



Networks, Interlocking Directors and Strategy: Toward a Theoretical Framework

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Abstract. Research on inter-organisational networks reflects their acknowledged and growing importance. Strategy research, however, is only beginning to investigate the nature of networks and how network participation can affect organisational performance. Networks embody a relational view of the organisation and their study draws attention to the mechanisms by which relationships are secured and managed. Board of directors interlocks are a principal traditional indicator of network ties, yet little has been written on the role of interlocks in different types of networks and their potential effects on performance. We develop a typology of inter-organisational networks based on the key dimensions of organisational interdependence and network durability; a ‘micro-typology’ of embedded networks in East Asia based on formalisation of ties and networking scope; suggest that key aspects of directors’ roles differ based on the type of network in which they are engaged; and develop specific propositions for further investigation.

Keywords: network, corporate governance, interlocking directors, strategy, performance

1. Introduction

At the turn of the 20th century Max Weber saw the spread of bureaucratisation as being largely fostered by increasing competition between capitalist firms (Di Maggio and Powell, 1983). Similar forces allied to the application of new information and communication technologies currently appear to encourage a different phenomenon: the creation of various types of inter-firm networks. Whereas the prime objective of bureaucratisation was efficiency, with the creation of networks there is a multiplicity of viable objectives, for example increasing innovation, gaining access to new markets, sharing network resources, reducing cycle times, decreasing transaction costs, managing uncertainty or lobbying regulatory bodies. These potential effects can be either efficiency inducing or value creating or both and, when developed differentially and amenable to protection from imitation, can generate significant competitive advantage for the firm.

Strategy research is only beginning to investigate how network participation affects organisational performance. It is suggested that network participation can impact performance through the manner in which networks affect industry structure, intra-industry structure, firm resources and capabilities, contracting and co-ordination costs and various dynamic constraints and benefits (Gulati, Nohria, and Zaheer, 2000). Casual observation, moreover, suggests that networks come in many forms, yet there is little research on the

different kinds of networks and their varying impact on firm behaviour and performance. The development of valid typologies or taxonomies would seem to be an important step in furthering our understanding of this critical inter-organisational form. In the absence of such typologies, the discourse on networks runs the risk of incoherence and confusion as scholars and practitioners use the same common term—network—to refer to a very varied reality.

Networks embody a relational rather than a transactional or atomistic view of the organisation and this brings new challenges of understanding more about the origins, evolution and management of relationships, as well as how they can confer competitive advantage. Networks embody and depend on ties of many kinds at different organisational levels. Ties at board level through the mechanism of board interlocks have been seen as the principal indicator of network ties (Mizruchi, 1996) yet little has been written about the role of directoral interlocks as relational mechanisms of strategic importance within networks.

Firstly, we develop a typology of inter-organisational networks based on the key dimensions of organisational interdependence and network durability. This helps to place the network discourse in context by suggesting that network features and processes vary in different types of networks, and have different implications for performance. Secondly, we expand consideration of the network type most relevant to East Asia, the ‘embedded’ network, by developing a ‘micro-typology’ of such networks based on the dimensions of formalisation of ties and networking scope. Thirdly, we suggest that in the context of achieving more effective governance, key aspects of (interlocking) directors’ roles differ based on the type of network in which they are engaged, and in this connection we develop specific propositions for further investigation. This analysis of how director roles vary in different types of networks contributes to the literature on interlocking directorates that, to the best of our knowledge, has not addressed this issue.

2. Inter-organisational networks

Research on networks from a strategic management perspective

Inter-organisational networks have been examined from a variety of theoretical fields, including sociology (Emirbauer and Goodwin, 1994), structuration theory (Alexander, 1998; Sydow and Windeler, 1998), organisation theory (Kraatz, 1998), and strategic management (Gulati, Nohria, and Zaheer, 2000).¹

From the perspective of achieving competitive advantage, in particular, networks have been seen as spurring innovation (Chesbrough and Teece, 1996; Powell, 1998), aiding adaptation to environmental change (Kraatz, 1998), increasing flexibility and efficiency (Lorenzoni and Baden-Fuller, 1995), allowing access to critical network resources at low cost (Gulati et al., 2000) and ultimately leading to higher performance (Dyer and Nobeoka, 2000; Gulati et al., 2000). Such effects are assumed to result from structural opportunities for specialisation, from diffusion of information and/or various types of inter-organisational mimetic processes (Haunschild and Miner, 1997).

Gulati et al. (2000) note that strategy research looks to five traditional sources of differential returns to the firm: industry structure, intra-industry structure, inimitable resources

and capabilities, contracting and co-ordination costs and dynamic and path dependent constraints and benefits. Each of these is affected by the presence and operation of networks. Networks influence the nature of competition and the degree of profitability in an industry through their structure, membership and tie modality (Gulati et al., 2000; Galaskiewicz and Zaheer, 1999). Within an industry, networks as cliques can generate profit differentials for the clique members (Piskorski and Nohria, 1999). Within the discourse on the resource based view of the firm (Pfeffer and Salancik, 1978), networks may be seen as creating resources beyond the firm's boundaries—'network resources' to which members have privileged access that confers cost and/or value based advantage and that are particularly inimitable due to their complex nature and path dependent origins.

Contracting and co-ordination costs draw attention to one of the most frequently discussed effects of networks—their potential for lowering transaction costs. Gulati et al. (2000) argue that traditional transaction cost concepts are limited by their transactional interpretation of firm relationships. If one allows for individual transactions being part of a history of relationships and for their being socially embedded, then transaction costs can be mitigated by superior information, trust, and reputational effects which reduce information asymmetry and increase the disincentives for opportunism (Carney, 1998a).

It seems clear therefore that networks have many bases on which superior performance and profitability for member firms may be built. The decision to participate in a network and the strategy for shaping, maintaining and developing membership are important strategic commitments that demand board level consideration and inclusion in the strategy proposals of executive management. But since networks are far from homogeneous, understanding their impact and the challenges of crafting participation demands some taxonomy that illuminates their variety.

