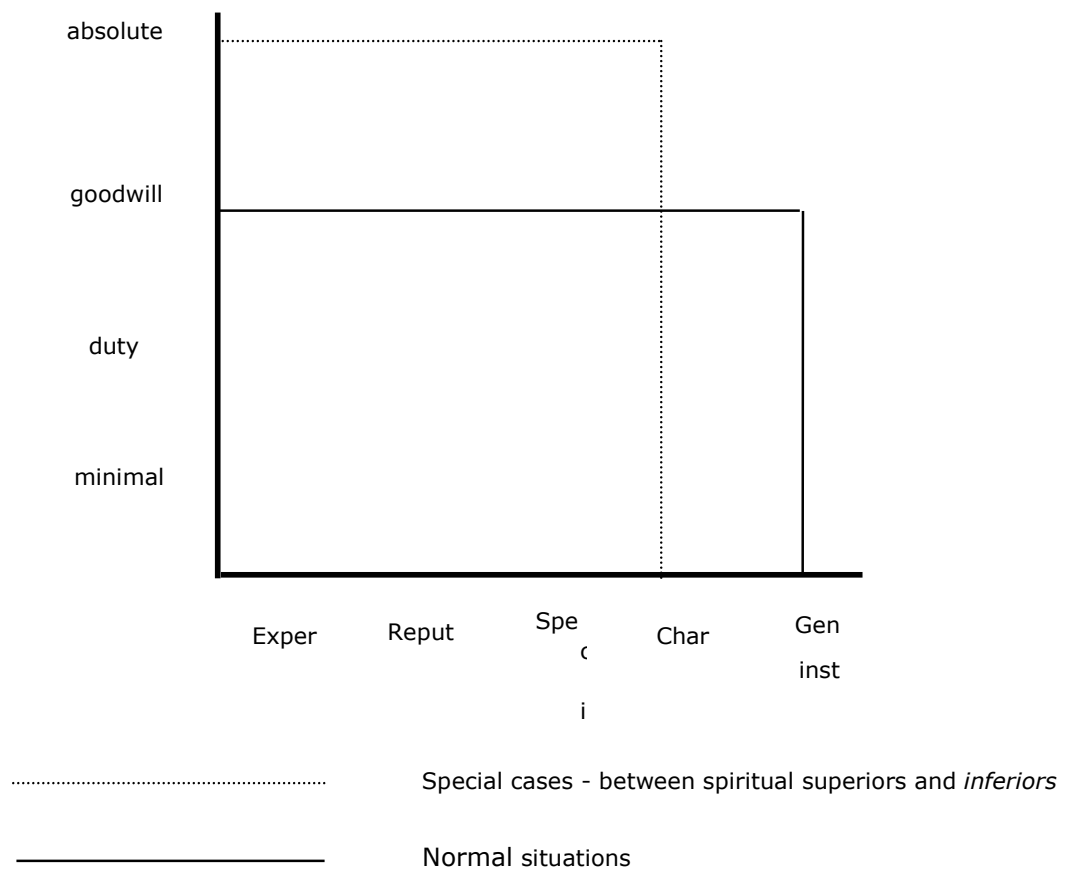
5.4.4 Trust in enclaves

Trust in enclaved contexts looks rather different again. In small, highly collective and internally egalitarian settings, the multi-lateral social ties sustained can be extremely supportive, emotionally deep and intense. For example, Marks (1998) re-examines the data from the Hawthorne studies in Chicago from the late 1920s and the 1930s, to explore the dense ties of 'inclusive intimacy' among women co-workers in 'the test room' who shared a roughly equal work status and who worked closely together. The friendship structure was very much that of a group rather than a set of dyads. Indeed, Marks notes (1989, 57), the data suggest that – as the neo-Durkheimian theory has long predicted for enclaves (Rayner, 1982, 1988; Douglas, 1996) – when dyadic bonds became strong and apparent to the other members of the groups, jealousies were aroused that could have threatened schism for the group as a whole. The patterns of informal ties that

were studied in white poor or working class residential neighbourhoods by the generation of 'community studies' sociologists of the 1960s and 1970s (e.g., Pahl, 1975; Okely, 1983; Young and Willmott, 1957; Hill, 1975; see the review in Crow and Allan 1994, ch.2) exhibit a structurally similar pattern, modulated by gender and by the differences that co-residence rather than necessarily direct co-working make. Such practice is based around clear demarcations between members and non-members. The high density and medium or high strength, proximity, cliquehood and multi-lateral character of social ties of this form came to be associated by sociology in that period with working class practice by contrast with the more individualistic pattern of middle class friendship (Allan, 1990; Bulmer, 1986). The content of what passed along the ties within the group is, for the most part, a far cry from the sectarian religious and political organisations that Rayner (1982, 1988) and Douglas (1970) subjected to neo-Durkheimian analysis, but the same principles of social structure – namely, strong social integration and weak social regulation by discipline or by status differentiation, together requiring very complex systems of rules to maintain equality (hence the irony of extensive internal regulation to preserve weak regulation from differentiation: Rayner, 1988) – are at work here.

In enclaves, the only characteristic that really matters as an indicator of trust is that of being a member or being a non-member. There is very limited reliance on external generic institutions. Turning to the police, suing, or for pupils appealing to teachers are all deeply disapproved as forms of betrayal in many enclaves. The enclave functions well to distribute reputations about trustworthiness, as measured by conformity of members to the norms and rules of the enclave, for the dense multilateral structure of ties distributes such information very efficiently. Within the enclave, goodwill trust is sustained with friendships being extremely supportive, emotionally deep and rewarding. To those outside the enclave, however, the presumption of suspicion can really only be overcome by practical experience of having proven reliable, reputation with other members of the enclave or else offering quite specific warranties.

Like those living under individualistic institutions, then, those in enclaves are much preoccupied with authenticity and genuineness (the effect of weak social regulation), but measured this time by the relative commitment of individuals to the standards of the enclave rather than by individual characteristics of emotional performance. Again, like those living under individualistic institutions, there is a provisional barrier between friends – for all enclave member are potential friends (comrades, brothers and sisters in Christ, brothers and sisters in struggle, 'one of us') – while those outside the enclave are typically candidates for acquaintance at best.

There are many examples of this type of trust in the literature on interorganisational, corporate and business 'social capital' and

'embeddedness'. Coleman's often-cited (1988) article introducing the concept of social capital presented good examples of the kinds of trust used in enclaves. It is important to remember that Coleman's definition of social capital stressed the *closure* of networks, by which he meant both that the network has a clear boundary between members and non-members and that the network is dense in the sense that very high proportions of the total possible set of linkages between individuals or organisations in the membership set are in fact realised. He used a number of examples from work and business settings. One was the case of the very densely tied community of wholesale diamond jewellers in New York. One of the ways in which the boundary was marked was the role played by the New York Jews, whose networks were multiplex (i.e. ties between the same individuals were employed in many different functions – business, social, leisure, religious, etc.). In the terms of the present analysis, then, membership of the Jewish community functioned as a shared characteristic type of reason for trust. For Coleman, a powerful indicator of the degree of the trust achieved among these diamond traders was the fact that they would quite routinely allow fellow merchants to take away bags of stones worth hundreds of thousands of dollars for inspection, without a contract, and be quite confident that they would be returned intact, with none substituted either by cheaper diamonds or by glass paste stones. Another of his examples was the network of traders in the Kahn El Khalili market of Cairo, where family and intermarriage connections functioned in the same way to mark boundaries between members and non-members and as a shared characteristic reason for trust. In both cases, the multiplexity of the ties, based on shared characteristics that could be socially construed as being ascribed also served a second function, by providing a social structure along which information about reliability and trustworthiness, and indeed personal endorsements and guarantees for others could pass. In the terms of the present analysis there is, in enclaves, an intimate structural relationship between shared characteristics and the flow of reputations. The density and boundedness of the enclave structure is recognised and perpetuated by insiders by the use of shared characteristics, and this in turn provides a social infrastructure for the control of reputations and the exercise of surveillance.

Since Coleman's work and Granovetter's (1985) article, many studies use definitions of 'embeddedness' that essentially describe the network structure of an enclave – namely, a system of ties of accountability which is characterised by high density and a rather clearly marked boundary between the densely tied group and others. For example, Rooks *et al* (2000) define it as repeated transactions between the a limited set same set of partners under social institutions that allow for credible commitment. Such repeated interactions within a small group will soon reinforce the identity, boundary and density of an enclaved group.

Uzzi (1997) contrasts embeddedness very sharply with what is here called individualistic network structures, with their 'loose' and 'constantly shifting' sets of ties, and strong 'market' orientation. For him, embeddedness means personal and relational systems in which contract documentation is of secondary importance if used at all, 'thick' systems of tacit information cultivation and exchange, satisfying rather than maximising on price (Uzzi also, like many writers, wrongly ascribes trust only to strongly socially integrated network forms such as those characterised by 'embedded' ties). However, in operationalising the concept marked by this layer of properties, Uzzi focuses specifically on fields of economic action in which very dense and bounded, multiplex ties dominate. His case study of the women's garment industry in New York city serves precisely this purpose. This is, as Uzzi describes, a rather inward looking market dominated by small and medium sized firms densely tied to each other and in which particular ethic identities (especially New York Jewish and New York Chinese, although some other very longstanding and closely knit 'hyphenated' New York communities also have roles to play) enable the flow of reputations and sustain the possibility of mutual surveillance. There are, Uzzi noted, some echoes of the role of the *tertius*, the broker diagnosed by Burt (1992) as critical to the operation of individualistic networks, but in the New York garment trade, the *tertius* does not operate as a freebooting entrepreneur, but as an intermediary of multiplexity, by introducing new members of recognised communities of shared characteristics into the business network of the trade, and using their own reputation based on that membership to sponsor new entrants as reliable. Whereas in Larson's study of entrepreneurial settings, reputation functions as an initiator of trust, and reputations are taken from a wide variety of sources and from outside the charmed circle of ties which might be multiplex, in Uzzi's and Coleman's enclave cases, reputations are taken from a narrow range of sources within a set of bounded communities through multiplex ties, and reputation is something that is sustained within the community. Whereas in Larson's entrepreneurial settings, firms invest in their reputations as a *generalised* asset but they invest in being known to be trustworthy in *specific* tasks they may be contracted to carry out, in Uzzi's enclaves, firms invest in their reputations as an asset that is *specific* to their communities, but they do so in *generalised* ways that reflect their multiplex commitments to the communities in which their contractual business is embedded. In short, the relationship between the generalised and the specific in trust is exactly reversed between the strongly and the weakly socially integrated forms of networks.

Although both Coleman and Uzzi are principally concerned to identify the strengths of what are here called enclave forms, Uzzi at least is well aware that they have weaknesses. 'Over-embeddedness' ,leading either to stagnation due to excessive investment in single sources of information and ideas, or else to feuding is possible.

Once again, transaction costs are by no means irrelevant in enclaves, but the manner in which they are handled is quite distinct. The costs of establishing reputations for trustworthiness or otherwise are pooled across the membership of the bounded communities in which the particular transactors are located. As in individualistic settings, the costs of formality in contracting are eliminated, but at the price of having to bear the costs of sustaining the density of ties and the boundaries around the communities defined by shared characteristics and also of establishing reputations afresh for each new entrant. These costs are not borne by the transactors in the focal contract but pooled. Figure 5.5 therefore describes the structure of trust between individuals who may be potential friends or acquaintances in enclaves.

Figure 5.5: Trust under enclaved institutions
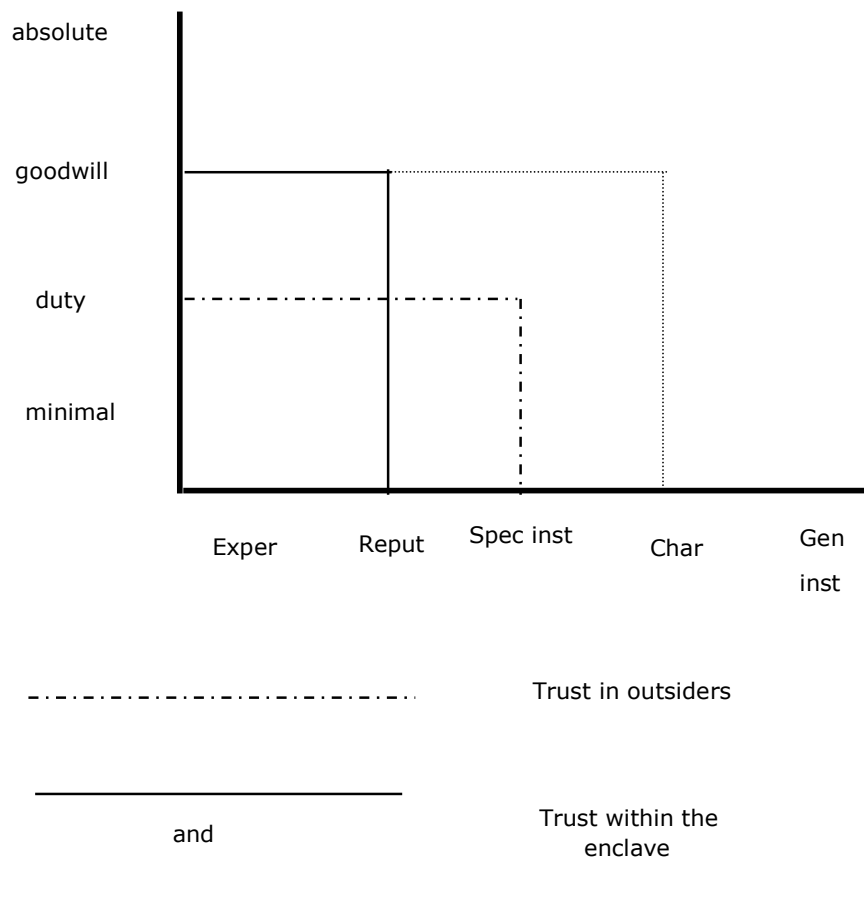
The argument of this paper is,then, that in order to understand the nature of social trust and its importance for public policy as it is designed to influence social structure, it is necessary to shift the level of analysis from the level of relational or network structure – at which Figure 5.1 works – to the level of institutional structure. The four trust graphs (figures 5.2-5.5) display the way in which a kind of reduction can be performed of relational level factors for trust to institutional syndromes of trust.

5.5 The dynamics of inter-organisational trust

So far, this paper has presented a static analysis of the neo-Durkheimian typological approach to understanding the determinants and extent to which trust can be achieved between organisations in different settings. It is now necessary to examine the more dynamic processes that both make for and then undermine trust.

5.5.1 Dynamics of trust-reinforcement

In some older theoretical writings about trust, one reads blithe assertions that trust is self-reinforcing, that it is an asset unique in that it increases rather than decreases with use, that placing trust itself promotes trustworthiness, and so in general, the dynamics can be represented by a virtuous circle of trusting and trustworthy behaviour (Fox, 1976, *passim;* cf. Hirschman, 1985).

Few empirical studies either of interpersonal trust or of interorganisational trust have borne out any claim that the virtuous circle is a generally observed or necessary dynamic. It seems to be a wild exaggeration of the straightforward observation that, if and as long as trust is not broken by the agent, and if and as long as the principal gathers positive experience reinforcing the perception that the agent has been faithful, then it is possible in many settings to begin to entrust tasks of a high order, or to move to the right in the terms offered in Figure 5.1.

From the discussion in the previous section, it is clear that trust-reinforcing dynamics differ significantly both in respect of initiating and then the subsequent 'maintenance' reasons for trust, and in the costs and difficulty incurred in getting to goodwill levels of tasks entrusted. It has been suggested that in hierarchical networks, trust-reinforcement proceeds by way of institutional reasons in the first instance, later buttressed by experience. In individualistic settings, either reputations taken from a wide range of sources about task-specific reliability or else experimentation are used to initiate, but experience then supplants these reasons. In enclaves, there is an intimate relationship between shared characteristics, reputation for generalised reliability while in isolate settings, people trust only where they must or where experience suggests they can and, even then, only provisionally and rarely beyond the duty or contractual levels of tasks entrusted.

5.5.2 Dynamics of distrust and forgiveness

On the other hand, there are a great many writings which offer the bleakest possible view of the consequences of breaches of trust. Psychologist of risk perception Paul Slovic (1993), for example, writes that once perceived to have been broken, trust is almost impossible to regain, and people as principals typically move not to a position of neutrality or lack of trust, but to a negative position of distrust or mistrust (for an argument that positive, neutral and negative measures of trust should not appear on the same scale, see Swift, 2001). Sitkin and Roth (1993) suggest that betrayal will lead to escalating cycles of ever deeper distrust between former partners.

Equally, however, it does not seem to be true that in all contexts (trust having been broken) people and organisations are wholly unforgiving,

and unwilling to consider entering into any kind of trusting relationship with an agent that has betrayed their trust in the past. Clearly, failure to prove trustworthy in one field of activity may well not indicate inability to be trustworthy in all other fields. Just because someone proved inadequate in their advice on career choices, it does not follow that their medical advice would be untrustworthy. But more than this, people and organisations make different decisions about forgiveness in different institutional settings. Consider, for example, the well-known differences between British and US business willingness to trust someone who has been declared bankrupt in the past, or a business that has filed for protection from creditors under Chapter 11 in the US. American business is famously forgiving of bankruptcy and administrative protection, and among small businesses, a bankruptcy in the past is regarded by some as evidence of a commendable willingness to take risks, and it will be thought that the person has probably learned from the experience. By contrast, in the UK, it is still true that a record is stained by bankruptcy, and that a marked stigma clings to a formerly bankrupt individual. Indeed, British companies that have gone into administration rarely survive in the same form, unlike American companies which often persist and are trusted to some significant degree.

Some institutional settings seem specifically to provide mechanisms, however informal, for the rebuilding of trust. Since by and large, societies do in fact hold together and do not normally collapse into civil war, feuding and an inability to conduct governance and trust, these institutional settings must in fact be rather common despite the many and obvious obstacles to trust (Shapiro, 1987). The formal rules of Chapter 11 and the informal, tacit institutions of much of business life in the US constitute a set of institutions by which former bankrupts can be reintegrated into networks of trust, after having once proven untrustworthy in the past. These institutions seem to represent a hybrid of hierarchical systems of governance in the body of the law and in the role of the rating and ranking agencies for investors and also in the role of institutional and venture capital investors, with more individualistic practices in day-to-day trading credit, lending and borrowing relationships.

By contrast, in enclaves and isolate settings, people find it much more costly to sustain institutions by which forgiveness and reintegration can be offered of those found untrustworthy. In religious sects, which are often enclaved in structure, for example, forgiveness and reintegration is highly ritualised, and is often the cause of schism. In isolate systems such as nineteenth century Sicily or mid-twentieth century Corsica, ending feuds proved extremely difficult and costly. Some of the recent outpouring of social science research on distrust and the challenge of restoring trust in the context of environmental conflicts between resident communities and large companies siting risky installations in their neighbourhoods are really studies on the

problems and difficulties of persuading communities that have become increasingly enclaved in their structure to be willing to trust larger corporations (see e.g., the essays in Cvetkovich and Löfstedt, 1999). Much of that research has been focused on the approaches used to contain conflicts and achieve some level of trust in those enclaved communities, including consensus conferences, community visioning exercises, mediation, citizens juries, and stakeholder workshops (Dukes, 1996).

The dynamics of distrust therefore exhibit some important affinities along the diagonals of the matrix used to represent the four basic institutional settings. The possibilities for reintegration after betrayal of trust are less demanding on the positive diagonal (in individualistic and hierarchical networks) than they are on the negative diagonal connecting isolate and enclaved networks. Figure 5.6 summarises the key differences in the main dynamic processes.

At the level of what we might call second-order dynamics, there can be change in the institutional forms. The simplest case is the collapse or overthrow of hierarchy and its replacement with more individualistic relations. More complex cases involve hybridisation and the development of settlements articulating something of two, three or all four of these types. In such hybrids, we should expect to observe corresponding combinations of each of these trust dynamics.

Figure 5.6: Types of dynamics of trust by institutional setting

w Social regulation	u Social integration
Isolate	***Hierarchy***
Trust-reinforcement: (limited) experience and some specific institutions	*Trust-reinforcement*: initially specific institutions, then experience to supplement
Trust-undermining: opportunism and anticipated opportunism, difficulties in re-binding partners after trust has been lost	*Trust-undermining*: Systems of institutions become too transaction costly
After trust has been broken: may lose even prudential trust: very difficult to rebuild higher levels of task entrusted	*After trust has been broken*: can be rebuilt beginning with contractual trust if institutions can be made effective, and if reparations are made for breach under institutional rules
Individualism	***Enclave***
Trust-reinforcement: initially reputation from wide sources on specific tasks or, then experiment relying on generalised institutions, then experience	*Trust-reinforcement*: Initially generalised reputation based on flows of information within specific narrow community defined around shared characteristics, then informal institution building
Trust-undermining: Incentives from gains from placing trust elsewhere lead to unstable patterns of trust	*Trust-undermining*: Risks of declining innovation from inward-looking enclaved community, or schism and feud
After trust has been broken: can be rebuilt on the basis of experiment and experience: organisations and individuals can make fresh start e.g., after bankruptcy.	*After trust has been broken*: may lose even prudential trust: very difficult to rebuild higher levels of task entrusted

5.6 Conclusion

The relationship between trust and the forms of inter-organisational networks then is much more complex than some of the writings of the 1980s and early 1990s tended to suggest. Articles such as Powell's (1990) manifesto for networks and Brdach and Eccles' (1989) statement of theory suggested that trust was uniquely a property of networks rather than other forms, and this has turned out to be misleading, unless trust and networks are defined in narrow and idiosyncratic ways so as to make this true by definition but an uninteresting proposition. Secondly, the claim that trust is a prior condition for successful networks or alliances or joint ventures or partnerships, that it is an independent variable, or an unmoved mover that makes inter-organisational relations possible, also has also turned out to be at the very least misleading. Rather, to understand the relationship between trust and the different forms that interorganisational relationships can take, we need to examine the flows of causal influence in both directions – that is to say, we need to develop models in which trust and interorganisational network forms

are endogenously and sequentially generated, undermined and regenerated. The neo-Durkheimian institutional theory presented here provides a synthesis of the evidence in the literature, which presents an account of the main features of these bi-directional relationships in the main types of institutional settings. In each case, the network structure and the institutions of which that network structure is the distinctive empirical form, shape and select the type of trust that is most likely to emerge. That form of trust in turn reinforces the network structure and the institutions, both formal and informal. However, that reinforcement process can go too far and become self-disorganising, causing breakdowns and moves to other institutional, network and trust forms. Alternatively, the reinforcement process can be undermined by external shocks and by conflict with forces articulating other institutions – for example, by the assertion of more entrepreneurial individualistic forces, by the recrudescence of more hierarchical regulation and oligarchical control, by the communal assertion of enclaves or by the simple leaching away of the exhausted and the disillusioned into isolate structures. Trust and network forms can be understood neither by linear Weberian histories (in which hierarchies decline, then markets rise and decline and finally networks arise) nor by equilibrium models in which any one type of institutional form can be assuming always to be homeostatically self-stabilising. Rather, we need dynamic disequilibrium models which allow space for local processes of reinforcement, the undermining of each of the four basic forms to be present simultaneously and in conflict, and for hybrids or settlements between two, three or all four, which too can only be provisionally stable (Thompson, 1979, 1982, 1992, 1996).

Although most of the practical lessons to be drawn from this research flow from the analysis of the management literature, this approach to understanding trust does have some normative implications. At the very least, it suggests that it is important for managers in organisations to take some pains to develop rich appreciations of the specific characteristics of the network environment and the trust relations of their environment, and to make their decisions about the strategies for trust and trustworthiness in the light of this appreciation. For the strategies appropriate to the management of trust and trustworthiness clearly differ significantly between institutional settings. For policy makers, the importance of developing clear understandings of the trust environment in fields of public policy such as the provision of health care is, if anything, even greater. For when governments try to reorganise a sector, they very often seek to change the forms of inter-organisational relationships, in ways that put pressure on the established institutional supports for trust and trustworthiness, which means that it is crucial that they can identify and develop different and more appropriate forces enabling people to develop appropriate degrees of trust relatively quickly, if reorganisation is not to lead to disorganisation.

5.7 References

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6. Networks in the biotechnology industry

Perri 6

6.1 Introduction

One industry in which there have been a number of instructive and quantitative studies on the nature, structure and function of several different kinds of interorganisational ties, is that of biotechnology. Strictly speaking, biotechnology is not a single industry but a set of techniques which are applied to the transformation of a number of industries such as agronomy, pharmaceuticals, chemicals, veterinary science, and even waste disposal (Powell and Brantley, 1992; Powell *et al*, 1996). The core technologies are those of sequencing and synthesising DNA and cell fusion. Costs of many of the basic pieces of apparatus required have fallen significantly on the quarter of a century since these technologies were first developed. In the 1970s and 1980s when biotechnology first began to be commercialised on a large scale, it represented a major discontinuity in the technological paradigms upon which pharmaceuticals, agronomy and several other industries were working. The emergence of Dedicated Biotechnology Firms (DBFs) in those years therefore threatened the position of the incumbents in the industries where products could be developed with commercial application. Those incumbents responded in various ways to limit that threat, and in some cases they were relatively successful, although the resulting mature industry structure neither (as many predicted in the 1980s) eliminated, nor transformed the DBF sector in an industry with traditional interorganisational relationships (Kenney, 1986).

This is a field of peculiar relevance to the present study, because in certain respects, the biotechnology industry exhibits characteristics that are not dissimilar to features of certain parts of the NHS, and in particular, to the research hospitals, some specialist clinics, some

centres of excellence and perhaps also to some other NHS organisations. Firstly, the biotechnology field is, as we shall see, tied quite closely to a range of wider scientific and technological development communities, just as some organisations in the NHS are closely tied to wider communities of medical research, communities of medical instrument development and innovation in health informatics. Secondly, just as professionals are very important in health care in a variety of roles, so too professional scientists are crucially important to the way in which the biotechnology industry is organised. In both fields, the management of the relations between the organisations and these individuals who possess mission-critical competencies (who compete with each other but who also possess important collective power) is central to the understanding of how the fields have developed. Thirdly, the two fields are similar in that they are both capital-intensive, albeit in slightly different ways. Both require extensive capital in order to invest in state-of-the-art technologies, apparatus and informatics systems. Both engage in capital investment on the basis of planning for many years ahead, based on assumptions about how their organisational environment and how the scientific and technological paradigms to which they work are likely to change and develop. Biotechnology firms require real estate and, as we shall see, they need to ensure that they locate their research and development functions in particular places which may be expensive per square metre, although rarely do even the largest need such large quantities of city-centre real estate in one large campus.

There is another reason why the character of interorganisational links between DBFs and other organisations are of interest to those involved in the UK health care system. As will shown below, these links exhibit an interesting combination of the competitive and the cooperative. Current policy frameworks in the NHS also comprise institutional pressures for greater cooperation at certain levels (between health care purchasing and especially between providing organisations) but are also evolving once again in the direction of imperatives for competition, at least between secondary care organisations for the funds which are held in the hands of the purchasing organisations, now at primary care level. Certainly, separations between primary and secondary, or between blocks of purchasers and providers are not replicated within biotechnology. However, the emerging policy expectations for combinations of both styles of interorganisational do suggest that it is worth looking at other fields in which this combination is to be found, albeit in structurally somewhat different arrangements.

The DBFs have been of particular interest to researchers examining interorganisational relationships for several reasons. The first and simplest reason is that the field appeared (during the late 1980s and 1990s) to exhibit a pattern of highly networked collaborative relations which was read in two contrasting ways in those decades, according to

the three main prevailing views taken in the scholarly and practitioner literature. Either these arrangements were seen as peculiar and exceptional in the commercial world (interesting but expected to be transient and eliminated as the industry matured or to be absorbed into the industries where its products were used) or else they were seen as a harbinger of future trends in many other industries. The first view was based on the argument that in the early stages of an industry life-cycle such as biotechnology, there is great market uncertainty because the intellectual property rights régime has not fully adapted to the kinds of knowledge for which patent applications are being made, making it difficult for firms to be secure in their capacity to collect profits on their inventions. In response, they will seek collaborative links with others to create infrastructure and to access the influence of established firms which already have influence with patent authorities. However, as the technology matures, financial pressures lead to mergers and acquisitions and the property rights regime adapts, the nature of any remaining collaborative ties will become more classically oligopolistic, while others will become conventionally competitive or else based on vertical supply chain purchasing (Gemser *et al*, 1996). The opposite view is based on the idea that a more fundamental change is underway in the nature of interorganisational relationships, especially and initially in high technology sectors, reflecting changing market conditions to greater competition in response to which collaboration (in order to assemble new competitive structures) is almost functionally necessary (Powell, 2001), and changing public sector conditions toward greater outcome-orientation mandates collaboration (Alter and Hage, 1993).

6.2 Types of ties in biotechnology

Most of the research on networking in the biotechnology industry examines the industry in the USA. A few studies do compare linkages between organisations in the US with those in Europe. Broadly, the studies on networking in the biotechnology industry can be divided into those which examine the ties between biotechnology companies and university-based scientists, and those which examine either ties between DBFs and other DBFs or between DBFs and other kinds of firms such as venture capital firms, pharmaceutical companies and so on.

Much of the research examines ties that are vertical. That is to say, the ties studied are often ones by which a focal organisation secures vital inputs such as access to tacit knowledge or explicit knowledge in the form of rights to use intellectual property held beyond the boundaries of the organisation. Moreover, it refers to access to finance, endorsements or less formal associations that add to reputation, or by which the organisation reaches potential customers,

which are in every case other businesses in the pharmaceutical, agronomic and other industries.

However, as chapter 3 acknowledged, the distinction is not always sharp. Many of the ties between DBFs are between organisations which are also (on other projects, or in other sub-fields of biotechnology) competitors. The consortia that are formed for various purposes are not typically ones in which each player brings the same skills as simply additional capacity, but rather they are more often undertaken in order to bring together distinct but complementary skills in which there is a division of labour.

Many of the studies present classifications of ties by function or purpose. For example, Audretsch and Stephan (1996) distinguish between the following three roles that university scientists may play in their ties with DBFs:

1) they may facilitate knowledge transfer. In this case, they are likely to be active partners with executive roles in the DBF. In many cases in the early years of the industry, university scientists were funders of DBFs, creating them specifically to commercialise inventions that they had made and perhaps patented while in their university employment;

2) they may signal the quality of the research undertaken in the DBF to the capital markets and to others. In this capacity, they may not in every case need to take very active executive roles (although that is of course one way to achieve this) and indeed, they may have looser associations; and

3) they may be involved in charting the direction of the research and the company strategy. This is a role that again could be played either from the very core of the organisation or in a non-executive capacity.

Powell and Brantley (1992) present the following first classification of the types of formal and explicit ties between DBFs and either other DBFs or other organisations including venture capital firms, banks, large pharmaceutical companies, public sector research organisations:

- receiving research grants;
- in-licensing technologies (including patented molecules or proteins) under formal agreements for access rights to the intellectual property;
- marketing agreements; and
- joint development agreements.

This has been refined in various ways in other studies. For example, research grants hardly exhaust the range of financial relationships. Arora and Gambardella (1990) examine degrees of capital control, distinguishing between:

- minority shareholding participation in ownership; and
- acquisition by other firms.

At a more finely grained level, interorganisational relations can be distinguished which are involved specifically in supporting R&D, including (Powell *et al*, 1996):

- agreements for basic research;
- agreements for product development; and
- agreements for development of applications from products, ready for commercialisation.

All interorganisational ties are carried by individuals, even if the individual level cannot provide a sufficient explanation of the form taken by such links. The types of links which support different functions for ties in biotechnology can be distinguished as follows:

- board-level links, include interlocks (overlapping board memberships for influential individuals), but also including less formal links;
- professional-level links, including informal ties between scientists in the same subdiscipline, and more formally sanctioned links in the course of collaboration in research and development; and
- other staff-level links, including between marketing staff, account managers, project managers for joint projects and strategic alliances.

Although most of the studies of interorganisational networks within the biotechnology industry do not examine this in any great detail, it may be significant that these collaborative arrangements have flourished in a period in which the US competition policy régime has shifted significantly away from the '*per se* rule', which held all collaborative arrangements between companies that might be thought ideally to be competitors to be *per se* suspect, to one more tolerant of collaboration especially in pre-competitive and R&D activities. Rather, during the 1980s, the policy régime shifted to one in which the courts struck down arrangements where there was evidence of a practice that was in its particular substance anti-competitive or hostile to consumer interests, and where the industry structure exhibited very few large companies only.

6.3 Formal and informal networks

Informal and formal ties appear to be symbiotic in the biotechnology field, much as one would expect. The initial links between individual

scientists and firms seem to be informal but are then converted into formal ties if they are found to be valuable, for example, through involvement in founding, or association in R&D or in governance roles (Zucker *et al*, 1996, 1998; Audretsch and Stephan, 1996).

The collegiality of the scientific community is presumably an important basis for the cultivation of such informal links. Liebeskind *et al* (1996), for example, find that informal links are critical to the ways in which new biotechnology firms access scientific knowledge, and that successful biotechnology firms are organised precisely to facilitate the kind of informal tie-building and maintenance around the university-based and commercially-based scientific communities required for this.

However, some writers detect a change in the culture of the biosciences in the US and perhaps elsewhere precisely as a result of the growing pressure to commercialise findings. In the longer term, if unchecked, such changes may undermine the collegiality on which the individual network system of recruitment of scientists has traditionally relied, and perhaps transform into a more conventionally commercial network style (Powell and Owen-Smith, 1998; Owen-Smith and Powell, 2001). This argument is in a sense a continuation of the long tradition in organisation behaviour studies, drawing on even longer traditions in political science, which sees informal relations as potentially corrosive of norms and principles that have been institutionalised through formally sanctioned ties between individuals and organisations. Such informal ties either do in practice or else are specifically entered into, in order to circumvent the formally sanctioned structures of ties.

However, the relationship between formal and informal ties can also work to reinforce norms that are institutionalised in formal ties. For example, the negotiation of formal ties between DBFs builds upon the availability of prior informal ties and the trust that may first be engendered at the informal level. Around formal ties between firms such as R&D agreements or in-licensing of patented technologies developed or marketing agreements or contract research agreements, there develop a range of informal links which give strategic efficacy to the formal link.

6.4 Geographical distance of ties

Biotechnology is, like many industries or quasi-industries, a field of organisations which is very markedly clustered by geography. In the US, most firms are located in the San Francisco bay area, the San Diego area and the Boston Back bay area. Similarly, the Cambridge area and the nearby towns such as Huntingdon provide homes for a significant cluster of the British biotechnology industry.

In some respects, in this way, the commercial industry replicates the structure of the university-based life sciences, which are both

increasingly densely networked and within regions (Katz, 1994; Hicks and Katz, 1996). In biotechnology, both physical facilities and institutional support for academics to form or join start-ups and locate them geographically close to their universities has been important to the development of the industry (Prevezer, 2001).

Much of the wider literature in economic geography, economic sociology and urban sociology has been preoccupied with the nature of industrial districts and the dynamics by which clustering of industries takes place (Sassen, 1991, 1997; Piore and Sabel, 1984; Castells, 1989) and with the structure of networks in industrial districts (Lorenz, 1988; Streeck, 1992). A central finding in some of the wider literature on biotechnology has been that its take-off has in large part been facilitated by the role of some key universities in encouraging their leading scientists to patent whatever they created that would be patentable, and to create spin-off companies or otherwise engage in 'knowledge transfer'. Because of these interests, a number of the studies on biotechnology have been concerned with the question of how local the links between companies and individuals and between companies are.

Research on the city-region of San Diego suggests that large universities committed to knowledge transfer, and a local culture of entrepreneurial businesses encouraged social ties between key individuals and a build-up of intellectual capital in the area and were key to the take-off of the biotechnology industry in the region (Walshok *et al*, 2002; Walsh *et al*, 1995).

In their preliminary study, Zucker *et al*, 1996 concluded that most links between individual scientific collaborators generally were relatively local, both between firms and universities and between scientists employed in DBFs. However, Audretsch and Stephan's (1996) study using a richer data set identified a more complex picture, with significant differences between the regional clusters of the industry in the US and between companies. They found that the different roles played by scientists explained a significant part of the variance. Knowledge transfer, for example, appears to be associated with more local links. This, they explain on the ground that many knowledge transfer links are in fact the founding of companies, by 'star' scientists perhaps even initially on university science parks, and that even when this is not the case, a great of deal of the knowledge transferred is tacit in character, being about craft techniques of research and research management, and thus its transfer calls for intensive face-to-face contact. By contrast, where scientists serve the function of providing endorsements of the quality of the research being conducted, or where they are helping to chart the company direction, it is less necessary that their involvement in face-to-face communication be protracted, and therefore many more such ties extend much more widely across the country. Nevertheless, they found, even controlling for this, there appear to be differences in the

practices of developing ties between the DBFs in different regions. Broadly, the Californian biotechnology sector appears to be more willing to bear the costs of sustaining long-distance ties with scientists from around the US in a way that the Massachusetts companies seem not.

Owen-Smith *et al* (2002) were able to compare the interorganisational networks of life sciences across the university, governmental, non-profit and commercial sectors generally, within which DBFs play a relatively small but probably typical part. They find that in the US, there are overlapping interregional networks, while the European networks are marked by regional specialisation and limited inter-regional ties, where there are fewer links with the commercial sector and where large cross-national alliances are dominated by the large pharmaceutical companies. In this respect, then, the European pattern appears to be closer to the hub-and-satellite forms of network arrangement dominated by a 'flagship firm' analysed by Rugman and D'Cruz (2000a,b), in which the flagship provides strategic direction for both its upstream suppliers and its downstream customer firms, and significantly influences a cluster of smaller sometime-collaborator-sometime-competitor firms through strategic alliances.

Socio-legal studies suggest that the importance of protecting intellectual property rights is driving the biotechnology industry toward ever more global patenting networking in order to coordinate protection in relation to many governments simultaneously (Davies, 2002). Quite what impact this may have on the dynamics of local and regional research and development networks remains unclear as yet.

6.5 Benefits from networks

Entering into ties and networks brings a number of benefits to DBFs. Audretsch and Stephan (1996) identified several types of benefit secured by companies from their ties with individuals. In many cases, the same broad kinds of ties can be expected from ties with other companies. For example, Stuart *et al* (1999) show that the use of ties to secure reputations by associating oneself with more prestigious others is common in links with organisations. Explicit endorsements by large, well-respected and established companies are important in providing others with means by which to make judgments about the quality of organisations. Stuart and his colleagues were able to show that those DBFs with strategic alliances with other prominent organisations were able to make their initial public offering (IPO) quicker, and that these organisations were also given higher market capitalisation valuations at the time of their IPO.

Benefits from ties and networks may be multiple, and not all will be linked indirectly, through reputation effects. In a number of papers, for example, Walter W. Powell and his collaborators have used sociometric

network analytic methods to show that the ties between DBFs and between DBFs and other kinds of companies bring critical benefits and therefore are of strategic importance.

The team's first study by Powell and Brantley (1992) examined the types of ties and linkages used, and showed that many of the ties between DBFs took the form of long term relational contracts, which suggested that they would presumably be seen by managers in these companies as strategic rather than opportunistic, and of great value. Secondly, they found that older and larger firms have more ties and strategic alliances than did younger firms, which suggested that the value of the networking strategies pursued by companies rose, rather than declined with growing size and financial solidity. Moreover, Powell and Brantley (1992) found that product diversification appeared to have a strong effect upon the number of ties, suggesting that the style of network development was closely tied to supporting strategies by which companies that might have begun with one or two molecules under development with promising applications then secured more research grants (especially from the US public sector funder the National Institutes of Health) and / or in-licensed intellectual property from others to develop new products.

Further application of sociometric network analysis was presented in Powell, Koput and Smith-Doerr (1996). In this study, Powell and his colleagues were able to argue that the real importance of the ties between biotechnology companies were in supporting learning (thereby the Schumpeterian transformation of the field and the industries biotechnology was in turn transforming during the late 1980s and early 1990s) rather than simply in risk-sharing, speeding products to market or pooling complementary skills for example. This study focused specifically on R&D alliances, rather than, as the earlier paper had, looking at ties with venture capital or public research grant makers. Four hypotheses were found to be supported by their data. First, the greater the number of ties at an earlier time, the more diverse was the portfolio of subsequent ties. Second, the greater the number, diversity and the length of experience with R&D collaboration ties, the greater centrality in the network of biotechnology firms was the position of a given firm. Third, the greater the firm's network centrality and its experience in managing ties, the more rapid was its growth. Finally, network centrality in an earlier period predicted the number of R&D alliances in later periods, so competing the feedback loop. These hypotheses were supported as, even controlling for the age of the firm, size was an outcome, not a predictor of network position. Powell and his team argue that these findings strongly support a learning and competence-based account, rather than a transaction cost account of the nature of the network forms.