Yet, despite the breadth of research on inter-organisational networks, there has been little effort aimed at developing network typologies. Developing valid network typologies using relevant dimensions is useful in analytical terms, as it helps to make debates more conceptually sharp and focused, and enables more holistic organisational enquiry (Doty and Glick, 1994). Doty and Glick suggest that researchers make explicit the intended purpose of the typologies they develop. In this case, we develop network typologies not simply for classification purposes, but because this can help to orient debates regarding the nature, potential motivations for and consequences of networks, as well as the role of interlocks in different types of networks.

Literature on network types

Various perspectives on types of networks are discussed in the literature but, in general, typologies remain at best implicit and contingencies receive little discussion. Belussi and Arcangeli (1998) is an interesting exception. They propose a typology based on two dimensions—operational flexibility and forms of learning. Along these two dimensions, a diagonal array of networks is envisaged: 'steady state', 'retractile and reversible' and 'evolutionary' networks. Belussi and Arcangeli are principally interested in the evolutionary form which they characterise as 'engaged in a web of alliances, able to enrich their core competencies and to cope with technologically chaotic environments. Networks are

less and less stable; firms will frequently revise their webs of alliances . . . ' (Belussi and Arcangeli, 1998:421)

This 'evolutionary' form is thus seen as a dynamic changeable network capable of attracting 'outsiders' to seek access to its valuable specialised, network based knowledge assets. However, this form appears to encompass a capacity for revolutionary as well as evolutionary change and indicates the need for further development of the typology. Kogut's (2000) discussion of 'network as knowledge' and his use of Burt and Coleman rents to characterise value creation and capture is helpful in this regard. Coleman rents describe advantage accruing to long-lived networks while Belussi and Arcangeli's (1998) evolutionary type also encompasses networks better classified as an 'edge of chaos' form.

Kogut (2000) notes Burt's (1992) argument that firms with multiple unique ties with others who are not connected to each other occupy powerful brokerage positions or so called 'structural holes'. They gain and exercise power through arbitration. The structure of such networks is essentially hierarchical and rent accrues to the firm occupying the 'structural hole'—a 'Burt rent'. This resonates with the description by Belussi & Arcangeli of static and retractile/reversible networks. Kogut notes a second type of advantage, captured in the form of a 'Coleman rent' (after Coleman, 1990). Here, multiple redundant ties among stable members of a group yield a rent to co-ordination. It accrues to the members of the group, with its allocation decided by some rules of adjudication and bargaining power.

The Burt rent accrues to the brokers who increase the overall efficiency of the network, but capture the added value, or perhaps just redistribute the value to their advantage. The Coleman rent is not due to informational efficiencies (as redundant, 'thick' ties are not the most efficient structure) but to co-ordination effects that involve mutual know-how exchange and generative effects. In such a network the gains from superior co-ordination must be distributed to assure participation (or non-defection to put it more negatively). The structure of such networks features relatively closed cliques and associated high levels of trust. Kogut notes these characteristics as features of textile industry networks documented by Uzzi (1996) and pharmaceutical industry networks discussed by Walker, Kogut, and Shan (1997).

This set of research findings stands in some contrast with the typology of Belussi and Arcangeli (1998), especially the difference between their 'evolutionary' type and the Coleman type. The critical difference is in network stability/closedness. Both appear to describe dense rather than sparse network ties but differ in the expectation and reality of length of life of such ties. There are reasonable grounds for expecting both to exist—dense and redundant ties allied with either long or short term duration and closed or changing membership. But they are likely to exist in association with significant differences in the motivations behind their formation and in the strategic effects they produce. Belussi and Arcangeli suggest that their evolutionary type will be able 'to cope with technologically chaotic environments' where 'networks are less and less stable; firms will frequently revise their webs of alliances' (Belussi and Arcangeli, 1998:421). This would appear to describe something closer to a 'revolutionary' type, existing on the edge of chaos as characterised by complexity theory where adaptive success goes to the form of organisation that is just barely structured (Axelrod and Cohen, 2000; Waldrop, 1994). The Coleman type by contrast is based on stability and trust, which only time and dense persisting ties within a clique can support. The

Coleman type seems in fact to be a better description of the industrial districts and associated networks described by Belussi and Arcangeli (1998) than their evolutionary type.

As the Coleman type is based on dense redundant relationships that persist and generate trust, the role of trust and trustworthiness in networks is a matter of some consequence. Barney and Hansen (2000) in their investigation of trustworthiness note that three forms of trust (weak, semi-strong and strong form) have different potential for creating competitive advantage. Weak form exists where the agents are exposed to no significant vulnerabilities. Semi-strong form exists where various governance devices exist and the costs of opportunistic behaviour exceed the benefits of complying with those governance mechanisms. These latter may be market based, contractual or social. Strong form trust exists where, independent of economic or social governance mechanisms, opportunistic behaviour would violate values, principles or norms that are deeply internalised by the agents involved. Competitive advantage in the presence of strong-form trust may arise from governance cost advantages relative to the semi-strong form and also from the freedom to enter into exchanges that cannot be governed under semi-strong conditions. The social and information content of networks may provide useful information in locating strong-form partners; and in so far as the trustworthiness of firms inheres in the trustworthiness of their managerial agents, (in addition to their culture and systems), the presence of interlocking directors on boards may provide a very powerful signal and the opportunity for direct observation.

3. Development of a network typology

Several underlying dimensions of networks appear to emerge from this review. The relative interdependence of firms in a network is important to most discussions. Interdependence is usually associated with density of ties in a network, ranging from sparse to dense and this characteristic is important to almost all discussions. In general, interdependence and density of ties will be positively correlated. It should be noted that in the 'Burt type' of structure there may be intense interdependence of a bilateral kind but very limited or no interdependence of a systemic kind and hence sparse, non-redundant ties. The durability of the network is also important as certain network effects can only be produced as a result of time and learning. Trust and trustworthiness is another important network attribute but may be seen as a product of interdependence and durability. Finally, the generative aspects of a network are important: both its ability to create and its inherent constraints on creativity.

We propose a network typology based on two of these dimensions: interdependence and durability and seek to relate generative capacity to the types thereby revealed. We use this same set of dimensions to discuss all five suggested network types, and state our assumptions for why we deem these dimensions important (Doty and Glick, 1994).

The dimension of interdependence was used by Contractor and Lorange (1988) to discuss various types of networks on a continuum between negligible dependence and high dependence. Inter-organisational dependence refers to the extent to which firms involved in the network utilise each others' outputs (e.g. raw materials) and resources (e.g. market-related information) in their own operations. A high extent of utilisation reflects the operational and strategic importance of the inter-firm relationship and constitutes a high level of dependence. It is likely to be associated with dense, redundant ties and the potential for semi-strong and

strong form trust to operate. Our assumption is that this is a key dimension that can be used to create a network typology. We assume this, given that networks are usually formed for particular strategic purposes—although this purpose may be emergent as Kogut (2000) argues—and given that important strategic outcomes and variations in competitive advantage partly depend on the extent of inter-organisational dependence.

A network with negligible interdependence other than through independent transactions and no durability of relationships beyond the individual transaction, can be characterised as a market where participants behave atomistically—an '*atomistic network*'. Such a structure has been an implicit or explicit assumption of various traditions, for example industrial organisation economics and its translation into the strategic management field (Porter, 1980, 1985). At the other extreme of this axis, extensive operational and strategic interdependence can exist between firms but not necessarily persist for very long or require particularly dense ties in order to function. Drawing from the industry life cycle literature (Hambrick and Lei, 1985) and complexity theory (Axelrod and Cohen, 2000; Waldrop, 1994) we call this the '*edge of chaos network*' because it reflects the conditions usually found in embryonic industries, in industries experiencing the shock of technological revolution or invasion or in industries coping with de-regulation, for example. Emergent stages of the life sciences industry; the ephemeral structures of those parts of many industries impacted by the internet; the transitional relationships, alliances, joint ventures of the deregulating telecommunications industry are frequently characterised by intense but short-term interdependencies as firms experiment, search for and purchase options on the future, and join or leave technical and market based alliances. The motivation has much to do with scanning, information search, idea generation and option buying. Dense, persistent relationships are not feasible under the time constraints and are often irrelevant to the objectives sought. There is high interdependence but low network durability, in the sense that even though the structure of the network may be relatively stable in the short to medium term, the participants change continually and the external forces at work may shift in due course to a less turbulent and uncertain state.

We suggest network durability as the second underlying dimension to characterise networks. Our assumptions are that networks are constituted through inter-organisational linkages, and that durability allows the development of dense redundant ties supporting the creation of trust and generative learning. By durability we mean the extent to which these networks persist in the longer term, and with broadly similar participants—in terms of both structure and content. A common example of a network type with a high degree of durability but very limited interdependence is an industry association formed for the purpose of regulatory lobbying, of preempting the creation of state regulation through the institution of self-regulation, or promoting professional or craft education and regulating a specialist labour supply. Such networks are usually characterised by long-term persistence (note the longevity of European Chambers of Commerce, measured in centuries) and relatively stable membership. But such networks, even though they have high durability, typically have a low degree of organisational interdependence. They are usually 'one dimensional' networks within which members combine to appropriate certain rents to the whole industry or guild. We call this form the '*association network*'.

Moving to the diagonal between the two axes, and drawing from Granovetter (1985), we label networks with a high degree of durability as well as an extensive level of

inter-organisational dependence '*embedded networks*'. Granovetter suggested that economic action should be understood not atomistically, but in terms of its embeddedness in ongoing structures of social relations. 'Embedded' networks can involve such mechanisms as interlocking directorates, cross-shareholdings, personnel exchanges, information exchange, and significant inter-trading. Such ties and the durability of such networks can be exemplified by Japanese Keiretsu, for example, that reflect deeply entrenched institutional features that derive from the structure of kinship and family in Japanese history and from intentional actions of members over several centuries to nurture and sustain the social capital that leads to this high level of durability (Bhappu, 2000).

High interdependence can be manifested in terms of vertical networks comprising of related suppliers, manufacturers and distributors, or in terms of horizontal networks comprising of such firms as financial institutions, semi-state institutions and manufacturers of related products that are broadly at a similar level in the industry value chain. High interdependence and extended durability are likely to be accompanied by dense and redundant ties, semi-strong and strong forms of trust and coherent cliques that define membership. In such structures, generative learning is possible and self-organisation becomes feasible as distinct from hierarchical organisation led by one or more powerful members. Kogut (2000) discusses the evolution of the Toyota Production System from a 'hub-and-spoke' structure to a 'more cooperative self-organising supplier system because the generative rules of cooperation changed over time'. The high interdependence and durability of this network together with associated patterns of semi-strong and strong trust as well as transfer of learning confer unique competitive advantage on Toyota.

On the diagonal and between the 'atomistic network' and the 'embedded network', we find the '*brokered network*'. Brokered networks include hub-and-spoke network structures and are characterised by intermediate inter-dependence and moderate durability. They often involve a strategic centre which acts as a leader and coordinator of the network (Lorenzoni and Baden-Fuller, 1995). The nurturing of social capital and building of trust are limited features of this type of network as they rely on governance mechanisms to maintain membership and on the self interest of members to uphold compliance as long as the cost of opportunism exceeds the benefits of non compliance. The exchanges are transactional and based on an economic logic. Consequently, if one member is not performing, it is forced out of the network by an intentional choice of the strategic centre or of other powerful members not to utilise the inefficient member's output. This leads to a moderate level of network durability. Brokered networks typically exist with quite sparse and often bilateral relational ties. Examples of this type of network are widespread in the biotechnology industry (Powell, 1998). They are characteristic of many of the networks in international outsourcing and of the production networks that cluster around global brands that now perform only design and marketing functions. They appear to be a very common form of network in internet based models of supply and demand aggregation and syndication. They can appropriate 'Burt rents' but these typically accrue to the hub firm/s or the broker/s. Depending on their learning characteristics and their opportunities, they may evolve over time into embedded networks. These five network forms are illustrated in figure 1.