It is worth noting however that the tightness of the linkage between the scientific and the technological networks in these learning processes is a matter of some dispute. Powell *et al* (1996) imply that

the two networks are quite tightly coupled, and rely on inter-organisational links to establish this. However, studies using bibliometric analysis of citations suggest that the two networks are importantly distinct (e.g. Murray, 2002).

These findings were reinforced by a later study on patents achieved by companies. A study, using data from the industry's BioScan database for 1989, by Shan *et al* (1994) found evidence that differences between biotechnology firms specifically in the biopharmaceutical area in their rates of innovation, as measured by successful patenting, were predicted to a statistically significant level by the numbers of cooperative relationships measured by registered agreements, mainly taking the form of in-licensing of technologies. The study also asked what influenced the presence of large numbers of such relationships, and again found that public funding for research was a statistically significant predictor. Shan *et al* interpret this finding as suggesting that public funding for DBFs serves as a reputation variable for large pharmaceutical companies, indicating to them that a DBF is considered by the public research authorities to have strong capabilities. They called for more research on the question of the impact of network structure on innovation. Answering that call, Smith-Doerr *et al* (1998) later found that firms which were more centrally located in networks obtained more patents, and that this should be explained as a result of the collaborations represented by those ties.

In a later study published as Powell *et al* (1999) some important qualifications were made to this argument. The study extended the analysis of benefits to include financial performance measures. Experience with ties and diversity of ties were again found to predict network centrality, and centrality again predicted levels of patenting. However, centrality was also found to predict higher levels of non-operating income, earlier initial public offering, more rapid growth and higher sales revenue, even controlling for experience and diversity - that is, experience with and diversity of ties bring their benefits by increasing the chances of network centrality but not before. Firms were found not to withdraw from collaborations with age, suggesting that the 1980s thesis that the highly collaborative character of the industry would turn out to be a feature of immaturity may well be wrong. The qualification introduced in this study however was that there appear to be decreasing returns to experience with developing ties. Beyond a certain threshold, the rate of growth in benefits appears to level off.

Building on the learning-driven theory of strategic alliances and networks developed by Powell and his collaborators, Oliver's more recent (2001) study examined alliances among a population of 554 DBFs, and concluded that absence of alliances is statistically significantly correlated with organisational death. She also found evidence that the use in learning to which alliances are put varies with the stage in the organisational life cycle, with early alliances serving

the aims of learning by exploration or search for new ideas, while later on, alliances are undertaken to support learning by exploitation or making better use of ideas already acquired (following March's 1991 distinctions between exploration, the search for and first uses of ideas which are new to the organisation, and exploitation, or the steadily deeper use and incremental development of ideas already understood by the organisation).

Clearly, biotechnology firms require a variety of external linkages of various kinds, including those with banks and other sources of investment, with companies able to offer marketing capabilities, and indeed with the large pharmaceutical and agronomic industries for marketing, R&D, manufacturing and other functions. The effect of these downstream ties to the large corporate sector is, as we should expect, to produce marked clustering in the character of the networks within the DBF sector, around the major strategic alliance groups in pharmaceuticals and agro-chemical products. This has been studied by among others, Delapierre and Mytelka (1998) who identify six major clusters of pharmaceutical and biotechnology firms.

6.6 Network change over time

The behaviour of organisations in forming ties should result in changes to the form of the structure of the networks that characterise the field as a whole. A study by Kogut *et al* (1992) and Walker *et al* (1997) stressed the importance of path-dependency and of first-mover advantages. The greater the number of new ties, it was found, the greater the number of those links which are with firms similarly situated in the network structure of the industry. Having developed these networks, firms are then constrained in later periods in the ways in which they can form new agreements. However, first movers are often more sought after than seeking.

These findings were confirmed by a similarly large scale quantitative study by Orsenigo *et al* (1997) - with industry growth, network size increased but the basic structure remained the same, especially in respect of the core-periphery profile. Orsenigo *et al* also found that new entrants seek to collaborate more with established ones, which stands in some tension with Kogut's team suggestion that there is extensive collaboration between similar firms.

If the general tendency is for all organisations to form more and more ties with others in the field, this should increase the density of the network structure. The finding from Kogut and his team's early work was that any such tendency to ever greater density is constrained by the ways in which initial decisions are made to form ties - many possible ties rule out others.

The findings that firms tend to form ties with others similarly situated, and that early decisions to form ties constrain later ones, suggest that

network change might be limited, and that the expected form of the industry-wide network will be a series of enclaves. By contrast, it might be the case that entrepreneurial companies might be prepared, as competitive pressures increase over time, to abandon these enclave structures and focus instead on building ties between enclaves in order to secure greater betweenness centrality for themselves. The findings of the team led by Powell are that, in general, only centrality matters, but not necessarily only the types which locate a firm with betweenness or situated between cliques. Thus the two sets of findings are compatible.

In their later work, Kogut's team were able to show that in fact, the tendency toward enclavisation and conservatism in network structure is a more powerful force that any tendency toward individualistic networking. Describing the enclavisation strategy as a 'social capital' hypothesis and the individualistic strategy as a 'structural hole spanning' one following Burt (1992), the results of the estimation of the model were unambiguously that path dependency effects are powerful.

However, the picture of conservatism should not be overstated, for path-dependency in fact reflects a positive feedback dynamic, which itself brings about change. Even if change over time does not show up as change in the general form of the network structure at the industry level, there are significant changes in the lifetime of particular strategic alliances. Reuer *et al* (2002) studied the changes in the forms of governance used to oversee strategic alliances such as contracts, oversight committees and monitoring mechanisms. In their study of both alliances between DBFs and between DBFs and pharmaceutical companies, forty per cent exhibited changes in these governance systems after the formation of the alliance. Changes were least likely when the division of labour was already very clear or where the alliance had a very narrow scope. Previous experience of collaboration also seems to facilitate post-formation changes in governance.

Industry life-cycle would be expected, on some theories at least, to be associated with network change. Based on two case studies, Weisenfeld *et al* (2001) for example argue that a structure like the EU sponsored Biotechnology Industry Platform (a non-profit subscription based organisation with R&D clusters) is more appropriate to the phase of industry development in which the focus shifts from original R&D to collaborative efforts to bring products to market, whereas in earlier phases, less institutionalised and smaller, more intensively collaborating structures are more appropriate.

In many ways, the trend toward enclavisation has probably not been the dominant one among DBFs, although certainly the trend toward greater density in cliques and clusters has been marked. Both enclave and hierarchical forms exhibit these features, but they differ in the

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degree of authority and regulation featured. The biotechnology industry has begun to move toward a network organised around 'flagship firms' (Rugman and D'Cruz, 2000a,b) with much more control by these large pharmaceutical and agronomic businesses over the DBFs who work with them. Over the same period, some industry-wide institutions have begun to emerge that cultivate accountabilities beyond the single firm toward common ethical and management standards. In sum, then, although certainly there remains a sub-sector of DBFs which continue to operate individualistically, the general trend has been toward greater hierarchy and some enclavisation.

6.7 Conclusion

The network forms that characterise the field of biotechnology are of interest for this project for several reasons. The studies done on this field show that although investment is such ties is costly, it can be strategically critical. There are substantial benefits available. The research shows that many of the other things that it might be imagined could be obtained from any conventional strategy are often obtained through such ties. In this sense, the management of networks is not a special problem at all, but the extension of conventional strategy.

Moreover, the research in this industry suggests that the scope for management action is constrained by past choices about whom to form links with, and what kinds of ties to form. This leads to the conclusion that there are limits to which an opportunistic, entrepreneurial strategy actually can be pursued, consistently with being trusted to fulfil obligations entered into, implicitly or explicitly, when forming links with other organisations.

It shows too that there is a trade-off that can only be partly mitigated by organisational growth and increasing the total number of links, between breadth and depth. Path dependency tends to make for depth, while entrepreneurial imperatives might make for breadth. Depth and the importance of securing trust as well as the imperatives for securing tacit knowledge and the continuing importance of face-to-face contact for high trust activities lead to geographical clustering. This may be beneficial in many ways. However, excessive tightness and depth in geographical clustering also constrains.

If the arguments of Powell's team are accepted (and it should perhaps be noted that they are still controversial in the wider literature on organisational and economic sociology although more widely accepted now than when first published, because of the way in which the 'communities of practice' and 'corporate social capital' literature has become so tightly integrated with the knowledge management literature since the mid-1990s) the principal reasons for pursuing a strategy of network management are to do with the needs for organisations to acquire both explicit knowledge (intellectual property) and tacit knowledge (know-how or informal skills).

Some of these lessons are of general relevance to all organisations engaged in managing across networks. However, for those health care organisations that are most structurally similar to the biotechnology firms – namely, those secondary care units involved in research and teaching and some high technology specialist clinics at the cutting edge of developing new practices – some findings are of special relevance. The role of using access to 'star' individuals in managing reputations will perhaps not come as news. However, the trade-offs

involved in geographical clustering in order to make the most links with other organisations and the importance for the more successful US biotechnology industry of inter-regional linkages, require a good deal of thought. Research and teaching hospitals have long had extensive global links at the level of particular clinical specialisms, and leading consultants place great value in these. For NHS Trusts generally, building links with local health economies has importance both with the development of the internal market under the Major administrations and in the system of local collaboratives working to improve local care pathways under the Blair governments. The work of Bate and Robert (2002) has shown that many local cancer networks are in fact comparatively hierarchical in their network structure. One lesson that one might draw from the studies on the biotechnology industry might be that for knowledge transfer, and especially for the transfer of tacit knowledge, this may not be an adequate solution, thus reinforcing Bate and Robert's (2002) own conclusions.

One vision for the development of local health ecologies in the UK is that the secondary care sector should engage in extensive and collaborative knowledge transfer, in order to enable hospitals and some clinics to focus on highly specialised, advanced and complex work, while transferring responsibility for many kinds of routine work either to diagnostic and treatment centres for elective surgery, or else into primary care for less invasive work. Achieving this would require the development of structures that may not be dissimilar in form (although very different in content) to those which have been observed (a) between universities and DBFs in spin-off and knowledge transfer and (b) between large pharmaceutical companies and DBFs in longer term sustenance of coordinated research and product development being financed and marketed. Many of the issues in the biotechnology sector about the continuing importance of face-to-face contact and the role of locally or regionally bounded, more strongly integrated, networks will have to be faced.

Conversely, any return to more internal market-like policies in local health economies would require the cultivation of the kinds of relationships that have been observed between many DBFs in the periods before long term relational contracts for vertical flows of goods, services, information and funds are entered into, and therefore prior to the stable institutionalisation of the network structure.

Both these routes respectively move toward enclave and individualism (Chapter 3) and would result in network change, in ways that might be illustrated by the case of the biotechnology industry. As Reuer *et al* (2002) show, instability in dyadic and triadic alliances is common, for fairly obvious reasons such as the difficulty in aligning preferences and capabilities. Processes of positive feedback or reinforcement are emphasised in several papers by Kogut and his collaborators as typically increasing density but preserving the basic structure. However, a more individualistic route might well result in the kind of

dynamic identified by Burt (1992) at the individual level, in greater fluidity in structure and not necessarily any general or overall increase in density, as entrepreneurial behaviour stops focusing on eliminating redundancy in ties to clusters and focuses instead on spanning structural holes.

It may well be worth conducting further primary empirical work on the micro-managerial practices of biotechnology, to identify lessons for the NHS. As we noted above, biotechnology has seen a steady tendency over a number of years toward hierarchisation and enclavisation in the network structure of the industry. However, in the NHS, policy initiatives to promote inter-agency working were introduced from the start to promote networks of a broadly hierarchical nature (see Chapter 9) - they were regulated closely by statutory powers, audit and accountability and provided with named post-holders charged with exercising authority over them. There are therefore some lessons for the NHS about how hierarchical networks can work, when that form is adopted for reasons internal to the strategies of the organisations, rather than for reasons of external policy pressures and constraints. For there is at least a plausible argument that organisations which have taken their own time to reach hierarchical network solutions may well have learned a number of management and craft skills of managing in such configurations that might well be missed by organisations that have had to work to a very rapid and externally imposed timetable.

6.8 References

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7. Networks in the defence industry

Edward Peck

7.1 Introduction

The focus of this chapter of the report is the literature on networks in the procurement and supply of defence equipment. The review of this literature has been limited by geography (i.e. studies relating to the members of NATO and France) and the nature of the equipment (i.e. defence specific equipment such as fighter planes and tanks and not the acquisition or supply of civil hardware and software for military use).

The methodology for this chapter was consistent with the approach outlined in the methodology chapter. As it transpired, key words for this review, such as network, partnership, collaborative venture, rarely appear in the indexes of the major works from any of the four decades that this review has covered (e.g. Peck and Scherer, 1962; Gansler, 1995). Careful sifting of the literature revealed both prescriptive and descriptive accounts of the relationships between procurers, between suppliers and between procurers and suppliers that seem to hold a number of important messages for the development of networks in the NHS. These messages are considered in the final section of this chapter. Although the key words are rarely used in the literature reviewed, the usage of common alternative terms (e.g. alliance) is reconciled with the standard terminology for this review outlined in Chapter 3.

7.2 A brief structure of procurement and supply arrangements in defence

Before examining the literature on networks in defence, it is important to briefly introduce the nature of the defence industry (this section) and points of comparison and contrast between this industry and the NHS (next section).

Drawing on Gansler, this industry can be presented in a three-dimensional matrix (see Figure 7.1). This matrix highlights the three important aspects of the way in which defence material is produced. Firstly, the industry can be divided into prime contractors (which deal with the purchaser), sub-contractors and parts suppliers which need to create and sustain collaborative arrangements in a competitive market place over extended periods of time. These contractors can be in either public or private ownership. Finally, there are a number of distinct technologies that armaments require, many of which can be developed and manufactured in conjunction with potential civil uses.

Supporting this matrix, the summary of the defence industry that Gansler (1995) provides is the most helpful in the literature and is reproduced in a slightly edited form in Box 7.1. Although this focuses on the US defence industry, the observations that he makes are also largely applicable to the industries in Western Europe. All of these characteristics highlighted by Gansler (1995) have implications for the networks that arise in the defence industry and each will be considered in much greater detail below.

Figure 7.1 The Structure of the defence industry
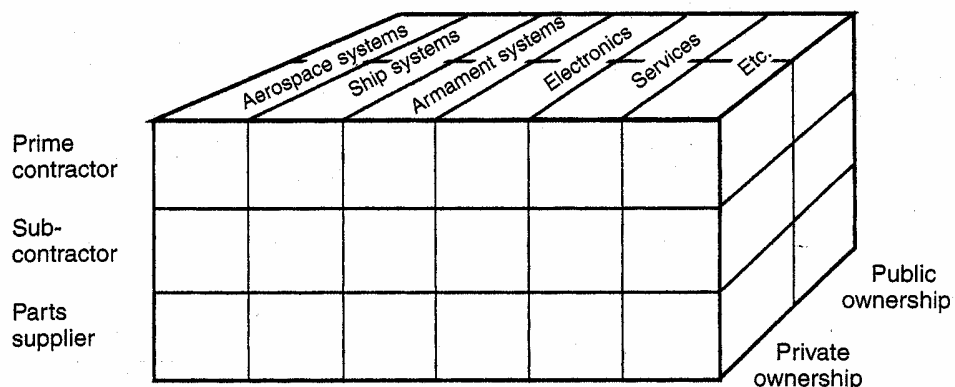
Gansler, 1995 (p.21)

Looking more specifically at the procurement of arms, Anton and Yao (1990) describe a four stage procurement cycle: initial design; development; production and reprocurement. Competition between providers can theoretically take place at any or all of these stages, although the choice of a single supplier typically takes place at the production phase. Bower and Osband (1991) note that, at this production stage, *'some contracts are let competitively, with prices*

determined by sealed bids. Others are negotiated with sole-source suppliers, using so-called "profit policy" as a basis for price determination' (p107). Under this latter approach, the target price includes expected costs, target profit assumptions and any other allowable expenses that it is agreed the supplier can re-charge to the government.

Markowski and Hall (1998) identify six dimensions of arms procurement;

1) user requirements (what to buy?);
2) division of labour (make or buy?);
3) contracting (what type of contract?);
4) source selection and competition (how much competition?);
5) organisational (who should have the authority and responsibility for making procurement decisions?) and;
6) international collaboration (what should be the drivers of international procurement?).

The dimension relating to source selection and competition they divide into three sub-sections: design to prototype, including R&D; production and; through-life support. Drawing on an extensive literature on competition in this field, they note that increasing the level of competition at each of these three stages may have different implications: *'increasing competition among R&D providers, for example, may only raise the total spent on R&D while each provider actually achieves less…at the production stage, there may well be scale economies and drawing on dual or multiple sources of supply may lead to cost inefficiency compared with the level sole source supply. On the other hand, multiple sources of R&D offer enhancements in the level of experiment and generate a greater diversity of proposed technological approaches. And in production, competition may need to be invoked at frequent enough intervals to discourage inefficiencies associated with monopoly'* (p26).

Box 7.1: Characteristics of the US Defence Industry

The structure of the U.S. defence industry includes aerospace contractors as well as producers of small electronic microchips and manufacturers of tanks as well as engineering services contractors hired for the independent testing and evaluation of advanced weapon systems. Thus any overall understanding of the industry – and any policy decisions made with regard to its restructuring – must recognize the critical differences among these various sectors.

Similarly, there are very great differences between the large "prime" contractors and the so-called lower tiers of the defense industry. The former primarily assemble and test weapon systems, while the latter supply the subsystems and parts that go into them. Although there may be only a single prime contractor, there may be tens or even hundreds of thousands of smaller suppliers who feed into the system. In many ways the U.S. defense industry can best be described as a "dual economy" where the large contractors deal directly with the government (on major weapon systems), while the industry's lower tiers act much more like typical commercial industrial suppliers – except that they are greatly burdened by unique defense requirements such as procurement laws, military specifications, and accounting practices.

In addition, the defense industry is a mix of public and private ownership. In some areas, such as the munitions plants, the sector is largely under public ownership. In others, such as aircraft plants, there is mixed ownership; the government owns much of the capital equipment and plants, but they are operated by the private sector. And the overhaul and repair of military aircraft is done in both government-owned depots as well as in private firms…

One characteristic of the defense industry is the extreme concentration of a few firms by type of weapon, geography, and employment. Supplier firms may number in the tens, or even hundreds of thousands, but there is extreme concentration at the top of each sector. In 1991, only twenty-five companies received 46 per cent of the value of all Department of Defense (DoD) prime contact awards; the seven largest defense-dependent companies accounted for nearly 25 per cent of all prime contracts (General Dynamics, Grumman, Lockheed, McDonnell-Douglas, Martin Marietta, Northrop, and Raytheon). And there is even more concentration at the subsystem level. In the large jet engine business, for example, there are only two suppliers, Pratt-Whitney and General Electric…

In the same way, there is extreme geographic concentration. Six states have 45 per cent of the defense business…Specifically, 95 per cent of the defense industry workers are employed by companies with over 4,000 employees each…

During the forty years of the cold war, a body of laws, regulations, and practices has developed that control the many daily procurement actions between the DoD and its suppliers. Although each of these may have a valid historic rationale, the result is that there are only a few firms skilled in conducting defense business, and they may be totally isolated from, and uncompetitive with, their commercial counterparts. Even firms that operate in both the military and commercial worlds are forced to separate the two parts of their operations. For example, Motorola maintains its obsolete (but conforming to DoD requirements) defense electronics plant literally on the other side of town (Phoenix, Arizona) from its world-class commercial electronics plant (which does not satisfy DoD laws and regulations). Other commercial firms (e.g., Hewlett Packard) simply refuse to accept R & D contracts from the DoD because of their specialized rules…

It would be proper to simply allow the market to operate to achieve the required efficiency and effectiveness if the defense marketplace was a truly free market, with numerous suppliers and buyers free to act in their own best self-interests. This is not an arena, however, in which it is even relevant to ask whether the government should be involved. As the only buyer, the regulator of all market activities, the specifier of the goods to be purchased, the banker (through progress payments), and even the court of claims (for any improper procurement actions), the government is already fully involved. In addition, in most sectors of the industry, the government relies on either a single (monopoly) supplier or, at best, a few (oligopoly) suppliers. Thus the unique nature of the defense industry makes it as far removed as possible from that considered characteristic of a free market.

Edited from Gansler, 1995 (p21-25)

This implies that judgements about competition – about market making in defence supply – are just that, judgements and the choices made may be very context specific. Furthermore, they contend that although *'commitment and market testing rhetoric is evident everywhere…in reality, however, major contractors are protected, tacitly or overtly, from international competition'* (p26).

7.2.1 Points of comparison between these arrangements and the NHS

The points of comparison between the processes surrounding arms procurement and arms supply that arise from even this brief introduction to the sector and the NHS are manifold. In each of the six following respects significant parallels can be drawn between these activities and those involved in the commissioning and supply of healthcare in the UK.

Firstly, health status and security are both public goods. Health care and the defence industry, however, can be provided by private agencies in both sectors as collective goods. Olson and Zeckhauser (1967) define a collective good as having two distinct characteristics. The first is *'that it is not possible, or at any rate not economically feasible, to exclude non-purchasers from the consumption' (p25- 26). The second is 'that if provided to one individual in a group it can be provided to the others at little or no marginal cost'* (p26).

Secondly, in most cases, the national procurement process involves a monopsony purchaser. As McNaugher (1989) notes: *'Defence firms sell unique products to what has always been a single buyer, the US government. The defense sector thus involves a monopsony in which prices are negotiated rather than set by market forces'* (cited in Chu and Waxman (1998), p38). These monopsony purchasers may on occasions form consortia to purchase specific equipment on a shared basis (e.g. Europe) albeit that these projects are frequently fraught with difficulty and are in any case restricted in scale due to the requirements of domestic security. These purchasers have a close relationship with their suppliers. Alic (1998) notes that *'not a few members of Congress have also shared the impression, widespread among the public at large, of an unholy alliance between contractors and the services'* (p342).

Thirdly, and related to the second similarity, the behaviour of the purchaser means that *'the notion of a market system .is…inapplicable'* (Peck and Scherer, 1962, p582), as *'the decision-making roles of government and contractors become intertwined in a manner foreign to a market system's rigid distinction between buyers and sellers'* (p582).

Fourthly, while the purchaser may want to pursue best value for money through contracting with a range of national and international defence providers, other factors impinge upon the purchasing process.

The domestic defence industry is often a major employer in certain parts of the country (see Bishop 1986), and a lack of support from their national government can seriously undermine both their financial viability in the short term and their technological credibility in the long term. At the same time, most governments in the western axis want to sustain a domestic arms supply capacity so that domestic requirements can be met by a domestic industry when international co-operation in procurement or supply is not robust. To a significant extent, therefore, the perceived robustness of the domestic defence industry, and the nature of its ownership, is always a potential sensitive issue in national politics, and the government of the day may have a genuine interest – and important levers - in shaping the relationship and configuration of suppliers (see, for example, Sandler and Hartley, 1995 for a detailed account of the benefits, and also costs, of a defence industrial base). In extremis, governments may resort to bailing-out failing defence contractors, although as Liston-Heyes (1995) points out, *'bailouts of defence firms are generally regarded as indicative of an inefficient procurement process in which firms take advantage of a weak or "captured" government to help themselves to taxpayers money'* (p289).

Fifthly, although the purchaser may have influence over the technical specification, the development of arms technology is driven by the research of providers and the linked aspirations of the military, and there is a compelling case for procurement keeping pace with technology for fear that domestic security be compromised, or at least appear to be compromised, by their armed forces possessing outdated kit.

Sixthly, the supply of increasingly technologically sophisticated equipment means that most contracts are awarded to a consortium or to a main supplier on the assumption that specific aspects of the work will be undertaken by a third party or parties.

It is the extent of these parallels that make many of the messages that arise in the defence literature so pertinent for the NHS. These messages are presented in the final section of this chapter. Of course, there are important dissimilarities between defence procurement and supply. Defence purchasing is handled centrally by national government through a limited number of large contracts. These contracts typically continue over several years (on average over 16 years in the US according to Gansler, 1995, even longer than the time it takes to build a new hospital in the NHS). There are a limited number of suppliers, most of which operate on an international basis and only some of which are in the public sector either in whole or in part (and the mix varies across the countries included in this review). Further, many of these suppliers also make products unrelated to the arms industry.

It is also important to note that most of the literature covered by this review originates in what is referred to as the post-cold war era i.e. after 1989, but before the onset of the so-called war against terrorism. It contains common assumptions, therefore, about the necessity for the downsizing of the provider capacity in the arms industry which drive much of the discussion of alliances, collaborative ventures and mergers which are very different from the current position of the NHS where it is generally agreed that there is too little provider capacity (although, of course, these assumptions about the arms industry may be overturned in the wake of the wars in Afghanistan and Iraq). Markusen and Costigan (1999a) reflect these assumptions when they observe: *'as the century draws to a close, the United States and its allies are enjoying a period of markedly diminished threat and relative stability in international relations'* (p6). Susman and O'Keefe (1998) report a drop of 40per cent in actual spending on defence in the US between 1985 and 1997. Korb (1996), however, argues that these figures need to be put into a historical perspective: *'Defense spending in real terms is still [in 1996] about its Cold War average, and the defense budget for fiscal year 1996 was higher than it was for fiscal year 1980'* (p24, parentheses added).

The literature on networks in arms procurement and supply has three broad foci: the networks between countries for the procurement of arms; the aspirations and activity of governments in the encouragement of networks between providers for supply and; the development of networks between providers based on mutual interest. Of course, these foci overlap, but they are sufficiently distinct to be dealt with separately. These three foci will form the framework for the analysis of the literature carried out below. The first and the third can be characterised as dealing with the internal management of networks whereas the middle focus could be conceived as relating to the governance of networks. The relationship of the networks in defence to the theoretical conception of networks in Chapter three is discussed in the penultimate section of the current chapter.

7.3 The networks between countries for the procurement of arms

In contrast to the material considered in the following two sections, much of the literature in this area focuses on Europe, and where it does draw in the US, it is in relation to Europe.

7.3.1 Economic and political influences on procurement networks

Creasy and May (1988) suggest that the advocates of European collaboration in defence procurement put forward a combination of political and economic factors. Of these, the latter appear the most

immutable and plausible, but are not necessarily the most influential. They identify five distinct economic drivers: rationalisation on a European level is inevitable as each domestic market is simply too small and incompatible national weapons systems are problematic in joint action; the costs of R&D are becoming prohibitive; the globalisation of the technological developments, especially around the fusion of information and communication technology; the contracting overseas market for arms and; the discrepancy between the amount spent by European countries on R&D in comparison with the US. Of course, these arguments are as apparent to the companies themselves as they are to governments, but Creasy and May are clear about the political impact that these economic factors can produce on:

'employment, national income, the relevance of defence R&D to the national industrial base and the ability of one country to afford the public investment necessary for its public defence' (p14).

Walker and Willett (1993) identify a challenging environment for collaborative procurement during the 1990s. Firstly, the decline in demand presents purchasers with even greater problems in controlling costs, albeit that these problems may prompt collaboration. At the same time, the increasing links between military and civil production (little discussed in the European literature) may lead specialisation in military production in a foreign country supporting commercial advantages for that company in domestic and international civil markets.

Sandler and Hartley (1995) summarise the arguments for a nation possessing a domestic defence industry: national independence, security of supply, responsiveness in emergencies and war; the need to maintain a capability which a nation believes will be required in the future; foreign supply leaves the buyer vulnerable to monopoly price increases; foreign supply provides unsuitable equipment not tailored to a nation's requirement; leverage (i.e. a domestic industry gives a buyer intelligence and options when considering buying abroad) and; national economic benefits (in the UK they report estimates that when comparing British and foreign equipment that a premium of 25 per cent to 40 per cent should be applied to the overseas purchase price to allow for the wider national economic advantages bestowed by buying from home suppliers).

Inevitably, therefore, one of the main aims of governments' collaborating in defence procurement is to influence the alliances between suppliers in order to stimulate international cooperation so at to protect national involvement in the industry. In this sector interdependence is, apparently paradoxically, seen as one route to sustained independence. Evidence of the impact of this aim on the activities of suppliers is dealt with in the next section.

However, Creasy and May suggest that there is 'a dialogue of the deaf' between defence economist and practitioners of defence procurement

which hinges on two issues: *'in the first, interventionists clash with those of a liberal market persuasion, and disagree on which "rules of competition" should operate in defence markets...the second area concerns the differences in approach between economists, largely intent on policy prescription for the high-technology, defence-related industries, and many political scientists or strategists who are analysing why the political and administrative system produces the results it does'* (p15).

Creasy and May (1988) highlight the national differences in approaches to procurement that have prevailed in the UK, West Germany and France, such as the divergent perspectives on defence requirements, the contrasting policies for handling development of technology and the disparate relationships that have evolved between purchasers and suppliers. Hartley (1988) focuses on the extent to which defence industries in Europe were state-owned (in 1986), and the stark comparisons this reveals. He also points to the regional concentrations of the industry, including that in the South-West of England, which is the subject of detailed research (e.g. Bishop, 1986) discussed later. He also notes that there was, at that time, far more prescription about the benefits of European collaboration than studies of collaboration in action. These prescriptions usually have three elements: *'there are claimed to be cost savings for both R&D and production...collaboration enables the creation of a European defence industry able to compete with the Americans...[and] there are military and political advantages from collaboration associated with a greater standardisation of equipment'* (p54, parentheses added).

In the 1980s, however, it was the differences that appeared to outweigh the attractiveness of the prescriptions. Heisbourg (1988) reports that *'more than a quarter of a century after the initiation of the first major cooperative ventures, joint procurement represents only a limited fraction of European weapons programmes'* (p60). Further examples of the very public failure of joint projects during this period (e.g. the European Fighter Aircraft - EFA) appear regularly in the literature (e.g. Creasy and May, 1988, Heisbourg, 1988). In the case of the EFA, the failure was the consequence of a number of factors, including the appointment of two, rather than one, prime contractors, and the concurrent development of two alternative planes with a similar specification (one French and one American) (Draper, 1990). The International Defense Review (1991) argues that the EFA proves the truth of the maxim that: *'collaborative projects...[produce] multi-role weapons that reflect a compromise between various national missions and hence are ill-suited to any single task'* (p959, parentheses added). However, the EFA example also illustrates the significant impact (for good or ill) that cooperation in procurement between European countries can have on the nature of the relationships between suppliers.

Creasey (1988) suggests that between 1960 and 1985 there were around 270 collaborative European projects, half of which were

'unsuccessful or abandoned in the early stages' (p91). Draper (1990), drawing on a case study of helicopter production in the 1980s, isolates two main reasons for lack of progress on collaboration: *'a failure to harmonise operational requirements and a lack of political will at ministerial level to insist on such harmonisation'* (p84).

7.3.2 A short history of collaboration in procurement

The origins of European collaborative defence procurement lie in the creation of NATO in the 1940s. The presence of the US within NATO has been described as both a positive and negative influence on such collaboration. Putting the case for the former, a paper in the International Defense Review (1991) draws attention to the so-called Nunn amendment, under which the US committed significant resources to NATO collaborative defence projects from 1986 onwards. On the other hand, Draper (1990) argues that, in the UK in the 1940s and 1950s, *'Foreign Office officials were more interested in the United States than in Europe…there is little evidence that the Treasury saw advantages in European co-operation before…1960'* (p 14-15). Even at that early stage, Draper identifies the reasons why standardisation of defence equipment across Europe was seen as implausible, reasons which echo down the years: *'the existence of trade secrets, patent rights, military traditions, the cost of scrapping existing equipment and the desirability of a self-supporting defence industry'* (p14). For example, the International Defense Review (1991) draws attention to the barriers to collaboration that are still presented by the limits on European firms accessing US classified information, although ten years later Kapstein (2002) argues that: *'the United States has undertaken a major reform of its technology-transfer bureaucracy, with the aim of producing more transatlantic weapons collaboration'* (p142).

There have been a number of other factors that have impeded NATO becoming the forum for promoting European collaboration in defence procurement. Firstly, France has not been a member since the mid-1960s. Secondly, and despite the Nunn amendment, much US industry behaviour has been seen as competitive rather than collaborative (Pages, 1999). Thirdly, there has been much academic and political debate about the extent to which the European partners pull their financial weight when compared to their American allies (Olson and Zeckhauser 1966, Gonzalez and Mehay, 1991), with one study (Kim and Hendry, 1998) even concluding that Canada and Spain may shoulder a heavier burden in NATO than the US.

The drive for collaboration has been led since 1976 by the Independent European Programme Group (IPEG), which has met at ministerial level since 1984 and embarked on a series of Cooperative Technology Projects (CTPs). Although not formally involved in the management of CTPs, the European Defence Industrial Group (EDIG) brings together the major defence suppliers in one association, and

Chief Executives from the industry meet with IPEG officials periodically. Despite welcoming these initiatives, Heisbourg (1988) doubts that they will overcome the obstacles to joint procurement: *'the difficulties in making requirements and acquisition schedules coincide; the built-in costs and delays generated by collaborative ventures; the basic problem of clear-cut management leadership – all of these will limit the scope of common programmes in the coming years'* (p77). Draper (1990) shares the view that the more the number of partners in a defence procurement project grows (and he shows that they are growing) the greater the prospects for disagreement, delay, and increased costs. He also argues that, for someone pursuing a career in the field, the consequences of being involved in a collaborative procurement project are not *'rosy'* (p96).

Walker and Willett (1993), discussing the IEPG Action Plan, highlight the notion of '*juste retour'* (fair return) in the access that European collaborators would have to the markets of others. This notion of balance implies, as they point out, *'this would not be a market in which the survival of the fittest would lead to a rapid re-division of labour based on competitive advantage'* (p147). Rather, *'firms would adjust by forming alliances and rearranging their R&D and production to take advantage of the new European environment'* (p147) and they point to emerging evidence of such rearrangements starting to occur across companies in Britain, France and Germany. However, despite the intentions of purchasers and the IEPG Action Plan, they argue that *'the adjustment to changing conditions in defence markets is totally unco-ordinated. Governments are largely reacting to events, and seem unable or unwilling to elucidate the kind of defence industry they would like to maintain in the longer term'* (p153). They predict that the Single European Act, passed in 1992, will develop to encompass a regulatory function over defence supply that makes *'it hard to imagine the defence sector remaining under national tutelage, operating according to completely different sets of rules'* (p153).

The International Defense Review (1991) suggests a tiered approach to international co-operation, aimed at helping the IEPG in reconciling a single European arms market with the concept of *'juste retour'* over the medium term. Collaborative co-development on a *'juste retour'* basis may be most appropriate for high-cost products with competing consortia more realistic for intermediate products.

Discussion of the European Union inevitably raises again the issue of the balance of procurement collaboration between European countries and between those counties and the US. Since 1978, the European Parliament has been producing reports on the waste of resources represented by non-coordinated procurement, often aspiring to *'a single, structured European Community market in defense equipment'* (Sandler and Hartley, 1995, p226). In its 1978 proposal for a European Armaments Procurement Agency, the parliament can be characterised as calling for a hierarchy to replace a network. Sandler

and Hartley (1995) pick apart this proposal, identifying four different roles for such a hierarchical body (regulator of EU rules in respect of defence, central purchaser for all defence equipment for member nations, central purchaser of all defence equipment on a standardised basis, management agency for collaborative projects).

In 1988, the parliament returned to the topic, focusing this time on supply, and promoting the benefits of a European defence industry capable of competing with the US (see Sandler and Hartley, 1995, p229). In keeping with much of the economic literature, Sandler and Hartley (1995) are keen to define clear policy options which governments should choose between and seem to lament the reality that, for instance, *'work is often allocated on the basis of political, equity, and bargaining criteria and not on the basis of efficiency, comparative advantage, and competition'* (p235). Given the prevalence of their economic assumptions, it is no surprise, therefore, that they conclude: *'ultimately, a nation's involvement in collaboration will be determined by a comparison of the marginal transaction costs and transaction benefits from a joint program'* (p236). *Should*, perhaps, but *will*? In another paper, Hartley (1998) sets out the twelve steps to improved procurement which he sees influencing UK purchasing in the 1980s, all based on the virtues of enhanced competition.

In 1996, the Quadrilateral Armaments Agency (UK, France, Germany and Italy) was formed to increase the efficiency of collaborative procurement. Hartley (1998) fears that this new agency will face the same *'massive opposition from interest group of contractors, unions, towns, and regions likely to lose from such efficiency improvements'* (p59) as previous arrangements set up to promote collaboration.

In 1998, these four countries formed the Organisation for Joint Armament Cooperation, which aimed to facilitate the restructuring of the European defence industry by: *'lowering the barriers to the exchange of sensitive information and technology and…[fostering] the harmonisation of military requirements'* (Kapstein, 2002, p149). At the time of writing, Kapstein is unsure whether this initiative will finally deliver a single defence market which mirrors the single European market in goods and services, although recent events over Iraq perhaps suggest that if it had not by 2002 then it is unlikely to in the immediate future.

Overall, however, this history suggests that no amount of structural innovation is going to overcome the economic and political barriers that obstruct collaboration in procurement becoming the routine approach of the European allies (either between each other or between themselves and the Americans) when commissioning new weapons systems.

7.3.3 Is collaboration in defence procurement efficient?

Hartley and Martin (1993) challenge the assumption of writers such as Heisbourg (1988) and Draper (1990) that international collaborations in defence procurement are costly. They identify three categories of performance indicators for procurement (cost savings, output and development times) and then compare data for collaborative and national projects to produce military aircraft. They conclude that: *'the evidence suggests that collaboration leads to cost savings and greater scales of output, with only limited support for the view that joint projects take longer to develop'* (p210). Although they acknowledge that these indicators are only part of the cost-benefit analysis, this is an important finding which provides succour to the champions of collaborative procurement which *'can be presented as a cost-saving solution in an era of limited defence budgets while at the same time preserving a nation's industrial capacity'* (p210). Markowski and Hall (1998) concur with this conclusion, singling out bilateral collaborations as working best, or *'in a multilateral context where one country provides strong market and technological leadership and other countries are "junior equity holders"'* (p30).

7.4 The aspirations and activities of governments in the encouragement of networks between providers

This is a major focus of much the material reviewed for this chapter, and most is American in origin, although some of the literature on European defence procurement is concerned with the impact of purchaser collaboration on provider collaboration. A good summary of the concerns of this part of the post-cold war literature are provided by Markusen and Costigan (1999a) who pose a number of key questions: *'Should nations continue to keep existing production lines" hot", at considerable cost, ensuring their availability in the future?...Should the United States and the European Union pursue innovation at all, given their impressive lead in military technology and the absence of credible adversaries? Should the Pentagon and its advanced weapons-making allies speed the dismantling and of factories and facilities no longer needed, and, if so, are mergers among large contractors the best way to achieve this? Should nations continue to buy domestic, or facing fewer competitors, permit foreign firms to bid on major weapons systems? Should nations welcome further foreign ownership of domestic military capability? Should they further privatise security-related supply and service functions? Should arms exports be encouraged as a way to achieve economies of scale and lower weapons costs, even if this speeds conventional arms proliferation? Should dual-use firms and production facilities be encouraged or discouraged?'* (p3-4).

7.4.1 American Government initiatives to shape the defence industry

Implicit in the questions of Markusen and Costigan (1999a) is the assumed legitimacy and plausibility of a national government using their power as a monopsony purchaser to directly influence the behaviour of private companies involved in supply. Markusen and Costigan (1999a) identify the levers that the Pentagon possesses: *'its role in antitrust approval, procurement awards and privatisation decisions'* (p6). As they put it: *'few analysts would disagree with the proposition that the size, composition, and output of the defence industry should be driven by American security strategy and not vice versa' (p15).*

Pages (1999) provides more details of some of the approaches outlined by Markusen and Costigan (1999a). Antitrust enforcement in the US under Clinton in the early 1990s was largely hostile to larger mergers and acquisitions. However, the notable exception was defence, where no major merger was blocked after 1992. In 1993, the government adopted a policy of subsidies to support consolidation (so called 'pay-offs for lay-offs') and has estimated that the subsequent mergers have produced a saving of $4 for every $1 of subsidy. This is strongly contested by Korb (1996), who contends that: *'taxpayers are being fleeced…the General Accounting Office and the Department of Defense Inspector General have found no evidence to support contentions… that previous mergers had saved the government money'* (p25).