The location of networks on this map is not static. Networks can dynamically morph from one type to another over time. Important influences of this process include industry

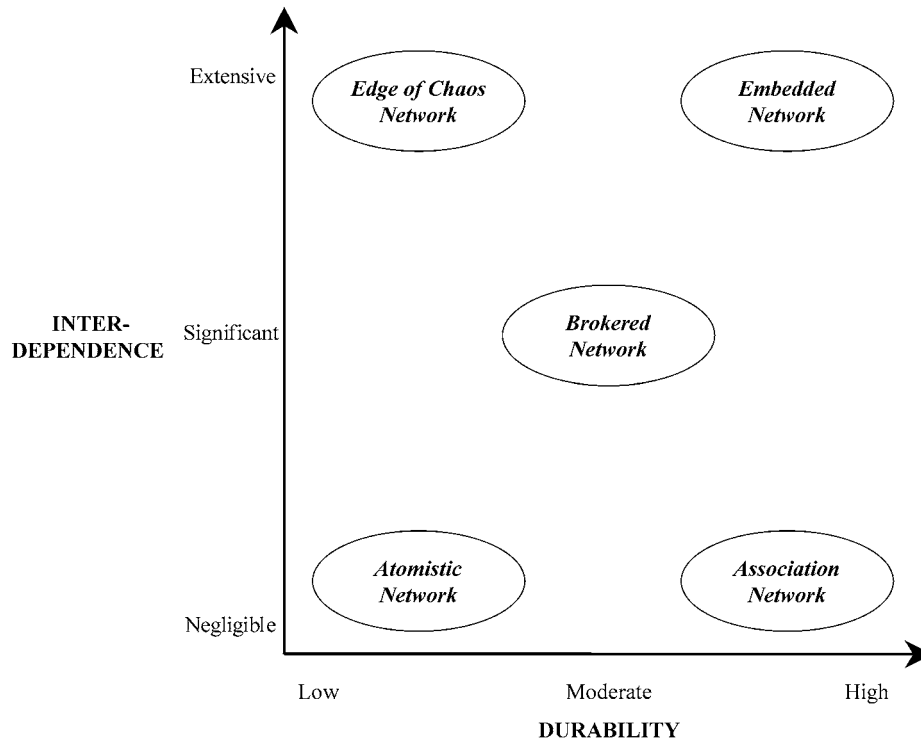


Figure 1. A network typology based on organisational interdependence and network durability.

evolution, type of product or service involved and technological forces that enable complex inter-organisational co-ordination at relatively low cost, as well as the ambitions and learning of the networks and their constituent firms. In other words, a multiplicity of exogenous and endogenous factors can drive movement between types. For example, *edge of chaos* type networks, can become atomistic types if the structure of the industry matures rapidly around a transparent set of technology standards, markets and competitive options. They can become brokered networks if growth and maturation produces brokerage opportunities (as seen in the e-business arena with the emergence of supply and demand aggregators and market makers in certain fields) and at a later stage defines a stable set of hub and spoke relationships and specialisations between a few dominant firms and a hierarchy of suppliers. We have noted how the Toyota Production System has evolved from a brokered network to an embedded network with powerful self-regulation properties and considerable generative impact. In discussing the likelihood of movement between network types distinction should be drawn between whole networks that migrate from one type to another (the Toyota example) and migration that takes place at the firm level as firms exit a network of one type and enter another type. Furthermore, migration in some directions may be more difficult than in others.

In an absolute sense, these networks are not completely separate. Firms that are competitors and not otherwise connected (in an atomistic network) for example, often form networks such as research-oriented consortia to develop and hopefully establish particular technologies as industry standards; in this way creating networks that have features of an 'edge of chaos' type. They have high operational and strategic relevance but are relatively short-term and their members disperse as soon as their task is deemed complete. The constituent members of these networks are at the same time members of larger hierarchical organisations that otherwise behave atomistically and competitively.

Lastly, the forms we have identified represent analytical distinctions that in practice may not be so clear-cut, resembling in this sense Weber's 'ideal types' (Weber, 1922). Firms may, at the same time, be involved in different types of networks, features of networks may change over time, and networks can form at intermediate positions of figure 1.

Embedded networks in East Asia

There are three dominant types of business systems in East Asia: the Japanese *Keiretsu*, the South Korean *Chaebol*, and the networks of Overseas Chinese business (Hamilton and Biggart, 1988; Lasserre and Schutte, 1995).² The development of each of these systems has been historically influenced by several dimensions of their institutional context, particularly political and financial factors (Biggart, 1991; Whitley, 1990, 1991). All three systems constitute embedded networks as described above, as they involve significant interdependencies and ties among the organisations involved, and they persist over the longer term with broadly similar participants (except in the case of Chinese business networks, which exhibit high interdependencies and persist in the longer term, but with a relatively lower degree of stability in participants—Redding, 1995). As comparative analyses have illustrated, however, the features of these networks are far from isomorphic, exhibiting both similarities and differences among several dimensions. These dimensions, for example, include the extent of personal authority and owner domination, the importance of formal co-ordination and control procedures, management style, type of employee commitment, extent of business specialization, use of evolutionary strategies, use of relational contracting, and the presence of long-term inter-sector co-ordination (Whitley, 1990, 1991).

Embedded networks are characterised by extensive interdependence through substantial inter-organisational linkages, and high durability. Inter-organisational linkages are of various types, and include equity ownership, strategic alliances, inter-trading, personnel exchanges, information exchanges, social clubs composed of senior managers, and personal, kinship or ethnic ties. These linkages are not mutually distinct, for example information exchanges, personnel exchanges and inter-trading arrangements may be partly organised and co-ordinated during social club meetings of senior management. These linkages differ with regard to extent of formalisation (their governance through formal rules and procedures), ranging from low (personal ties), to medium (inter-trading) to high (equity ownership). Formalisation of prevalent ties is thus a useful distinguishing feature from an embedded networks perspective, ranging from informal, personal and opportunistically formed ties to more formalised ties based on equity ownership and formal authority structures.