Oden (1998) estimated that if the mega-mergers proposed in 1996 and 1997 went through then three consolidated companies would be in receipt of one-third of total defence contracts in the US. Also, procurement strategy has emphasised the use of commercial components as opposed to ones just produced for military purposes, and encouraged the use of innovative commercial technology as well as investment in dual-use R&D. Susman and O'Keefe (1998) report on the Technology Reinvestment Programme, where proposals that combined teams from large and small companies or used technology already being deployed in commercial settings were viewed favourably during procurement.

Oden (1999) describes how the Clinton administration attempted to encourage defence contractors to team with others and diversify out of arms supply through competitively-allocated grants. This was a limited success as it had little attractiveness to politicians seeking to target resources on their home patch and generated lots of disgruntled losers, in particular some of the largest contractors which had pursued the alternative strategy of consolidated specialisation and saw this policy as subsidising the growth of competitors. Walker (1999) highlights the special interests within and around the policy process in the American Congress that disrupted what he terms rational decision-making about defence. Leitzel (1992) views such teaming *'as a useful device for spreading out the contract awards in an era of reduced demand for new weapon systems'* (p50). The paper in the International Defense Review (1991) cited earlier estimated that the US spends *'$3-5 billion*

annually to keep non-economical producers in the military aerospace industry' (p956) and goes on to speculate that figure in Europe is even higher.

However, Markusen and Costigan (1999b) are more positive, noting overall how government programmes have made more impact at a regional than a national level and supported firms willing to make the cultural adjustments, management commitment and use of outside expertise that diversification requires. Weidenbaum (1967) notes that the prime contractors in defence industry tend to be geographically-focused; in 1964, *'the ten states receiving the largest dollar volume of DOD and NASA contracts accounted for 68 per cent of the total'* (p324), although he suggests that sub-contractors are more dispersed.

Pages (1999) outlines the potentially negative consequences for government of the triumph of consolidation over diversification: increased cost; decreased technological innovation; and the need for more government regulation over the market. Oden (1999) posits that *'following the current path risks reconstituting a defense industry that is even more isolated, sluggish, and exceedingly expensive to maintain'* (p76).

Pages (1999) also suggests that government should invest even more in dual-use rather than exclusively defence-use R&D, thus encouraging diversification at its technological source. This is important as the proportion of the procurement budget committed to research, development, testing and evaluation in the US rose to an estimated 80 per cent in 1998 (Susman and O'Keefe, 1998).

7.4.2 Was the focus on influencing prime contractors misplaced?

The focus of the Clinton administration's measures was on encouraging consolidation and diversification among prime contractors. However, for the purposes of this review, it is important to explore in more detail the nature of the relationships between suppliers that the government attempted to engineer during the cold war, the patterns of relationships that actually developed, and thus the industry context in which the Clinton government was trying to intervene.

The approach that was adopted until 1989 involved, Oden (1999) argues, negotiated prices, dense specifications, and contract regulation that ensured firms predictable income. In the terms of this paper this represented a very elaborate form of relational contracting. As noted above, many analysts (e.g. Anton and Yao, 1990) describe a four stage procurement cycle: initial design; development; production and reprocurement. Traditionally, major firms or groups compete actively in the design stage, and then the contract winner reaps the high

rewards of production whist the other companies prepare for the next design phase (and/or to compete for reprocurement).

This approach had a number of implications for the organisations concerned which are reported in the literature. For instance, in order to protect valuable R&D teams, the companies typically established divisional organisational structures which necessitated internal collaboration. Kelley and Watkins (1998) suggest that productivity in defence companies is poor in comparison to civilian enterprises, reflecting low investment in technology as a consequence of cost-plus contracts alongside a lack of ongoing competition. Alic et al (1992) attribute this to the historical context where *'in earlier years the American penchant for inventiveness and American domination of the upstream process [e.g. R&D] allowed U.S. firms to neglect the downstream process [e.g. production]'* (p19, parentheses added). Martin, White and Hartley (1996) also find evidence in the UK to support the suggestion of poor productivity in defence suppliers which are heavily dependent on government contracts. In essence, therefore, the excellence of the innovations in R&D departments of defence companies is not replicated in the production activities of those same companies, partly as a consequence of the organisational 'distance' that has been created between the different divisions.

In the production phase, Oden (1999) points out that the major defence companies rely extensively on sub-contractors, although he tells us nothing more about the nature of the relationships between these prime contractors and the organisations further down the supply chain. Kelley and Watkins (1998) explored these relationships in more detail in a study undertaken in 1991. First of all, they reveal *'that the dependence on subcontractors ranges from 60 percent to more than 70 per cent of prime contractor's costs'* (p255). In a survey of companies with over 20 employees in the US that undertook the machining of intensive durable goods (MDG), almost 50 per cent were involved in defence contracts. This means that the prime contractors have a significant number of relationships with other organisations. Kelley and Watkins cites one such company with around 3,000 direct suppliers, most of which had no direct contracts with a federal defence agency.

One of the challenges to the orthodoxy of the arms supply literature (e.g. Gansler, 1992) represented by the Kelley and Watkins (1998) study is the finding that commercial and military integration is already well advanced, in particular among the sub-contractors of the prime contractors. They estimate that in 1990, of the companies that reported shipping defence related products, well over half originated in companies that did most of their production for non-defence customers. In these circumstances, they argue, any government diversification programme that focused on prime defence contractors was missing the point that the majority of companies in arms production were already heavily diversified and that it was only the

prime contractors that had selected and pursued the route of consolidation.

This integration of production capacity (often referred to as 'dual use' as companies deploy people and technologies in both civilian and military product lines) is presented in the prescriptive literature as one alternative to organisations merging into fewer specialist defence companies. For instance, although less dramatic than merger, Oden (1999) suggests that this approach produced more profitability for some of the firms involved than the more high profile approach of mergers within the specialised industry. As noted above, it was just such 'dual use' integration that the Clinton administration sought to encourage in the post-cold war period from 1992 onwards, based on the assumption of specialised prime and subcontractors which combined excess capacity with vulnerable workforces. The administration wanted to force down unit costs by downsizing nonessential activities in provider organisations, reforming procurement arrangements and putting more emphasis on 'dual use' by providers. In at least this last respect the Clinton government's initiative seems to have been based on a misunderstanding of the nature of the industry.

Furthermore, Alic et al (1992) argue that the increasingly international profile and focus of the prime contractors put these companies beyond the reach of government influence on their commercial affairs. As Oden (1999) contends, *'the most powerful DoD [Department of Defense] actions by far were directed at supporting and subsidizing merger and consolidation in the defense industry'* (p80), precisely because they were in line with the commercial realities of the industry. Partly as a result of government support, mergers of defence companies accelerated throughout the mid-1990s. The most significant motive identified by Oden (1999) for these mergers is the argument derived from simple economies of scale achieved through vertical acquistion, although some diversification within the defence industry was a consequence of the extended product range of the merged companies. Oden (1999) and Korb (1996) both cite Lockheed Martin alone as receiving $1 billion from the Pentagon to complete its various mergers through allowable additional costs on current contracts. Oden (1999) concludes: *'there are, therefore, strong reasons to believe that maintaining production and development capability was more important than cost savings in permitting the permissive government stance towards mergers'* (p85). Put another way, although Clinton's priority may initially have been cost saving and job protection, the Pentagon apparently viewed retention of specialist capacity as the overriding aim. In these aims, both Clinton and the Pentagon probably found ready allies among the Senators of those states in which the prime contractors were located.

The priority of the Pentagon was, some writers suggest, perhaps not surprising. Leitzel (1992) suspects that the DoD in the US has been the victim of 'regulatory capture' by the defence industry, and is

complicit with the maintenance of a cartel of suppliers in the US. In support of this suggestion, he points to the stable market share over time of the major defence contractors, with, for instance, major aerospace contracts appearing *'to be awarded to the firm that has a newly vacated production line, regardless of the merits of the proposal'* (p49). Furthermore, he argues that, *'the potential for future employment [of DoD staff] in the defense industry may create some identification with the contractors, a situation that the contractors no doubt hope to encourage'* (p51, parentheses added). Leitzel is one of the few writers in the literature, along with Alic (1998), to draw attention to the regular interchange of personnel between the commissioners, suppliers and users of defence products, although there seems to be no published study of the extent and impact of this phenomenon.

Of course, as Oden (1999) points out, mergers destroy teams and networks within companies, as a consequence slowing the production development process, partially through the loss of employees. The top 25 prime defence contractors in the US shed over 600,00 workers (almost 25 per cent of their total workforce) between 1989 and 1994, and a similar number were predicted to disappear by 1997 (Pages, 1999). Hartley (1998) reports the same overall per cent fall (i.e. 50 per cent) in the UK during the period 1980-1995, with half of that reduction occurring in the last five years of that period.

Oden (1999) acknowledges that in the US the impact on small integrated subcontractors was much less pronounced with sales values (including defence sales) and employment changing very little between 1989 and 1993, partially due to their existing diversification, while small and medium-size specialist defence companies were also badly hit, with employment in one sample falling 37 per cent during the period 1989-1993. Those that had fared best had diversified successfully through being open to outside collaboration, for instance with firms in R&D and marketing.

7.4.3 Do the US Government's interventions shape the US defence industry?

Although some companies did diversify successfully after 1989, there is little evidence of the Clinton Government's competitive investment strategy having much connection with these successes, raising the question of the extent to which governments can drive the creation of effective alliances or collaborative ventures through financial incentives. Indeed, Pages (1999) suggests that: *'despite the efforts of both industry and government to promote greater internationalisation and commercialisation in the defense sector, technological and political trends actually are moving in the opposite direction'* (p208). Further, Oden (1999) contends that *'the list of diversification failures is almost certainly much longer than successes'* (p90), confirming that this was a high-risk activity for companies that had little previous experience of

commercial production. Furthermore, much managerial wisdom, such as that represented in the paper by Lundquist (1992) in the Harvard Business Review, was opposed to diversification among arms suppliers from the outset, arguing that *'for any company in any industry, diversification outside of core businesses is prone to failure'* (p80). Braddon and Dowdall (1996) catalogue the obstacles to diversification faced by defence contractors in the UK. Finally, in relation to diversification, Peck and Scherer (1962) serve to remind us that government support for such initiatives is scarcely new, and from which Gansler (1995) takes the lesson: *'one conclusion gleaned from past defense conversions is that government initiatives on their own are less likely to be successful than strong industry initiatives with some government support'* (p80).

The moves towards consolidation between prime contractors during the 1990s seems to confirm the suggestion that governments can support, but not fundamentally shape, the commercial decisions of major corporations. Indeed, Pages (1999) suggests that government approaches to the new defence conglomerates will have to rely on increased regulation of production and contracts based on the needs of the industrial base, rather than pursuing policy based on conceptions of a free market which are only suitable for those companies with a significant stake already in the commercial sector. Alic (1998) contends that this is already the case: *'in recent years, procurement practices have been covered by nearly 900 different laws and more than 4,500 pages of regulations...some estimates put the paperwork at 40% of the procurement total'* (p343), although he also considers that the concerns of politicians and public about waste, fraud and abuse in the procurement process are largely misplaced. However, he also contends that all the evidence from studies of the defence industry *'suggest that stimulating competition in the absence of a functioning market is ineffective'* (p343). This is particularly the case, he argues, where the defence budget is shrinking, and capacity and competition with it.

Hartley (1998) discusses the costs of competition in procurement in the UK in the 1980s and reflects that these concerns led *'to a reduction in the number of competitions and in the number of firms invited to tender'* (p52). He argues that this had an effect on suppliers in *'a shift from adversarial competition to long-term partnerships'* (p52).

Alic (1998) poses the *'ultimate dilemma in acquisition policy: lacking the discipline of a marketplace, how to manage a process involving such huge sums and huge stakes?'* (p348). One answer seems straightforward, *'DoD should focus on active management of major programs (as opposed to auditing and oversight), recognizing the unique character of the of the contractor relationship and seeking to develop the kind of in-house skills and expertise needed to achieve better outcomes'* (p343). However, career military personnel do not see acquisition as an attractive stop on the career path, as the road to the top is through operational commands. Markowski and Hall (198) describe the job posting cycle of

military personnel leading to *'baton changes'* and *'kinds of myopia specific to military procurement agencies'* (p30).

Civilian managers stay longer, but are less trusted by the services. Even they, given the rivalries between the services and the fact that more weapons systems are in design than can be produced, are prone to disguise problems in their programmes rather than reveal and deal with them. Interestingly, creating a cadre of arms commissioners who can effectively and independently steer both individual projects and the industry as a whole is, Alic (1998) implies, unlikely. Nonetheless, it is one of the strategies for change regularly (and understandably) suggested by commentators (e.g. Gansler, 1992). Surprisingly, the inevitably transitory nature of governments and ministers within governments (a key influence on the attitude towards European collaboration, perhaps especially in the UK) is rarely discussed, although many commentators have recognised that decisions about collaborative programmes in Europe are driven by *'political rather than economic and industrial imperatives'* (Kapstein, 2002, p143).

Overall, therefore, it appears that despite the attempts by the government in the US to change the focus of and relationships between defence suppliers, the major impact of their intervention has been to support the merger of prime contractors. This has been a consequence of the differences of perspective between departments, and between policy-makers and politicians, in government, alongside a misunderstanding of the sub-contractor industry in defence which undermined the policy of diversification among prime contractors. In contrast, the policy of promoting merger has been largely successful, following as it did the prevailing aspirations of the industry itself, although many commentators are concerned about its long-term effects. Furthermore, this spate of mergers has made it more likely that procurement will be based on specification and regulation rather than competition, with commissioners struggling to assert their authority caught as they are between the experts in the services and the experts in the prime contractors.

It is important not to overstate this case. As Kelly and Watkins (1995) contend, it would be perverse to not to recognise that *'the government (as buyer) exercises considerable control over sellers' internal operations through its direct involvement in the development of new weapons and its auditing of supplier's costs'* (p526, emphasis added). The nature of these internal operations (i.e. the divisional structure) will influence, albeit indirectly, the nature of the collaborations that the prime contractors pursue.

Nonetheless, based on the evidence from studies in the US, it seems plausible to argue that the public policy aspirations and activities of commissioners in the encouragement of networks are destined to be very limited in impact, although the influence of personnel and private interaction is scarcely examined and may be underestimated.

Nonetheless, networks in arms supply, then, will be largely based upon the interests and behaviours of prime contractors and their suppliers and it is these that are considered in the next section.

7.4.4 European Government initiatives to shape the defence industry

Interestingly, the more limited evidence from literature on Europe points in a similar direction to that from the US. Creasy and May (1998) conclude that: *'increasingly successful defence industrial cooperation seems to be industry-led and industry-managed'* (p27). Nonetheless, they note that politicians do exert influence over this co-operation both through the specifications of requirements that they authorise and the provision of incentives. However, despite governmental encouragement for European co-production, they suggest that many European firms are seeking alliances with American firms. Further, and based on analysis of three case studies of European collaboration, Creasey (1988), notes two further trends: *'a cooperation venture may have an economic or political logic in terms of production and marketing arrangements, but it seldom increases collaboration in research, development and design...[and] organisational behaviour and short-term "crisis management" problems act upon and inhibit the efficient operation of some military cooperation agreements'* (p89). She reflects on the contrast between the aspirations of politicians for cooperation and their sharp contrast with the activities of the defence firms participating. This contrast is clearly discernible as the objectives of the multi state-initiated projects precede the formation of the international industrial agreements.

Walker and Willett (1993) draw a similar conclusion from their reflection on Europe. Despite notions of *'juste retour'* and gradual managed transitions, they argue that what is taking place *'is an industry driven restructuring of the European Defence Industrial Base which recognises neither borders, nor need for balanced integration'* (p159).

Reflecting on the experience of US-European collaborations, Kapstein (2002) concludes that industrial alliances *'must be industry rather than government-led'* (p150). He argues that the *'primary role of government's must be to define military requirements rather than to organise (or cajole) transatlantic teaming arrangements, and then allow the marketplace to determine how these requirements can best be met'* (p150-151), and points to the award of the contract for the Joint Strike Fighter to an Anglo-American consortium rather than to a US-based supplier as having *'a major impact on every aspect of the defence industrial base, on both sides of the Atlantic'* (p151).

Braddon and Dowdall (1996), in an examination of the defence industry in the South West of England, draw attention to the problems faced by defence firms confronted with declining order books and

government encouragement to diversify. They identify asset specificity, financial problems, managerial and cultural inertia, exclusivity of buyer-seller relationships and intellectual property rights, congestion of 'escape routes', and imperfect information and false market signals as major barriers. Among these, it is clear that involvement with local defence industry networks may contribute to a number of these barriers (e.g. managerial inertia and exclusive relationships).

One of the most detailed studies (Martin, White and Hartley, 1996) of the impact of procurement on suppliers explores the relationship between the UK Ministry of Defence (MoD) and the defence industry using four performance indicators (financial structure, investment, productivity and profitability) on what the authors term dependent and non-dependent firms. In particular, they seek to explore the hypothesis that dependence on government contracts adversely affects supplier's performance. They conclude that: *'in terms of leverage, capital investment and profitability, we were unable to find any significant differences between dependent and non-dependent firms in the UK defence industry. Labour productivity was, however, significantly lower for dependents and productivity growth was higher in non-dependents (but not significantly so)'* (p335-336). They are cautious about drawing too many conclusions as a consequence of their reservations about the quality of the data. Nonetheless, the study does undermine the hypothesis that they set out to test, and suggests that it is other aspects of the organisations concerned (e.g. quality of R&D) that influence the performance indicators examined. This implies that the influence of the procurement approaches of the MoD on the commercial positions and decisions of its suppliers is less than has been previously imagined.

Cullen and Hickman (2001) examine how changes in the procurement practice of the MoD in the late 1990s impacted upon their relationships with their aerospace suppliers. These innovations, under the overall rubric of the Smart Procurement Initiative (SPI), sought to recognise the collaborative working patterns that characterise effective purchaser/provider relationships and move away from the more distant and adversarial contractual approach that had become typical of MoD procurement during the 1980s and 1990s. In particular, the authors wanted to explore the strains that had emerged between arms length contracts between the MoD and prime contractors and the co-operation and collaboration that are common in consortia of suppliers. They conclude that the MoD's contracts are drafted on the assumption that: *'parties will not perform their agreed obligations and consequently that conflict is inevitable'* (p530), and that the SPI initiative was being undermined by the continuing prevalence of this culture.

Finally in this section, it would be an oversight not to make reference to offset arrangements, where procurers specify that some form of economic activity must be undertaken by the supplier in the country

making the purchase. Licensed production or co-production is one form of offset which clearly influences the relationships between commercial suppliers.

7.5 The development of networks between providers based on mutual interest

As argued in the previous section, the aspirations and activities of government have to be set in the context of two industry factors: the nature of the existing relationships between providers; and their own ambitions for the future given the pressures that they face, of which the impact of government initiatives will be only one (and perhaps not a major one).

7.5.1 The extent of collaborative networks in supply

As noted above, in the 1990s the most marked trend in the industry was merger, with the dominant firms thus becoming larger and more international in scope, reflecting developments in manufacturing more generally (Korb, 1992). By 1997, three companies had revenues over £10 billion per annum, representing around 50 per cent of the supply in the western axis. Susman and O'Keefe (1998) report the major reasons senior executives of these companies gave for these acquisitions;

- to diversify within the defence industry;
- to bring elements of their supply chain into ownership through vertical integration (i.e. using acquisition to make more elements of their networks internal to the company); and
- to enter foreign markets.

Describing the merger that created the then second biggest player in the defence market, Donnelly and Clark (1997) argued that *'the merger comprises a vertical integration'* (p13).

However, also as discussed above, much of this revenue attributed to prime contractors was then passed onto subcontractors. It is worth recalling here that that the average defence procurement process (from initial concept to first production) in the US is over 16 years. The detail of this connection between prime contractor and subcontractor needs to be unpacked to understand the types of liabilities entered into between organisations over this extended period of time. The study by Kelley and Watkins (1998) provides some revealing material on this key topic.

These relationships have obviously been hit by the decline in the industry. Pages (1999) reports estimates of cuts in the number of subcontractors on weapons programmes ranging from 50 per cent to 80 per cent and although Oden (1999) is more optimistic about the

fate of small and integrated firms, Gansler (1995) thinks that both limitations on the number of suppliers and the entrance of foreign suppliers are both impacting upon traditional patterns of subcontracting. Nonetheless, the description by Kelley and Watkins (1998) on the nature of these relationships in 1991 remains the most detailed reported in the literature and thus warrants careful study.

Once again, Kelley and Watkins (1998) challenge received wisdom in the field. They found more *'collaborative networks'* (p271) in MDG companies with defence contracts than in those without. On 19 out of 43 measures of collaboration the former had *'stronger or more prevalent collaborative external links than the latter'* (p271). Figures 7.2 and 7.3 summarise their findings, with the first focusing on the collaborative networks defence prime contractors and the second on defence sub-contractors. These figures include only those external connections that were stronger, and the arrows indicate the direction of the connection. The authors' analysis of this material is reproduced in full in Box 7.2

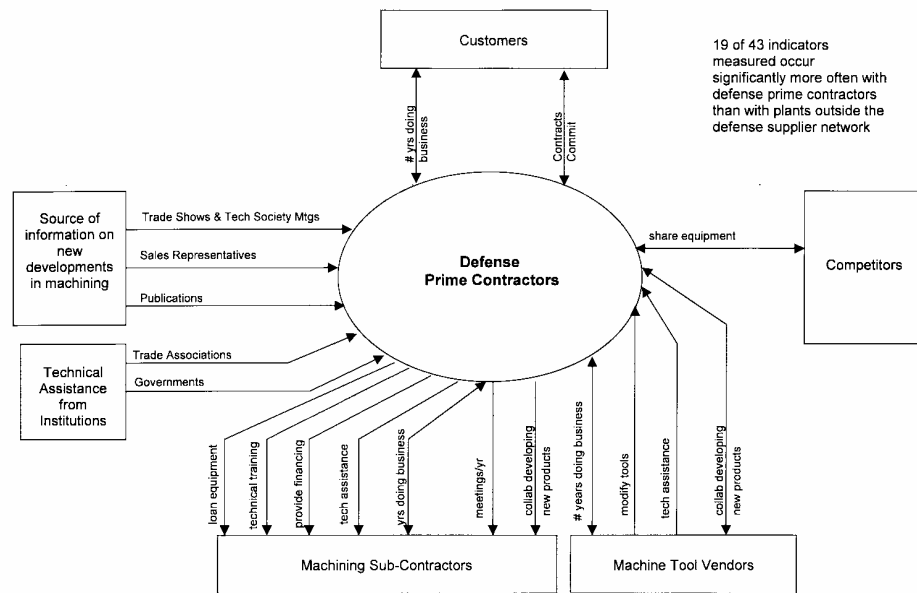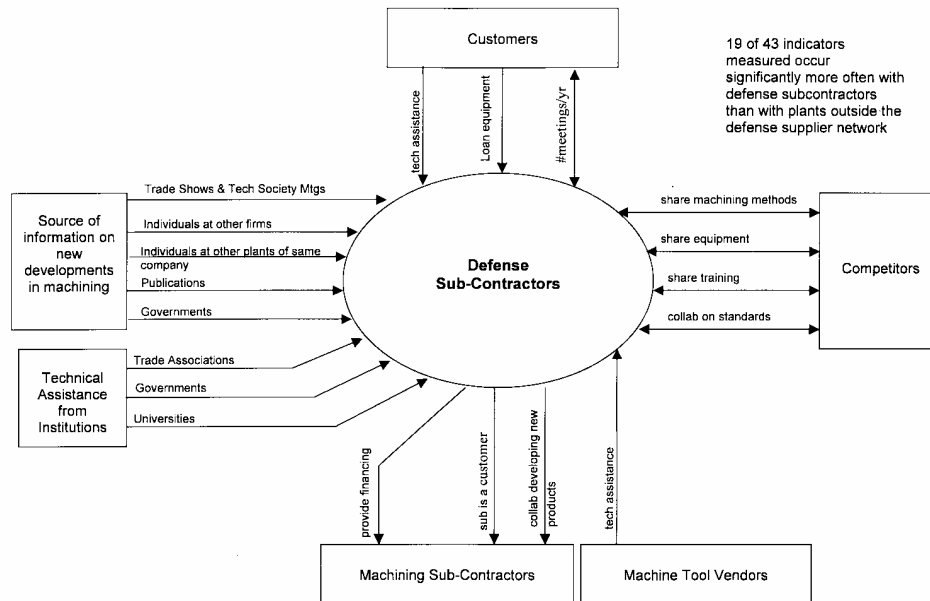### Figure 7.2: Collaborative networks of defence prime contractors

Figure 7.3: Collaborative networks of defence sub-contractors

Reproduced from Kelly and Watkins, 1998 (p272)

Box 7.2: An explanation of collaborative supply networks in the defence

In Figure 7.2 we see that the differences between defense prime contractors and non-defense plants are particularly strong when comparing each group's vertical relationships to their subcontractors and technology vendors. Out of ten different indicators of close ties to machining subcontractors, seven are significantly more collaborative for defense prime contractors than for plants in strictly non-defense markets. Defense prime contractors far more frequently say they provided technical assistance, loaned equipment or machinery, and provided financing, and technical training to their subcontractors in 1989 or 1990 than did non-defense plants. In addition, defense primes have a much more intensive relationship with subcontractors, meeting with the technical staff of their subs more than two-and-a-half times as frequently in 1990 as managers from non-defense plants report about contacts with their important subcontractors. With respect to links with technology vendors, we find that four of the seven measures are significantly greater for defense primes than for non-defense plants.

Note also the relative stability of the relationships that defense primes have to their key partners. Prime contractors have been doing business with their largest customer, most important subcontractor and technology vendor for a significantly longer period of time than non-defense plants. On average, defense prime contractors have been supplying their largest customer for more than 16 years, which is in the same range (15 to 20 years) recently reported to be typical of subcontractors belonging to keiretsu in Japan's metalworking sector...

While prime contractors have relatively stronger collaborative ties to subcontractors and technology vendors than do non-defense plants, defense subcontractors have comparatively closer relationships with competitors. Figure 7.3 shows that a higher proportion of defense subcontractors have lateral collaborative ties to competitors and are better connected to sources of information and technical assistance outside of their exchange relationships than plants that have no defense contract work. For four out of six indicators of links with competitors, we find a significantly higher proportion of defense subcontractors reported recent collaborative experiences than were identified by strictly non-defense plants. Defense subcontractors are more apt to share information on methods of using machining tools and to share equipment with their competitors. Defense subcontractors are also more likely to engage in joint training activities and to collaborate with one another on standards. Moreover, defense subs appear to be better connected to external sources of information. They report using five of eight outside sources of information about new developments in machining technology significantly more often than do strictly non-defense plants. And defense subs are also at least 60 per cent more likely to have received technical assistance in 1989-90 from trade associations, government programs and institutions of higher education.

Defense subcontractors are not more likely than strictly non-defense plants to have long-term contracts with their customers.... However, compared to other plants, the largest customer of a defense subcontractor is more likely to provide technical assistance and to loan equipment. On average, defense subcontractors also have more intensive (frequent) interactions with the technical staff of their largest customer than typically occurs with the customers of strictly non-defense plants.

Finally, strictly non-defense plants have a higher incidence of collaborative ties to their customers, suppliers, competitors and other external organizations than do plants inside the defense network in only 4 of the 86 statistical comparisons we made. This includes only one of 43 comparisons to defense subcontractors, and three of that same set of 43 comparisons to prime contractors. Compared to prime contractors, non-defense plants are more likely to depend on colleges or universities for information on new developments in machining technology, and to collaborate with competitors and technology vendors in developing new products. However, on these same three indicators, a larger proportion of DoD subcontractors has these ties, but the differences are statistically insignificant.'

Kelly and Watkins, 1998 (p272-274)

industry

This data presents a picture of the significance of the range and the length of the ties between collaborators in the defence supply networks, and the extent of the interdependence that exists between them, including with competitors. Kelley and Watkins (1998) argue that such interdependence does not necessarily hinder diversification out of defence production (as many firms are already both civil and military producers). However, for those firms which do specialise in defence production, the very strength of these links may impede diversification (see Braddon and Dowdall, 1996).

Kelley and Watkins (1998) do not report on the geographical proximity of the companies included in their data. In contrast, Bishop (1996) draws attention in his study of the Devonport Dockyard to the regional distribution of both prime contractors and their suppliers. He examines the spatial location of supply linkages in the defence sector, demonstrating that almost 50 per cent of the value of expenditure by the agency running the dockyard took place in the South West region, with over a third of that expenditure and 19 per cent of suppliers concentrated in Devon and with over three-quarters of that 19 per cent located in Plymouth. He also shows that most of these companies had under 10 per cent of their business associated with defence, confirmation from a UK context of the extent of diversification among defence sub-contractors found in the US by Kelley and Watkins (1998). Crump (1993) found similar patterns in his study of DoD procurement in the US, and argued that it serves as an important influence on regional development, in particular in stimulating growth in the service sector, a finding later endorsed by the Bishop (1996) in the southwest of England.

Also focusing on this area of England, Williams' (2000) study suggests three characteristics of defence supply chain: *'Firstly, firms with a high level of defence turnover (defence companies) are likely to purchase more of their inputs locally than companies with a low level of defence turnover (civil companies)...Secondly, the study further supports the conclusion of localisation in the sample as firms with predominantly local competitors are more likely to purchase a higher proportion of their inputs locally...finally...although the region has an overall specialisation in defence manufacture which is characterised by localisation, it is subject to traditional core-periphery patterns which displays less linkages with increasing peripherality'* (p325). He also concludes, like Crump (1993), that *'defence expenditure has formed a de facto regional policy through the generalisation of localised linkages'* (p325).

All of these studies suggest that localisation is an important feature of the networks developed by defence suppliers, and may account in part for the extent of the ties that have developed between them. It may also contribute to the apparent problems of diversification and innovation that defence companies seem to exhibit. As partial

confirmation of this hypothesis, a study of individual companies and plants by Harris et al (1996) reports that the adoption of innovation in metalworking tools used in defence manufacturing is strongly associated with 'suburban' settings, and less dependent on the density of same sector companies in one area (i.e. localisation). They posit that this finding is due to such suburban locales having *'their own complement of business, educational, and technical services, and increasingly diverse mixes of industrial activity, even as companies so situated continue to have access to the social, political, and physical infrastructures of the densest core urban areas'* (p254). This suggests that parochial and peripheral concentrations (and networks) of suppliers may be less well placed to respond to innovative practices than those in more diverse settings.

Leitzel (1992) suggests another potential consequence of the prevalence of localised sub-contracting, *'these subcontracts may facilitate side-payments to colluding firms'* (p48), although he provides no evidence or examples. However, it is not a new charge, and one robustly refuted by Gansler (1989): *'no serious study of the defense industry has ever yielded any data to show that there is any form of conspiracy among the defense suppliers'* (p183). Leitzel (1992) is nonetheless suspicious about the existence of a cartel among defence suppliers, noting that the study in the mid-1970s, showing that 16 out of 17 reprocurement contracts went to a new supplier, is consistent with the notion of the DoD spreading contracts around suppliers as much as with the authors' interpretation that the DoD usually becomes dissatisfied with the original contractor.

7.5.2 The governance of collaborative networks

The literature examined above maps the extent of the networks in supply. However, apart from the arrows in the figures of Kelley and Watkins (1998) which suggest considerable reciprocity between prime contractors and sub-contractors, there is little information in these studies about the way in which these networks are governed. There is only study (Dussauge and Garrette, 1993) in the literature that provides data on this issue.

Dussauge and Garrette (1993) define a strategic alliance as a *'collaborative agreement between two or more firms competing in the same industry, which contribute assets and resources to a common endeavour, while maintaining their individuality and independence'* (p45) and report on their study of such alliances in aerospace and defence between 1950 and 1990 where 70 per cent of the 70 alliances studied involved defence or 'dual use' production. Rather than focus on specific aspects of the individual alliances, they attempt to study variables and develop a typology which *'describe[s] the way in which tasks are carried out within the alliance and the governance structure established to organize the relations between the partner firms'* (p47, parentheses added).

From analysis of 14 potential variables (see Box 7.3), the authors characterise the alliances into three distinct types: semi-structured projects; business-based joint ventures and unstructured co-production projects. In the first category, only specific tasks (typically marketing) are carried out by a separate joint venture. All other tasks are distributed among the partner firms. Business-based joint ventures are ones where a separate joint venture has been established to control an aspect of the partners' business, usually without time-limit. In the last category, no task is carried out jointly and no distinct legal entity is created. They note that projects can move from the last category to the first, but that other transformations do not seem to occur.

The authors use these three categories of alliances that they derive to synthesise the information contained in the fourteen variables into two dominant dimensions, which they represent as two axes. Figure 7.4 is the matrix that is produced by putting these two axes together.

Box 7.3: Dussauge and Garrette's list of 14 potential variables for assessing alliances

1) Countries of origin of firms involved

2) Period in which alliance was formed

3) Sector(e.g. military, civil,' dual use')

4) Business segment (e.g. fighter aircraft)

5) Number of partner firms involved

6) Legal form (e.g. no legal entity, joint venture)

7) Time at which a joint venture is created

8) Equity participations of the various partners firms in one another's equity

9) Relative competitive positions (e.g. dominated partnership, balanced partnership)

10) Entry into the business (e.g. number of new entrants)

11) Functions covered by alliance (e.g. marketing, R&D)

12) Duplications (e.g. extent to which partners carry our same tasks simultaneously)

13) Distribution of tasks (e.g. extent to which tasks allocated to one partner)

14) Sharing of tasks (e.g. extent to which tasks are carried out jointly)

Edited from Dussauge and Garrette, 1993 (p50-51)

Figure 7.4: Typology of alliances in the defence supply industry
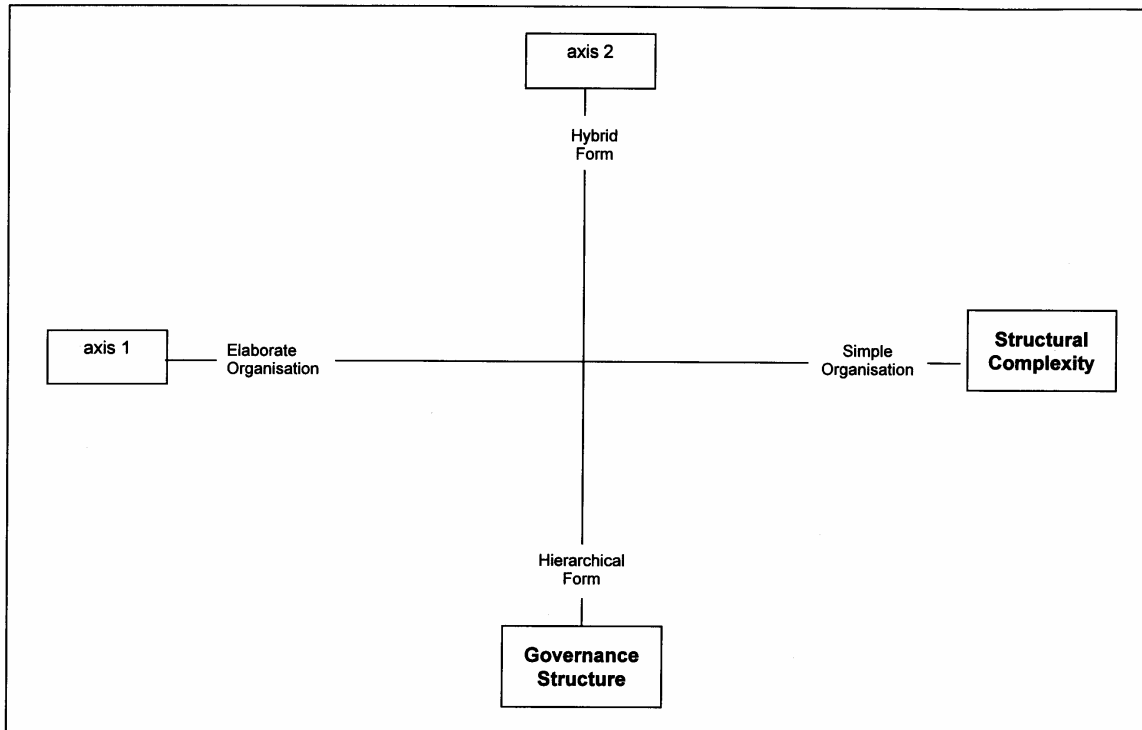
Dussauge and Garrette, 1993 (p56)

Box 7.4 reproduces the authors' analysis of the ways in which the variables contribute to the development of this matrix. They identify the two main discriminating factors as being the organisations of tasks within the alliance and the legal form given to the partnerships.

Box 7.4: Dussauge and Garrette's discussion of the matrix in figure 7.4

'Three variables contribute significantly and simultaneously to the formation of both axes: the distribution of tasks, the sharing of tasks, the legal form adopted. These three variables capture the way in which the collaboration is organized. In addition, several variables contribute significantly to only one of the two axes: the functions covered, the existence of equity participations between the partner firms and the time at which a joint-venture is created weigh heavily in the construction of axis 1 while the existence of duplicated tasks contributes strongly to the formation of axis 2.

On this basis, the horizontal axis (axis 1) discriminates between:

on the right side, collaborative agreements in which the distribution of tasks is the dominant form of organization, in which no tasks are carried out jointly and which have not led to the creation of a separate legal entity;

on the left side, alliances in which at least some tasks are carried out jointly and which have led to the creation of a separate legal entity.

The horizontal axis can therefore be interpreted as measuring the degree of structural complexity of collaborative agreements. Indeed, the alliances that could be plotted towards the left are organized in a more complex way: i.e. creation of a separate legal entity, equity participations etc ..

The vertical axis (axis 2) discriminates between:

towards the bottom, alliances in which all the tasks are carried out jointly, in which no tasks are duplicated and which may lead to the creation of unbalanced joint venture;

towards the top, alliances in which some tasks are carried out jointly, others are distributed among the partner firms and some are duplicated. These alliances tend to lead to the creation of balanced joint ventures.

The vertical axis can therefore be interpreted, in reference to transition cost theory, as describing the nature of the governance structure of alliances. Indeed alliances that could be plotted at the bottom are organized in a hierarchical form, with all the tasks carried out by a separate entity in which one partner has a dominant stake. Alliances that could be plotted at the top are organized in a hybrid way, an equally-owned entity carrying out only certain tasks, the others being distributed among the partner firms.'

Edited from Dussuage and Garrette, 1993 (p53-56)

Dussuage and Garrette (1993) also find evidence for the transaction theory of partnerships, arguing that there is a correlation between the increasing number of partners and the likelihood of a separate joint venture being created attributable to the wish of partners to avoid transaction costs. They note that: *'the role and scope of the joint ventures set up at different periods tends to increase over time [which] may indicate that co-operation is evolving towards forms closer to traditional industry concentration'* (p61). They suggest a preliminary hypothesis that links the commercial success of the alliance with its form (i.e. most mature unstructured projects can be viewed as commercially less successful than semi-structured projects) and speculate that: *'the main discriminating factor between these two classes being precisely the existence of a specific marketing and sales organization in one and not in*

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the other, it is tempting to attribute this success to that very structure' (p61). They reveal that there is an apparent trend over the period studied away from the unstructured alliance and towards the more structured alliance. Overall, this study is a bold attempt to provide an evaluative tool for assessing and presenting the characteristics of alliances, and one which suggests that: *'the main discriminating factors…are the organization of tasks within the alliances and the legal form given to the partnerships'* (p59).

There is some support for the findings of Dussuage and Garrette (1993) in other accounts, but these are typically not based on primary research. For instance, Alic et al (1992) suggest that the 'pipeline' view of innovation, where new technology emerges independently in the successive steps of research, development, engineering etc., misrepresents the complex interaction between these components in the development of new approaches. The 'cycle' theory of innovation, on the other hand, *'stresses the importance of close coupling among them'* (p20) and *'emphasizes the importance of complementary assets (not always technological) that often determine competitive success: supplier firms, distribution and service networks, and so on'* (p20, parentheses in original). They argue that companies in the global market are both merging and decentralising simultaneously, *'farming out more production, contracting for services once provided internally and pursuing joint ventures, and other corporate linkages and alliances such as sharing in technology development projects…in so doing, they come to rely on complex global networks of wholly or partly owned affiliates, suppliers, and strategic partners (who may include putative rivals)'* (p23, parentheses in original).