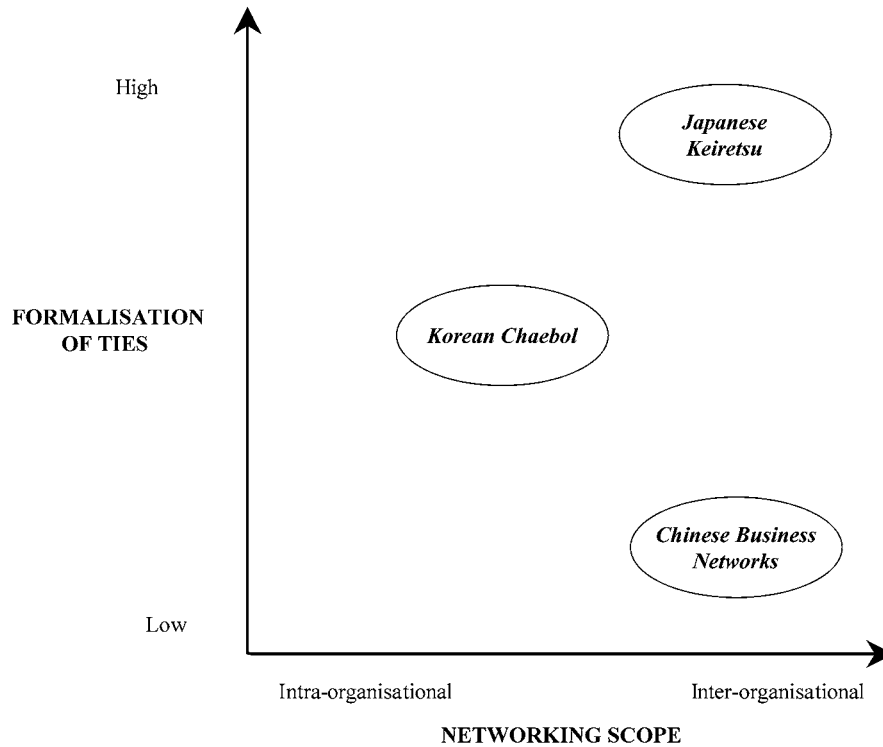


Figure 2. A typology of Asian embedded networks based on formalisation of ties and networking scope.

An additional distinguishing feature is organisational scope, a central corporate strategy concern (Porter, 1985). Organisational scope can help distinguish between networks where organisations involved in different parts of the industry value chain are formally integrated within a conglomerate structure through substantial ownership and control ties (intra-organisational networking scope), or are kept separate but still involved and interdependent in terms of long-term relational contracting and other types of co-operation (inter-organisational networking scope). We have thus drawn on relevant literature to develop an additional “micro-typology” of embedded networks that is able to more finely distinguish between the three main types of Asian networks. This is presented in figure 2.

Japanese keiretsu. Japanese corporations (*Kaisha*) exhibit a relatively high degree of specialization and a higher extent of use of relational contracting within wider business systems (*keiretsu*) that are vertically or horizontally oriented and characterised by high degrees of interdependency. These interdependencies include equity ties, interlocking directorates, inter-trading, and information and personnel exchange. *Keiretsu* also exhibit significant ties with state agencies. Strategic decision making is relatively de-centralised, and consensus-based. It is driven more by existing competencies and strategic commitments rather than unrelated opportunities that present themselves opportunistically. Management has a high

degree of autonomy from shareholders and has exhibited a stakeholder orientation, illustrated in implicit lifetime employment systems and long-term, seniority-based advancement. The main source of authority is the holding of office; formal rules and procedures are more important in the *Keiretsu* than particularistic, personal ties. Thus, in terms of the embedded network typology above, the Japanese *Keiretsu* exhibit multiple, dense formalised ties, and extended scope based on extensive inter-firm networking (Bhappu, 2000; Gerlach, 1992; Whitley, 1990).

South-Korean Chaebol. The *Chaebol* incorporate a wider variety of activities than either the *Keiretsu* or Overseas Chinese Businesses within their authority structures and organisational scope. Therefore, the degree of relational contracting and other co-operative activities is much lower in these network types. In marked contrast with the *Keiretsu* (and similar to Overseas Chinese Businesses) is the strong connection between ownership and control, with the *Chaebol* being tightly controlled by owner-founders and their families. Strategic decision-making is highly centralized to founders and family members, where personal, particularistic connections are more important than formal rules and procedures. Similarly to the *Keiretsu*, employment is still long-term and advancement is seniority-based, but within a much more centralized climate that discourages innovation and self-initiative. The *Chaebol* are highly geared and dependent on state-owned banks for funding; their strategic direction has often been influenced by state policies and objectives. Thus, the *Chaebol* exhibit a mixture of formalised, equity ties with informal, personal ties; and a lower level of inter-firm relational contracting since they incorporate a higher variety of activities within their organisational scope (Biggart, 1990; Whitley, 1990).

Chinese family business networks. Chinese business networks are based on personal, kinship or ethnic ties, rather than more dense, formalized ties. As with the *Chaebol*, the patriarchs of Chinese firms are almost worshipped and their beliefs permeate the organisation's culture. There is a high level of specialisation in individual firms owned by Overseas Chinese (but a significant level of diversification within families). The stability of actors is lower in Chinese family business networks than in both the *Chaebol* and the *Keiretsu*. The participants in different deals change depending on its nature and what they can offer to its successful execution. Thus, strategic decision making is more opportunistic than planned. As in the *Chaebol*, control is strongly centralized and associated with ownership; but the personal element features much more prominently. The holding of office is less important than relationship to the founder-owner; role and task definitions are much less formal and more shifting than in either the *Chaebol* or the *Keiretsu*. The potential longevity and successful internationalisation of Chinese family businesses are matters for considerable debate. Chinese business networks tend to depend more on finance from savings, relatives and business contacts than banks or state-controlled agencies. Individual firm specialization means that the extent of sub-contracting and relational contracting is high within a web of informal, personal connections. Thus, the Chinese business networks are largely constituted of informal, personalized ties with low formalisation, and exhibit extended scope through a relatively high degree of inter-firm interactions (Carney, 1998b; Redding, 1995; Whitley, 1990).