Based on a small number of case studies from Europe, Creasey (1988) suggests that the most important aspect of any collaboration relates to access to distribution networks. Based on these examples, she puts forward a model for a cooperation agreement (Figure 7.5), and also a representation of how the elements in this model might interact (Figure 7.6). She suggests (again exemplifying the economists' predilection for prediction) that: *'successful cooperation agreements serve their purpose well without disrupting the strategic well-being of the partner firms…the key to forging mutually satisfactory cooperation agreements is a realistic assessment of the strengths (and weaknesses) of the firms in the proposed venture'* (p94). Anticipating the findings of Dussuage and Garrette (1993), however, she also argues that *'cooperation agreements may be transitory organisations that firms embrace to obtain an advantage more quickly, but the most stable ones are those where the agreement is a joint venture and has its own economic resources'* (p94).

Although firmly rooted in the tradition of organisational economics, the models devised by Creasey (1988) have the virtue of emphasising that alliances are dynamic rather than static, and are constantly responding to a range of economic, political and organisational factors. The

introduction of this dynamism is important given that this aspect is not discussed in the mapping of Kelley and Watkins (1998) or the analysis of Dussuage and Garrette (1993).

Figure 7.5: A model for a co-operative venture in the defence industry
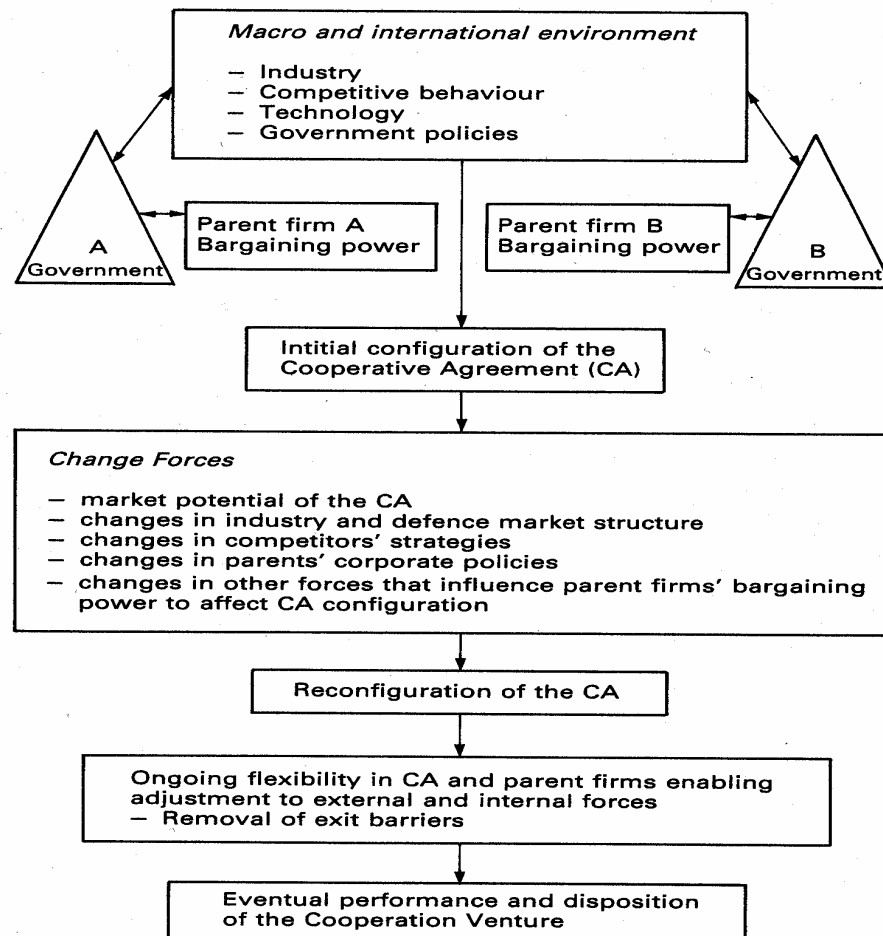
Reproduced from Creasey and May, 1988 (p95)

Figure 7.6: A model of interaction within a co-operative venture in the defence industry

Parent firm A

Bargaining power determined by

1. Benefits
2. Costs
3. Resources
4. Alternatives
5. Govt support
6. Need
7. Barriers

Parent firm B

Bargaining power determined by

1. Benefits
2. Costs
3. Resources
4. Alternatives
5. Govt support
6. Need
7. Barriers

Macro Forces

Stability of the CA (and timing of macro changes) depend upon:

– Industry–government relations
– Exchange rate/economic policy stability
– Changes in parents' corporate policies
– Changes in importance of CA
– Changes in *power* of any of the main actors: the firms, their governments; personnel changes in management structure of CA

8. *Cooperation Agreement* (& MOU)

INPUTS

9. R&D
   – preliminary research and design studies
   – design and development (of subsystems)
   – system test (of complete system)

10. Initial investment
    – prime mission equipment
    – support equipment
    – spares, spare parts and stocks
    – initial training
    – travel, transportation

OUTPUTS

11. Weapon system installation
12. Annual operations
    – pay (of staff directly involved in CA)
    – equipment and installations replacement
    – equipment and installations maintenance
    – training
    – recurring travel, transportation

Reproduced from Creasey and May, 1988 (p96)

Draper (1990) is unequivocal about the dynamics driving European defence firms to be increasingly interested in collaboration. It is, he asserts, *'their best prospect for survival into the next century'* (p63). He is also clear about the recipe for successful collaboration. It is based on project managers for collaborative ventures who: *'must combine a talent for strategic control with a gift for detailed criticism, will have to be carefully selected and trained for this work, given freedom of action, simple and unbureaucratic links with higher management'* (p65). This is one of the rare attempts in the literature to assess the implications for managerial behaviour of the trend towards more alliances, joint ventures etc.. Furthermore, Draper argues, a young manager in the industry *'can be assured of a promising future through association with successful collaborative European projects'* (p96), although in the light of the apparent number of failed or aborted projects this perspective may be a little too optimistic. Draper suggests that collaborative projects are less likely to be cancelled than domestic ones, and have more chance of success in the export market.

7.5.3 Will collaboration necessarily keep increasing?

Hagedoorn (1995) is less confident about the trend towards collaboration (identified by most of the authors discussed in this section) continuing into the future. He argues that the development of alliances will be cyclical, with partner companies becoming less enthusiastic about them when they realise that they are not a panacea due to: *'opportunistic behaviour of partners, and the limited success of strategic alliances'* (p208). In fact, he finds in his data that the defence industry does not follow the cyclical pattern of other industries, which he hypothesises is attributable to alliances being slower to emerge in the weapons sector. It transpires that, when measured by network density, in the late 1980s *'at least 20% of the theoretically possible inter-firm links between groups of leading firms...are actually found'* (212-213), and that defence companies also show a high degree of stability in these networks over time (e.g. in large bidding consortia) although there are also discernable geographical patterns to these networks (e.g. US, European, Japanese). Common to the networks, however, is the influence of prime contractors: *'nodal companies increasingly weave webs with a large number of partners through a wide variety of inter-organizational modes of cooperation such as joint ventures, joint R&D pacts, and technology sharing agreements. The "open" character of these networks, with some degree of stability, indicates the dynamic nature of character of partnering behaviour of many leading companies that use these alliances as part of a wider competitive strategy'* (p226).

Walker and Willett (1993) also view the context as more uncertain than most, one where *'corporate managers have found it hard to judge what is the most effective commercial strategy'* (p142). On the whole, however, they argue that European defence companies have been adopting a three strand strategy of diversification, conversion, and

specialisation, and especially the last, and as noted above, the approach has in their view been industry led.

Drown (1990) reports on interviews with thirty senior figures, mostly in the defence industry but with around a quarter from European governments, about their views on the future of European collaboration. They were concerned by the *'perplexing dichotomy of policies on the part of the dominant member of the Alliance, the United States…the most often mentioned of these frustrations was what they interpreted as America's ambivalent and punitive technology-transfer policy'* (p30-31). In this context, most interviewees expressed a need for more European collaboration on research, development and production of arms but saw little chance of much progress in the next ten years. This study suggests that senior figures in the industry looking for a policy lead from European governments, do not expect to receive one, and seem to want to underplay the commercial logic that many commentators see as driving much of the collaboration that is taking place.

7.5.3 The wider context for supplier collaboration

Finally, any discussion of the defence industry has to be set in the context of the trends within industry more broadly. The quotation from Alic et al (1992) above places defence firms within the trend towards globalisation that is affecting most major companies. Hayward (2000) picks up this point, arguing that by 2000 *'the world defence industry was consolidated into four major defence prime contractors and a select group of semi-primes and specialist high-level subsystems suppliers'* (p117). During the 1990s, Hayward points out, this involved an acceleration of cross-border mergers at all levels of the industry, although prime contractors in the US have fewer overseas assets and networks. As an example, Hayward argues that: *'the embedded software in many weapons systems could come from anywhere in a global industry'* (p118). This has significant implications for government influence over the defence industry – already demonstrated to be limited in the previous section – because *'if much of the globalisation process is occurring below the threshold of government concern or even knowledge, then governments will have only limited ability to regulate the process, to control the flow of defence technologies or to maintain a role in defence-industry policy'* (p118).

Paradoxically, this trend could create the mix of international competition and collaboration that governments, in particular in Europe, have advocated but largely failed to deliver. Prime contractors will create their own international consortia with preferred-supplier agreements, *'trading long-term assured custom and participation in the design and development process for commitments to reduce costs progressively throughout a production run'* (Hayward, 2000, p120). Reed and Walsh (2002) describe the benefits of a supplier development pilot

run by a defence contractor for such preferred suppliers: *'this results in better communication links and sharing of strategic information; customers and suppliers are more likely to be involved early in new product development'* (p240). Of course, the research of Kelly and Watkins (1998) discussed above suggests that such consortia incorporating extensive mutual support have been in place for some time. That such support schemes may be necessary, even where the supplier is a subsidiary in the same company, is suggested by the study of Bishop and Price (1999) which concludes that: *'at a UK level, external ownership of defence related firms has had a negative indirect impact upon innovation through reducing the probability of the presence of an R&D function'* (p449).

Nonetheless, it is with the emergence of international competitors and collaborators that Hayward (2000) sees the combination of global merger and decentralisation predicted by Alic et al (1992), as do Reed and Walsh (2002). The extent to which the security, economic and political concerns of national governments can hold back these developments remains to be seen.

7.6 Networks in defence: the links to the theoretical perspectives

There are numerous writers in the literature reviewed here who attempt to view the networks in defence – especially those between procurers - as based on assumptions around rational choice and transaction costs, and bemoan the interference of other factors which are seen as illegitimate. Despite these attempts, it is clear that in considering links between procurers there is evidence for the valency of neo institutionalist perspectives, where the extent of the interaction is limited by pre-existing political and social constraints. In the case of suppliers, there seems to be support for the ideas derived from organisation competency and learning theories, where some prime contractors seek through networks to enhance their core competencies, be these exploratory (in search of new knowledge) or exploitative (capitalising on current knowledge), although in both the knowledge in question is predominantly explicit rather than tacit. However, there are also suggestions in the literature that Weberian perspectives hold some explanatory power in analysing joint ventures, focusing as they do on the importance of clarity of hierarchy and accountability. As suggested in the introduction to the theory of networks in Chapter 3, thorough exploration of networks may encompass a number of theoretical schools in order to reflect their variety, although this review indicates that three or four may have more explanatory power than the others.

If this story (of the prevalence of three or four theoretical schools) is accurate, it has consequences for expectations of the impact of either external governance or internal management of networks. With the

exception of the regulatory authority that is available in rational choice/transaction cost and Weberian accounts, there is limited apparent leverage in defence procurement and supply to be exercised by external governance of networks. Rather, the balance of power lies in the internal management of these networks.

Thus, in procurement, the effect of a number of international structural attempts to promote partnership between national governments through external influence (from NATO onwards), and where such purchaser collaboration is expected to generate provider competition, has been muted. The predominant structural form of the relationship between these governments seems to vary between countries overtime, but overall to oscillate between a high density enclave around formal allegiances (e.g. NATO) to a low density isolate pattern around specific projects (e.g. the EFA).

In supply, the dominant influence on partnership seems to be the consolidated defence-specific prime contractors and the nature of their relationships with often geographically proximate sub-contractors with which they work for significant periods of time. In essence, these networks are co-ordinated through the nodal position and priorities of one member, even though this co-ordination may at times be as much implicit (e.g. through the prime contractor offering training to a sub-contractor) as explicit (e.g. through a formal contract). In these networks, the connection between the node and the periphery may be highly centralised through the prime contractor, and the connections between the components of that periphery sparse. Furthermore, the prime contractor frequently possesses the ability to turn any sub-contractor into a subsidiary (i.e. to turn the network into a hierarchy), or to remove it from the network entirely. At the same time, however, the evidence suggests that geographical proximity may enable the development of considerable network density between these sub-contractors, and potentially produce considerable reliance of the prime contractor on these dense local networks.

Of course, the influence over networks that can be derived from external regulation should not be entirely dismissed. It is in this influence, along with the ability to shape both the nature of the product and the form of the market within which supplier collaboration will operate to deliver that product, that represent the governance tools of purchasers in the weapons industry. Nonetheless, their impact is, as argued above, limited, and it is the commercial aspirations of the suppliers concerned that seems most to define the nature of the networks (just as it is the domestic political aspirations of the governments involved that apparently drives networks of procurers despite the best efforts of NATO etc..).

When considering accounts of collaboration in defence supply, one of the most helpful differentiations in the theoretical accounts is between vertical and horizontal ties. The former links organisations in the

supply chain (e.g. the sub-contractors which make the tracks with the prime contractors which assemble the tanks) whereas the latter links two organisations (for instance through joint ventures) which would otherwise be competitors (e.g. two prime contractors which both make tanks). Two of the key studies discussed in the last section explored these distinct forms of collaboration (Kelley and Watkins, 1998, looked at the former, while Dussuage and Garrette, 1993, examined the latter).

Furthermore, the defence supply literature seems to undermine the suggestion common in many accounts that the three archetypal forms of organisation (networks, hierarchies and markets) are distinct. This review has found evidence of two patterns of organisational behaviour which challenge this view. The first is that networks are common (and may even extend to competitors) even where a form of market is operating (e.g. in the US supply industry). The second is that networks may be most effective when they create new forms of hierarchy (e.g. joint ventures). In terms of the structural typology based upon neo-Durkheimian institutional dimensions of social organisation (see Figure 3.2 in Chapter 3), the networks in defence are predominantly hierarchical, although often exhibiting aspects of individualism in the centrality of the prime contractor, but also with potentially significant characteristics of the enclave which are related to shared industry and/or geographical identity.

At the same time, there are gaps in the literature on the procurement and supply of weapons that do not allow illumination of key areas of theoretical interest. For instance, there is little on the forms of leadership that are demonstrated in the partnerships between suppliers (beyond some prescriptions of the desirable characteristics of future managers in the sector). Although there is some discussion of the weaknesses of the procurers (put broadly, the military does not value the activity for its own personnel and values non-military purchasers even less), the literature implicitly favours structure over agency.

Linking the discussion in this Chapter to the simplified model of the determinants of network forms and dynamics, it is clear from the literature that the prevailing institutional factors ('the weight of the past') feature significantly in the networks of both procurers and suppliers, and in particular this is where the actions of the former, e.g. through regulation, has the most impact on the latter. There is evidence for three of the factors identified in that model being influential on supplier networks as 'forces of the present' i.e. the current trends in the organisational field (e.g. the trend towards prime contractor consolidation), the balance of transaction costs (e.g. the advantages of joint ventures) and the information, learning and knowledge requirements (e.g. the extent of the networks across R&D, sub-contractors and competitors). Furthermore, the 'shadow of the future' (e.g. cuts in defence spending) is revealed as a major driver in

the present (e.g. prime contractor consolidation). The procurer networks are more influenced by the task environment in interaction with the 'weight of the past', e.g. where specific aspects of the technical and output problems suggested collaboration to some countries and not to others (for instance on the EFA). Finally, the basic form of organisational relations differs between the networks of procurers (enclave-isolate) and suppliers (hierarchy-enclave-individualist) and thus the nature of feedback that each system prompts and hears.

7.7 Major messages for the NHS

What are the major messages for the NHS in relation to networks that emerge from this review of arms procurement and supply?. These are dealt with in the same three sections in which the defence literature was analysed above.

7.7.1 The networks between countries for the procurement of arms

Collaborations across traditional boundaries of procurement may lead to cost savings and greater scales of output, but government monopsony purchasing can also combine innovation in design with outdated means of production.

Economic and political factors may impede collaboration across the traditional procurement boundaries regardless of the apparent, and indeed espoused, benefits of collaboration, and continued innovations in structure may not be able to overcome these factors.

As a consequence, there may be a rhetoric of competition and/or collaboration but a reality of protectionism in the behaviour of procurement agencies.

Interdependence of procurement agencies across traditional boundaries may be the only route to ensuring continued independence.

7.7.2 The aspirations and activity of governments in the encouragement of networks between providers for supply

The influence of a purchaser (even a national monopsony purchaser) on the provision of services may only be influential when it coincides with the commercial or professional trends or imperatives in the sector.

Nonetheless, governments as purchasers can exercise considerable control over sellers' internal operations through direct involvement in the development of new products and in the audit of supplier's costs.

Lack of consistency in the message about the nature of the supplier relationships required will undermine government influence on these relationships.

The nature (i.e. the extent and the length) of the collaborations between prime providers and their sub-contractors may be submerged, and get overlooked, in the influence that the government attempts to exert over a sector.

The more organisations become independent of government (e.g. through privatisation of public suppliers) the more the aspirations of the industry will drive the provision and the less the aspirations of government will impact.

Increased regulation will be inevitable where there is no genuinely free market and where economic and political considerations preclude the creation of such a market but the over-bureacratisation of procurement may lead to inefficiencies in supply.

There would seem to be criteria available for assessing the characteristics and effectiveness of collaborations.

There is more cachet in being the manager either of suppliers or of the end user of supplies than in procurement.

The extent to which supplier mergers save purchasers money is contested.

7.7.3 The development of networks between providers based on mutual interest

The espoused requirement for confidentiality may undermine attempts at collaboration between parties to potential networks.

Prime contractors may increasingly choose to develop and sustain their own internal consortia of suppliers which create alliances and networks that purchasers have been unable to put in place, although political and public suspicion of cartels may accompany such initiatives.

As a consequence, sector consolidation alongside supplier decentralisation are becoming increasingly common.

The collaborative networks between agencies that exist in such consortia may be very extensive in scope and extend over long periods of time, but may hinder diversification and innovation in production.

The creation and maintenance of effective collaboration across suppliers will require the development of new skills among upcoming managers.

Alliances that are the least structured do the worst, especially if they do not present one public profile to the world, whereas alliances that are the most structured, such as joint ventures (and/or have one lead agency) do the best.

Supplier collaboration in one area or on one product does not necessarily lead to collaboration across other areas or products unless some form of joint venture is put in place.

The greater the number of partners to a collaboration, the more likely the likelihood of a joint venture being established to decrease transaction costs.

Localness may be a major factor in the development of collaboration, although localness may be less important than locating in a suburban setting in the development of innovations across collaborations.

The key factors in developing collaborations seem to be commercial rather than, for instance, psychological (e.g. trust between individuals may be a necessary condition for partnership but it is not sufficient).

7.8 Acknowledgements

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8. Networks in crime, disorder and drugs

Tim Freeman

8.1 Introduction

The concept of community safety emerged in the 1980s in the light of rising public fear of crime, heightened awareness of its impact on victims and a political imperative for cost containment. The earlier welfarist approach, in which penal concerns were traditionally expressed in a language of rehabilitation, was supplanted by a new penology expressed in terms of crime management (Garland 1997; James & Raine 1998). Consistent with this broader trend, partnership approaches to crime management during the early 1990s reflected a conceptual refocusing away from *structural causes* of crime toward crime management *per se*, with a consequent increase in emphasis upon situational crime reduction strategies within geographical communities (Kemshall & Ross 2000; Garland 1996).

The policy was informed by an influential review of 231 widely differing prison rehabilitation schemes conduced between 1945 and 1967 which concluded that such schemes had little impact on recidivism rates (Lipton, Martinson and Wilkes 1975; Martinson 1974). While the authors' intended to promote alternatives to prison, the political right enthusiastically adopted their findings to justify a reduction in educational and psychological reform programmes and increases in sentences, under the slogan 'nothing works'. The negative conclusions of Martinson and colleagues were challenged on the grounds that the methodological quality of the original studies was so poor that firm conclusions concerning their efficacy could not be drawn. Further, the broad generalisations of the conclusions overlooked many instances of individual success (Gendreau and Ross 1979). Later literature reviews using filters for methodological quality provide promising evidence of the effectiveness of social intervention programmes in assisting behaviour change in people who offend

(McGuire 1995; Andrews & Bontanna 1998; Andrews *et. al.* 2001). This reanalysis posed a simple yet crucially important question - what works?

New Labour's approach to crime reduction partnerships marks a sharp discontinuity with the 'nothing works' approach and a return to social models of crime prevention. In order to engage with the 'what works?' agenda, the Home Office commissioned a review of available evidence on ways of dealing with offending behaviour (Home Office 1998). The report's authors' concluded that crime reduction would be best served by a combination of long-term investment in children and families, together with immediate, situational crime preventive measures in identified 'hot spots', and the adoption of 'problem-oriented policing' (POP). Based on the work of Goldstein (1990), POP starts from the assumption that policing should target underlying problems within a community. In order to do this locally based officers require information on related incidents, and the support of senior officers in developing imaginative solutions to specific local problems (Leigh, Read & Tilley 1996).

8.2 Partnerships

Consistent with third way politics, New Labour's political vision rests on values of equal worth, opportunity for all, responsibility and community (Blair 1998), and the practical politics derived from this value base places partnerships between the state and civil society alongside the need for individual empowerment and market-based opportunities. The value of partnerships within this paradigm is that they offer the potential for increased participation by citizens in public life, encouraging a sense of shared values and responsibilities between state and citizen. In the context of criminal justice, the concept of partnership thus includes the promotion of both private and non-profit contributions to crime prevention and treatment, together with an emphasis on the responsibilities of citizens to prevent crime. This shift of emphasis reformulates the 'crime problem' as one requiring the management of cross-system goals, necessitating collaborative action across multiple agencies, professional groups and active citizens.

Common across multiple social policy areas, partnership is an umbrella term covering a multitude of arrangements between public, private and voluntary agencies and between agencies and service users. As a form of collaborative relationship, partnerships place the emphasis on process, consisting of common aims and a means of achieving the desired outcomes:

"Partnerships should be treated as specific forms of co-operation based on shared agreement on action to be taken and/or shared objectives and a commitment to achieve those objectives. This leads to a separate process and/or organisation in which responsibility for decision-making and action is shared on an agreed basis."

(Clarke & Stewart 1997: p. 4)

The rhetoric of partnership promises to put communities at the heart of regeneration. Yet, community involvement and partnership are difficult to achieve (Taylor 2000a), and the language of partnership masks a series of tensions between accountability and flexibility, participation and representation, and consensus and diversity (Taylor 2000b). Thus, the very necessity for accountability for public money may frustrate the risk taking that communities may wish to see. Community leaders are frequently criticised for being unrepresentative, and there is a risk of reliance on a small pool of silo activists. Where constituencies are large and issues complex, consensus will be difficult to reach, and participants will require information and support in order to contribute. Similarly, there are tensions between the need to identify differences and avoid a populist majoritarianism, while identifying common interests and avoiding fragmentation.

Cross (1997) reviews the complexities of the term *partnership* in the context of probation services, noting the multiplicity of forms ranging from a unitary purpose project limited to two partners to multi-agency undertakings with multiple goals. Drawing on Locke (1990), Cross notes different levels of formalised activity, from loose liaison relationships to corporate integration on policy-making, service planning and resource allocation. She suggests a classification system based on the extent of formalisation and integration, re-expresses by Crawford (1998) as ranging from multi-agency work without significantly affecting the work that the agencies do, to inter-agency partnerships in which working practices and service delivery patterns are radically transformed. Gibbs (1998) gives an overview of a range of formal and informal relationships between the probation service and voluntary organisations, highlighting models of good practice.

Sullivan & Skelcher (2002) conceptualise three broad periods of partnership development within the crime and disorder context: early initiatives; strategic development; and statutory partnerships.

1) Early initatives

Early partnership activity by the Home Office in the 1980s concentrated on 'situational' crime prevention, including Neighbourhood Watch partnerships between local residents and police, in which residents monitored potential criminal activity.   There was a particular emphasis on environmental improvements and surveillance, in order to address social and situational aspects of community safety, often initiated by local authorities in response to particular issues of public concern and facilitated by the Home Office Crime Prevention Unit, established in 1983. Relationships between local authorities and police were often tense, reflecting an underlying conflict between the two concerning perceptions of whose domain this was, and who should

lead. Tilley (1993) identifies an 'emergent' effect upon the outcomes of this initiative, as an initial emphasis on situational crime prevention broadened to include social aspects, such as racial harassment and domestic violence (Hague & Malos 1998), due to the articulation of concerns by well-organised voluntary sector partners.

2) 'Contract culture' and strategic development

The rise of New Public Management (NPM) influenced the development of partnerships away from informal, non-financial arrangements towards contract-based purchaser-provider partnerships. Heavily influenced by public-choice theory (Niskanen 1994), at the heart of NPM lie a set of beliefs about the potential for improved economy and efficiency in service provision by limiting the role of state agencies and encouraging multiple service delivery agencies, exposed to market forces. New right political thought argued for a core of state activity, covering policy-making, regulation of privatised, contracted-out and residual direct service provision - a 'hollowed-out' state (Sullivan & Skelcher 2002). Increased user-responsiveness would follow from the creation of markets in which service users had choices.

Within probation services, political and legislative changes in the early 1990s created formalised, contract-based relationships between probation services and the voluntary sector (Home Office 1990; 1992). This development was linked to new managerialist and quasi-market approaches to public sector management (Hood 1991; James and Raine 1998; Clarke *et. al.* 2000) and resulted in the organisation of probation service - voluntary sector partnerships on a purchaser - provider model, concentrating on the provision of structured programmes of offender supervision. While many of the accounts of such initiatives for substance misusing offenders are anecdotal, some empirical research is available on the characteristics of successful partnerships (Rumgay & Cowan 1998). Two issues were found to be important in this regard: championship by the probation agency and partnership as enhancement. The former required a 'link' between probation officers and partner substance abuse workers, and the latter required the perception that substance abuse workers would enhance probation officer's direct work with clients. In the absence of the latter, Rumgay & Cowan (1998) report instances of 'sabotage' by probation officers. More recently, the 'what works' agenda emphasises the use of individualistic CBT approaches with offenders. This has made it more difficult for probation services to work in partnership with other agencies that pursue less individualised approaches.

The changes brought about by the switch from non-financial and informal partnership arrangements to contract-based purchaser-provider arrangements affected not only the way that probation services conducted their business with the voluntary sector, but also

the role of the voluntary sector. Changes included the need to bid for work contracts, funding tied to specified service provision rather than overall voluntary agency goals, and increasingly becoming part of the statutory process. The changes were variously viewed as aiding voluntary agencies to focus on a more specialist service for service users, or compromising their aim to supply services only to voluntary clients (Gibbs 2001). Voluntary agencies increasingly became sub-contractors and thus the National Association for the Care and Resettlement of Offenders (NACRO) grew as a recipient of urban programme monies to provide tightly specified services. Other voluntary groups fell victim to the changes:

> *"… some probation mangers felt that the market niche of these groups was too small to make contract viable, and were therefore not willing to 'risk' funding such groups because the clients might not emerge. What this suggests is discriminatory approach which effectively, because it was based on a business approach to prioritise supply and demand, meant that the needs of minority group clients, in some cases, went unaddressed."*

> (Gibbs 2001: p. 20).

For Crawford (1998), New Public Management exacerbated inter-agency tension as internal agency priorities took precedence over collaborative aims. The conjunction of hollowing-out, with its consequent fragmentation in service delivery, and a political imperative to combat 'wicked issues' such as community safety cutting across the boundaries of a fragmented organisational landscape, led to the creation of multiple inter-agency partnerships. The context of high organisational fragmentation required resources to facilitate negotiation and delivery of public programmes (Skelcher 2000). In response to transaction costs, integrative mechanisms were seen as imperative to align policy across organisational boundaries. It should be noted however that counter to the 'hollowing-out' thesis, New Labour's commitment to modernising government is strongly associated with the Prime Minister and driven strongly from within the Cabinet Office (Bellamy 2002). Indeed, the statutory nature of partnerships under the 1998 Act poses particular difficulties for network participants given their strongly hierarchical nature.

While rejected and shelved immediately on publication in 1991, The Morgan Report later provided the key inspiration for much of the New Labour multi-agency and social crime prevention schemes post 1997. The main thrust of the report is that the concept of crime prevention is limiting in scope, and generally police-driven with other agencies having a marginal stake.   In contrast, the report promoted community safety to progress beyond a situational definition of crime to a broader, social definition of crime prevention, consistent with earlier (pre-1979) social models. The report acknowledged the complexity of crime and strongly supported multi-agency partnership working,

supporting the notion that local authorities be given the statutory duty to co-ordinate crime prevention strategies within their locality. The Home Office rejected the suggestion of an increase in local authority influence in favour of a continued voluntarism, consistent with the view that statutory responsibility would undermine a 'problem-solving' focus (Liddle and Gelsthorpe 1994a). The Department for Transport, Local Government and the Refgions (DETR) and Home Office formalised the process through the Safer Cities Programmes of the 1990s, providing funding for the development of multi-agency community safety strategies.

Liddle & Gelsthorpe (1994a) chronicle the formal and informal structures, modes of leadership, involvement of external agencies and relationships to local and central government at this time. Their study was designed to investigate and assess multi-agency approaches to crime prevention based on eight areas, with a less detailed survey of 22 additional localities. While their account is descriptive of formal structures rather than evaluative, a number of issues of general concern may be distilled. The authors support formal structures in which there is support from the most senior officers of the relevant agencies, rather than informal arrangements. In addition to favouring voluntary rather than statutory arrangements as disclosed above, the authors raised concern over difficulties of co-ordination in the absence of a full-time co-ordinator.

Co-operation and participation are further addressed in a subsequent document (Liddle & Gelsthorpe 1994b), in which an important distinction is drawn between scheme- and process-focused crime prevention work. While the former are driven by short-term goals developed as a result of time-limited funding, the latter create working arrangements focused on the long-term and funded via existing mainstream budgets. They are critical of the efficacy of scheme-focused crime prevention work, as it may erode local ownership and be akin to 'puffs of smoke in the wind' (Liddle & Gelsthorpe 1994b: p. 9).

Joined-up government in crime and disorder thus clearly predates New Labour. However, formal arrangements with support from senior officers and full-time co-ordination suggests increasingly hierarchical modes of collaboration, very different to networks that are typically much looser. This impetus towards hierarchy was given an additional boost post-1997 with the creation of statutory partnerships.

3) Statutory partnerships

The Crime and Disorder Act (1998) replaced the voluntarism characterising earlier community safety partnerships with a statutory duty for local authorities, as recommended in the Morgan Report (1991). Under the Act, local authorities and police authorities in England and Wales are required to work together, to jointly lead a strategic Crime and Disorder Reduction Partnership (CDRP) comprising

all relevant stakeholders in the public, voluntary, private and community sectors. Consequently 376 statutory crime and disorder partnerships have been established in England and Wales (Phillips *et. al.* 2002).

The establishment of partnerships as the key delivery vehicles for policy outcomes marks a significant shift:

> *"The 1998 Crime and Disorder Act illustrates 'Third Way' politics by introducing measures to ensure agencies co-operate at both strategic and operational levels; that crime prevention strategies are developed from information provided by many kinds of agencies including community and informal groups; by emphasising the need to support and reinforce the responsibilities of families in bringing up their children; and by adopting an inclusive approach to reinforce the importance of all citizens having a say."*
>
> (Gibbs 2001: p. 23)

Such partnerships are envisaged as broad, diverse and inclusive, offering the prospect of increased opportunities for agencies and citizens to work together. However, a number of difficulties arise. While the proposals strengthen local responsibility for community safety, new funding programmes and the establishment of the Home Office as monitor of local Crime and Disorder Partnerships strengthen the hand of central government in influencing their priorities. Three principal difficulties may be discerned: lack of conceptual clarity concerning community safety, the statutory nature of partnerships and an underlying managerialist agenda.

1) Lack of conceptual clarity

The concepts of community safety and disorder that underpin the statutory partnerships were not clearly defined (Crawford 1998), opening the possibility of disagreement between partner agencies on the scope of activities.   Indeed, Crawford (1998) identifies fundamental conflicts over ideology, purpose and interests leading to major implementation difficulties. Differential power relations between partners exacerbate such problems, and there is potential for the perspectives of lead agencies to dominate those of other partners, effectively excluding them from the process.

2) The statutory nature of partnerships

By default, the statutory nature of such partnerships prioritise the role of the lead agencies, local authorities and police, leaving secondary roles for probation and health and tertiary roles for other typically voluntary sector partners.   Such a situation requires concerted pro-active behaviour on the part of statutory agencies if tokenism is to be avoided, especially with regard to service user involvement. It may be more realistic for lead agencies to identify those specific areas of work

where user contributions would be most valuable (such as service delivery) and pursue rigorous engagement.

3) Managerialist agendas couched in the language of partnership

New Labour's third way retains and extends the dual emphasis on decentralisation and performance management contained within New Public Management, and commentators have satirised these continuities by coining the term 'Modern Public Management' (Newman 2000).   In the context of crime and disorder partnerships, there is much emphasis on the importance of crime audits, strategic priorities, action plans and evaluation against the plans. Such developments signal a significant increase in forms of regulatory oversight associated with guidance and monitoring. They constitute a strong system of performance improvement, with an underlying emphasis on increased accountability to government, drawing on a set of central targets (McLaughlin et. al. 2001).

Thus crime and disorder partnerships reflect a strongly managerialist agenda. Yet, the agenda is couched in the language of the partnership ideal of sharing, co-operation and equity. The partnerships are under pressure to become increasingly hierarchical given the audit culture of the policy environment. Such an outcome-oriented approach may be in tension with a longer-term vision of the wider benefits of crime and disorder strategies. Crucially, central targets set without reference to local plans undermined the problem oriented approach. Calling time on crime (HMIC 2000) identified clear tensions between the local determination of priorities as envisioned by the 1998 Act and the perceived imposition of central priorities in burglary, vehicle and violent crime. In the original audits, 87per cent of Crime & Disorder Reduction Partnerships (CDRP) identified domestic violence as their top priority, yet this was not included in the April 2000 central targets. Similarly, the Audit Commission (2002) reported:

> *"There is, inevitably, a tension between national crime reduction targets and local issues of community safety. Partnerships that follow the national focus alone will fail to take account of local issues and will not serve local people well."*

> (Audit Commission 2002: p.3)

This tension was also identified in a report on the funding and implementation of the £30m Targeted Policing Initiative (TPI) designed to support problem-oriented policing. The central drive was perceived as eroding the foundations of the local partnership approach, and the report highlighted the need to balance centralised performance indicators against identification and solution of crime and disorder problems at local level (Bullock, Farrell and Tilley 2002). In the absence of time and training to gather the right data, analyse it properly and devise targeted solutions, many of the bids for TPI money were inadequate.

8.3 The structure and scope of networks within the sector

8.3.1 Crime & Disorder Reduction Partnerships (CDRPs)

Sections 5 and 6 of the 1998 Crime and Disorder Act (CDA) place an obligation in local authorities and the police, in partnership with other agencies, to complete a specific cycle of activities every three years. The four stages involve an audit of local crime and disorder problems, local consultation on the basis of the audit, determining priorities and formulating a strategy and implementation and monitoring the strategy.

The Home Office undertook an evaluation of the CDRPs, consisting of a series of 12 case studies under the 'Pathfinder' initiative (Home Office 2000; Bratby 1999; Fulcher 2000), designed to provide developmental lessons for wide dissemination. They also commissioned an independent evaluation consisting of documentary review, participant observation and semi-structured interviews with stakeholders in three partnerships with widely different socio-economic and demographic profiles (Phillips *et. al.* 2002). Both studies focused on audits, consultation and strategy formation during the first three years of partnership activity following the CDA, including an overview of structures and terms of reference.

8.3.2 Managing structures and terms of reference

Both studies identified a broad range of structures and terms of reference within the sites, consistent with a lack of detailed structural guidance for CDRPs within the Act. While variations in structure within and between unitary and two-tier structures made it difficult to identify a 'best-practice' model, it is clear that strategic bodies require good links with practitioners in order to disseminate crime reduction approaches (Liddle & Gelsthorpe 1994a; Crawford 1998; Phillips *et. al.* 2002).

The existence of coterminous boundaries across agencies aids local accountability. Unitary authorities have an obvious advantage, although the existence of multiple area commanders in large cities is a complicating factor. Liddle & Gelsthorpe's (1994a) earlier study of multi-agency partnerships in two-tier authorities identified a number of factors that may impede the involvement of district and county council representatives in partnership work. These include political antagonisms, perceptions that county councils were far removed from local issues and that central funds were rarely forthcoming. The difficulties of managing two-tier structures are also noted by the Pathfinder report, which identifies county structures as the most challenging to administer given the multiple agencies, groups and

responsibilities. Complex boundaries pose further problems for engagement of health care trusts and education authorities, some of which face multiple requests for involvement.

While most Pathfinder sites delegated management from the local authority chief executive and area police commander to community safety officers, the extent of proactive executive involvement varied greatly. Senior involvement was considered a valuable asset, as such staff have more discretion and are also more credible within their own organisations and thus more likely to be able to 'sell' a compromise back at their own organisations. Officers reported that leverage with agencies was enhanced when the top tiers of management within their organisations were visibly involved (Home Office 2000; Audit Commission 2002). The role of community safety officers in managing the network is thus critical, requiring multi-dimensional skills incorporating public, political, project development and management. The need for support and training in the development of these skills has been noted, and support made available via the partnership support programme, Home Office, Local Government Association and National Police Training (Phillips *et. al.* 2002).

There is support for Gilling's (1993) observation of cultural dissonance between partners, in the sense that through observation it is clear that agencies may be characterised by very different understandings on the part of their staff:

> *"Police and local authority cultures are having to address the issue of language within the partnerships, but on a national basis there are wide variations and understandings of precisely what the terms actually mean. This becomes more critical when the partnerships begin jointly to commission, disseminate and publish documents. It is fair to say that the two cultures have made great strides to understand each other's respective roles and functions but there is still some way to go before they sit comfortably within each other's domain."*

(Home Office 2002: p.9)

Or more starkly:

> *"Police and local authority structures and cultures are not naturally compatible with one another. It is accepted that this will need further time to develop."*

(Home Office 2002: p.10)

This could however simply be code for local politics, as there are reports of exceptionally good working relationships between partners (HMIC 2000).

8.3.3 Auditing to set priorities

The audit process is designed to capture a realistic picture of the patterns of crime and disorder within the community in order to develop a consultation document and aid strategy formulation. The

analysis should be holistic and the picture recognisable to members of the community. In developing their audits, partnerships faced a number of data limitations, including missing or incomplete, inaccessible and inaccurate data, and a lack of co-terminosity between agency boundaries. Despite provision for exchange under section 115 of the Act and the existence of information exchange protocols, difficulties arose.

> *"... a heath representative commented that some A&E hospital departments would be able to provide, for audit purposes, information about the number of people with knife wounds, but that they would be reluctant to provide details such as patients' postcodes: 'We can't say which postal districts they live in unless the numbers are so huge in each postal district that you can reasonably preserve anonymity.'"*

(Phillips *et. al.* 2002: p. 23)

The auditing process outlined in Home Office Guidance was intended to encourage inter-agency data sharing and a holistic analysis of local problems. Yet, the experience of the case studies reported by Phillips *et. al.* (2002) was of inadequate time and resources to dedicate internal staff to the process, and a consequent reliance on external consultants, leading to reduced ownership of results by partner agencies.

8.3.4 Strategies

The issue of linkage between CDRPs, Drug Action Teams (DATs) and Youth Offending Teams (YOTs) was raised; all subject to different timetables and accountability structures yet interrelated. Such difficulties are beginning to be addressed through the Local Strategic Partnership (LSP) framework, and closer co-ordination between YOTs, DATs and CDRPs. Despite the centrality of strategic planning to the model, given the time pressures imposed by the timetable, partners were not able to undertake detailed analysis of problems identified as priorities- rather, decisions were made on the basis of past experience (Phillips *et. al* 2002). Thus despite a range of situational and social crime prevention approaches, there was little evidence of a thorough problem-centred approach. The lack of financial support for core partnership activity affected the quality of auditing, consultation and strategy, and a demanding bidding process was an additional obstacle. Phillips *et. al.* (2002) are hopeful that funding through the Partnership Support Programme and training provision will mean CDRPs feel better supported in future.