Pressures for change. In Japan, as the economic recovery 'has started to look anaemic at best and endangered at worst' (Economist, 2000b), public debt is mounting and corporate restructurings are proceeding very slowly. *Keiretsu* cross-shareholdings and relational contracting are reducing, banks central to the network have been becoming financially weaker, and some are forced to merge with banks belonging to other *Keiretsu* (Economist, 2000d). In Korea, the state has been largely unsuccessful in its attempts to get the *Chaebol* to reduce debt and focus on a limited amount of core businesses. The economic recovery of the last two years, according to some commentators, has encouraged the *Chaebol* to 'hew to the discredited ways of pre-crisis Korea Inc. Profitable affiliates are dragooned into pouring money into weak ones. *Chaebol* chairmen lose millions on unilateral investment decisions. Suggestions of insider trading by *Chaebol* families persist. . . ' (Far Eastern Economic Review, 2000b:64). The 1999 collapse of the Daewoo *Chaebol*, however, and the more recent collapse of Daewoo Motors as the state-owned Korea Development Bank refused to provide any more funding, may be indications of more lasting change (Economist, 2000c). Currently Hyundai's high levels of debt are threatening to lead to yet another high-profile *Chaebol* collapse (Business Week, 2000b). As many patriarchs of ethnic Chinese businesses prepare to hand over power to their children, moreover, several traditional characteristics of these businesses are also in transition. Their children's Western business education and life experience introduces different ways of thinking about and doing business (Far Eastern Economic Review, 2000a).

All three embedded network types, therefore, are under pressure for change, prominently reported in popular media (e.g. Business Week, 2000a,b; Economist, 2000a–d; Far Eastern Economic Review, 1998a,b, 1999, 2000a,b; Fortune, 1998). Interrelated factors such as the global movement towards more transparent and effective corporate governance; the inclinations of global capital towards shareholder value; the destructive effects of the Asian crisis; government demands for slimmer, more efficient and less monopolistic conglomerates; the Western Business-school education of many of the patriarchs' children; the new competencies required for successful global strategies; and the demands of more flexible workforces that now seek more autonomy and the chance to make real contributions, constitute potent challenges to the status quo to varying degrees. Whether these pressures will in the longer term lead to more isomorphic systems whose features are congruent with Western-style agency-theory predictions (Phan and Yoshikawa, 2000) remains to be seen.

4. Interlocking directorates

Research on interlocking directorates

Interlocking directors are a central case of interpersonal linkage between firms at board level. Due to their position and potential to influence firm strategy and to monitor and control executive behaviour we propose that they carry a special responsibility with regard to the creation, maintenance and development of the ties which underpin interdependence and its durability, which embody trust and generate learning at a strategic level. In this section we will review the pertinent literature on interlocking directors, explore its relevance to strategic

decision making, and suggest ways in which interlocks can facilitate network effectiveness and thus guard against networks' potentially adverse features.

Interlocking directorates are an important conduit of inter-organisational linkages. Interlocks have various functions. For example, they can be used to co-opt environmental resources (Mizruchi and Stearns, 1988, Stearns and Mizruchi, 1993), to cement ties within the upper capitalist class (Useem, 1979), or to further one's career (Zajac, 1988). These features are not mutually exclusive. The resource-dependence and class perspectives, for example, are complementary rather than conflicting (Palmer, Singh, and Friedland, 1986).

Studies have shown that information transferred through director interlocks does encourage inter-organisational mimetic processes. For example, interlocks can influence firms to imitate related firms' horizontal, vertical and conglomerate acquisition activity (Haunschild, 1993), or to adopt anti-takeover defences such as poison pills (Davis and Greve, 1997). The features of a specific practice also influence diffusion, for example observable practices and practices that accord with prevailing social norms spread faster than non-observable practices and practices challenging social norms (Rogers, 1995). Further, both interlocking and its influence on the diffusion of practices are influenced by geographical or spatial factors (Davis and Greve, 1997; Kono et al., 1998).

The significance of inter-organisational interlocks to firm strategy is further illustrated by findings that interlocks help to shape strategic choices in ways that conform to industry norms, and that extra-industry interlocks are associated with the adoption of non-conforming strategies (Geletkanycz and Hambrick, 1997). Board interlocks can be used to cope with increasing levels of environmental uncertainty and particular types of resource dependencies (Lang and Lockhart, 1990). They can also be used as control and co-ordination devices in the context of inter-organisational networks (Maman, 1999).

Executives' service on other boards, however, is not always a major channel of influence. This may be due to the fact that the influence of interlocking directorates varies, depending on the situation. Interlocks are less influential for large firms, for firms that are central in a network, or firms whose CEO has alternative sources of information, such as by belonging to professional associations. They are more influential with issues that receive substantial press coverage and when ties are between similar rather than dissimilar firms (Haunschild and Beckman, 1998).

From the perspective of investors, interlocking directorates are often criticized for enabling incumbent CEOs to co-opt the members of their remuneration committee and thus receive significantly higher remuneration than would be the case with a truly independent committee (e.g. Business Week, 1998). Research has indeed shown that CEOs who lead interlocked firms do earn significantly higher compensation than those who don't (Hallock, 1997). When juxtaposed with findings that interlock activity is higher in lower-performing firms, and that a higher level of interlocking is not associated with higher profitability (Mizruchi, 1996), then the remuneration findings above give an even greater cause for concern to investors.

Other research based on exchange theory has helped to explain how outside CEO-directors can change their orientation from one of mutual support and deference towards the firm's CEO to one of independence and control if they have experienced such changes themselves in their own organisation (Westphal and Zajac, 1997). In addition, CEOs used

Table 1. Potential reasons for interlocks and research-based evaluations.

Potential reasons for interlocks	Research-based evaluation
Collusion: interlocks represent intentional attempts by organisations to engage in practices that restrict competition.	Plausible but unlikely. No systematic evidence that collusion is a motivation for interlocks or that interlocks would be effective in this regard.
Cooptation: interlocks are used by firms to co-opt sources of environmental uncertainty.	On balance, the evidence supports the view that a minority of interlocks are associated with interfirm resource dependence.
Monitoring: interlocks are used for the purposes of exerting inter-organisational control.	Empirically, it is not possible to distinguish between cooptation interlocks and monitoring of influence-driven interlocks.
Legitimacy: interlocks are used to increase a firm's environmental legitimacy through prestigious connections.	Conceptually expected, but little empirical research by interlock researchers. This model is difficult to test and is closely related to the cooptation model.
Career advancement: From the perspective of the individual director, interlocks are ways to advance one's career.	Supported empirically. This view is complementary rather than opposing to alternative views, however.
Social cohesion: interlocks are in effect social ties among members of the upper capitalist class.	Evidence indicates that interlocks can partly represent intraclass ties in addition to inter-organisational ties.

to passive boards will tend to appoint new directors with prior experience in such boards in order to perpetuate their power, whereas active, powerful boards will tend to appoint directors with prior experience in similarly active boards in order to maintain their own power (Zajac and Westphal, 1996). The structure and composition of boards can have significant effects on intra-organisational control strategies, corporate strategies and strategic choice (Baysinger and Hoskisson, 1990). Board involvement in strategic decision making, in addition, is associated with improved financial performance (Judge and Zeithaml, 1992; see also Richardson, 1987).

Mizruchi's (1996) review and evaluation of the interlock literature identified six main potential reasons for interlocking, and evaluated the evidence relating to these, as shown in Table 1.

It seems safe to assert that interlocking directors can and do have a significant impact on strategic decision making, although this effect has to be understood in a contingency framework. The nature of the impact of interlocks in terms of firm performance is not widely researched and, to date, reports conflicting evidence. Given that they have a significant impact on strategic decision making, we may turn next to their potential impact when interlocks occur within a network.

The strategic role of interlocking directors in different network types

Firms' participation in networks can contribute to their competitive strategies and directly to their competitive advantage. As noted above, the motives for entering into networks are often explicitly linked to the achievement of specific strategic goals. Directors, as leaders of the organisation, should be closely involved in its strategic management (Heracleous,

1999; Judge and Zeithaml, 1992). From a normative perspective, Boards should not only monitor and discipline top management, but should also be actively involved in strategy formation, for example deciding on such issues as diversification, resource management and strategic change (Finkelstein and Hambrick, 1996). The decision about firm scope is a central corporate strategy commitment and is intimately linked with network participation in so far as this affects vertical and horizontal relatedness. Directors themselves appear to take their strategic responsibilities seriously (Dulewicz, MacMillan, and Herbert, 1995), notwithstanding the fact that actual board functioning and processes have often been found wanting when compared to normative expectations (O'Neal and Thomas, 1996; Patton and Baker, 1987; Whistler, 1984).

Our argument here extends the line of thinking proposed by Geletkanycz and Hambrick (1997), that it is 'generally beneficial for executives' external ties to align with, or fit, the firm's strategy' (p. 673). We suggest that the type of network in which the firm is embedded has important implications for the value of interlock and for the roles of interlocking directors; and that the emphasis of interlocking directors' role changes in different types of networks.³ Furthermore, decisions with regard to board membership and desirable interlocks should be made to assist the firm in the identification, maintenance and development of appropriate network relationships. We suggest, specifically, that the strategic role of directors, and especially interlocking directors, would be more effectively fulfilled if directors consciously create and exploit interlocks to ensure that networks deliver the highest possible strategic benefits to the firms and their partners. This requires that the strategic functions of interlocks in different types of networks be clarified. We present propositions for further investigation, that formalise and clarify our thinking in each case. These propositions assume that if (interlocking) directors carry out the proposed functions effectively within each type of network, positive consequences will result for the network firms concerned. Even though we do not explicitly refer to higher performance effects, these would be the natural result of the positive consequences discussed.

In the *atomistic network*, where firms are independent market participants, firms act to maximise transactional efficiency with other market participants without aiming to form a durable network with any degree of significant inter-dependence. A key aspect of directors' roles in this case, is informative; bringing into the organisation information about environmental trends and competitive conditions, especially on best practices in their industry. There are no relational duties or responsibilities concerning network management.

Proposition 1. *In the context of an atomistic network, if (interlocking) directors carry out their informing roles effectively, organisational efficiency will be increased due to higher timeliness, accuracy and use of relevant environmental information.*

In the *brokered network*, firms will still aim to maximise transactional efficiency, but within more durable networks that exhibit significant inter-dependence between firms. As opposed to vertically integrating, firms retain their flexibility by engaging in semi-durable networks that can be altered almost at will by the powerful brokers or hub firms in the network. Firms in the brokered network, as we saw earlier, comply with the governance rules in operation and do not defect as long as the cost of opportunism is greater than the benefits of defection. We noted that in such a network, governance has market, contractual and

social dimensions. Interlocking directors can help to support these governance mechanisms and maintain their currency by signalling reputation and assuring legitimacy. In so far as a firm makes judgements about a related firm on the basis of the behaviour of an interlock director, the latter's actions may be powerful and very tangible signals of reputation and legitimacy. An additional and more general role of a director (interlocked or not) is to ensure a high degree of compliance with network rules of governance so that the flow of materials and services within the network is as flawless and efficient as possible. Where the director is a member of the board of the broker or hub firm there is a responsibility to ensure the appropriation of the 'Burt rent' to that firm for its efficiency contribution to the network.

Proposition 2. *In the context of a brokered network, if (interlocking) directors carry out their co-ordinating and governance-related functions effectively, the central firm can influence network structure and functioning to its own strategic advantage and accumulate a higher level of "Burt rent".*

In the *embedded network*, dense, path dependent ties are institutionalised, although being part of such a network may not always reflect conscious strategic decisions by executives. This is partly the case, for example, in the Japanese Keiretsu and the Korean Chaebol. A key aspect of directors' roles in such networks is to build and sustain the social capital of the network. This may take place with or without conscious intent, as many executives go through long periods of cultural socialisation and internalise the significance of nurturing social capital. The directors' role may be especially important when the social capital is tacit as far as many or all of the executives are concerned—if it is poorly understood by them, the directors may be its only conscious guardians.