8.3.5 Representation

The notion of statutory lead agencies implies hierarchical relationships between partners, and there is some evidence that this can cause resentment by representatives of smaller voluntary and community organisations (Phillips *et. al*. 2001), which raises the prospect of their

withdrawal (Gilling 2000) with a consequent diminution of local voices. However, Phillips *et. al.* (2002) found no evidence of the exclusion of less powerful groups from key decision-making through informal networking (Crawford 1994; Phillips & Sampson 1998), suggesting that the partnerships were adopting an inclusive approach.

8.3.6 Youth Offending Teams (YOTs)

Introduced under the 1998 Crime and Disorder Act, the policy background to the establishment of YOTs lies with New Labour while still in opposition, and forms part of the much-quoted commitment to be 'tough on crime and tough on the causes of crime'. Replacing the former social service youth justice teams under the 1998 Crime and Disorder Act, Youth Offending Teams (YOTs) reflect a changing ethos towards greater inter-agency accountability for youth crime management by broadening the number of agencies involved in the supervision of young offenders. YOTs are required to include a police officer, probation officer, a social work, and representatives from health and education services. While these latter two agencies have traditionally not been involved in the post-sentence supervision of young offenders, their involvement reflects a desire to tackle issues which can place young people at risk of becoming involved in crime, such as truancy and school exclusion, substance misuse and mental health problems.

The term 'partnership' may conceal conflicts arising from the power inequalities between local statutory agencies. While previous research pointed to the dominance of the police in many inter-agency partnerships (Blagg *et. al.* 1988; Kosh & Williams 1995), Williams (1999) reports a more complex picture with regard to YOTs. While police had considerable experience of pre-trial work with young offenders, probation officers and social workers had a monopoly of expertise in post-sentence supervision of young offenders and preparation of court reports. While the police had sophisticated information systems, youth justice team's client records are considered more up-to-date and accurate in some areas. Further, some areas of expertise are contested by multiple agencies. For example, group work with young offenders and their families on issues such as parenting and anger management may be claimed as the remit of health, probation or social services. Williams (1999) reports 'turf wars' over the appropriateness of different agencies developing these areas of work.

8.3.7 Drug Action Teams (DATs)

In 1986 the DH required every district to set up a multi-agency drug advisory committee comprising health, social services, education, police and voluntary groups. An external evaluation commissioned by the DH based on fieldwork from eight areas reported wide variations in

effectiveness in strategy and resource allocation (Roger Howard Associates 1994). In conclusion, the report recommended placing accountability for success in collaboration with the chief executives of the then health authorities.

Launched in 1995 under the *Tackling Drugs Together* White Paper, DATs were charged with a strategic planning role, with representation from multiple agencies. Drug Reference Groups (DRGs), consisting of expert practitioners charged with advising the DATs and helping with implementation supported them in this task.   While advice to DATs echoed the Howard report's insistence of a chief executive level membership for DATs in order to allocate resources without recourse to major consultation within agencies, many DATs members were below this level of seniority, with consequent loss of decision-making authority (Monteney 1996).

A review of progress based on documentary evidence, postal questionnaires to chairs, members DRG chairs and six case studies (Cabinet Office 1997) identified a number of outstanding difficulties, including lack of coterminous boundaries. While the decision to allow local flexibility in determining boundaries was considered helpful, the tension between the desire for efficient functioning and accountability to central government and the alternative desire for local accountability and responsiveness to local needs and community was still identified as an issue (Cabinet Office 1997).

DATs able to attract funding via joint commissioning arrangements between agencies or via external sources such as the Single Regeneration Budget (SRB) were more effective in strategy implementation.

Building on the earlier experience, the White Paper *Tackling Drugs to Build a Better Britain* (1998) outlined a ten-year strategy for tackling drugs, charging DATs with facilitation of inter-agency commissioning strategies and co-ordinating provision of treatments for drug misuse. In order to facilitate greater co-ordination, DATs became co-terminus with local authorities, at either unitary or county level, under the Crime and Disorder Act (1998). Government policy on drug treatment is for all planning and budgetary decisions in relation to drug treatment services to be undertaken jointly through DATs, and in order to facilitate this activity, 97per cent (141/145) of DATs had established joint commissioning groups by April 2002 (NTA 2002). Partner agencies include local authority, PCT, police and probation services, and DAT guidance explicitly requires the active engagement of elected members in order to guard against democratic deficit.

8.3.8 Local Strategic Partnerships (LSPs)

The duty to have many different partnerships with overlapping functions and involving huge transaction costs has been termed

fragmented holism (6 1993). In order to join up the joining up and reduce the number of plans incumbent upon local authorities, LSPs were launched in March 2001. They are intended to bring together public, private, voluntary and community sectors under a single, over-arching local co-ordination framework within which more specific partnerships such as YOTs, DATs and CDRPs operate. Unlike CDRPs, their establishment is not mandatory. However, their formation is a condition of eligibility for Neighbourhood Renewal Fund monies, and all local authorities are expected to develop LSPs as part of the process of fulfilling a statutory duty to develop a community strategy. While local authorities are identified as 'well-placed' to lead, there is no compulsion. The Local Government Association (LGA) support closer working between YOTs, DATs and CDRPs under the LSP umbrella, as a means of establishing co-ordinated local anti-crime strategies (LGA 2001). Over 80per cent of LSPs have links with crime and disorder partnerships (DoT 2003).

While almost all LSPs include police, health and educational representation, further membership is very varied and may include employment service, chamber of commerce, transport, community and voluntary sector representatives (DoT 2003). Local authority representation is typically through both elected members and officers. LSPs are structurally diverse, although typically comprise a board, thematic sub-partnerships, a support group and a wider consultative forum. The most common partnership links are with Crime and Disorder Community Partnerships, Local Learning Partnerships, Health Improvement Partnerships and SRB Partnerships (DoT 2003).

A baseline quantitative questionnaire evaluation of LSPs reported in February 2003 that of 367 local authority areas, all but 40 had developed LSPs, and only one had no plans for their future development (DoT 2003). Five issues and dilemmas for the emergent LSPs were highlighted: stakeholder engagement, resources and capacity, effective working, developing the agenda and external issues.

8.3.9 Stakeholder engagement

Community engagement was considered a problem, posing difficult tensions between inclusively and manageability in membership, particularly when engaging with the wider community is broadly defined to include both geographical communities and communities of interest. A related issue concerns the interface between LSP and local democracy, particularly the role of elected members in LSPs and the balance of power between members and officers. Difficulties include balancing the leadership role of elected members with the desire for an inclusive local politics facilitated by partnership working and avoiding council domination. A specific issue is the tension between

the medium to long term aims of the LSP, and the mostly short term needs of elected members.

- *Resources and capacity:* funding joint action may pose difficulties of external constraint and political acceptability.
- *Developing effective ways of working:* LSPs reported the need to ensure effective working relationships either through rationalising existing partnership arrangements or supporting co-ordination without taking over successful groupings. The need for connectivity with adjacent LSPs raises difficulties, further compounded in two-tier districts involving county and district divisions of responsibility.
- *Developing the agenda:* the main difficulty is focusing on a limited number of agreed priorities, as well as resolving conflicting priorities within a complex agenda- partners often have difficulty giving ground to support joint aims (DoT 2002)
- *External issues:* while LSPs are themselves non-statutory, the sectoral performance indicators of individual partners can conflict with effective partnership working- central government departments still partly hold individual organisations separately accountable which can create tensions within the LSP. Further, tensions between national and community-determined priorities and targets may remain, notwithstanding the Public Service Agreement system, which provides opportunities for negotiation over targets.

8.4 Management 'in' the networks

8.4.1 Inter-agency conflict

Gilling (1993; 1994; 1996) is primarily interested in the ideological and historical roots of discourses on crime prevention and how they become realised in institutional practice. While the logic of collaboration is irresistible, Gilling offers a deconstruction and contextualisation of the meaning of crime prevention and the ways that the signifier has been deployed as a rhetorical device by the major agencies. Focusing particular attention on the police and probation as illustrative examples, he traces the historical origins of each agency and shows the effects on their respective contemporary conceptual frameworks and practices. The dominant police discourse places emphasis on crime control via proactive and reactive deterrence. In contrast, the dominant theme in probation services is of reform and treatment (Gilling 1993). Collaboration, while good public relations work, will tend to be dominated by the police discourse given the wider politics of law and order, and tend to favour situational crime prevention approaches, given the pressure for audit and the ease with which their effects may be monitored. While his attempt to

pigeonhole agencies in terms of dominant conceptual frameworks appears crude, he does draw attention to the tensions between situational and social crime prevention faced by collaborating agencies.

8.4.2 The role of reticulists

Crawford (1994; 1995) and Crawford & Jones (1995) critically engage with multi-agency collaboration in crime and disorder, drawing on data from a two-year research project in the Southeast of England exploring eight proactive community projects. Their emphasis is on the complex, reflexive and negotiated character of multi-agency practice, and a critical engagement with meanings of community. In contrast to the benevolent vs conspiratorial approach to representing existing perspectives typified by Gilling, Crawford and Jones (1995) argue that consensus and conflict are inherent in multi-agency work, and point to the creativity of multi-agency workers in negotiating the structural conflicts and oppositions that exist.

Crawford (1995) regards appeals to 'community' as a selective rhetorical device, which assumes that a lack of community leads to crime whereas more community equals less crime. An exclusionary and bounded majoritarian view of communities is promoted, where communities are seen as offering defence against outsiders and characterised by homogeneity (Crawford, 1995).

8.4.3 Barriers to joint commissioning

In the context of substance misuse, a SSI study (DH 1997) identified the difficulty of effective joint commissioning across multiple planning mechanisms. In the context of community safety, service provision requires commissioners to work across DATs, Community Safety plans and LSPs.

8.4.4 Data sharing

HMIC (2000) noted concern over the quality of data handling within and between police force areas and across agencies. Problems included incompatible systems, reluctance to share information between agencies and caution in relation to data protection legislative provisions. Crucially, senior managers reported a lack of confidence in Section 115 as a defence to their personal liability under the provisions of the Data Protection Act.

Section 115 of the Crime and Disorder Act creates a wide new power to disclose information in any case where the disclosure is necessary or expedient for the purposes of any provision of the act. It provides that any person can lawfully disclose information for the purposes of the Act to the police, local authorities, probation service or health authority even if they do not otherwise have this power. However,

while section 115 ensures that all agencies have a power to disclose, it does not impose a *requirement* on them to disclose information. Control over disclosure remains with the agency which holds the data. Information exchange remains controlled by the normal data protection regime, and agencies are encouraged to balance protection of personal information against the benefits of public protection afforded by disclosure. In order to clarify understandings between agencies, Home Office guidance on statutory CDRPs recommends the development of information-sharing protocols. However, both police and health professionals have raised ethical issues in sharing confidential client data (Williams 1999).

8.5 Governance and accountability issues

Sullivan and Skelcher (2000) identify four tensions between the collaborative agenda and governance processes, of particular relevance to statutory partnerships. The first relates to the joint role of formal partnerships such as DATs and CDRPs as both *delivery mechanism* and *governance process*. Such partnerships are a key means by which central policy is delivered, acting as local agents for central principals and audited against targets. Their use as delivery mechanisms sits uneasily with notions of good governance in the public domain including transparency, standards of conduct, public debate, local autonomy and self-determination. Thus, the fit between uniform delivery of 'what works' and local democracy is problematic. This is clearly seen in the effects of central target setting on the problem-oriented policing initiative. While partnerships were encouraged to undertake local audits to inform specific, multi-agency, problem-oriented responses to local priorities, they were simultaneously being judged on their ability to reduce specific categories of crime chosen without reference to local concerns. Tensions are evident over the mix of local priorities, police service objectives and national priorities (Audit Commission 2002), and little evidence of a problem-oriented approach to priority setting (Phillips *et. al.* 2002).

The second tension is between partnership as *political process* and *managerial technique*. While a strong ideological emphasis on public involvement provides opportunities for political engagement, the members of partnership boards predominantly consist of managers, which suggests that their primary role is that of a managerial device for inter-agency service delivery. The Audit Commission (2002) identified the need for ongoing dialogue with local people, particularly important in the context of persisting public concern over crime. They recommended a number of strategies for improved public engagement, including consultation with hard to reach communities of interest (e.g. people vulnerable to homophobia or domestic violence) co-ordinated between partnership agencies.

A third tension relates to the release of capacity and exertion of control. The creation of an LSP composed of representatives of diverse groups does not ensure an accurate reflection of the diversity of interests within metropolitan areas. Interests will be both filtered in and filtered out, and the net result is a powerful alliance of key institutions and individuals behind a particular vision for the locality, under the banner of the common good. The concern is that the particular blend will not be to the benefit of all. The Audit Commission (2002) identified large variations in inter-agency involvement between partnerships, and while health, social services, probation and education services delivered significant benefits when fully involved, often they were not full participants.

The final tension is that between collaboration as *structural entity* and *dynamic process*. While formal structures are manifestations of a commitment to collaborative activity, collaborations are fundamentally predicated on dynamic processes through which individuals and organisations negotiate mutual interests (Huxham & Vangen 2000). Issues of flexibility and personal loyalty thus arise within the context of collaborative activity.   The ability of community safety partnerships to dynamically engage with the partnership agenda was questioned by the Audit Commission (2002), which identified patchy involvement at strategic level by some key agencies, poor use of problem-solving techniques, and poor information sharing between partner agencies. Key areas for improvement were identified as ownership of community safety and willingness to change behaviour, sustained focus on local priorities, and capacity to deliver community safety as part of basic services.

8.5.1 Pooled budgets

While some CDRPs have access to pooled budgets for collective action others do not, which reduces their ability to action initiatives quickly (Bratby 1999). DATs are exploring the pooling of budgets between the Home Office, Department for Education and Skills (DfES) and Department of Health for young people's substance misuse (YPSM) services through a piloting process of 25 sites from April 2003. The initiative is being formatively evaluated, to aid in the national rollout of the initiative in 2004.

8.6 Potential learning points for the NHS

8.6.1 The impact of political salience on joined-up working

Since 1997, there has been much policy activity on the need for joined-up working in crime and disorder partnerships across multiple agencies as exemplified by new statutory responsibilities under the

1998 Act.. Yet, the sharp-end of the crime and disorder political agenda is rarely if ever concerned with inter-agency collaboration. Of much greater salience are the widely publicised crime figures for violent offences, car theft and burglary. The pressure on police forces is to clean-up crime, not join-up with other agencies. While a problem-oriented, inter-agency approach may be exactly what is required to tackle issues, the political need to be seen to be doing something quickly may become irresistible. This is evinced by the use of centrally set priorities and targets for crime reduction, which are unrelated to the priorities identified by CDRPs in their local audits. Similarly, the NHS faces periods of very high political visibility, and the pressures to deal with waiting lists become very marked. Under such circumstances, the development of joined-up working across networks is likely to be seen by many as of secondary importance. The paradox is that joined-up inter-agency collaboration is exactly what is required to improve service quality in the medium term.

8.6.2 Professional roles

Collaboration between local authority and police services has been confounded in some instances by role of scrutiny undertaken by police complaint authorities. There has been some residual mistrust of police on the part of some local authority members, who see their function very much in terms of scrutiny and oversight of police to guard against harassment of ethnic minority communities, rather than partnership. This scrutiny-partnership tension is also evident between health and social care, in the form of Overview and Scrutiny Committees (OSCs) under the Local Government Act 2000. While formed explicitly to promote partnership and service improvement the formal power of OSCs to call NHS managers to account for their decisions could degenerate into point scoring, and their use requires a degree of caution.

8.6.3 Central / local priority setting and the erosion of problem-solving approaches

The experience of CDRPs is that performance targets set without reference to locally defined needs will undermine 'problem-solving' approaches that seek to provide innovative solutions to locally identified problems (Bullock *et. al.* 2002). In order to avoid such perverse incentives, performance management systems should reflect local priorities.

8.6.4 Conceptual differences between partner agencies

Cultural dissonance between staff of partner agencies may hinder joint goal-setting (Williams 1999). This is of particular importance in the context of social and medical models of health care provision.

8.6.5 Community involvement

While laudable, tensions between inclusivity, manageability and representation in community involvement require careful consideration (Taylor 2000a; 2000b). These difficulties are particularly important in the context of communities of interest.

8.6.6 Support of senior officers important in gaining leverage

The direct involvement of senior (CEO or equivalent) managers in partnership fora is associated with greater success. Less senior staff are less able to take the risks necessary for radical service changes and are less able to exert leverage within their own organisations (Home Office 2000; Audit Commission 2002).

8.6.7 Boundary co-terminosity

Complex boundaries between partner agencies pose problems of engagement for health care trusts, which may face multiple requests for involvement. Alignment of boundaries has been identified as a critical success factor in partnership working in community safety (HMIC 2000).

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9. Networks in health and social care

Nick Goodwin

9.1 Introduction

Networks in health and social care cover an eclectic variety of vertical and horizontal integration. These networks occur across a wide spectrum of agencies and individuals including purchasers, providers, professionals, and consumers. The range of agencies and individuals that can be brought into such 'networks' reflect the often fragmented nature of health and social care delivery, particularly for vulnerable client groups (such as the frail older people) and for complex chronic illnesses (such as cancer). Moreover, networks in health and social care often have as their mission the wellbeing of users and patients. Hence, unlike defence material contracting or biotechnology, such networks are affected by societal values, egalitarianism and the 'public sector ethos', factors which may suggest the greater importance of solidarity and trust.

The literature on health and social care partnerships, but specifically 'networks' within health and social, shows that networks have principally been developed for a series of key tasks as follows to:

- provide or purchase services that are more appropriate for patients (for example, provision through integrated and evidence-based care pathways, or procurement through joint commissioning and purchasing agencies);

- reduce costs to health and social care procurement agencies (such as governments, PCTs, local authorities, and private or public insurance agents);
- reduce costs between providers of care;
- increase power and/or share risk though provider or procurement networks;
- share scarce capacity, usually specialist human resources, to enable 'critical mass' – most often between hospitals, but also through joint commissioning between procurement agencies; and
- share knowledge, develop ideas, and to pilot and promote innovation.

In many countries, public sector policy makers and managers have developed a growing interest in the concept of 'networks' as alternatives to 'hierarchies' or 'markets'. In the UK NHS, attention has primarily focused on the development of 'clinical networks' that concentrate on the creation of new linkages between primary and, more particularly, between secondary and tertiary care. Indeed, the idea of 'network organisations' is increasingly being drawn into mainstream policy and decision-making with the aim of developing a continuous working relationship between organisations and individuals to improve the treatment of patients who require care across a range of different institutions. Such mainstreaming has particularly begun in Scotland where 'managed clinical networks' are being piloted across both specialties (such as neurology) but also diseases (such as diabetes and cancer) (Woods, 2001). Other networks have also developed by client group (such as older people or children).

However, faith in the creation (indeed mandation) of 'managed clinical networks' is based on a series of hypothetical advantages rather than known outcomes. According to the NHS Confederation (2002), potential advantages include:

- making more efficient use of staff;
- reducing professional and organisational boundaries;
- sharing good practice;
- putting the patient at the centre of care; and
- improving access to care.

The emphasis on clinical networks becoming a way of sustaining access to a range of care is of particularly importance in the debate. Hospitals in the UK, and indeed throughout Europe and other parts of the world, have begun to shed functions to multi-disciplinary community-based health services and such hospitals have begun to specialise as a result (McKee and Healy, 2002). The process has accelerated due to informational and technological advances; regulations on the working hours of doctors; and the encouragement of provider plurality through the use of public, private and overseas

providers. Consequently, the notion of a single hospital providing all facilities necessary for a catchment area is no longer tenable (Baker and Lorimer, 2000) and the formation of hospital and clinical networks has gained favour as an alternative method. The influential Calman-Hine (1995) report broke new ground when it suggested how cancer services should be delivered through networks of professionals rather than buildings in order to reduce delays in diagnosis and treatment. In theory, the approach should sustain and maintain access to care to patients of those local services threatened by closure while ensuring patients receive a standard investigation locally.

The concept of the 'network' as a way of delivering care is also relevant to a much broader policy objective on delivering integrated health and social care services. Indeed, the creation of new professional and organisational networks will have a major impact on the future quality of health and social care and upon the experiences of users and carers. However, there remains little evidence on the value and effectiveness of network models, particularly for client-based groups such as older people (Polivka, Robinson-Anderson, 1999), while the evidence for effective clinical networks is limited to a few specialties, such as cystic fibrosis (Foucaud et al, 1996).

This lack of evidence has led to a growing strategic debate on how to lead, manage and govern such organisations effectively – particularly on clinical networks that are becoming engrained into health and social care policy in the UK (NHS Modernisation Agency, 2003). The literature is generally characterised and limited to a wealth of opinion leaders and theoretical discussions of the process of network development (for example, Calvin, 1998; Collins, 2000; Kunkler, 2000; Baker, 2001; Cropper et al, 2002; Edwards, 2002; Frater and Gill, 2002; Thomas 2003). Case descriptions on networks in the early stages of development are also common (for example, Sardell, 1996; Mundt, 1997; Moir et al, 2001; Tait and Baxter, 2002). Furthermore, attention is also drawn to the needs of facilitating network development through the use of newly integrated clinical information systems (for example, Teich, 1998; Tanriverdi and Venkatraman, 1999; Snyder et al, 2000). However, the majority of the literature tends not to be based on research and evaluation studies.

9.2 Interpreting health and social care networks

A major difficulty in understanding 'networks' within the health and social care literature, and indeed within 'integrated care' more generally, has been the lack of a sound paradigm through which to examine the process. While the research presented in this report provides the basis for this theoretical understanding, examining the literature on 'networks' is problematic since the term has been used synonymously with a wide range of approaches under the general

banner of 'integrated care' or 'partnership working'. Hence, there is a very broad church of writings in the field of health and social care networks from which to draw, but little in the way of synthesis.

The analysis of network theory and network forms has shown that the differences between networks and organisations should not be exaggerated (6 P, 2003). Indeed, most organisations, as Powell (1992) points out, have network-like characteristics while other organisations emphasise how networks and hierarchies are embedded in wider networks of informal relationships (Granovetter, 1985). While many authors have viewed networks as a 'transitional' form between markets and hierarchies (Powell, 1987) others regard networks as a more durable form of governance where organisation is impossible or where markets fail (Borzel, 1998). The theoretical arguments expose the lack of a sound paradigm through which to examine the process of network form and function within health and social care partnerships. As Sheaff (2000) argued in his examination of the development of networks within Primary Care Groups in England, no overarching theoretical model of networks, including different network forms and their associated management and governance needs, has been developed. This research fills this void.

Health and social care 'networks' need some definition since the term has been used synonymously with a wide range of approaches under the general banner of 'integrated care'. For example, within the integrated care literature, Leutz (1999) argues that there are three levels of integration: linkage, co-ordination and full integration. The definition is simple and a useful one to pursue in the discussion about networks since it helps to characterise the degree to which integration involves the creation of a 'loose' network of health and social care agencies or something more structured and hierarchical.

9.2.1 Linkage

According to Leutz (1999), linkage is the minimalist, least-change approach to integration, and operates within existing, fragmented systems. At this level, networks are characterised by ad-hoc partnerships between providers who, for example, keep to their own eligibility criteria, funding constraints, service responsibilities and operational rules. At the *linkage* level, organisations may develop protocols to facilitate collaboration to deal with patient and user needs.

9.2.2 Co-ordination

Co-ordination involves the development of defined structures or mechanisms that help to alleviate confusion, poor communication, fragmentation, and discontinuity between sectors and systems and which promote information sharing. Characteristics of a 'co-ordinated network', for example, would be one which is able to provide a full

spectrum of care for a particular client or disease group. Financial and clinical responsibilities to the parties involved remains separated and the association is not bound to any contracting or directly-managed system. Hence, such an approach may be more characteristic of an 'enclave' structure where social ties are quite highly developed, but the network is weakly regulated or controlled.

9.2.3 Full integration

At the third level of Leutz's analysis is the development of full integration, which can be interpreted in this context as a fully integrated or hierarchical network. Such a system may be characterised by a complete system overhaul with significant consolidation of responsibilities, resources, and funding. The integrated network is thus responsible for all services, either under one managed structure (hierarchy) or by through a contractual relationship between organisations. Hence, the fully integrated model can take two main forms. The first form consists of a directly managed hierarchical network in which there is common ownership and control (a single organisational entity). The second, more common form, is the 'virtual' hierarchical network that functions through contractual relationships (such as integrated health networks in the USA).

A common thread in the health and social care literature is an implicit assumption that the *fully integrated network* is the most 'effective' form of network. According to Hebert et al (2003), for example, full integration is argued to offer the most potential to develop new and comprehensive programs that address the needs of medically and socially complex groups. The authors examined integrated service delivery programmes in North America, such as the California On Lok project (see Yordi and Waldman, 1985) and the Programmes for All Inclusive Care for the Elderly in Canada (see Branch et al, 1995, Pinelli Beauline Associates Ltd, 1998). They argued that by combining responsibilities, resources and financing from multiple systems under one organisational roof enabled the creation of a 'unified' service network with greater legitimation in the use of the range of co-ordination techniques such as disease management or integrated care pathways.

Other authors have similarly attempted to show how the highly structured or hierarchical form of network is, in some way, superior in terms of meeting the needs of an integrated health and social care system. Kodner and Kyriacou's (2000) review of the integrated care literature suggested a number of key factors integral to the development of integrated care (see Box 9.1). They established a hypothesis in which the greater the move to a 'hierarchical' network, the better the level of integration and attainment of these goals for integration. The authors cite the works of Leutz (1999), Capitman (2000) and Graber and Kilpatrick (1997) to suggest that full

integration (the hierarchical network) has the highest likely 'impact' on the ability to achieve each of the 'integral elements' to health and social care integration described.

However, as Leutz (1999) himself suggests, such fully integrated models may only be appropriate for a small subset of chronically ill patients that have unstable and functional conditions and who frequently interact with health and social care systems. In other words, the fully integrated and hierarchical network may be appropriate only where all the agencies within the network are required to provide ongoing collaboration between professionals to provide the care. As this research has shown earlier, the hierarchical network may be an overly structural and over-managed solution if the potential gains are not fully realised or are offset by increasingly limited freedoms to innovate (6 P, 2003).

Box 9.1: Factors integral to the development of integrated care

Jurisdictional boundaries: complexity of government policy formulation, administration and regulation;

Funding mechanism: division and structure of funding for health and social care;

Governance and management: legal (judicial) and administrative relationships among and between stakeholders;

Strategic planning: level of stakeholder involvement in joint planning and community needs assessment;

Focus on continuum of care: consideration and alignment with patient needs regardless of limitations in system;

Comprehensive service package: ability to access a broad range of needed care services from anywhere on the continuum of care

Network relationships: nature of working relationships among and between institutions and providers;

Patient screening: ability to identify and target at-risk populations;

Multi-disciplinary assessment: commitment to performing comprehensive, multidimensional patient evaluations;

Primary care: synchrony with GPs

Care (case) management: planning and monitoring of need across time, place and discipline

Continuity of coverage: control over transitions between benefits, settings and providers;

Teamwork: communication and collaboration between, and clinical management of, multidisciplinary providers;

Information-sharing: access to shared clinical, administrative and financial information;

System outcomes: shared responsibility for outcomes in terms of quality and costs

(Kodner and Kyriacou, 2000)

The *linkage-co-ordinated-fully integrated* typology belies the highly dynamic way in which health and social care networks develop. Indeed, this simple threefold classification of integrated care should be interpreted as a *continuum* of integrated care forms. Within the health and social care literature, the emphasis in network creation and development often seems to be placed on the ability to make the transition from some sort of 'loose' network to the more organised or co-ordinated and closed network form. There appears to be an explicit assumption that the creation of a 'hierarchical network' is an end point to be reached in order to establish more durable and long-term relationships between organisations that work to a common set of rules and goals.

9.3 The different models of health and social care networks

In the analysis that follows, health and social care networks will be examined using the continuum of network forms explained in Figure 9.1. This analysis suggests that different types of network in health and social care are operating at different positions along the continuum. The position of such networks on the continuum is not static, but dynamic. Hence, certain networks (for example, cancer care networks in the UK) are currently 'co-ordinated networks' but developing greater network 'centrality' and hence beginning to move further to the right of the continuum – that is, in the direction from *linkage* and *co-ordination* to *full integration.* In this sense, the further to the right of the continuum a network appears to sit, the more this network has begun to define structures and mechanisms for the individuals and organisations within it to operate in an integrated manner. Thus, the continuum is a conceptual measure of the level of 'organised' or 'managed' integration manifest in terms of characteristics such as level of management centrality, resource control and organisational complexity.

Figure 9.1: A conceptual continuum of network forms in health and social care

<div align="center">

Continuum of Network Forms

</div>

Integration level

Leutz (1999)   ***Linkage   Co-ordination   Full Integration***

Network typology

Perri 6 (2003)   ***Isolate   Enclave   Individual   Hierarchy***
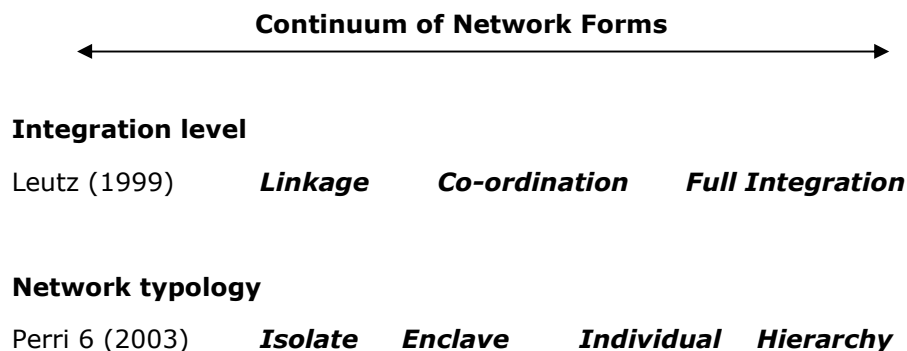
Type of Health and Social Care Network:

Informational Networks

e.g. Belgian-Dutch Clinical Pathway Network

e.g. Project CHAIN

Co-ordinated Networks

e.g. Health Action Zones

e.g. Hospital and clinical networks

Procurement Networks

e.g. Integrated Healthcare Networks

e.g. Chains of Care systems

Managed Networks

e.g. Kaiser Permanente

e.g. Social HMOs

As Figure 9.1 suggests, the literature appears to support four main 'types' of health and social care network: '*informational', 'co-ordinated', 'procurement'* and '*managed'*, each of which has its own characteristics in terms of network goals, management structures and ideals. It should be noted that these 'types' have been developed to enable the interpretation of the literature on health and social care networks and that there may be significant differences in network styles and structures *within* each type.

The following sections are an attempt at synthesis of the characteristics of each type of health and social care network. Each section will start with an overview of the network type and then bring forward particular examples from the literature to illustrate the generalisations made. After each section, key lessons in terms of the limits and management implications of the different types of networks are provided.

9.4 Learning and informational networks

One form of network in health and social care, very much at the *linkage to co-ordinated* end of the spectrum, can be described as the 'learning' or 'informational' network. This is a very common form of network that brings together mainly individuals, but also organisations, into a facilitated network for the sharing of information and ideas, perhaps also for the development of best-practice guidelines and policies. Such networks vary, but are generally supported financially by the individuals and organisations that represent its membership. Most are co-ordinated by either an elected body to represent the group (in the case of professional networks of individuals), by a Government agency that often subsidises events, or by a 'neutral' institution providing support and facilitation to the network, such as a university or even a library. Typical examples might include national and international associations or societies, for example, the National Pathways Association in the UK, the Dutch Institute for Healthcare Improvement, and the Centre for Case Management in Boston, USA. A good example of a government-led informational network in this field is the Integrated Care Network in England. Informational networks are often web-based and some have even developed into 'network' of 'networks', for example, to create a library of international evidence on network management tools such as clinical pathways.

The purpose of these different forms of learning network is to share best practice, often to align policies and strategies between institutions, but not necessarily to develop or engender new integrated delivery structures between health and social care providers. For some, however, the learning and informational network may be a first step on the road to such a co-ordinated or hierarchical network form. However, for this type, the informational network is very much to the left hand side of the health and social care network continuum.

To illustrate the form and function of informational networks, three examples are provided: the Belgian-Dutch Clinical Pathway Network, Project CHAIN in South Wales and case studies of professional network development in the USA using new information technologies.

9.4.1 The Belgian-Dutch clinical pathway network

Integrated care pathways (ICPs) are a common tool used to manage many of the different forms of health and social care network (see section on management in health and social care networks, below). Interest in integrated care pathways in Belgium started in 1996, following countries such as the USA, UK and Australia where the 'success' of ICPs is well documented (see Zander K and McGill R, 1994; Johnson S 1997; Portus R 1995). The Belgian-Dutch clinical pathways 'network' was launched in Autumn 1999 as a network of hospital providers interested in developing integrated care pathways within their own institutions. This network of hospitals was facilitated by an academic centre, the Centre for Health Services and Nursing Research at Leuven University (Sermeus et al, 2001).

The incentive for hospital organisations to join the network was primarily influenced by a change in Belgian health policy that linked the national average length of stay to hospital budgets. A strong financial incentive to reduce length of stay was thus created to sit alongside pre-existing strategic goals for developing better quality and patient-focussed care. The network was regarded as 'the essential tool' for developing collaborative practice.

Membership of the Belgium-Dutch Clinical Pathways Network has been based on hospital organisations, rather than individual professionals, in order to 'remove the distraction from competing individual needs that are a barrier to implementation'. The network managers developed a five point contract between the hospitals and the co-ordinating centre to ensure a degree of 'lock-in' to the network over time. This included:

   - A fixed annual contribution fee;
   - Commitment to three years minimum participation;
   - Assignment of a hospital clinical pathways co-ordinator at each hospital in the network, who represents the hospital at network meetings;
   - Agreement that each hospital develops a care pathway interdisciplinary steering committee;
   - That the contact is signed by the hospital Chief Executive Officer.

In return for this commitment, the co-ordinating body provided a list of network benefits and services as follows:

   - *Network co-ordinator meetings* to share good and bad progress on ICP development; to develop a list of definitions (a common language) to make communication consistent between hospitals; and to provide a forum to challenge and improve ICP design;
   - *A hospital ICP project* meaning that each hospital in the network had to develop, use and evaluate one new ICP over the three

years without duplication to those developed by other network members. Each hospital had to log the development and progress of their ICP, including inclusion and exclusion criteria; evaluation criteria, names of team members involved and so on;

- *Task forces* were created to examine outcomes (clinical, service, cost, process), financial impact and IT issues. The network the developed a library of measurement approaches and scales (for example, on patient satisfaction surveys and impact on length of stay and activity);
- *Collaborative ICP work* encouraged the use of benchmarking and comparative indicators. For example, an evaluation of ICP for stroke care involved nine hospitals with different clinical pathways but the same outcome measures;
- *ICP review and 'certification'* by an external body was created if the hospitals reached an appropriate standard of care;
- Other informational tools used as a part of the network included an ongoing series of seminars and training courses, a website, and the creation of links to other informational networks developed abroad.

This network grew from an initial membership of three large acute hospitals in 1999, to eight in 2000 to seventeen by 2001, including three sites in the Netherlands. Membership has been restricted to large acute hospitals, for example the fourteen hospitals in Belgium covered 10 700 beds. At the end of 2001, the network boasted that over 100 Integrated Care Pathways had been operationalised.

As a learning organisation, the Belgian-Dutch Clinical Pathways Network has evaluated the key issues that appear to facilitate the management of the network (Sermeus et al, 2001). An important first characteristic was the suggestion that the network needed to be 'benefit rich' in which the emphasis of the network was not on the number of 'contracts' developed, but on the quality of their construction. Hence, an important characteristic of the 'contract' developed between agencies was the level of 'usefulness' in information that emerges and 'reliability' in information quality.

A second key observation, drawing on the work of Burt (1992) was the assertion that *well structured networks obtain much higher results than non-structured networks*. In other words, that the learning network greatly required the cohesion, facilitation and drive provided from the academic institution. Moreover, the *independence* of the co-ordinating body was considered important as the members would be more willing to tread in neutral ground. However, a further important assertion, or lesson, from the experience of the network was that *a balance between cohesion and diversity* was required to enable 'effectiveness'. In this sense, the role of the academic institution was facilitative with hospital members providing the practical knowledge and skills, such as implementing and managing their own ICPs and

working with self-determined, if informed, quality indicators. Hence, the real value of the informational network was collaborative knowledge-sharing and not managed or imposed pathways that would be a potential feature of managed clinical networks (see below).

Though not evaluated, it is also clear that the academic institution had a direct incentive to ensure the success of the network. It was clear that the Centre for Health Services and Nursing Research at Leuven University had engaged in pro-active lobbying of the network to 'sell' the product to non-members. Within this process, the University strategy was to engage the interest of key leaders interested in developing ICPs within prospective hospital members to enable the 'selling' to fellow hospital clinicians and managers. Indeed, it was suggested in the research that clinician awareness and understanding of the ICP approach, its benefits and implications, was an essential educational component in gaining the wider backing for the care management tool. Hence, broad awareness, understanding and backing from individuals within member hospitals was required for its successful implementation and, as the literature on integrated care pathways shows, a process of education to help challenge established practice and engrained professional cultures needed to facilitate ICP implementation. This final point suggests that informational networks in may only go so far in helping organisations to better integrate services. Hence, *an effective informational network cannot guarantee success, but may provide a solid base on which to build*.

9.4.2 Project CHAIN

The Belgian-Dutch network was intentionally hospital-based and had a clearly defined 'product' (ICPs) with the potential bottom-line outcome for members of improving quality and reducing costs within their institutions. However, most informational networks in health and social care deal with issues in which the final outcomes are much less clearly defined. For example, many informational networks may be based on a mission to 'integrate health and social care' or 'improve the health of children' which are broad themes that help attract support and interest from a wider range of interested agencies or individuals.

The focus of Project CHAIN (Community Health Alliances through Integrated Networks) was the development of a co-ordinated information network with the aim of improving the quality of life of older people in South Wales. According to the architects of the approach, the network was based on organisational design theory (Nystrom and Starbuck, 1981, Huber and Glick, 1993). It was argued that network organisations should be provided with an opportunity to explore the potential for inter-agency collaboration within a neutral environment with little threat to organisational autonomy (Warner et al, 2003). This neutral territory was dubbed 'the white space', which

can be conceptualised as virtual territory between organisations in which the potential for successful collaboration was high.

The design of the network followed a number of principles drawn from the theoretical literature on network development, hence its potential usefulness as a case study. In particular, the approach stressed the importance of a particular form of governance appropriate for networks characterised by the goal of ensuring sustainable co-ordination and based on social mechanisms such as trust, commitment and reputation (Jones et al, 1997). A further key design feature, in common with the Belgian-Dutch approach, was the use of a co-ordinator from a neutral (university) base to act as broker in developing inter-agency collaboration and to pro-actively attract network members.

The development of project CHAIN followed a familiar approach to network tasks detailed previously (6 P, 2003). In the first year (2000) a multi-agency Strategy and Implementation Group, formed by senior members of the partnering organisations, was developed to identified and prioritise the focus of the network. After a mapping process to examine the level of local integration activities in older people's care, the priority was further refined to 'supporting independence' where no single agency was responsible. Over time, further partners were co-opted onto the network and a comprehensive set of information was collated to show:

- The local history of collaborative working;
- Responses from agencies to potential services targets;
- Appraisal of local resources available to address 'supporting independence'; and
- Appraisal of technology to develop information sharing.

These findings were presented at open network conferences to help establish a local plan of action in relation to older people's quality of life priorities.

By 2001, it was argued that project CHAIN had been able to collate a substantive fund of knowledge. Using a modified Delphi process, network members had further refined their network objectives for supporting the independence of older people to a range of sub-networks: income improvement, reduction in fear of crime, mobility, unified assessment and managing medication in the community. In terms of the latter issue, the network was able to begin to address the reported historical acrimony in medication administration through the development of understanding, trust and respect. This part of the network involved the development of a multi-agency 'core' of community psychiatric nurses, district nurses, community pharmacists, hospital pharmacists, a senior home care manager, a community care manager, social care team leader, representative from Age Concern, and the network co-ordinator. Outcomes include jointly

authored protocols as a means to control network-wide co-ordination of medication in the community (Warner et al, 2003).

This case study shows the length of time and effort it requires to develop an informational network across a range of health and social care agencies. It might be argued that the approach shows a successful development of a network that has developed joint strategies, and joint protocols, that reflect the needs of a local community. However, it would also seem that the overall impact of project CHAIN is limited given the principle of non-interference with the internal workings of partner agencies - formal organisational integration is not its function. Hence, one may wonder whether the agreed priorities of network agencies really reflect the true priorities of local people as is argued, or whether they reflect those areas in which separate organisations were willing to co-operate.

As a case of network management, however, the case provides a number of lessons, many of which are similar to the case of the Belgian-Dutch network described earlier. Indeed, it is clear that the presence of a 'neutral' inter-organisational broker was important and that legitimacy of the network was significantly enhanced by partner agencies providing funding to the network, hence developing a mandate for the network to develop strategies on behalf of partner agencies. Moreover, the case also stresses the importance of 'ownership' in informational networks with elements such as developing shared vision, building strong leadership and promoting inclusive planning as cohesive characteristics. Importantly, this case also highlighted the importance of a good communications strategy and IT base to maintain and nurture the network and maintain network governance. The issue of information technology as a network conduit is discussed in the next case study.

9.4.3 Information enhanced professional networks

According to Tanriverdi and Venkataraman (1999), information technologies enhance organisational networks and enable the creation of 'expertise-oriented' professional networks. As Castells (2000) has argued, in industry the rise of information technology has been a key facilitator to a 'network society' that has enabled organisations to increase efficiency of operations within and across organisational boundaries. Indeed, advanced industrial economies appear to be moving rapidly towards a 'knowledge economy' to help develop innovative products and exploit markets (Drucker, 1991, Neef, 1998).

Information technology also enables the creation of networks between geographically-dispersed professionals, academics, and even managers, to enhance learning and innovation (Fulk and DeSanctis, 1998). Hence, IT applications such as networked computing, e-mail, discussion databases, and video conferencing enable organisations to tap into otherwise dormant expertise of geographically-dispersed,

intellectually specialised professionals, and to perhaps co-ordinate reciprocal interdependencies (Kuldeep and van Dissel, 1996).

Information enhanced professional networks may be defined as alliances of individual professionals and/or organisations that use IT to co-ordinate professional expertise to enhance knowledge across organisational boundaries. In the *active* form of professional networks, the aim is to bring together autonomous professionals and/or organisations to mutually solve challenging problems, enhance development and expertise, or examine standards of performance.

To examine this form of the informational network, Tanriverdi and Venkataraman (1999) selected the healthcare industry in Boston to study the development of professional networks through the use of telemedicine and video conferencing. Moreover, they examined the role of information technology as a tool to enable professional networks to co-exist with integrated healthcare delivery networks in which physicians were required to collaborate to enhance accessibility, improve quality, but also control rising costs of medical care. There study revealed that many hospitals had adopted different versions of telemedicine, primarily to increase efficiency of operations and increase leverage over medical expertise across their networks of affiliates (see Table 9.1).

The study found that the use of telemedicine had enabled a reduction in the duplication of services, aided the development of common treatment protocols, and better co-ordinated and streamlined care across different hospital facilities. However, at the same time, consulting physicians gained access to expertise by working on the most difficult cases while referring physicians were able to gain access to world-class medical expertise.

By implication, the use of telemedicine as a form of informational network also enabled competitive hospital organisations the potential opportunity to help their professionals expand their expertise (and hence retain the hospital's competitive edge). Indeed, exposure to intellectual challenges, learning material and contact with physicians with high professional reputation were positively related to the use of the professional networks. However, this was also a key inhibitor since many leading physicians were often unwilling to share their knowledge and expertise.

Table 9.1: Telemedecine in Boston

Table 1. Telemedicine in Boston[1]

Institution	Technology	Motivations to adopt
Boston Medical Center (BMC)	Videoconferencing	• Provide training to an international site
		• Support administrative and educational meetings
	Teleradiology	• Integrate with VA Medical Center
		• Provide 24-hour radiology coverage to two campuses of BMC
		• Provide expertise to affiliates of BMC
	Telepathology	• Sell expertise to international sites
		• Improve management of pathology images
CareGroup	Videoconferencing	• Integrate members of CareGroup
		• Provide better quality care with less resources within CareGroup
		• Enable coordination and collaboration
		• Share medical expertise within CareGroup
		• Create new markets
Children's Hospital	Teleradiology	• Make radiologists available to a wider area
		• Save radiologist traveling time in serving affiliates
Lemuel Shattuck Hospital	Videoconferencing	• Consolidate educational rounds with NEMC
		• Provide expertise to correctional facilities
Partners Health Care System	Teleradiology	• Sell expertise to international markets
	Telepathology	• Sell expertise to domestic markets
	Teledermatology	• Improve image storage and management internally
	Telecardiology	
	Videoconferencing	• Consolidate resources within Partners
	Home health	• Share expertise within Partners
		• Provide better quality care with less resources
		• Improve operations and disease management within Partners network
Massachusetts Mental Health Center	Videoconferencing	• Provide efficient consults to outlying health centers
New England Medical Center	Videoconferencing	• Sell expertise to international markets
		• Maintain and expand domestic markets
		• Provide better quality care with less resources
Shriners Hospital	Teleradiology	• Provide faster and improved patient care internally
		• Receive radiology expertise from MGH
VA Medical Center	Teleradiology	• Provide radiology expertise to remote clinics
		• Provide faster service to remote clinics
		• Improve image management internally

[1] As of Fall 1996

Source: Tanriverdi and Venkataraman (1999)

Professional networks are more enclaved and are hence built on reputation and experience that engender other professionals to be 'in' the network (Ibarra, 1992). To be effective, IT-based informational networks must be able to provide contact with peer-respected colleagues. However, such networks may be limited where competition exists between professionals that inhibit information sharing of such expertise (Quinn et al, 1996). The use of IT-based informational

networks could also be developed to promote co-ordination of care approaches.

9.4.4 Key lessons from learning and informational networks

The informational or learning networks often behave like enclaves in that their union survives through the commitment of its members to share information and to give to the network as well as to take from it. Consequently, these types of networks may be relatively unstable.

As a result of this inherent instability, the network needs to be 'benefit-rich' and characterised by 'usefulness' (e.g. in information that emerges) and 'reliability' (e.g. in information quality) so that there is 'net worth' in being part of the network. If the informational or learning network is not providing that added value, then their goals or purpose either needs to be reinvented, or the network will die of natural causes having fulfilled its function.

Informational networks based on the understanding of things like current policy priorities (e.g., the national association of fundholders) or the use of new technologies that later become obsolete will be time-limited. In other words, the issues and goals which formulated their creation are likely to also be those that determine its end.

Key leaders with charisma to engender peer-support are needed within informational networks to 'sell' the initial reasons for participation to prospective members. This is a time-consuming process, hence the need for commitment.

Unlike a clan, the informational network does need to be facilitated by a specific individual or organisation to provide a degree of 'cohesion'. The aim of network management in this case is mostly supportive and administrative since it is important that the membership of the network drives the agenda and provides the skills, expertise and knowledge to make it work.

However, the 'independent' co-ordinator within informational networks is often very important, as can be the feeling of 'neutral ground' where network meetings take place, even if that be in a virtual place such as a website.

In networks with organisational rather than individual membership, such as in the Belgian-Dutch clinical pathway, professional 'ownership' and backing from administrative and support staff within member organisations is required before commitment to the network should be provided.

The network co-ordinating individual, or organisation, may have the most to gain from the informational network since they benefit financially (and perhaps in terms of status) from the creation and development of the network. Hence, in conjunction with key leaders

from member organisations, the co-ordinating agent must 'sell' the network to non-members through pro-active lobbying in order for it to be an 'agenda grabber' while ensuring and monitoring over time that the goals of the network members are being met.

The literature on informational and learning networks stresses that informational networks should not be imposed or mandated. Instead, the networks thrive through avoiding 'imposition' and 'control' mechanisms, so integrated or hierarchical networks are inappropriate.

However, some degree of 'lock in' through financial or other commitments by individuals or organisations to the network helps the process and provides greater stability. The available use of human and financial resources enables the management agent with scope to exert incentives and leverage.

The development and use of appropriate information technology, carrying appropriate and useful information, is a factor that will support the development of networks and connect organisations and individuals.

9.5 Co-ordinated health and social care networks

Co-ordinated care networks do much of the same work as informational networks, yet move one pace up the continuum of network forms (Figure 9.1) towards more formal integration between individuals and/or agencies in the network. In this definition, the co-ordinated care network seeks to develop new forms of integration between professionals and/or institutions through the suggested application of a new mode of operation, often based on a care pathway or joint assessment process. An important attribute of the *co-ordinated* network is that financial and clinical responsibilities of the parties involved remain separated and that the network is not bounded to any binding contract.

Co-ordinated networks are often given funds (often Government funds) to provide incentives for network development. Usually, a key part of their remit is linked to developing new integrated arrangements between providers of care. There are many examples of the co-ordinated health and social care networks, though most examples analysed in the literature tend to be based in health care, particularly the development of clinical and hospital networks (such as cancer care networks in England). However, though not explicitly described as a 'network', health and social care partnerships such as Health Action Zones have many similar qualities (Barnes et al, 2001, 2003). In either case, the purpose of the co-ordinated network is to promote service redesign and cross-institutional professional partnerships. Like informational networks, many perceive the co-ordinated network as a precursor to something more structured. For

example, the development of managed care networks in Scotland, or Chains of Care in Sweden, are seemingly moving to the right of the continuum by shifting clinical accountabilities, governance arrangements and financial resources from individual agencies to the network – hence becoming more managed and hierarchical in design.

The appeal of the co-ordinated network is centred on the belief that the creation of links between agencies is a more effective way of organising health and social care. Indeed, some economic analyses point to the importance of co-operative relationships between individual organisations within a network in reducing costs (Robinson and Casaliano, 1996). However, their effectiveness in terms of quality outcomes against existing separate services has not always been proven before network implementation (Provan and Milward, 2000). Indeed, the literature provides relatively little in terms of formal evaluation or review of network effectiveness, and is generally limited to case study analysis of process.

What appears interesting within the literature on *co-ordinated networks* of care is that they appear to have a continuum of their own. At one end of the spectrum are 'simple' hub and spoke models of care that share tasks between hospitals to co-ordinate better access to care and/or make better effective utilisation of care *between* them. In this sense, a difference can be drawn between these 'hospital' networks and other co-ordinated networks that attempt to develop care integration *within and between* care providers, usually through the imposition of specific guidelines or protocols on professionals. While neither approach fundamentally threatens the status of different organisations, the latter is generally more controlled by network managers and attempts to develop a network of care that overrides organisational boundaries.

The development of co-ordinated hospital and clinical networks has been a feature of many countries and has taken many forms. Examples of the process internationally would include:
- Managed clinical networks in Scotland and Northern Ireland;
- Collaboratives and cancer networks in England;
- Medical programmes and Chains of Care in Sweden;
- Hospital 'clusters' in Hong Kong and Singapore; and
- Clinical streams and 'condition' models in Australia.

The approaches also vary tremendously in the level of integration *within* and *between* providers of care. At one level, such networks are versions of the 'hub and spoke' approach (further described below) in which care providers co-ordinate the types of 'core' care activities undertaken by each 'spoke' while centralising specialist care to 'hubs' (Ham et al, 1998). At a more managed level, the network begins to manage the clinical activities of professionals both within and between individual organisations. In the latter case, the emphasis is on the

network rather than the individual organisation as the managing organisation.

9.5.1 Hospital networks

Hospital networks, in this definition, are typically 'hub and spoke' models to better co-ordinate and delineate activities between providers of care. Such hospital networks are created for a range of reasons such as:

- to deal with the demands of increasing specialisation;
- a desire to ensure equality of access and consistency of treatments and outcomes;
- the ability to shift care to primary and community-based settings; and
- to share risks and costs between providers under financial pressures.

The latter point is important in the ability to retain and develop hospital services and institutions in remote rural locations where costs of provision are high and traditional hospital care not financially viable. The creation of hospital and clinical networks to share tasks while retaining a viable service has been seen as a potential solution. In the West Highlands of Scotland, one of the remotest parts of the UK, the problems of rurality added to the driving forces for acute sector reconfiguration such as the trend towards specialisation, stringent requirements for clinical standards, and the European Working Time Directive (EWTD). The key message emerging from evaluation and diagnostic studies was that small hospitals could survive, but only as part of a holistic primary and secondary care network using clear protocols (Clark, 2003; HSMC, 2003). In Northern Ireland, developing hospital networks between acute hospitals is seen as a potential solution to the political need to retain local services, and employment, within distinct communities (DHSSPS, 2002). In this case, hospital networks are likely to be characterised by detailed referral processes and protocols to promote continuity of care and determine and differentiate provider roles and functions. Two short case examples demonstrate typical approaches that have been used:

9.5.2 Hospital networks for elderly care in Melbourne, Australia

In Australia, health care is the responsibility of individual states. In the early 1990s, the state of Victoria introduced an internal market in health care to help promote economic effectiveness. However, as a result of competition, the focus of care for the older people shifted from community-based care to the larger hospitals. Furthermore, the internal market led to duplication, non-disclosure of best practice, lack

of openness and greater service fragmentation (Victorian Government, 2000).

To counter this trend, from 1995 the Metropolitan Hospitals Planning Board in Victoria introduced health care networks for the aged, particularly in the areas of psychiatric, palliative, rehabilitation and home-based services. The key aim of the network was to promote better access and standards of care to older people in the suburbs of Melbourne by transferring activities from larger hospitals in the city centre to the smaller 'spokes'. Each separate Hospital Board was 'incorporated' into the health care 'network' which developed its own board of directors, though overall accountability for finances and clinical care to patients remained with the individual hospitals.

A review of the network has suggested that effective co-operation between clinical disciplines has been the result (Victorian Government, 2000). Integrated care packages for older people were developed across a range of disease areas helping to increase continuity of care between hospitals. Moreover, over five years, the caseload of older people treated in outer Melbourne increased from 37 per cent compared to a 5 per cent increase in the city. However, despite progress, the network has only partially implemented its vision.

9.5.3 The Parmesan partnership

Ugolini and Nobilo (2003) examined the development of a clinical network for cardiovascular disease in the Italian region of Emilia Romagna. The scope of the network was based on a 'hub and spoke' model of care with the purpose of developing better and more appropriate transfer of cardiac patients from peripheral to central units based on a threshold protocol of case complexity. The authors reported quicker transfers and more appropriate sharing of the various phases of cardiac care between members of the network. The network was managed by a full-time 'planner' with a mandate from the hospitals to co-ordinate decision-making in accordance with pre-established objectives. A very similar approach to cardiac care services was undertaken within one of the largest managed care organisations in the USA, leading to similar outcomes in terms of utilisation effectiveness (Plogman et al, 1998).

9.5.4 Clinical networks

Moving a step to the right of the continuum of network forms is the clinical network in which, rather than a hub and spoke model, the network becomes based on professionals rather than institutions. Clinical networks, such as for cancer care in the UK, are often seen by governments as a way of producing more patient-focussed care across primary and secondary care, with professional staff working to agreed

protocols for a specific group of patients (Frater and Gill, 2002). In such cases, the clinical network is a 'virtual organisation' and usually 'advisory' but with a task to have its constituents provide care as if it were a single organisation. The key aims of clinical networks are:

- mapping care provision across the network;
- undertaking and disseminating research on best practice;
- agreeing joint priorities and investments;
- developing clinical guidelines and audit tools;
- monitoring progress; and in some cases
- developing joint posts.

Clinical networks, in this definition, are 'managed' care networks, a concept reviewed in a number of case studies by James and Miles (2002). Like hospital networks, evaluation of co-ordinated clinical networks reveals a political imperative behind them. In other words, such networks have often taken a 'passive' form - through the protection of existing hospitals and/or certain medical specialties – rather than the 'active' form in the development of new or more effective services. The following four examples, successful and less successful, are a cross-section of key approaches to clinical network development that have been subject to evaluation in the literature.

9.5.5 Ontario cardiac care network

The Cardiac Care Network of Ontario (CCN) is a partnership of health professional, hospitals and government that focuses on appropriate and timely access to adult cardiac services for patients and their physicians. The network was established by the Ontario Ministry for Health in response to a crisis in cardiac surgery manifest in long waiting times for cardiac surgery, cancellation of surgeries, and limited access geographically to key cardiac care services.

CCN is fully-funded and accountable to the Ontario Ministry of Health and its members are clinicians and executives from the designated cardiac facilities. The key responsibility of the network is to co-ordinate provision of adult cardiovascular services across Ontario, develop strategies to ensure access, monitor progress and develop an information facility to promote best practice and develop research. Initially focussed on cardiac surgery, as the network has evolved, it has developed processes for monitoring patient access and employs a broad range of guidelines for cardiac services using a collaborative and consensus-driven approach. The network advises the Ministry on funding and siting of services, but has no budgetary powers devolved to it.

The management organisation of the network is shown in Figure 9.2. Key features of the organisations include the CCN Committee responsible for overall network governance, including overseeing its

management, conduct and functioning and advising the Ministry on adult cardiac services, strategic planning and monitoring the budget. The Clinical Services Committee develops strategies for the planning and provision of cardiac services, convenes time-limited sub-groups to examine specific issues, and considers human resource planning for cardiac health professionals. The informatics committee, as it sounds, collects and analyses data and undertakes research. It has a specific remit to examine waiting times. The Regional Cardiac Care Coordinators Committee is the key forum for information exchange between cardiac care providers.

Designed as a partnership between cardiac care providers, CCN aims to bring individual practitioners and cardiac centres working in isolation to enter a forum where practitioners and government come together to share knowledge and ideas on such issues as best practice and innovative treatments. For example, 'consensus panels' of clinical, research, administrative and policy experts have been instituted to undertake reviews of the literature and clinical data to make policy recommendation s on future cardiac care strategies in the Region. The network organisation does not mandate change, but takes on the role of advisory and monitoring body.

Figure 9.2: Management structure of the Ontario cardiac care network
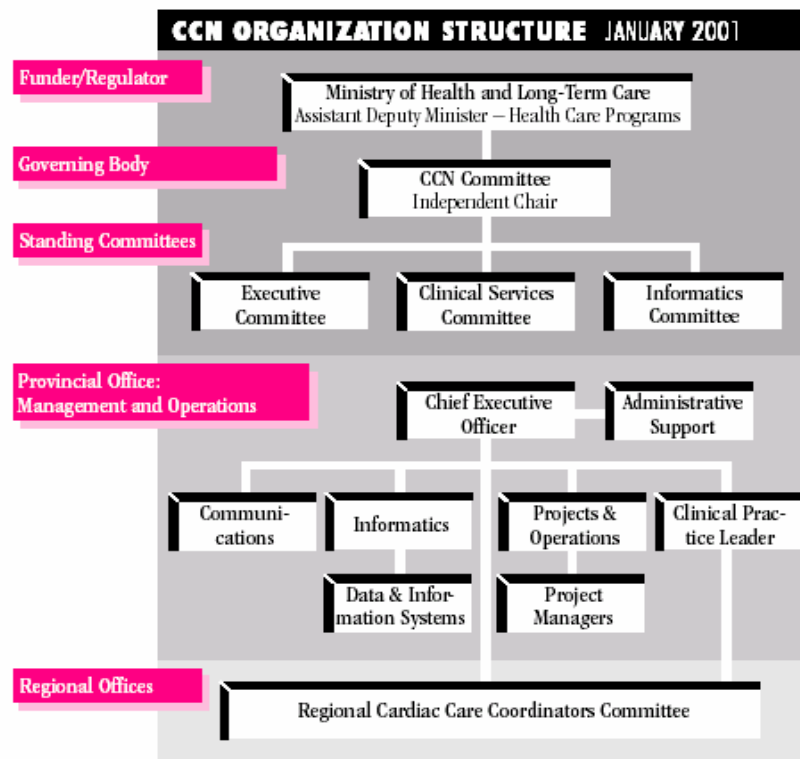
The network is predominantly informational, but the growing kudos of the network and its ability to influence the funding patterns and priorities for cardiac care has led to its role in service redesign leading to greater collaboration between cardiac centres and the uptake of models of best practice. Lessons learned in the management of the network include:

- a clear purpose and mission that helps to establish boundaries and a foundation for goal setting;
- well-structured and managed network with clear priorities to convince members that their investment of time and expertise is worthwhile;
- clinical leadership is critical, as is a strong clinical component and focus;
- information and data that is useful and helps identifies priorities;
- funding to support dedicated network staff management;
- considerable investment of time, effort and resources (human and financial); and
- solid achievements to gain credibility.

9.5.6 Health care services for older people in the Netherlands

The fragmented and complex field of secondary care for older people caused the Dutch government in 1995 to state in a White Paper that networks in geriatrics should be established in all 27 health care regions in the country. At that time, it was the official policy that at least one geriatric ward in a general hospital should function in each health care region. According to the White Paper, this geriatric ward had to be integrated in a network with other hospitals, nursing homes, residential homes, home care organisations, general practitioners and community mental health care organisations in order to organise optimum care pathways through the system. The proportion of incorrect referrals had to be reduced, and communication and mutual adjustment of services improved.

Four pilots with networks in specialised care for older people were initiated by the national government. The pilots had to provide insight into the added value of networks and had to address:

- the development of preventative services;
- the diffusion of specialised expertise (for instance by additional training and consultation);
- the development of services for geriatric patients in hospitals with no geriatric ward;
- adjustment and optimisation of clients' care pathways through the various services in the network; and
- improve collaboration and co-ordination at the level of health care regions.

Each network attempted to be inclusive of all organisations or professions who might have some relationship with the target group. A project team for day-to-day management was established in each pilot and each had a project manager either externally appointed or seconded from one of the participating organisations. The project team systematically monitored the progress of activities across the network and established a further sub-network of working groups. The pilots ran from 1996 to1999. They were externally evaluated on process and outcomes and a workbook with 'do's and don'ts' was published by some of the researchers and local project-leaders (Gerritsen et al., 2001).

According to Nies et al (2003), decision-making appeared to be a crucial issue in the effectiveness of the networks. While it was 'quite easy' for network members to reach consensus on mission, objectives and key local priorities, when it came to decisions to implement new

structures, projects or innovative services, decisions would be postponed or implemented with significant delay.

Two main barriers were described:

Firstly, networks that started with a very broad definition of their target group found it difficult to come to effective decision-making; and

Secondly, that professional members had often different interests and different priorities which did not go together.

Factors that facilitated decision-making across the networks were:

- Financial incentives for member participation;
- Professional incentives, such as the creation of like-minded professional exchange activities and accreditation;
- A well defined target group enabled decision making;
- Sub-networks and smaller regional networks organised around 'natural' catchment areas came easier to decisions; and
- Priorities linked to professional and personal interests strengthened inter-dependencies of the actors involved.

Evaluation of the projects suggested that the networks contributed to the development of new projects such as geriatric consultation in residential homes and in hospitals with no specific geriatric services. However, similar outcomes were present elsewhere in the Netherlands where no networks had been developed. Nevertheless, research suggested that horizontal ties between professionals had intensified as a result of the informational arm of network activities, as well as some vertical ties (for instance to general practitioners). Protocols, blueprints and appointments on prevention, assessment, treatment and care delivery were developed but the impact of these in the networks was prominent only among active participants.

The key messages from the Dutch geriatric network initiative were as follows:

- Ambiguity seriously complicated network-management;
- When experimental funding ended, only a few structures and activities survived that were directly related to the network;
- Network partners felt that participation would serve their interests and were generally happy to co-create mission statements and/or analyse service shortcomings. However, when the vital interests of actors were affected giving up autonomy proved to be difficult. Hence, compatibility of interests determined network productivity;
- Commitment to the networks declined if it was not related to their 'core' business;

- Social ties were generally weak due to a tension between autonomy and dependency, but sub-networks provided a structure to develop 'adhocracies' (Mintzberg, 1983) and ties were stronger and collaboration became much more operational (see also Woods, 2001);
- Centrally defined objectives were hard to operationalise and implement as no single organisation 'owned' the network;

The sub-optimal experience of networks for older people in the Netherlands gives rise to a range of lessons. A key lesson is that ownership or tie-in to networks that are imposed or mandated are unlikely to succeed unless they cater to the self-interest of network members. While a shared view of benefits to older people could be articulated, this was not of itself a strong enough driver for change. This fact has led some to suggest that networks should become 'formalised' by contract (i.e. become hierarchical) to ensure effective integration (Andersson and Karlberg, 2000). According to Nies et al (2003) "*it seems to be wise to define this as a core principle of care networks in order to improve decision-making and to come to actual provision of integrated forms of care*" a view shared by Woods (2001) and Gröne and Garcia-Barbero (2002). However, as will be explained in section six, developing networks based on contracts may not have any greater advantages in terms of integration. Indeed, it would seem that a call for a move towards contracts and markets as a way of facilitating networks is counter-intuitive to the development of collaboration between providers.

9.5.7 Managed clinical networks in Scotland

Managed clinical networks are an attempt to promote vertical integration of secondary and tertiary care services. The idea was developed in the Scottish Office Review of Acute Hospital Services (1998) following a period of intense pressure on hospitals that had led to professional and political concerns that a rising tide of emergency medical patients were not receiving the care they needed (Kendrick, 1996). According to Woods (2001), this had been accentuated by the pursuit of greater efficiency in the operation of acute hospitals that had led to a decline in available hospital beds. Moreover, reduced hours of working for junior doctors and growing specialisation of clinical practice meant that it had become difficult to maintain services of an acceptable standard, most seriously in small hospitals in remote rural areas. The Review found the traditional approaches (centralisation for economies of scale and best use of specialist skills) were unpopular with communities who resented loss of access and employment and service 'cuts' (Scottish Parliament, 2000). Managed clinical networks were proposed as an evolutionary concept with the objective of securing access to locally delivered, quality-assured care through the management of hitherto separate clinical services.

Managed clinical networks have been defined as:

'Linked groups of health professionals and organisations from primary, secondary and tertiary care working in a co-ordinated manner unconstrained by existing professional and Health Board boundaries to ensure the equitable provision of high quality clinically effective services throughout Scotland'

(Scottish Executive, 1999)

Managed clinical networks in Scotland have been in the process of implementation and evaluation for a number of years and follow a set of core principles (Box 9.2). Managed care networks have been proposed for various individual specialities and diseases with initial demonstration projects in neurology and peripheral vascular disease. More recently, the approach has been extended to areas such as cancer, coronary heart disease, diabetes, renal transplantation, and palliative care (Woods, 2001). Early impressions from these managed care networks suggested a series of management challenges:

- the importance of reforming administrative arrangements as an integrating strategy;
- the ability to change existing budgetary flows and capital planning processes in order to work across boundaries;
- the demands of greater mobility for key professional staff with loyalty to both the network and their own institutions; and
- problems of accountability and clinical governance responsibility within a 'virtual' organisation.

Box 9.2: Core principles of managed clinical networks

Each Network must have <u>clarity</u> about management arrangements, including the appointment of a designated operational lead (clinician or manager).

Each Network should produce a written annual report to the appropriate Health Board or Trust, which should also be publicly available.

Each Network must have a <u>defined structure</u> that sets out the points at which the service is to be delivered and the connections between them.

Each Network must have a <u>clear statement of the specific clinical and service improvements</u> which patients should expect.

Each Network must have <u>documented evidence</u> and must be <u>committed to expansion of the evidence base through appropriate R&D.</u>

Each Network to be truly multi-professional with representation from patients' organisations in management arrangements.

Each Network to have a clear policy on the dissemination of information to patients.

All professional in the Network must indicate their willingness to <u>practice in accordance to the evidence base</u> and with the general principles governing Networks

A <u>quality assurance programme</u> acceptable to the Clinical Standard Board for Scotland should be integral to ensure consistency of standards and quality of treatment across all managed care networks

Networks should use their <u>education and training</u> potential to the full through exchanges between primary, community and secondary care

All health professionals must produce <u>audit data to required standards</u>

All Networks must include arrangements to <u>circulate staff in ways that improve patient access and enable professional skills to be maintained</u>. Each Network should have a programme for continuous professional development

There must be evidence that the potential for Networks generates <u>better value for money</u>

The general principles of <u>accountability and clinical governance</u> will apply to managed clinical networks. Members of the Network, including managers, will be responsible to the Boards or Trusts holding their contract or employment

NHS Management Executive (1999)

In terms of the emerging design of managed care networks, accountability of professionals appears to have remained to their employing Trusts which, together with the Local Health Board, approve the creation of the network and co-design rules of engagement. Nevertheless, the tone of the legislation (Box 9.2) makes it clear that managed care networks are centrally mandated and impose a number of 'must do' tasks on managers and professionals.

Evaluations into different managed care networks in Scotland are ongoing but the research literature is sparse. In Dumfries and Galloway, a managed clinical network for cardiac services has been subject to an eighteen month evaluation (Hamilton et al, 2001).

Coronary heart disease was identified in the Scottish Acute Services Review as a major condition requiring action to improve services, particularly in dealing with variations in referral and treatment times; secondary prevention of myocardial infarction; poor access to cardiac rehabilitation and lack of primary-secondary care collaboration in thrombosis. A single national managed clinical network including all clinicians involved in cardiac care was proposed, to be supported by a series of local cardiac managed care networks (Baker and Lorimer, 2000; Scottish Office, 2001).

A local managed care network in Dumfries and Galloway was piloted in July 2001 and subject to evaluation. The initial research has so far found that the network has adhered closely to the core principles (Box 9.2) and has been successful in involving patients, sharing information on its activities and mapping patient pathways and constructing protocols, standards and guidelines. However, and reflecting the work of Nies et al (2003) in the Netherlands, the pilot has been far less successful in identifying and implementing changes for clinical and service improvements. The research concluded that

> *'it is difficult at this stage to provide evidence of the widespread involvement and commitment of all the professionals involved in cardiac care in the Region'*
>
> (Hamilton et al, 2001, executive summary)

Evidence in network progress from an earlier established network is provided by Livingston and Woods' (2003) evaluation of the South East of Scotland Cancer Network (SCAN) established in 1999 and involving primary, secondary and tertiary care for most common cancers. The network is multi-disciplinary, involving both professionals and patients, and covers a population of 1.25 million. Common to co-ordinated networks, members are involved in developing protocols, patient pathways, quality assurance, audit, and plans for service redesign. SCAN also has 'associated networks' addressing specific issues such as primary care, nursing, telemedicine, palliative care, pharmacy and patient involvement – the use of sub-network structures similar to those employed in the Cardiac Care Network in Ontario.

Common to co-ordinated networks as a whole, SCAN exhibited a 'remarkable degree of agreement' across its professionals on service priorities (equity of access and quality, improved survival, and better patient experiences). The mechanisms that respondents in the research suggested would deliver these changes were similarly predictable: the development of protocols and patient pathways, increased specialisation at local level, audit and implementation of quality standards, distribution of resources to ensure equity, and work plans for service redesign (Livingston and Woods, 2003). Within SCAN itself, respondents felt that strong management and organisation of the network would help deliver these goals through improved and

clear decision-making and via a forum for debate. Teleconferencing was seen as a potential method to improve loyalty to the network and reduce isolate and territorial behaviours.

However, to achieve this, the research found that network members wanted a more clearly defined understanding of outcomes (impact on organisations and professionals as well as services). The lack of clear objectives was for many an issue that needed to be resolved. Moreover, trust and relationship building needed more attention. Indeed, it was considered that a considerable culture change was required if SCAN was to prove successful.

For a three-year period, SCAN has been provided with additional cancer resources from Government for distribution and use across the network. For many respondents, such 'seed money' was important to facilitating incentives and support to the network, suggesting that control or allocation of resources to the network would be an important design feature of the future. Moreover, the network management itself needed adequate resources to fulfil its co-ordinating tasks. The question of leadership and direct management of the network was raised as it seemed to some that sustainability depended on a few key people with the vision and drive that provided the network with its cohesion.

Managed clinical networks in Scotland have been bother centrally mandated and pro-actively managed and are very much at the hierarchical end of the co-ordinated network continuum. Indeed, the organisational process appears to be far more controlled and prescriptive, thus easily distinguished from professional clinical networks that act as enclave groups and which need a management style based on negotiation (see Ferlie and Pettigrew, 1996). It has been suggested that common building blocks to managed care network development, as in most partnership working, include as a first step the development of trust, goodwill, respect, communication, and clinical interest. Such work needs to be done *before* structural changes manifest in things such as new referral pathways, common clinical protocols, joint audit, and even joint leadership (Monaghan 2000, Livingston and Woods, 2003). However, as the concept of managed clinical networks in Scotland becomes mainstream, their development is becoming less a negotiation and more an imposition from above – a factor that many studies of health and social care partnerships suggests leads to sub-optimal outcomes (see Hudson, 2002). Effective management of, and within, such networks may thus rely on local peer-respected champions to the approach – a factor that may bring into question both the sustainability and efficacy of networks themselves.

9.5.8 Chains of Care in Sweden

In Sweden, a similar model to the managed clinical network being developed is the 'Chain of Care'. Like the Scottish model, the Chain of Care policy is intended to develop a managed network of providers that '*co-ordinates activities within health care, linked together to achieve a qualitative final result for the patient*' (Ahgren, 2001). The idea behind the Chain of Care approach, however, is to move from a clinically-managed network to a network based on contractual relationships between purchasers and providers. Indeed, policy emphasis in Sweden has been placed on developing purchasing strategies based on 'Chain of Care' contracts. The approach may have important lessons for the management of networks in the NHS, given the potential future development of PCTs as health procurement agencies.

The suggestion within the 'Chain of Care' approach is that a 'purchaser' would contract using a 'Chain of Care'-based agreement to cover volumes, costs and quality. A 'Chain of Care' manager from the purchaser would need to ensure that the contract is carried out. The advantage to the approach is that payments in the system are made for collective health care efforts. Providers become incentivised to work within a provider 'network' to reduce duplication and share services and risk. Health care agreements are 'comprehensive' and in principle cover all efforts that are made for the client or disease group in question. The model does not, therefore, utilise target-based performance criteria such as waiting lists or numbers of admissions, but uses incentives based on the development of integrated care and care pathways.

The 'Chain of Care' model is similar to the core principles of a Kaiser Permanente-type managed care system, or a tighter version of an integrated healthcare procurement network within a US health maintenance organisation (see below). Indeed, the UK Care Trust model may also be regarded as a similar approach since it moves towards an organisation with responsibility for commissioning all integrating local health and social care. However, the key difference in Sweden is that the integrated care system is being developed at the same time as the development of greater provider plurality and consumerism, hence making the contracting mechanism a very important factor in incentivising integration of care. The approach appears to be influenced by the management styles adopted by the Swedish furniture multinational IKEA and its integration of sub-contractors into the value chain. IKEA, for example, persuades customers to co-operate within the value chain – the model for health being a design that is developed on both evidence-based medicine but also on consumer interests and demands

'Chains of Care' are seen as an 'important counterbalance' to the ever-increasing fragmentation of Swedish health care (Ahgren, 2001). This

fragmentation has been influenced by a range of factors including decentralisation of power to front-line staff, increasing professional sub-specialisation and the creation of provider plurality allied to the principle of a 'professional' organisation in which physicians and nurses take personal responsibility for treatment decisions. As a consequence, the movement called 'Chains of Care' developed in Sweden in the late 1990s with the aim of better co-ordinating activities within health care. Like managed care networks in Scotland, they are seen as a cornerstone for future health care delivery and have been supported by almost every Swedish county council. For example, health care organisations in West Gotaland are developing their management systems based on the Chains of Care approach (Health Care Board of West Gotaland, 2002).

At present, national studies of the 'Chain of Care' approach shows that they remain primarily based on chronic and acute illnesses such as diabetes, dementia and rheumatism rather than examining general health care or wider health and social care needs (Ahgren, 2003). The main purpose of the approach to date has been to promote evidence-based medicine and clinical guidelines and, as in Scotland, emphasis has been given to the redistribution of medical workers between providers in the health care system. The network models differ, but generally centre around multi-disciplinary project groups that aim to be a forum for knowledge exchange between individuals and organisations. The number of Chains of Care developed has varied by county council in Sweden, through the largest county council (1.5 million inhabitants and 40,000 employed health care staff) has developed more than fifty Chains of Care (Ahgren, 2003).

According to the policy, successful 'Chain of Care' projects should achieve:
- tasks being joined together into teams or by single person (i.e. reduced duplication) hence reducing number of interfaces and delays;
- the development of a logical order of provision; and
- a logical place of provision, without consideration for pre-existing organisational boundaries.

Despite the support that most professionals within these Chains of Care have shown to overall goals and plans, development work within the network '*in reality has been a low priority*' in most areas. Indeed, no significant changes in management systems have resulted and few changes to clinical services have resulted. Hence, while the mission statement for the network (and its associated member benefits) has been regarded as a strong co-ordinating force (see Hammer 1996; Hammer and Champy, 1994) progress in terms of service change has been slow.

Key obstacles to network development have included the existing departmentalisation of responsibilities between medical professions

and resistance from some managers due to fears of changing their working routines (Sjoberg, 1999). Health care managers have found cross-agency and cross-boundary working problematic, particularly where network goals challenge the existing power structures yet provide weak incentives for compliance or uptake. Indeed, most Chains of Care models did not employ a dedicated and responsible manager. It was argued that such managers were needed, and with power to match those of the professionals, perhaps by investing them with educational grants, budgetary powers or other top-down controls (Ahgren, 2001). However, potential disharmony between values of health care personnel and network goals would suggest such an approach is unwise. If Chains of Care, like managed care networks in Scotland, become the system of choice in Sweden, managing the balance between corporate governance and local autonomy will be the biggest challenge faced.

The isolate nature of professional medical directorates in Sweden suggest difficulties in creating co-ordinated networks such as Chains of Care. For some, a key observation was how the network managerial structures were poorly staffed and resourced. One solution might be to develop a network managerial body with greater power in the long-term to match that of the organisations and professions themselves, perhaps by shifting accountability and governance for service provision to the network by reallocating training and core budgets from the organisations to the network. An alternative model has been to suggest that integration may be enhanced through commissioning based on Chain of Care-style contracts.

In either case, progress in the transition from co-ordinated network to hierarchical network is likely to be limited without engaging professional commitment since such a move towards would be a powerful threat to existing care providers. Ahgren's (2003) research showed the needs for inclusive representation from the different health care units and the wide range of professions such as physicians, nurses and local councillors. Furthermore, the networks needed peer-respected clinical 'champions' to be involved (the brightest and the best') otherwise efforts to develop the networks would be fruitless '*because of the strong defenders in the vertical structure that will not allow radical changes'* (Ahgren, 2001).

9.5.9 Key lessons from co-ordinated health and social care networks

Co-ordinated hospital and clinical networks are gaining increasing interest in health and social care and are often established as inter-organisation structures using care pathway or 'chain management' techniques to provide a flexible, full array of services. *Co-ordinated* networks tend to be clusters of autonomous yet interdependent organisations which have connected themselves to some extent in

order to deliver a coherent package of treatment, care and services. These packages are regarded as necessary to meet the changing needs and/or preferences of the patient (or client) and to provide effective and efficient care and services. These co-ordinated networks are, according to various authors, a core objective of integrated care (Audit Commission, 2002; Gröne and Garcia-Barbero, 2002; Kodner and Spreeuwenberg, 2002).

However, implementation of networks appears problematic since they imply managing dilemmas and ambiguity. As Nies et al (2003) suggest, *co-ordinated* networks are multiform and dynamic in character and their structures and composition differ and change over time. The positions of network members may change, sometimes very rapidly, and a range of multiple interdependencies may co-exist within a network at the same time or sequentially. Managing service delivery by means of a network implies dealing with these specific characteristics. Three main issues appear to be important here:

- first, the degree of *formalisation* of the co-ordinated network varies from loosely coupled system to formalised organisational structure with degrees of financial and operational integration;
- second, the ability of individuals and organisations to *enter* or *resign* appears to vary as does the specific contribution that members have at the various stages of the network; and
- third, the intensity and duration of the inter-dependencies are dynamic and vary over time.

In co-ordinated networks, ties between individuals and organisations remain looser and more complex than in traditional hierarchical organisations. Such networks may even consist of partners who compete in other areas or will compete in future stages of the network. Co-ordinated networks, therefore, are dynamic and unstable and managers need to tread the line between member autonomy and dependency (Nies and Arends, 1992). Hence, within co-ordinated hospital and clinical networks, there is a constant tension between the network's need to establish its own identity and with the individualistic tendencies of hospitals, indeed clinicians within hospitals, concerned with their own interests. As in informational networks, the role of dedicated clinical and administrative leadership appears crucial to secure an effective role for the network and, unless the network becomes owned and supported by all parties, ongoing Governmental support appears important.

Co-ordinated hospital and clinical networks appear to also stress the importance of some kind of joint clinical governance framework to tie together roles and responsibilities and achieve 'operational excellence'. However, key challenges to achieving this range from the perceived challenges to the existing power structure, especially from medical professionals; weak incentives for collaboration; lack of power

invested to the 'network' leading to lack of prioritisation of network goals, diverse personal values, and continuation of established practices. Reconciling hierarchical accountability with cross-cutting boundary working between organisations and professions was also a recurrent theme in the literature.

In managing co-ordinated networks effectively, it is clear that a number of key lessons emerge that are additional to those lessons learned in the creation of informational networks. These lessons can be summarised as follows:

- The mission statement (and member benefits) is a very strong co-ordinating force to the network;
- Without facilitation and resources, networks will die;
- The network needs *inclusive* representation from different health care units and the range of professions involved – physicians, nurses, councillors, social workers and so on;
- Harmony between network goals and plans and the values of health and social care professionals creates opportunities;
- The network needs to be creating something useful for patients, users and carers who should be involved in the network;
- The network needs 'champions' to be involved (the 'brightest and the best') otherwise efforts may be fruitless as professional tribes inhibit change. There is a need for peer-respected leaders;
- The work of the network needs to be seen as important, if nor more so, than that of the individual institutional and/or professional;
- The values of health care personnel are a key success factor – value-based resistance to change is often stronger than financial incentive;
- 'Top-down' imposition of a network creates disharmony and professional power may be too strong to be influenced by top-down instructions – avoid mandated networks
- The 'network' needs to be imbued with power and/or kudos – the development of a pooled budget held by the integrating agent may help in the long-term to match that of the provider organisations themselves – for example, by reallocating training or core budgets from the organisation to the network;
- A negotiated balance between governance and autonomy is difficult, but is required as hierarchical networks are potentially threatening to existing powers; and
- Networks need to be 'reflective' and employ a 'continuous improvement cycle'

These key findings for network development are greatly similar to the evaluation of partnership working and the creation of 'collaborative capacity' within Health Action Zones (HAZs) (Barnes et al, 2003). The key insights drawn from an examination of five case study HAZs are

shown in Box 9.3 below. Importantly and with great resonance to co-ordinated networks of health care, a key tension uncovered was that between the apparent informality of key agencies and individuals in operating HAZs and the perceived need for more formal mechanisms to tie partners into the collaboration. While informality had a positive effect of supporting innovation and autonomy, this often made it difficult to sustain activity. Since collaboration was the only method to tackle cross-cutting issues in HAZs, it was concluded that partners needed to focus on mainstreaming activities to help embed new ways of working beyond time-limited tasks funded by external resources.

The range of issues associated with the management of *co-ordinated* hospital and clinical networks are complex. It is clear that such networks need to create associations between individual professionals and organisations that do not necessarily, or usually, wish to be functionally tied in any financial or managed way. The evidence suggests that such networks can endure, but only where aims and outcomes are regarded as mutually beneficial and where the network is flexible enough to adapt to change (as in the Ontario network).

Box 9.3: Key insights into the development of collaborative capacity in health action zones

The significance of 'collaborative fit': the partnership being a vehicle 'in keeping' with the underlying values and ethos of the individuals and organisations involved.

Building ownership enables collaborative action and effective modes of communication.

Investing in capacity building to allow partner agencies to engage and resourcing collaboration to facilitate long term complex collaborations.

Organisational development such that the business of the partnership becomes everyone's core business and not just an 'add on'.

Time and stability to build collaborative capacity, trust and understanding of competing priorities.

Planning for long-term change to show how objectives may be pursued.

Working with difference rather than avoiding it.

Innovation, experimentation and risk taking and an associated preparedness to accept failure and to learn from errors.

'Human horticulture' to develop strategies for building individual capacity to work within the partnership.

Informality enabled innovation and autonomy, but some formality was required to sustain activity.

The tension of managing performance and conformance through collaboration was problematic and unresolved.

Balancing 'must do's' and 'can do's' and the ability to act and think locally galvanised partners and engaged citizens – mandated goals dampened enthusiasm and diminished interest.

Mainstreaming was required to develop new approaches and partnerships into sustainable long-term practice.

summarised from Barnes et al (2003)

9.6 Integrated networks based on procurement strategies

A major trend in the US is the development of integrated healthcare networks that provide all elements of the care continuum from health insurance, outpatient and inpatient services to long-term care maintenance. Among the presumed benefits are better quality of care, better services, more accessibility, enhanced products, strengthened customer relationships, more effective operations, and reduced unit costs (see Coddington et al, 1994; Conrad and Shortell, 1996). Moreover, similar to most network management methods, managed care tools such as case management or disease management programmes have often been used to achieve integration across the network. The system-wide integration of clinical care between hospitals through internal contractual networks is a step that has become encouraged as integrated healthcare delivery systems attempt

to demonstrate to consumers advantages of comprehensive benefits over competitors (Wan et al, 2001).

The development of integrated healthcare networks in the USA arises from fundamentally different motives due to its business model. Managers of such networks design services and choose physician and provider partners to maximise effectiveness, efficiency and quality (see Scott 1993, Luke and Begun, 1988) but the strategic impetus comes from a range of organisational strategies as follows (from Lin and Wan, 2001):

- enlarging the network size (corporate strategy);
- venturing into non-hospital provision (business strategy);
- integrating information systems and financial arrangements for co-operative purchases (functional strategy); and
- clinical integration through case management (functional strategy).

However, the literature and research on contractual networks suggests that only a 'moderate' level of integration has been achieved – particularly in the areas of financial planning and organisational culture manifest in low clinical integration and physician-system integration. Moreover, benefits to patients by providing a 'continuum of care' has been effort potentially 'not compensated' by the additional costs and process efficiency of integrating services. This can be seen in the case of the Henry Ford Integrated Healthcare System (Box 9.4) that was rated third in a list of America's most integrated healthcare networks in 1999 yet which was losing money and having to make staff cuts (Bellandi, 1999).

Box 9.4: Henry Ford integrated healthcare system

The Henry Ford Integrated Healthcare Network integrates health care coverage through external contractual partnerships. The managed care plan that it offers provides an integrated set of hospice programs and an ambulatory care network at more than 70 sites. It has a centralised design that includes:

- centralised decision-making between provider organisations;

- care integration packages;

- integrated information technology; and

- integrated purchasing.

The system was ranked as the 3rd most integrated system in the USA in 1999, yet is in considerable financial difficulties, showing a net 'loss' of $43.8m in 1998 compared to a net gain of $38m in 1997. The Henry Ford System cut its workforce by 425 employees in 1999. The Henry Ford System demonstrates a 'best effort' in the USA of providing an integrated system of care committed to 'a continuum of care' co-ordinated through case management and disease management programmes. However, the structural and operational characteristics of the system appear to be not economically efficient or profitable.

Research by Bazzoli et al (1999, 2000) across over 1000 health network hospitals has attempted to further establish the degree to which these procurement networks enabled the integration of services. They defined the level of integration in a threefold way:

- by the level of differentiation (number of different products or service offered);
- by the level of co-ordination (mechanisms used to achieve unity across organisations); and
- by the level of centralisation (whether activities and management was centralised or dispersed).

Bazzoli et al's (1999, 2000) research showed that the broader the scope of activity within the network, the harder it was to centralise management arrangements and make a profit. They found that hospitals in single ownership models, such as the managed care system of Kaiser Permanente, had both a better financial performance and better health outcomes than those based on contractual networks. Moreover, in provider networks, the more centralised hospital networks appeared to perform better than looser affiliations. However, there is some evidence to suggest that overly-centralised networks were 'over bureaucratic' and inhibited innovation leading to the conclusion that moderately centralised systems performed best.

This research is backed up by an analysis of America's 100 most integrated systems by Wan et al (2001) which showed that those employing 'forward integration', or networks venturing into non-hospital services such as sub-acute care and long-term care, tended to have far lower profit margins. They concluded that, while status-

enhancing, such strategies in providing a continuum of care did not improve either cost efficiencies, better clinical integration, nor higher profits. It is not surprising, therefore, to learn that 87 of the 100 'most integrated' (positively associated with network size, reducing acute bed size, and co-ordinated care programmes) were not-for-profit hospital networks. The researchers questioned whether the potential benefits to patients in integrated healthcare networks (quality of care, health outcomes and patient satisfaction) could outweigh the added costs.

As an observation on these findings, it is typical in the USA for integrated healthcare networks to use a combination of both ownership-based (managed) and contractually-based (procurement) methods. Robinson et al's (1996) study of 'tiered' hospital networks described how insurers used differential 'tiers' of providers in health care plans. Hence, some enrolees might accept a 'restrictive' network of hospitals with lower co-insurance rates, while others would choose a wider 'network' of hospitals that included 'premium' as well as 'core' providers in terms of cost, quality and/or performance. This backs up Bazzoli's conclusion that a mix of directly managed or single ownership hospitals needed to co-exist with a procurement network for 'non-core' services.

The evidence in the USA may suggest that a UK PCT acting as a procurement agent within a provider market might best attempt to employ a mixed model of direct ownership for 'core' services with a network of independent and competing hospital affiliates. However, it is important to remember that the term 'network' in the USA is as much about the insurer's ability to enable choice and coverage within a plan as about developing shared care or common standards. Analyses of hospital networks in the USA in which shared service arrangements exist between them reveals a process that is as much associated with price-fixing arrangements as with generating efficiencies or sharing risk (Liebenhuft, 1996).

Most multi-provider networks in the USA work interdependently to control costs and/or assure quality through joint ventures that build monetary and human capital. For example, some physician networks commit to common utilisation procedures, modified practices and joint monitoring of performance in order to realise organisational efficiencies but also to gain competitive advantage. In many cases, shared service agreements between providers aim to develop 'centres of excellence' or create a network of associates to protect hospital and physician interests as well as share innovations and best practice. While such arrangements in integrated healthcare networks may help develop combined and integrated services, as private businesses they also are subject to antitrust legislation. The question of antitrust and healthcare networks is an interesting phenomenon in healthcare in the USA since, on the one hand, networks and joint ventures enable cost sharing, quality improvements and savings, but on the other hand

prevent competition in the market. The formation of hospital or physician networks in the USA, therefore, is open to much scrutiny in this regard. If the only available hospitals in the local market combined services, the effect is to eliminate competition and consumer choice – if both are profitable, then the consolidation would be regarded as bad for consumers. Only where competing hospitals are not profitable, it is argued, would such consolidation be 'preferable' as the network, or joint venture, would help reduce costs but not impact on competitiveness as survival of a service becomes paramount (Liebenhuft, 1996).

9.6.1 Care pathway commissioning

Policy direction in the NHS, encompassing Foundation Hospitals and provider pluralism, appears to be following a path towards a consumer-driven system in which PCTs will contract for health care with a range of private and independent providers.

The lesson from the evidence on procurement networks in the USA might suggest that the use of contracts in promoting integration is less effective, and more expensive, by this mechanism. The use of contracts, therefore, may potentially endanger the 'care pathways' approach that seemingly underpins the ability to manage 'within' networks (see below).

However, it has been argued that one future model will be the development of integrated care networks through a form of contract that using an integrated care pathway-based agreement to cover volumes, costs and quality. Indeed, the potential of developing costed care pathways is under active consideration in some UK PCTs (Balfour D, 2003) and is reported to have been piloted by some county councils in Sweden through their 'Chains of Care' approach described earlier (Ahgren, 2001, 2003). In both cases, the purpose of care pathway commissioning is to help overcome the competitive and isolate tendencies associated with creating competition between providers to improve choice.

Within the care commissioning approach, it has been postulated that a care pathway manager from the purchaser would need to ensure that the agreement or contract is carried out. The theoretical advantage is that payment in the system is made for 'collective' health care efforts. Providers, therefore, would be incentivised to work within a provider 'network' to reduce duplication and share services and risk. Health care agreements, therefore, could become comprehensive yet operate across a range of independent agencies. Such a model is similar to the core principles of a Kaiser Permanente-type managed care system. Moves in Sweden to develop such purchaser-provider network models have been influenced by IKEA and its integration of sub-contractors into the value chain (Ahgren, 2003). IKEA also persuade customers to co-operate in the chain – the model for health being a design that
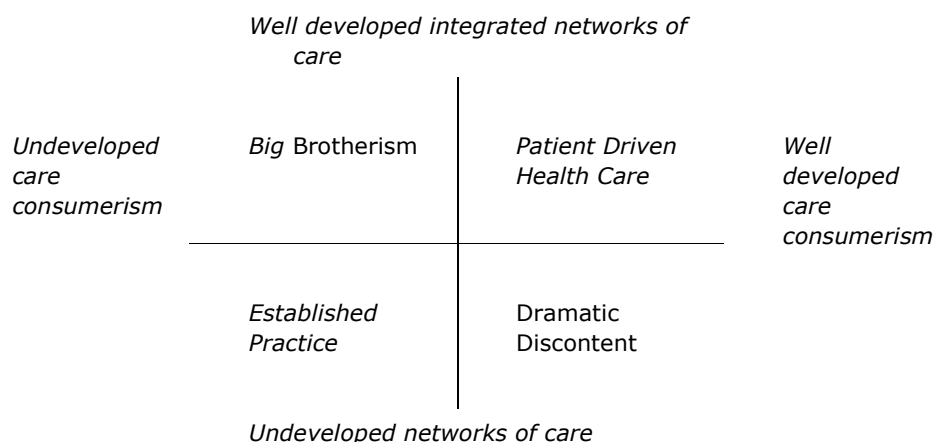
develops on both evidence-based medicine but also consumer interests and demands.

This latter point leads to an interesting future scenario for health care systems that both wish to develop integrated care networks but also engender choice and care consumerism through provider competition and plurality. There is tension between the two forces:

"We now stand on the brink of a care consumerism breakthrough in which patients demand that health care be organised for their benefit and not just to create rational care pathways" (Ahgren B, 2001)

The tension between care consumerism and integrated care networks can be visualised in Figure 9.3 which postulates some potential scenarios based on cross comparison of the level of integrated care network development on the vertical axis, and care consumerism on the horizontal axis.

Figure 9.3: Potential futures associated with the relationship between integrated care networks and care consumerism

Well developed integrated networks of care

Undeveloped care consumerism	*Big* Brotherism	*Patient Driven Health Care*	*Well developed care consumerism*
	Established Practice	Dramatic Discontent	

Undeveloped networks of care

adapted from Ahgren, 2001

Based on Ahgren's (2001, 2003) hypothesis, the dynamics between care consumerism and networks of care would suggest a range of possible scenarios as follows:

Established Practice

In this scenario, health care continues to undergo development based on old, ineffective, processes developed over the last two decades. The process includes established redesign methods including decentralisation, cost control and the search for organisational efficiency (such as hospital mergers) without examining the potential for networks. As a result, this leads to a lack of 'product-line' efficiency and continued lack of integrated services to users and patients.

Dramatic Discontent

With the same impotent factors associated with *established practice*, but with patient expectations exceeding supply, this scenario potentially generates a patient-led revolution leading to the eventual toppling from power of a Government that has promised much, but has not delivered. It could be argued that the current political push in the UK to redesign public services, create networks of care, and enhance accessible and patient-led services has become more acute following the rise of politically-driven consumerism and demand.

Big Brotherism

In this scenario, organisations provide care on the basis of integrated networks with the primary goals of service rationalisation, quality assurance and efficiency. Patients are 'objects' in the system, leading to great dissatisfaction from patients due to explicit rationing. Public disillusionment with managed care organisations in the USA is a case in point, and there has been a move away managed care principles as consumers demand greater benefits.

Patient-driven health care

It is unclear whether this is an optimum scenario, but it describes the characteristics of a system that combines care consumerism with integrated networks of care. To co-exist it is argued that demand-led integrated care networks are developed in full collaboration with users and local people who are regarded as a resource to the system. Health care purchasing and provision is based on choice and final outcomes rather than rationing. Such a scenario probably will need substantial additional financing as costs rise and the scenario may not be sustainable.

Active discussions in Sweden and the UK about the feasibility of care pathway commissioning are likely to continue, but as yet there is no evidence to suggest the effectiveness of such a model. Indeed, the key lesson for the NHS from procurement networks in the USA is that integrated hospital and wider care networks based on contracts appear to be less effective and more costly than those based on more integrated systems of care. While 'care pathway' commissioning may provide a rather different solution, there is no evidence to suggest whether such an approach is feasible, particularly given the likely gaming (cost-shifting) tendencies of individual organisations within the system.

9.7 Managed care networks: from loose affiliation to full integration?

Within the literature on integrated health and social care, the emphasis is often placed on the ability to make the transition from some sort of 'loose' or 'co-ordinated' network to a more organised, controllable and closed network form. In England, this is currently true of disease-specific provider networks (such as cancer and diabetes), but also of purchasing agencies such as PCTs. On the provider side, there appears to be an explicit assumption (or common hypothesis) that the creation of a *fully integrated network* is an end point to be reached in order to establish more durable and long-term relationships between organisations. The greater the move to a 'hierarchical' network, it is argued, the better the level of integration and attainment of the goals for integration.

The managed networks, as defined in the continuum of health and social care networks (Figure 9.1) can be described either as fully-integrated models of care (Lutz, 1999) or hierarchical networks (6 P, 2003). Indeed, at this level, the distinction between a managed, or hierarchical, network and an organisation becomes more difficult to differentiate. Unlike the managed clinical networks in Scotland, the fully integrated model is more akin to 'network' organisations such as Kaiser Permanente (Robinson and Steiner, 1998; Kodner, 1999) and hence have a series of key characteristics:

- a population defined by enrolment;
- contractual responsibility for a defined package of comprehensive health and social care services;
- financing on the basis of pooling multiple funding streams, with or without fixed annual or monthly payments, independent of service volume (capitation) but including financial responsibility for all care costs;
- a 'closed' network (a selected group of contracted and/or salaried providers)
- emphasis on primary care and non-institutional (extramural) services;
- use of micro-management techniques to ensure appropriate quality of care and to control costs (utilisation review, disease management); and
- multi-disciplinary professional teams working across the network with joint clinical responsibility for outcomes.

As in the debate about procurement networks, the literature on fully-integrated networks of care (variously called integrated health networks or integrated service delivery systems) generally comes from the USA. However, definitive evidence on the effectiveness and efficiency of fully-integrated programmes of care is lacking (Polivka

and Robinson-Anderson, 1999). It is suggested that such models appear to work best only with small subsets of patients that have unstable and functional conditions and who frequently interact with health and social care systems. In other words, the fully integrated and hierarchical networks may be appropriate only where all the agencies within the network are required to provide ongoing collaboration between professionals to provide the care. In this sense, the hierarchical network may appear to be an overly structural solution if the gains from it are sub-optimal.

9.7.1 The social health maintenance organisation

Social HMOs are federally-funded demonstration projects that combine health and social care, both acute and long-term, into a single, care managed delivery system – or hierarchical network (Robinson and Steiner, 1998; Leutz et al, 1985). Such programmes have generally target older people Medicare patients on the predication that integration will deliver more appropriate care and lower costs.

There are currently just three Social HMO sites in operation in the USA (Kodner and Kyriacou, 2000):

- *Medicare Plus II,* sponsored by Kaiser Permanente in Portland, Oregon;
- *Elderplan,* sponsored by Metropolitan Jewish Health System, New York; and
- *SCAN Health Plan,* Long Beach, California

The Social HMO is open to all Medicare beneficiaries aged 65 and over within the communities served by the sites and enrolment is voluntary. The basic Medicare benefit package consists primarily of acute-oriented medical care; in-patient hospitalisation (for acute and short-term psychiatric care); short-term outpatient mental health care; and skilled nursing home and home care services for short-term post-acute needs. The Social HMO expands these benefits by including long-term care for chronic conditions in the home and community nursing home settings (up to $1000 per month), prescription drugs, dental care, eyeglasses, foot care, assistive equipment, and medically necessary transportation. Furthermore, a range of non-institutional care benefits are provided including personal assistance services, homemaking, rehabilitation therapies, respite, adult day care, and meals. In part, the additional services are enabled through cost savings by reductions in hospitalisation (Newcomer et al, 2000). The Social HMO utilises a pooled budget based on needs-adjusted capitation budget, which means that the HMO is provided with an economic incentive to encourage home use and community-based services in lieu of expensive institutional care.

The fundamental challenge within the Social HMOs has been to graft on a long-term care support system to the conventional medical care delivery system. This has required 'managing complex provider relationships and care arrangements across a relatively diffuse organisational network' (Kodner and Kyriacou, 2000). To do this, and in common with all forms of health and social care network, care management techniques have been utilised to co-ordinate the responsibilities of providers, to share information, and discuss and recommend care decisions jointly. An important element to the care management approach is that long term care services are provided under contract with the HMO, thus ensuring agreed standards of care across providers.

The Social HMO models were subject to a three-year evaluation (1986-1989) and subsequently over 100 journal articles and book chapters have addressed different aspects of the Social HMO demonstration models. The results are complex, contradictory and controversial – not least because of the difficulty of using appropriate comparator sites (see Kane et al, 1997; Zimmerman et al, 1998). The overall findings, however, suggests that the model fell short of expectations in a number of key areas:

- Although the Social HMOs employed a single organisational structure with full responsibility for the allocation of all health and social care resources (Macko et al, 1995), this did not translate into integration at the clinical level. For example, contacts between physicians and care managers have been minimal and most physicians have been uninvolved with long term care planning (Newcomer et al, 1999);
- Frail older people enrolees received well-co-ordinated home and community care services through their care managers (Calkins et al, 1999). However, Social HMO sites did not show consistent effects on inpatient hospital and nursing home admissions and lengths of stay. Indeed, Social HMOs were associated with higher hospitalisation rates and higher nursing home admissions for post-acute care compared to acute-oriented HMOs serving Medicare for older people (see, for example, Boose, 1993; Dowd et al, 1999);
- The formal evaluations of the Social HMOs did not find any cost-savings to the system compared to a range of randomly-selected non-managed and fee-for-service Medicare approaches (Manton et al, 1993; Newcomer et al, 1995);

Despite these findings, enrolee satisfaction with Social HMOs was high and that there was greater success in retaining enrolees compared to acute-oriented HMOs serving Medicare patients (Newcomer et al, 1996). The role of family carers as care co-ordinators was seen as an important 'human element' to engendering this support.

Overall, the 'fully-integrated' Social HMO model encountered a range of organisational challenges in creating an integrated medical/long term care organisation. These difficulties were manifest in administrative and financial inefficiencies as well as clinical and service discontinuities (Kodner, 1994; Newcomer et al, 1994). Hence, while the Social HMO demonstrated the feasibility of combining responsibilities for finance and delivery of health and social care within a single organisational network, care management strategies *within* the network organisation failed to produce clinical integration, better cost-effectiveness, or significant changes to working practices. The Social HMOs have since attempted to develop better mechanisms to manage within their networks, attempting to employ protocols and integrated care pathways (Kodner and Kyriacou, 2000).

Similar integrated care systems for older people's care around the world have been analysed and include:

- The Comprehensive Home Option of Integrated Care for the Elderly (CHOICE) in Edmonton, Canada (Pinelli Beauline Associated Ltd, 1998)
- the Program of All Inclusive Care for the Elderly (PACE) projects in the USA (Branch et al, 1995; Eng at al, 1997; Kodner and Kyriacou, 2000);
- a randomised controlled trial of integrated social and medical care and case management in Northern Italy (Bernabel et al, 1998);
- an integrated service delivery network for the frail older people in Montreal (Bergman et al, 1997); and
- PRISMA, a model for integrated service delivery for frail older people in Canada (Hebert et al, 2003).

As an example, the latter model (PRISMA) co-ordinates care between organisations through the creation of a joint governing board of all health and social care services organisations and voluntary community agencies. This group decides on policies, but also allocates pooled resources to the 'integrated' system. A professionally-led service co-ordinating committee, mandated by the governing board, facilitates the adaptation of a 'service continuum' that comprises a single referral entry point, single assessment instrument and the development of individualised service plans. Clients selected for inclusion to the service had to meet strict criteria (over 65, present moderate to severe disability, show good potential for staying at home, and need two or more of the health and social care services in the system). Multidisciplinary teams of practitioners, with line management responsibilities to a case manager, provide the services to the group through a mix of contracts and direct management (see Figure 9.4, below).

The research team found that the integrated system needed a 'tremendous effort' in co-ordinating all levels of the network organisation and a shift in mindset from practitioners to a client-centred, rather than institution-based, approach (Hebert et al, 2003). Evaluation of this and similar 'network' systems for older people rarely employed any control groups. However, claimed beneficial impacts have been advanced on a range of issues such as the reduction in number and duration of short-term hospitalisations, reduction in number of admissions to long-term institutions, reduced costs of services and less functional decline in older people living in the community. However, success and roll-out of these models have been hampered by the willingness of clinicians to work within such a managed model and/or accept the claimed benefits. Many studies are now examining the socio-political issues in integrated system development in order to develop partnership between clinicians and managers to facilitate operations. Hence, it appears that fully integrated networks do not necessarily perform any better than hierarchies or 'looser' networks unless there is effective management *within* the network.

9.7.2 Lessons for Network Development

In their synopsis of fully-integrated models of health care, Kodner and Kyriacou (2000) suggest that the existence of a single, accountable, organisational centre allows for the optimum impact on network integration. However, it also clear that such centralisation of accountability and power within a hierarchical network is not of itself sufficient to ensure network efficiency. In particular, it would appear that the managerial task of integrating health and social care *within* networks remains crucial and that the approach is very much the same as within less hierarchical network forms. Indeed, a consistent finding within the health and social care network literature is the similarity in the managerial tools required within networks to help integrate care and make networks function effectively. This finding tends to support the overall thesis developed in this research that the tools of managing networks are not ostensibly different to those required to manage organisations (6 P, 2003).

Figure 9.4: The PRISMA model for integrated service delivery for frail older people in Canada

from Hebert et al (2003)
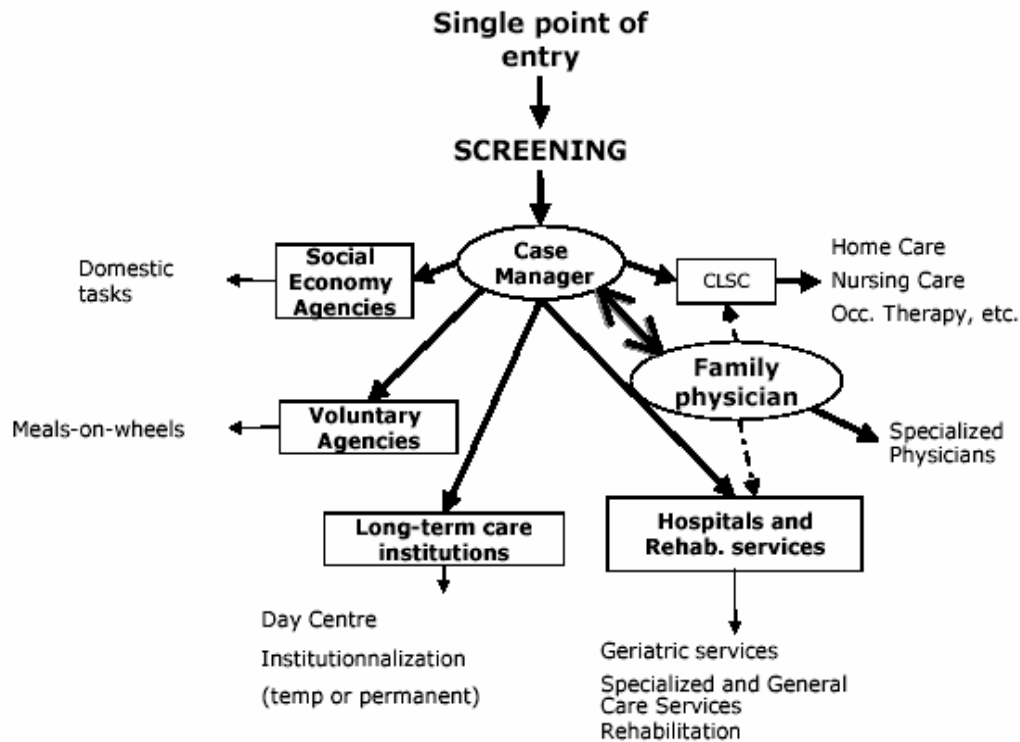
Whether hierarchical or fully-integrated networks can be developed in the UK and other Beveridgian health and social care systems is an unresearched and unanswered question. The social, cultural and political contexts are very different, as are funding streams. A key lesson would be the need for health and social care managers to assess the increased benefits to patients in terms of quality of care, health outcomes, and patient satisfaction that are achieved through integrated networks. As has been shown in the USA, these can be outweighed by the costs of developing and sustaining the integrated network itself.

9.8 Managing within networks: developing Integrated Care Pathways

'If you cannot get collectivism [between professionals] from care protocols and pathways to provide the same things, then there is no point to a network'

(Smart and Daws, 2003)

A key finding from the different network forms across the continuum was that regardless of the level of network management 'centrality' (hierarchy) the key issue of professional and clinical integration remained a common problem. Hence, the same problems of management *within* a network appear to exist regardless of whether there is a single commissioning agency or a single provider network arrangement. Indeed, there appears to be a remarkable similarity across the different network forms described and evaluated above in their use of tools for network integration in the pursuit of care consistency or promotion of access. Possibly due to the fact that most of the literature focuses on medical networks, common approaches to the management within networks were based on the use of utilisation procedures induced through shared clinical or care pathways.

As a tool for managing within networks the ICP has been much analysed in the literature. Essentially, the ICP is a task-oriented care plan for a specific clinical problem. It defines the course of action and 'best-practice' for delivering care in a particular clinical context. Based on a premise that it is 'process not people' that make a system break down, Wilson (1998) suggests that ICPs are a good way of developing a network since they promotes data collection, clinical benchmarking, audit, risk management and clinical governance. Moreover, evidence suggests that ICPs can reduce clinical variation across care settings, maintain quality, and enhance clinical risk management since care is 'shared' by each different professional groups, thus breaking down barriers and creating ties.

Usually evidence-based and highly regulated, most ICPs have been developed 'within' a single organisation (e.g. an acute trust) but have also been adapted across 'multiple' providers of health and social care – a type of 'managed clinical network' that prescribes a pre-agreed patient pathway. The ICP comes from the industrial and engineering fields and, in the 1980s, transferred into private health care systems in the USA as a managed care tool for case management through use of a 'critical path' (Tackaberry D, 2002). Hence, ICPs were developed as a resource management tool. In format, ICPs tend to be locally-agreed multidisciplinary practices based on guidelines and evidence where available for a specific patient/client group. ICPs are based on care protocols that promote risk management, reduce error, improve cost-efficiency, provide better quality of care and better patient information. It is argued that the approach encourages interdisciplinary collaboration in 'care partnerships' and promotes dual accountability.

ICPs were 'invented' at the New England Medical Center, Boston as a case management plan in 1985, evolving into a product called CareMap (Zander, 2002). The approach was developed to ensure more efficient resource use of manpower, diagnostics and treatment methods, for evidence-based care and quality improvement, to automate health records and to involve patients and carers. The

generic approach has quickly spread as a tool to formalise patterns of care processes, adding predictability and transfer of knowledge through care protocols and guidelines. In the late 1980s, early adopters were those with high Medicare patient volumes in places such as Arizona, Florida and Rhode Island where the approach was especially used for high volume surgeries such as orthopaedics or bypass surgery. During the early 1990s, applications were developed in Australia and the UK. They have since been developed in many countries across the world including Canada, Ireland, Belgium, Germany, The Netherlands, New Zealand, Hong Kong, Japan, Korea, Singapore and elsewhere in middle-east (Johnson, 2001). In the UK, ICPs now exist for over 45 medical or surgical conditions from elective care, such as knee joint replacement and hip replacements, to stroke and asthma (Campbell et al, 1998).

While much has been written on the development and creation of ICPs, fewer studies have explored how to develop and manage ICPs in practice and hence help clinical and professional networks to work effectively. Nevertheless, the literature on integrated care pathways contains a vast amount of research into how professions dispute territorial roles between one another (see Hugman R, 1995) and how they extend their role into vacant occupational territory (Jordan et al, 1999). Indeed, the literature points to a common scenario of health and social care professionals ready to defend their boundaries and of a 'labyrinth of organisational culture' in which professionals occupy to deploy power and negotiate their role:

> *"An individual consultant once asked me what the benefits of the cancer network would be. I replied that professionals would no longer have to work in isolation but would be able to share their work with peers in an open and transparent fashion and work in a multi-disciplinary way in order to develop consistency and best practice in cancer care provision. He replied, 'everything that I have worked for in the last 20 years you have just taken away in that sentence'."*

(Smart and Daws, 2003)

What this suggests is that many networks are being developed that have yet to bring within their schema that range of professional who prefer to work as isolates. The development of networks through the imposition of ICPs and new ways of working is clearly a threat to such individual's independence and private practice. Hence, while care pathways can be argued as a way to improve 'team integrity' and inter and intra professional working (Musfeldt and Hart, 1993), the potential for conflict between professions and network managers means that ongoing dialogue and consultation is a necessary requirement to network development (Velasco et al, 1996; Barnette and Clendenen 1996).

The literature evidence suggests that ICPs can lead to greater internal cohesion as clinicians understand and accept the roles of their colleagues leading to greater satisfaction and less burn out (Dykes PC,

Wheeler K eds 1997; Schroeder, 1993). Indeed, overall, cultural change by openly challenging existing practice and developing better multi-disciplinary team working can be achieved. However, the majority of the literature on case management or care pathways comes from an advocates point of view. As the following cases explore, the process of care pathway development is problematic, often unproven in terms of effectiveness, and criticised for being inflexible and difficult to interpret. Moreover, the deployment of ICPs appears to require a time-consuming and inclusive approach to management to establish ownership and consistency in usage.

9.8.1 Implementing an Integrated Care Pathway for In-patients with Schizophrenia

Jones (2001) examined the development and implementation of the ICP for inpatients with schizophrenia in East London and City Health Authority, England. Overall, the most important element in the implementation of the ICP was seen as the involvement and support of key players from the provider organisations in both the management and delivery of the care. In particular, due to lack of evidence for the feasible use of ICPs in mental health care (Heacock and Brobst 1994), it was at first problematic to gain support from stakeholders and especially the medical profession from whom active support and involvement was required. Hence, a process of scoping the value of the ICP was required while there was also a need for a facilitator 'within' each organisation in the network to build relationships and sell approaches. It was considered that such a person needed command of knowledge and an understanding of the needs of professional groups.

This research on care pathway management suggested that a reduced ability to manage 'within' the network boiled down to an issue of network cohesion against professional or product diversity and, perhaps more importantly, between managerial control and professional freedom. The research on ICPs found potential for the approach to be regarded as a 'blaming tool' rather than a 'learning tool' and, moreover, professionals were unhappy at managerial control of care pathways, even if the care pathway was best for psychiatric practice. On the positive side, the care pathway approach enabled an increased ability to measure demonstrable benefits such as reduced costs of care through the elimination of deficiencies; the ability to benchmark and compare care quality and, hence, be used as quality driver rather than a contract mechanism; and be outcomes-based. These positive attributes were associated with a greater ability to challenge existing practice.

9.8.2 Implementing best practice across a hierarchical private provider network

Gray et al (2001) examined the implementation of best practice guidelines across 43 acute Nuffield hospitals in a 'best practice initiative' aimed at ensuring high clinical standards, regular monitoring and continuously improvement. Implementation of the best practice initiative within this closed business 'network' was led by the CEO and its key aims were to: demonstrate tangible outcomes of interventions; develop commitment to continuous monitoring and improvement of services compared to 'set standards'; and to ensure suitably skilled and trained staff. The organisation used its own external accreditation standard system to provide the benchmarks.

The best practice initiative was marketed within the network organisation through a launch event and individually at each hospital by a 'clinical consultant for best practice'. Each hospital then produced an action plan, including the local development of at least 10 multidisciplinary ICPs by nine months after the launch date. The research showed that success depended on level of buy-in of senior teams in each hospital, especially as the leaders of the best practice initiative were not senior enough to engender change, hence suggesting that peer respect is an important issue. However, managing the balance between corporate governance and local autonomy was regarded as the biggest challenge. The Nuffield hospitals reported 'improvements in standards of care and documentation' and the use of at least 40 ICPs in each hospital. Key lessons learned included the need for project management support, a consistency of message, time out for team building, a balance between prescription and local variation, and the persistence of strong and committed leadership.

9.8.3 Developing quality care pathways for people with learning disabilities

This initiative involved the development of a network of interested agencies to discuss how care pathways might be used to improve services for people with learning disabilities (Ahmad et al, 2002). The approach was funded through money available in a 'Partnership for Developing Quality' scheme funded by the West Midlands Region. Following a launch event at which network members were recruited, local working groups were established to develop care pathway ideas. Initially a co-ordinated informational network, the network employed a generic process map for local implementation of care pathways and undertook a literature review on care pathway effectiveness so as not to re-invent the wheel.

The main problem for members within this network was the transfer from information gathering and care pathway development to the

implementation stage. Pilots were a preferred mechanism, but lack of outcome measures fuelled speculation as to their true effectiveness (DeLuc, 2000). Moreover, professionals found the use of ICP documentation problematic and too prescriptive. This meant that clinicians become deterred from using it and/or dismissed the approach as 'cook book medicine' - too concise to be credible.

A number of key lessons from the research were uncovered in the use of ICPs across the network. First, it was found that the creation of ICP co-ordinators within each agency increased the likelihood that care pathways became both documented and developed. Secondly, ICPs needed to be rigorous and to stand up to critical scrutiny or otherwise not be accepted (see also Swage, 2001). Overall, successful implementation of ICPs within the network needed a local authority figure or promotion by a respected body such as a Royal College – thereby carrying a 'kite mark' of quality and acceptance.

9.8.4 Implementing an integrated care pathway for the dying patient in Wales

Fowell et al (2002) describe the key elements to the management of the Welsh Collaborative Care Pathway Project that developed an ICP for the last days of life based on evidence of best practice. This was another example of network specifically developed around an ICP, this time involving 38 teams in four care settings and crossing statutory and voluntary agencies. Each team was given regional training on the ICP and its implementation was monitored for a year with support via meetings, a website, newsletters and a help line. The network attempted to engender support through gaining high-level management commitment and generating bottom-up interest through an inclusive process in which professionals aided in the design and documentation for the ICP. In one year, 80 per cent of network members were using the ICP, but implementation in all cases had been adversely effected by a range of local issues including local politics, professional tribalism in hierarchies, fear of failure, lack of peer leaders and staff shortages.

9.8.5 Lessons for managing within networks

The cases described above are typical of the process of ICP development. As the literature emphasises, in each case there is relatively limited evidence on the effectiveness of the ICPs developed. Indeed, a review of 100 different ICPs concluded that benefits could be articulated but that the pathways were highly context-specific and not necessarily a transferable process between organisations (Bryson and Browning, 1999; Campbell et al, 1998; Peters et al, 2002). Moreover, the development of ICPs is a highly time-consuming process taking in some cases more than a year to set up. Given the perceived limited benefits by some, the ICP tool could be argued to be a case of using a

sledgehammer to crack a nut (Johnson, 2002). Indeed, it could be argued that investment in ICP development is inappropriate if the 'network' is sick or underdeveloped – in other words, lacking collaborative capacity or motivation. There is clearly a two-way process here between using ICPs as a tool for network development, but also developing the networks to enable care pathway management tools to flourish.

Natural resistance to change from, in particular, medical staff has been common. This has caused difficulties for managing within a network as professionals were often observed reverting to traditional ways of working (see also Young et al, 2002). While clinicians may often agree that audit, common standards and evidence-based practice are important, ICPs often create anger through loss of autonomy and the prescribed and restrictive way in which they are used in practice (Wakefield and Peet, 2003). Miller and Nugent (2003) for example, described clinician objection to the imposition of a surgical integrated care pathway for colorectal cancer on the grounds that it reduces independence and increased bureaucracy. Such compliance difficulties are very common suggesting that managed clinical networks do not necessarily mix well with existing professional enclaves or isolates working to historically established practice that seemingly have in-built resistance to change. While there is evidence to show that multi-disciplinary team working and collaboration may be enhanced through the use of ICPs, care pathway managers are in danger of overlooking the relational aspects to their application manifest in professional antagonism, but also reduced patient satisfaction despite 'technical' improvements (Kwan and Sandercock, 2002).

Other key lessons that appear to come from the literature on care pathways and case management processes include the need for a dedicated care pathway co-ordinator to provide continuity and momentum. Such reticulists or boundroids are needed to nurture the process and, hence, deal with the relational elements with different professional partners through their energy, time and good communication skills. The role of the reticulist is clearly influenced by obstructive interpersonal politics but can be facilitated where peer-respected leaders are actively involved. Indeed, it is clear that implementation needs executive-level decision making, as well as a comprehensive educational programme on ICP aims and usage, to facilitate both ownership and acceptance (Ellershaw and Murphy, 2003).

Since the use of ICPs as a tool within a network costs money and time, there is a need for ICP 'outcomes' and findings to be shared across the network to avoid duplication and improve efficiency (Johnson S, 2001). Measureable outcomes may include better multi-disciplinary communication, care planning and audit (Campbell et al, 1998). Though ICPs have generally been limited to use within individual organisations, like networks themselves the process of ICP

implementation is as much a political initiative than a clinical one. Like networks, ICPs necessitate continuous discussion, negotiation, and marketing such that any governing board of the network must understand the rationale for their use and be kept abreast of positive results. In the right conditions, it may be possible for clinical pathways to act both as a co-ordinating mechanism for networks, and as a tool for implementing patient-focussed care from the perspective of both quality and effectiveness (Vanheacht and Sermeus, 2003). However, given the unique relational elements involved in health and social care networks, little guaranteed success can be claimed.

9.9. Conclusions: key lessons for the future of networks in the NHS

This examination of networks from the health and social care literature has revealed a mixture of individualistic, enclave and hierarchical types – most usually being a hybrid model across the general dimensions, and also subject to dynamic changes (Figure 9.4). *Informational* networks appear to have primarily 'individualistic' and 'enclave' forms yet also seem to require some form of 'neutral' co-ordination and small bureaucratic core to facilitate joint learning. *Co-ordinated* networks, however, tend to be primarily 'individualistic' and/or 'hierarchical' with a continuum within that group that might place, for example, a simple hub and spoke model with little regulatory and no social ties in the 'individualistic' category, to managed clinical networks that appear to be far more 'hierarchical' in design. However, there are some, such as those developed via Health Action Zones, that also exhibit enclave characteristics. *Procurement* networks follow the same dimensions as co-ordinated care networks, perhaps edging closer to individualism along the continuum. *Fully-integrated* or *managed* networks, such as Social HMOs, are strongly hierarchical.

None of these network 'types' appear to provide the 'best' solution, though there is evidence to support the development of a 'hybrid' model. For example, the literature on procurement networks revealed that financial performance and health outcomes were not as good as single ownership or hierarchical models. However, hierarchical models, despite being 'assumed' by many writers to be superior for integration, were shown to be potentially over-bureaucratic and controlling to the detriment of professional involvement. A potential mixed model of interest to PCTs was to directly manage 'core' services in tandem with a network of affiliates for additional care.
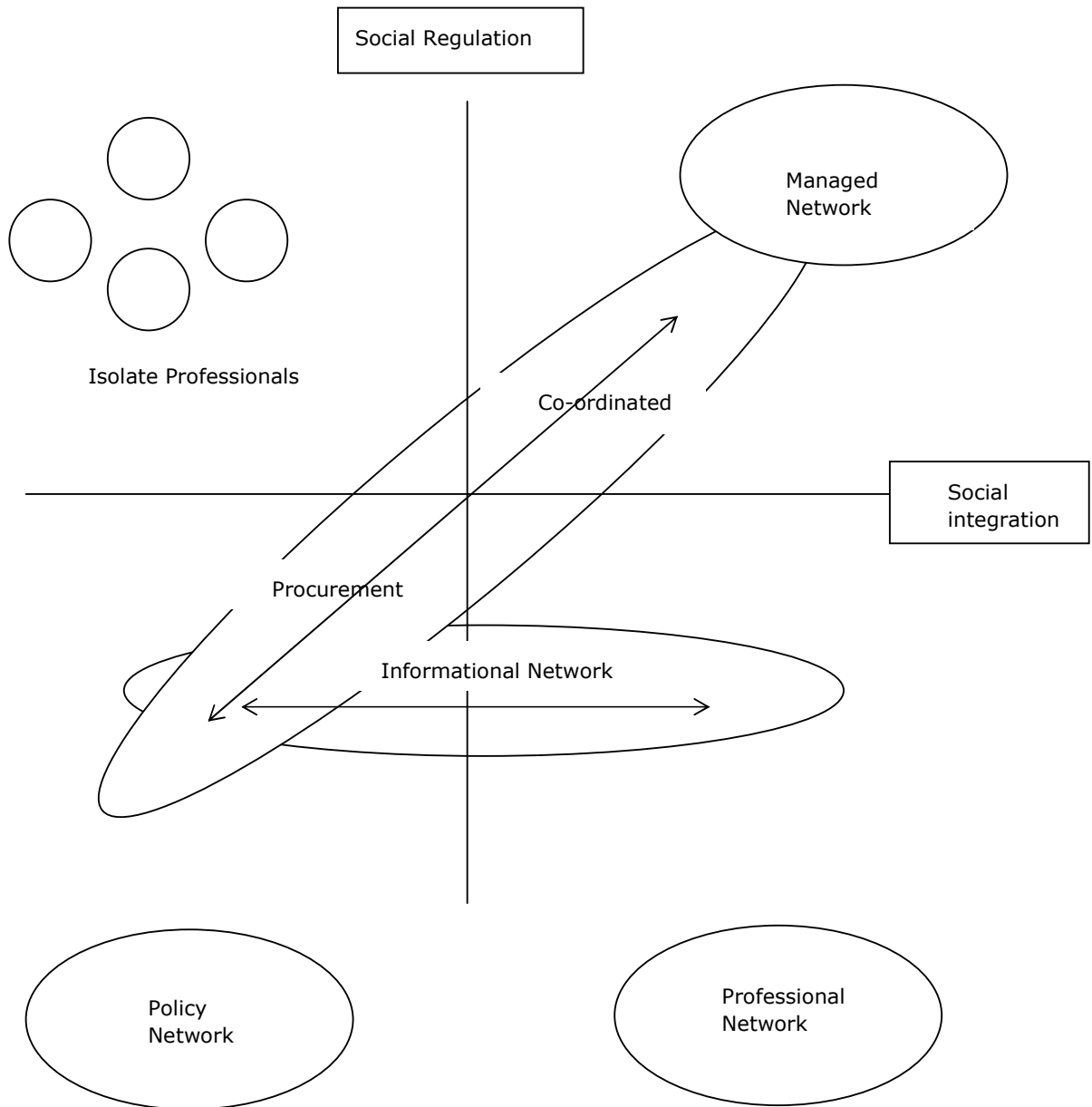
Whatever the model, it is clear that managers will face the same kinds of problems when managing within them. Moreover, treading the line between autonomy and dependency is clearly a key task since health and social care professionals and organisations often exhibit independent characteristics (Nies and Arends, 1992). More pertinently,

the literature is clear that imposed and mandated networks lead to sub-optimal outcomes *unless* network priorities link directly to the priorities of professional members or organisations, in which case interdependencies strengthen.

The literature also suggests that competing interests can co-exist in a network as long as core interests of all parties are catered for. Hence, the Boston telemedicine case enabled both managerial control over utilisation and treatment protocols, while professionals gained access to exclusive clinical expertise and a network of respected peers (Tanriverdi and Venkatraman, 1999). Indeed, the presence of professional, as opposed to managerial, leadership of networks was a key success factor, as was the ability to convince network members that the usefulness of the network rewarded their time and investment within it.

All health and social care networks appear to show the ability to create common goals, undertake joint reviews, and develop protocols and plans. However, at the implementation phase, the implicit changes to established practices are commonly resisted in all but the most committed cases. This reflects a structural, cultural and professional inertia that network managers will need to overcome. Hence, network management requires the attainment of a *tertius* position from which to wield power to effect change. Typically, this would need managers to control contracts and resources in addition to useful and reliable information. The role of the network manager leading *within* networks as a 'boundary spanner' is clearly crucial, the role being characterised by committed time and effort and proactive tie-building and educational roles. The ability to invest in specific network management and managers, therefore, is central.

Figure 9.5 A typology of network forms in health and social care

Social Regulation

Managed
Network

Isolate Professionals

Co-ordinated

Social
integration

Procurement

Informational Network

Policy
Network

Professional
Network

9.10 References

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10. Conclusions: Key lessons for the NHS

Nick Goodwin, Perri 6, Edward Peck, Tim Freeman

10.1 The general principles of crafting networks

This examination of both the theoretical and empirical literature suggests that intelligent crafting of network forms is a problem of adapting the patterns of linkages between organisations that a manager finds already in place. Managers need to craft these linkages into styles that:

- articulate strategies for dealing with the task, the regulatory and the organisational environment;
- are as reasonably robust as can be expected against the types of organisational weakness that all inter-organisational arrangements are subject to, and
- are acceptable and legitimate within those organisations.

None of the four fields that have been examined represent network practices that are either models to be benchmarked or catastrophes to be avoided. Each illustrates powerfully both the strength and the weaknesses of the basic forms, as summarised in Figure 7.1. Defence procurement, for example, shows the limitations of the isolate mode, while defence supply shows some of the strengths of hybrid hierarchical and individualistic networks. The case of biotechnology shows that when innovation and rapid development of ideas, knowledge and practices is required, individualistic forms are appropriate, but as stable bodies of knowledge and production emerge, people begin to reach for more socially integrated forms of inter-organisational relations. The crime and disorder case shows both

the scope for, and the limitations of, hierarchical networks, and the range of governance tools required to make them work well. From the review of networks in health care, the importance of hybrid networks is emphasised.

For some kinds of problems hierarchical networks are good solutions. For example, faced with a major local outbreak of a contagious disease such as meningitis or SARS, some hierarchical ordering of public health, health care and emergency service organisations is both practicable and appropriate. This strategy is necessary because discipline and central intelligence gathering is more important than stimulating local initiative. Equally, for longer-term local health promotion activities that require the commitment of agencies within local authorities, major local employers and voluntary bodies, enclave solutions are more appropriate. This is because of the voluntary character of participation and the internal equality of status of members that is more likely to be acceptable to partners.

The intelligent crafting of networks follows the principles of *pluralism* and *requisite variety* (Thompson *et al*, 1990). Most local health economies have to tackle a wide variety of tasks, and they inherit very complex mixes of existing inter-organisational ties, including all four of the basic forms. Therefore, health-related networks that link PCTs, GPs, NHS Trusts, Care Trusts, Strategic Health Authorities, local government and other agencies need to be capable of *strategy switching* between the four basic forms. These networks also need to be capable of striking *settlements* in which the peculiar weaknesses of all the four basic forms are, as far as possible, offset by the presence of some elements of each of the others. So, for example, bounded and co-ordinated rules and roles are necessary in a generalist network such as that based on specifying care pathways. However, there must also be space for the more entrepreneurial behaviour of both health care suppliers and of purchasers. For example, as PCTs take over the purchasing of primary dental care in areas with major shortages of NHS dentists, they will need to empower strategic commissioners to develop much more individualistic networks. In this way, PCTs might stimulate innovative forms of dental provision, even as they give due recognition to the importance of purchasing within the appropriately hierarchical framework of evidence-based practice and dental regulation.

An element of enclave is often necessary to provide support for clinicians who have long looked to their own professional structures and trades unions for support. For example, to sustain the participation of GPs in PCTs it is proving necessary to create enclave-type sub-networks for them. However, to prevent producer capture and excessively inward-looking systems of governance emerging, these need to be balanced by the adequate articulation of all the other forms. The isolate form should not be regarded as simply a problem. During many crises and reorganisations that have led to professional

demotivation, isolate forms and coping strategies have sustained the day-to-day work of health systems. The isolate form provides the space into which people often need to retreat when they are experiencing the weakness of the three more 'active' network forms, and it too should be respected but, like the others, not allowed to dominate.

The research suggests that it is better to think of network management and governance in terms of crafting rather than designing. Designing suggests fixed templates that tend to be associated more with network failure than systems which can continuously be reworked. Moreover, the skills of managers and boundary spanners in working with networks are better thought of as 'craft' skills of motivating people and shaping preferences and motivations than 'bureaucratic' or 'engineering' skills that develop defined procedures and then follow them to a set design. In this sense, Bardach (1998) is right to speak of what managers do when they work with networks as 'managerial craftsmanship'.

10.2 Key lessons for network management

The overall aim of the research into networks has been to derive a series of key lessons and implications for network management, leadership and governance. It is apparent from the above that there is no 'ideal type' or 'best' model that is transferable and that different types of network predicate different management and governance strategies. For example, *hierarchical* networks respond to direct authority and regulation whereas *enclave* structures reject external control. By contrast, *individualistic* networks tend to develop network ties through contracts.

There is support in the literature, however, to suggest that NHS managers should try to employ a hybrid approach to network management. For example, evidence from cross-national studies on health networks suggests that PCTs as procurement agents might benefit from the retention of a directly managed network of 'core' services with a range of competing affiliates for more specialist care.

Networks are flexible and dynamic in nature due to the changing needs of their members (including the public/consumers). It should be recognised that networks are often also time-limited once their 'usefulness' has ended. Any assumption that integrated care networks should become hierarchical is therefore questionable and so to employ a hybrid approach with the ability to evolve and be reflective should help to avoid ossification and retain net worth.

One of the key lessons for managers emerging from this research is that there is nothing special or new in the techniques required to manage and govern networks effectively. Indeed, the tools for integrating and managing within networks are ostensibly the same as

those that might be used within a single organisation. Like single organisations, networks imply collegiality and mutual benefit but in reality can be characterised by internal power struggles and professional protectionism. Indeed, while information sharing, protocol development and network agreements were positive characteristics of nearly all networks, opposition (open and clandestine) was common when being within a network implied cultural or organisational change.

Networks that were crucial to organisational survival and/or growth developed sophisticated collaborative arrangements and supportive inter-organisational ties. Hence, sub-contractors within biotechnology and the defence industry exhibit marked geographical clustering to ensure they were not left out of the 'crowd'. Alternatively, they developed a 'flagship firm' approach to ensure competitive advantage and survival through regional specialisation in a very similar way to the 'hub and spoke' models of hospital networks. Indeed, if large acute teaching and research sector hospitals are the equivalent in the NHS of the big pharmaceutical and agronomy firms within the biotechnology industry, then the 'flagship firm' role may be an appropriate model for NHS Trusts since it provides a central position of power and influence. The emergence of provider pluralism, patient choice, and Foundation status for hospitals may well suggest this as a future scenario. However, given the strength this would bring to providers over commissioners, PCT managers may need to establish strategic commissioning roles with a 'flagship' status of their own.

10.2.1 Management 'of' networks

The ability of managers to shape networks requires that they achieve a central position from which to exercise power. The first challenge for network managers is therefore to understand the scope to which they are able to change their own position within it to secure or retain a central, or *salient*, position from which to exert leverage. The ability to achieve such a position of salience represents an important achievement for the network manager since from that position the manager has more ability to access resources from others in the network and provides a base from which to manipulate and/or steer network goals and functions. Clearly, hierarchical authority (command) and the individualist broker (contract) are positions where the greatest managerial influence can be secured.

However, the ability to wield power across a network is not just about a manager's hierarchical position or control of resources. All networks thrive on the transfer of knowledge, information, and expertise that is primarily in the remit of the professionals. The literature shows that both enclave and hierarchical networks may not support the ability to innovate and learn since such activities are more characteristic in individualistic networks. Consequently, an important finding was that networks should not be over-bureaucratic or imposed. Indeed,

professional engagement appears crucial while mandated networks tended to fail. A key lesson for network management, therefore, is to develop networks that support or coincide with professional imperatives and priorities, in which case interdependencies strengthen.

There is a danger inherent in this approach, however, in that highly influential providers and/or professionals may become so powerful that they dominate the role and function of the network to meet their own needs. This form of 'capture' was observed in the US defence industry. In the UK NHS, the power of large acute trusts to whom PCT purchasers rely for secondary care services have been observed to similarly dominate the agenda on issues such as redesigning service provision across the primary-secondary care interface. This can be proactive and positive, but often only when the health of the provider organisation is not at risk.

In the management of networks it would appear that ownership is facilitated by formalised contracts or agreements. Moreover, it is clear that highly structured networks (hierarchical) obtain much better results than non-structured networks in those tasks requiring supervision of clear and established operational procedures. It is also clear that competing interests can co-exist in the design of networks and that trust between network partners is robust as long as each party's long-term interests are served. Overall, the management of networks is about managing the tension between autonomy and dependency and achieving balance between cohesion and diversity. Where possible, networks should develop interdependencies between agencies and individuals since collaboration is critical to the organisational success of the network.

10.2.2 Management 'within' networks

The day-to-day management within networks can be facilitated by a number of factors. In particular, hierarchical networks need a clear mission statement, a clear population focus, and a clear and unambiguous set of rules of engagement. Networks also require substantial human and financial resources to co-ordinate activities effectively. Indeed, investment in network management helps to strengthen centrality and, hence, managerial leverage. Control of valued knowledge and/or pooled resources and budgets by network managers may therefore be advantageous.

In the public sector, networks that are developed inclusive of all agencies and which identify improvements to user services as the basis of their mission may have the opportunity to create better outcomes. However, inclusiveness of participation is time and resource intensive, which means that networks may not be able to reduce costs or make savings as some authors suggest. Evidence from biotechnology firms suggest that success, whether measured by

commercial criteria or by the meeting of administratively determined targets and financial performance goals, is strongly and causally affected by skilful investment in building collaborative links both with the local economy and beyond it. However, in both cases a threshold of partners existed beyond which benefits reduced and costs rose. Inertia in some health and social care partnerships due to membership size also suggests that there may be room to abandon the ideology of full participation and stick to participants who might gain benefit from and contribute to the network.

Information technology issues and arguments over confidentiality of information were often reported as barriers to network implementation, as were boundary issues between public service agencies. Local networks and partnerships will clearly work best if geographical and jurisdictional boundaries are made coterminous.

10.2.3 Leadership of networks

All the research evidence makes it very clear that leaders matter in networks. Not only are respected leaders necessary to promote networks to peers, the literature stresses that they should be professional or clinical leaders with a level of charisma. This reflects the finding that professionals within networks respond like enclaves and hence need charismatic leadership from one of their own. Nonetheless, it has also been found that senior management support and commitment to the network also equalled greater success while less senior or less well respected managers from the 'lowerarchy' generally possessed less kudos and leverage.

Of equal importance in the leadership of networks is the role of the 'boundary spanner'. In addition to their role in co-ordinating activities, facilitating and building consensus, the presence of a committed, reliable, trusted leader at the heart of the network is essential. The perceived 'neutral' position of the 'boundary spanner', such that the network and its collective goals take priority over any self-interest, is important for developing legitimacy. Leadership of and within networks is not necessarily dependent upon status and network managers are hence important leaders and their skills and role need development and nurturing.

10.2.4 Line management and contracting in networks

The review has highlighted that the most effective 'network' is one that is flexible and a living 'hybrid' of hierarchical, enclave and individualistic and isolate characteristics. The idea that there can be a single co-ordinating approach to produce joint outcomes through either contracting or direct line-management is likely to fail or be sub-optimal. The reason for this conclusion is that the more one

emphasises one type of network over another, the more the potential negative characteristics within that network are created.

In the case of enclave-type networks, the best and worst outcomes can be illustrated through the example of a multi-agency team developing mental health services for post-natal depression. The examination of this project highlighted the success of an egalitarian network to develop a 'bonded' group of mental health nurses and the development of co-located teams and shared practices without recourse to any contractual or bureaucratic line-management system. As a consequence, the nurse group exhibited a willingness to discuss and generate innovative solutions to common problems. Any imposition of top-down line-management arrangements or contracts to systematise the network (i.e. 'mainstream') risked the ability of the nurses to engage in constructive dialogue and the successes resulting from that. On the other hand, the network also exhibited the potential enclave mentality of 'us against the world' that might inhibit working with other agencies (such as psychiatrists). The potential for internal 'navel-gazing' and lack of tangible service change outcomes is also a potential problem within the enclave network scenario (Warner *et al*, 2003).

In the case of contractual (individualistic) networks the problem is that while there is a degree of managerial control the players in the system tend to be motivated purely by self-interest. Hence, the 'value' of the contractual approach to providing an integrated and equitable service to society as a whole is reduced. Of course, the model has the advantage of controlling quality, prices and costs and the opportunity of developing a network of providers that would otherwise not operate together collegially.

Hierarchical networks driven by more bureaucratic, rule-bound systems of line-management and protocol-driven design may also be seen to be an effective means of controlling activity between individuals and agencies. However, such mandation potentially alienates network members, unless suitably compensated by calibrated rewards of status and legitimacy in which discretion is increased with status and access to those rewards is seen to be granted by merit.

10.2.5 Inspection and regulation

The same principles apply to the debate on how 'networks' may be regulated and audited. 'Enclave' type networks may often use self-regulation by a trade association (for example, the British Medical Association and general medical practitioners). In this scenario, however, the threat comes in the form of 'organisational capture' by a professional elite with the resources, power and understanding to gain control of the process. In the primary care example, the development of the new GP contract, in part, has broken this regulatory 'capture'.

Within bureaucratic networks, the potential gain is the ability to develop common standards, goals and quality assurance – but the key fear is that over-regulation will lead to excessive bureaucracy, paperwork, perverse incentives, and constraints on clinical freedom to practice. In individualistic (contractual) networks, regulation and inspection is likely to be inconsistent depending on the nature of contracts and ties formed.

This review strongly suggests that the appropriate managerial approach to the development and sustainability of networks as a new modus operandi will require the continuous evolution and reworking of the *balance* between the positive and negative tendencies of each network type. This approach has been called 'cycling' and suggests that managers and policy makers should not rely on any one particular network type. Instead, one may accept that there is a need to craft health care networks and services flexibly in order to meet user and patient needs effectively. The key task for inspectors, therefore, becomes the monitoring of the balance of regulatory freedoms and accountabilities to ensure that the excessively negative consequences of any one type of network can be avoided or redressed over time. In other words, the long-term approach may be to employ an '*intelligent policy disequilibrium'* that strives for continuous improvements in care and enables '*strategy switching'* between the different forms of network.

10.2.6 Governance of networks

An agency located outside the network is less able to secure governance, a problem that is faced by all regulators. To govern effectively, managers need to render the network governable through the use of any central authority they possess or through the enforcement of voluntarily agreed and negotiated terms and conditions. Mandated networks appear to work badly because network members have not provided the implicit authority for them to be governed. Hence, mandated networks need to be *combined* with the use of incentives on an ongoing basis.

In the NHS, the capacity to govern networks will also require the ability to gather reliable intelligence and information such that case management and/or performance management can be effectively administered. The process will require political negotiating skills as well as those management skills detailed above. Network governance also needs to balance the long-term relational aspects of network development with the need for measuring short-term objectives.

The work on crime, disorder and drugs shows how partnership working and networks in the public sector suffer when national priorities, targets and audits incumbent on individual organisations become prioritised to the detriment of their involvement in networks. A potential paradox exists here since it is the collaborative networks

through which policy-makers wish to see improvements in service quality in the medium term. A shift in the use of targets to govern networks rather than individual institutions, or the harmonisation of targets between them, may be important.

As the NHS moves towards a future in which PCTs contract for secondary care from a choice of semi-independent and private providers, the development of integrated care networks may seem problematic. Though the use of contracts has been seen as a way of getting compliance, it has been established that procurement networks appear to be less effective than managed networks and single organisations. Indeed, it might seem somewhat counter-intuitive to suggest that the use of markets and provider choice should improve integration and networks of care. To overcome the inevitable competing and individualistic tendencies created by a provider market, it has been suggested that contract mechanisms employ 'care pathway commissioning' that contracts for, and rewards, integrated care working between providers throughout the supply chain. In Sweden, proposals to purchase 'Chains of Care' have been developed that reward such integration (Ahgren, 2001, 2003). In this model, outcomes are audited across the whole-system of care provision and provider organisations rewarded on their ability to meet network rather than individual objectives. The model appears to be based on the procurement strategies of firms such as IKEA who use contracts in a way that influence the nature and quality of provision deep into their supply chain. However, the approach has, as yet, not been implemented.

10.3 Managing across diverse networks – key lessons for health care managers

The various forms of network described in this report have clear advantages and disadvantages. Enclave type networks appear strong in securing legitimacy and trust yet cannot be readily managed or regulated by an external agency. Hierarchical networks are more suitable if the objective is to control a pre-defined task, such as an integrated care pathway, but such networks can suffer from being overly bureaucratic and managers may suffer from a lack of legitimacy to control its workings, particularly if externally mandated. Individualistic networks are more suitable where fluidity and flexibility of membership is desired and there is a need to respond to change quickly. However, such networks tend to be a coalition of competing interests joined together through contracts without any deeply held common bonds. Evidence from the USA suggests that such networks are less good at promoting integration of services to the benefits of users and carers than hierarchical networks and organisations.

Box 10.1: Key lessons for network managers

Management 'within' a network

Management within a network means the undertaking within network member organisations of such activities as decision-making, resource acquisition and allocation, co-ordination, planning and strategy development for their own organisation, in relation to particular other organisations in that network. Key lessons for successful management within a network include:

- The development of clear mission statements, and the negotiation of their consistency with those of others within the network

- The development of a clear and unambiguous set of rules of engagement

- Being 'inclusive' of those individuals and agencies who will gain benefit from and contribute to the network, including users and carers

- Being user-focused in design, not structure-driven

- Avoiding very large networks, unless they are to be relatively individualistic, since the value of such networks are likely to be diluted, costs will rise and inertia will develop

- Promoting joint financing, or other shared commitment (such as common targets), to provide 'lock-in' and stability of members to a network. Pooled resources and budgets between agencies may be advantageous

- Local networks between agencies work best when geographical and jurisdictional boundaries are made coterminous

- Direct co-ordination of a network by a 'neutral' and/or respected individual or agency is essential to engender commitment, trust and reliability – the 'boundary-spanners' to engage partner members are important

- Network co-ordination needs to be financed and pro-active

- Time is needed for managers to develop the skills of network management

- Network co-ordinators need to 'control', or 'be', the source of the information, knowledge and incentives help place the administration at the network centre.

Management 'of' a network

Management of a network consists in the inter-organisational work of a particularly salient member of that network – perhaps the largest organisation or the most important purchaser or provider – with the aim of influencing the pattern of relations found across the whole network.

The key challenge for managers of a network is to find a balance between autonomy and dependency

Managers of networks need to establish a central position from which to exercise leverage since a single, accountable, administrative centre allows for optimum impact on network integration – this requires control of knowledge and/or resources

However, tight regulation of networks should rarely be imposed as this risks disharmony or demotivation, unless priorities can be linked directly to professional interests. Mandated networks will only work for long periods in very specific circumstances, such as a high degree of deference among network members combined with strong esprit de corps among those scattered either geographically or organisationally. Thus, network design and operation needs to be inclusive of its members to promote legitimacy.

Professional engagement and sign-up to network principles is essential in this process – respected clinical leaders are necessary to promote networks to peers

Interdependencies in a network need to be fostered, a process that is strengthened if professional imperatives and priorities are supported

While professional support is important, the network manager must also avoid the potential for 'capture' by particular special interests, for example of a PCT commissioning network by the needs of a large acute hospital

A network will survive as long as all the parties involved in its development and operation feel 'net worth' from being a member – competing interests can co-exist if mutual long-term self-interests are served

Ownership may be facilitated by formalised contracts and agreements – clear and established operational procedures can lead to trust and understanding

Senior management support and commitment to a network from key agencies lend kudos and priority to network activities

Networks should be continuously reviewed and evaluated to ensure that 'net worth' remains – networks should be responsive to change and some time limited

Network governance

The governance of networks consists in those activities, for example of regulation or resourcing, undertaken by organisations (or, less likely, individuals) outside the network to influence the work, structure, culture, resourcing of the network as a whole. This may be a function, in some cases, for the Department of Health or for Strategic Health Authorities, or even for the Commission for Healthcare Audit and Improvement.

All regulators 'outside' an organisation or network face a common problem associated with authority to enforce power

Voluntarily developed enclaves and individualistic networks tend to be self-governed leading to accountability issues, yet mandated networks appear to work badly because network members may not have provided the authority for them to be governed

The potential solution to this 'governance gap' lies in a choice or combination of approaches that might include:

Providing enough incentives to network members that they agree to a system of regulation and governance of their network by a chosen external (independent) agency that has the remit to preserve the 'constitution' of the network including a mandate to govern individuals and individual organisations based on the notion of dual accountability; or

Developing a network based on the use of contracts across the care pathway to engender compliance through incentives or payments to fulfil 'network' objectives. However, the evidence suggests such procurement networks are less effective in integrating care provision than managed networks or single organisations

Government targets, audit and incentive arrangements need to be harmonised to promote and reward working in networks in order to avoid the potential of existing and differing targets within individual organisations preventing effective partnership working and networking.

As the previous sections have argued, if networks are to be 'managed' or 'regulated', a strategy should be employed that attempts to combine the favourable elements, and avoids the negative elements, to produce some form of hybrid network approach. What also becomes apparent is that policy makers and managers have a choice as to which type of network should be nurtured or favoured. Whatever the choice of network, the review has uncovered some generic practical lessons for network managers that should be heeded and these are summarised in Box 10.1.

10.4 Lessons for PCTs, Strategic Health Authorities and the Department of Health

Each type of approach to networking described in this review represents, to some degree, a 'choice' in terms of potential benefits and disadvantages. Primary Care Trusts, as the chief budget holders, providers of primary and community care services and commissioners of hospital care, appear to be in that 'central' position from which to wield managerial power within any network created. What is clear from the review of networks is that PCTs should adopt a range of

networking 'styles' depending on the constituency that it is hoping to influence.

For example, internal to a PCT lies a network of primary care professionals with the joint objective of developing the direction, strategies and commissioning priorities of the organisation. In order to develop a high degree of legitimacy for PCT priorities and to engender local ownership and partnership working across the professional groups, such networks might work best when given the freedoms associated with 'enclave' networks. Though such professionals are likely to be aware of the key targets that the Government is looking to achieve, there is also the potential to develop strategies and philosophies that fit with local needs and local cultures as such primary care-led organisations were set up to achieve.

However, the risks associated with this approach are also evident in the literature. As Regen *et al* (2002) report, certain professional groups (particularly GPs) can 'capture' the agenda of a PCT and significantly influence its activities as other agencies and individuals remain submissive. Conversely, key agencies may become disinterested and uncooperative if the value of being within such a network is not appreciated. Consequently, issues such as commissioning priorities may not truly reflect the wishes of the overall professional network leading to tensions and frustrations between members. Another problem, highlighted by Wade (2004), is that the corporate qualities of a strong local PCT may preclude consideration of the wider opportunities of collaborating with neighbouring PCTs to develop wider and more effective networks of commissioning. Some PCTs have already begun to share a range of functions, including commissioning, but this is by no means the norm. For tertiary care services, new larger bodies such as cancer networks might be more appropriate forums to develop such commissioning strategies.

Another style of network that PCTs are being asked to adopt is an individualistic network encompassing a range of contracts and service agreements with primary and secondary care providers. For example, new local contracts for GPs and primary care dentists have been established as a mechanism to enable more integrated, accessible and holistic primary care services and care teams. Policy direction in the NHS, encompassing Foundation Hospitals and provider pluralism, appear to be following a path towards a consumer-driven system in which PCTs contract for health care from a network of private and independent agencies. The evidence from US-style procurement networks suggests that a PCT faced with this scenario might best attempt to employ a mixed network model with 'direct' ownership (managed) of core services and a contractually-based network of competing hospital affiliates.

Primary Care Trusts have also been tasked with the development of new partnerships with local authorities to develop new and integrated

patterns of working to improve, for example, the continuity and quality of care provided to vulnerable groups such as the frail older people. The agenda here is to develop networks for information sharing, joint problem-solving and potentially new arrangements for providing services in an environment where legally enforceable contracts are inappropriate. Hence, health and social care networks might best be done through a hybrid of enclave and hierarchical approaches.

For PCTs, one can conclude that they potentially hold significant power to act as a network manager and/or facilitator. However, PCTs will need to employ a range of network 'types' to achieve this and hence develop a mixed network model. The management skills to facilitate and lead networks will need to be developed and learned as more is understood about network management, and this will take time if it is to be effective.

In terms of lessons for the Department of Health (DH), this review highlights a tension in the current policy agenda in health care between a wish to develop integrated care networks on the one hand, and to engender choice and care consumerism through provider competition and plurality on the other. If policy makers wish to have care consumerism *co-existing* with integrated networks of care then some form of demand-led integrated care network needs to be supported along the lines of the 'Chains of Care' approach described above. The theoretical advantage is that payment is made for 'collective' health benefits helping to reduce duplication, share services and pool risks. However, there is no evidence on the feasibility or efficacy of such models and one may predict gaming (cost-shifting) tendencies between individual organisations in the system and high transaction costs associated with the contract system. It has already been established in this review that provider networks based on contracts are not as successful as hierarchical networks or single organisations in terms of service integration. A key lesson from this review for the DH is to establish whether it is care consumerism or integrated care networks that are the most important priority within the system, though it may be possible to develop a mixed model as the lessons for PCTs, above, make clear.

A second key lesson for the DH concerns the harmonisation of targets and incentives. Drawing on the review of networks in crime and disorder, joined up working and network development was often a secondary concern to individual organisations seeking to fulfil their own key targets. The apparent paradox was that inter-agency working and network development may have been one key mechanism to address such targets better. Hence, if networks are to be nurtured then individual organisations need to be working to the same, or similar, set of targets and objectives. Strategic Health Authorities (SHAs) would play a crucial part in helping to co-ordinate and facilitate the development of such networks. In particular, SHAs might encourage organisations to develop with them new regulatory

practices and objectives for their network. Assessment and audit, therefore, would be undertaken on behalf of the network as a whole and to agreed principles and objectives. The SHAs task would be to ensure that network members are contributing fully to network activities while providing encouragement and incentives where possible to facilitate that. The reason for such an approach is to develop ownership and acceptance within the network to the regulatory function and to avoid the potential pitfalls of mandated or imposed networks.

10.5 Lessons for regulators and inspectors

The Commission for Healthcare Audit and Improvement has a governance rather than a management function in relation to most networks in the NHS and social care. As a regulator, the key risk that its activities are likely to run, at least in the present political climate, are those of over-regulation rather than under-regulation. Indeed, precise because of the concern about regulatory capture, excessive involvement by regulators in networks is discouraged. This has the consequence that there may be some loss of informational capacity – a long documented trade-off (see e.g. Day and Klein, 1987 Hutter, 1996). It is probably unwise, if motivation for network collaboration is to be sustained and if perverse incentives to reveal information about network activity are to be avoided, for network activity to be too tightly regulated.

It may be better for regulation and inspection to focus more on the *outputs* for health and social care than the *inputs* or *processes* of network activity, except where there is compelling reason for concern and where hierarchical elements in the network form are to be stressed (for example, there will continue to be a requirement for regulation and inspection of the quality of data sharing arrangements for the flow of electronic patient records). However, this should probably be kept to a minimum, less hierarchical network forms begin to crowd out other types.

However, where central mandation is necessary for the creation of a network, this should be balanced with allowing much greater discretion over other aspects of its work. Regulators should however pay attention to the overall balance of network forms in the local health economies, and not only examine the characteristics of the particular organisations on the performance of which they report.

10.6 Recommendations for further research

This review shows that there is a need for far greater empirical research into both the process and effectiveness of health and social care networks. While there is ongoing examination of managed care

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networks in Scotland, there is an opportunity to commission research that undertakes a long-term longitudinal analysis of new centrally-mandated networks, such as cancer care networks, to examine the process, costs and outcomes of the approach in more detail. Indeed, while research into the process of developing networks (and partnerships) appears to be developing, there is a need for an approach to examine both the costs of this process and the impact that this has had on user and patient experiences and the quality of care delivered. Specific research should examine the following:

- There is a need for greater empirical research into the development processes, lifecycles and trajectories, costs (including transaction and information costs) and outcomes associated with emerging health and social care networks;
- Research is particularly needed into the capacity of each of the main types of networks to sustain different patterns of organisational capabilities (e.g. drawing on the 'dynamic capabilities view of the organisation' which has been developed in studies of commercial organisations: Eisenhardt and Martin, 2000; Teece *et al*,. 1997; Möller *et al*, 2002);
- Empirical analysis should concentrate on comparing the effectiveness of mandated and non-mandated forms of network in delivering a range of objectives, and there should be close examination of the trade-offs between strengths and weaknesses of different forms, in respect of culture and motivation, capabilities, transaction cost containment, etc., and the extent to which these limitations can be mitigated through pluralism and requisite variety in the mix of types of network;
- Empirical and retrospective analysis of existing networks should be undertaken to create a better understanding of best managerial and governance practices, particularly in the forms of governance arrangements that can be developed; and
- Examination and study of the care pathway commissioning model.

10.7 Conclusion

It is clear from this research that there is no 'ideal' network solution, though there is support for a hybrid network combining elements of hierarchy, individualism, enclave and isolate. While it is apparent that networks are not a panacea for all modes of complex collaboration, an effectively crafted network can provide a solid basis on which to achieve successful partnership working between organisations. Such craftsmanship requires significant network management skill in articulating strategies and ties between organisations that are robust enough to endure; legitimate enough to become accepted yet flexible enough to tackle the inherent weakness that all inter-organisational arrangements are subject. In this way, networks may well prove to be

an effective method for reducing professional and organisational boundaries in the NHS enabling the more efficient use of staff and resources, the sharing of best practice, and the improvement of access to integrated care.

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Appendix A: Results from electronic searches

Below are the search results for each of the key areas that have been searched. The results include; a range of descriptors and keywords that were used within each area, the databases that were searched, and the number of references found from each database.

A.1 Area 1 - Health & social care

Descriptors: Interagency collaboration, joint working, interprofessional collaboration, care pathways, network, networks, networking, interagency relations, interorganisational relationships, interorganisational working, interprofessional relations, shared care, partnerships, joint ventures, cooperative behaviour, interinstitutional relations, organizational affiliation, critical pathways, clinical pathway.

Keywords: clinical network , care pathway, integrated care pathway, hospital network, care network, critical pathway, hospital care pathway.

Results

Database Searched:	References Found:
HMIC	2450
HELMIS	1207
Medline	4498
Embase	1035
Science Citation Index	328

A.2 Area 2 - Boundary spanner & boundary spanning

Keywords: bound* span*

Results

Database Searched:	References Found:
Science Citation Index	101
Medline	17

A.3 Area 3 - Defence material contracting

Keywords: defen?e procurement, defen?e and collaborat*, defen?e and networks, defen?e and alliances, defen?e and supply

Database Searched:	References Found:
Social Science Citation Index	256

A.4 Area 4 - Drug action team

Keywords: drug action team

Database Searched:	References Found:
HMIC	31
HELMIS	0
Medline	1
Healthstar	1
Social Science Citation Index	1

A.5 Area 5 - Crime, drugs and disorder

Descriptors: Interagency collaboration, joint working, Interprofessional collaboration, Care pathways, Network, Networks, Networking, interagency relations, interoganisational relationships, interorganisational working, interprofessional relations, shared care, partnerships, disorder, drug use, drug utilisation, criminology, co operative behaviours, interinstitutional relations, organizational affiliation, critical pathways, clinical pathway, collaboration, joint ventures, Drug, Drug-abuse, Drug abusers, Drug addicts, Drug consumption, Drugs, Criminology, Crime, Crime incidence, Crime prevention, Crime prevention devices, Crime victims, Crimes, Criminal,

Criminal investigation, substance related disorders, sexual crime, offender, civil disorder, , criminal behaviour, deviant behaviour, drug trafficking, criminal offences, trafficking, drug dealing, civil disorder.

Keywords: Clinical network, Care pathway, critical pathway, hospital care pathway, joint working, networks, networking or care pathway, interagency collaboration, joint working, interprofessional collaboration, interagency relations, interorganisational relationships, Integrated care pathway, Hospital network, Care network, disorder, drug, criminal ,crime.

Database Searched:	References Found:
HMIC	174
HELMIS	24
Medline	195
Embase	51
ASSIA	247
Social Science Citation Index	264

Appendix B: Journals chosen for hand-searching, 1990-present

Health Policy Journals

British Medical Journal

Health Policy

Milbank Quarterly

Journal of Health Services Research & Policy

Health and Social Care in the Community

International Journal of Integrated Care

Journal of Integrated Care Pathways

Organisational Sociology

Administrative Science Quarterly

American Journal of Sociology

American Sociological Review

Organisation Studies

Organisational Science

Public Administration

Governance

J Part

Public Administration

Public Administration Review

Institutional Economics

Journal of Institutional and Theoretical Economics

Management

Strategic Management Journal

British Journal of Management

Harvard Business Review

Journal of Management Studies

Advisory Group Suggested Journals

Advisory group members were asked to suggest key journals for 'hand-searching' in addition to those prioritised above. The following list of journals was developed from that request:

American Health Services Research (US)

Health Services Research (US)

Medical Care (US)

Medical Research and Review (US)

Health Affairs (US)

Health Care Management Review (US)

Human Relations

Public Management Review

Academy Management Journal

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