We noted earlier that the dense, persistent ties of the embedded network are capable of producing unique forms of trust ('strong form') and generative learning leading to self-organising capability in the network. Interlocking directors may be important agents or 'carriers' of such trust and learning characteristics. Consider how 'principled trust' (Barney and Hansen, 1994) is created. It inheres in internalised values, principles and norms and trustworthy partners of this kind may be trusted irrespective of the presence or not of exchange vulnerabilities and of the existence of governance mechanisms. This characteristic is likely to reflect the unique history of the partnership/network, the culture of inter-relatedness and inter-dependence that has been created between firms and the personal beliefs and values of critical individuals. The source of competitive advantage lies in governance cost advantages and/or in access to exchange opportunities beyond the reach of those relying on governance mechanisms. In this sense, principled trust substitutes for hierarchy in the traditional transaction cost logic yielding a network with the advantages of hierarchy but without its costs and rigidities: value is added and cost is reduced simultaneously. Finally, such trust based structures create advantages that are by definition impossible to imitate.

In this network context how can the interlock director perform a facilitating role? First, the interlock director stands as an embodiment of a partner's reputation for trustworthiness and must act, and be seen to act accordingly. Openness to information exchange may be another signal of trustworthiness that can be carried by the interlock director. Willingness to support and make unilateral specific investments in an exchange or continuing relationship before it occurs or commences may be another strong signal. On another level, the interlock

director may be one of the most effective, tangible means of assessing values, principles and norms of behaviour that characterise a potential or existing network partner. In this sense, interlock directors bear some resemblance to emissaries exchanged between medieval courts and the element of voluntary hostage giving against bad faith may not be an inappropriate analogy.

A particular feature of the *embedded network* is its capacity for generative learning and self-organisation. Both of these characteristics suggest that the network takes on a powerful identity of its own, over and above that of the individual firms. Such characteristics may be seen as network assets to which members then have unique and advantageous access. But such a meta structure implies governance rules and processes beyond the collective of firms. In so far as one may then speak of network strategy, an interesting challenge is presented for traditional corporate governance concepts and best practice. These have concentrated on mediating the relationship between owners and executives through the role and duties of the board. But a network level of strategy with manifest impact on firm performance demands a network perspective on governance. How can the board mediate the relationship between the owners interest and that of the network? What responsibilities of directors arise in such a context?

The tacitness of many of the bases of *embedded networks* may blind directors to responsibilities that are necessary for sustainable competitive advantage. An important strategic weakness of embedded networks for the firms concerned, for example, is that since many transactions are not based on a strictly economic rationality, but on a socially conditioned rationality, relative inefficiency may creep in. This is exemplified in the persistent high debt-to-equity ratios of Korean Chaebol and the unprecedented—by Japanese standards—re-structuring interventions that have recently had to be carried out on large Japanese companies (such as Nissan and the large banks) to bring their efficiency levels to globally competitive standards. The emphasis on getting the best deal and the effect of the largely personal and informal ties (rather than formalized ties) within Chinese business networks have not led to such problems.

Proposition 3. *In the context of an embedded network, where (interlocking) directors carry out their social capital and trust-building functions more effectively, a higher degree of co-operative strategic behaviour and generative learning will result.*

In the *edge of chaos* network, the appointment of interlock directors may reflect the ‘intense–diffuse’, ‘exploration–exploitation’, ‘premature convergence–eternal boiling’ tradeoffs that are suggested to characterise complex adaptive systems at the edge of chaos (Axelrod and Cohen, 1999; Kauffman, 1993). In other words, interlocks should provide diffuse access to a broad range of experience in other firms while also providing the potential for intense interaction with just a few. The structure is likely to support learning that is based on divergence-but also needs the ability to converge when search and learning indicate that an adaptive strategy has been found. Learning, in this context, is therefore more related to search, scanning, information getting and understanding of diversity than to specialisation and deepening of knowledge. The structure might be characterised as an embodiment of an adaptive search strategy in a complex, ambiguous environment where experimentation and option buying may be the most robust policy. Hence, interdependence is quite high but

based on temporary ties with little history. The ties may not be very dense as this would require premature convergence and anyway many will be discarded and replaced in the continuous construction and re-construction of the loosely joined network.

In such circumstances interlock directors may be best appointed for short terms of office and serve best in the role of awareness creators, of agents in the scanning process, of idea generators for novel strategies, technologies, technology applications and creators of further potentially 'interesting' loose ties. When such networks or some of their member firms find a valuable and protectable niche, they are likely to transform into another type—perhaps to begin the creation of an embedded network, to contribute to a brokered network as broker or client, or to evolve into an atomistic network if the market, competition and technology move rapidly towards maturity and commoditisation. Whatever the case, the transformation will almost certainly demand a new approach to board membership and to the targeting of interlocks.

Proposition 4. *In the context of an edge-of-chaos network, if (interlocking) directors carry out their scanning, innovating and diverging functions effectively, network firms will exhibit a higher degree of adaptiveness to complex environments.*

Finally, in the *association network*, durable ties exist without any significant degree of firm inter-dependence, but a clear collective interest reflected in profit expectations concerning factors that affect all member firms' fortunes in a more or less equal fashion. A key role of directors is to proactively guard their industry from inappropriate outside regulation through instituting self-regulation, to act as representatives of the industry in public debate, to defend the industry's best interests in standard setting fora and international conventions concerning technology, products, customer care and regulation and to engage in industry level promotion of education and training. This has become more important recently with environmental concerns high on the agenda of state and inter-state bodies, and with the rise of consumer interest in environmentally friendly and resource-efficient products (Hoffman, 1997). One example of network-forming from a profession's perspective is the development of various director organisations, such as the Institutes of Directors now to be found in most countries. While there may be several reasons for their development, one reason is the institution of self-regulation to maintain the standards of the directoral profession and to pre-empt potential state regulation, especially given high-profile examples of fraud (Barings) and disaster (Zeebrugge Ferry) cases that clearly pointed to directors' culpability. The role of interlocks under such circumstances is probably weak but may help to develop unity across the network on important issues of industry relevance.

Proposition 5. *In the context of an association network, if (interlocking) directors carry out their guarding functions more effectively, the network will have a higher impact on network-relevant regulation, public opinion, and legislation.*

The key aspects of (interlocking) directors' roles in different types of networks are summarised in figure 3.

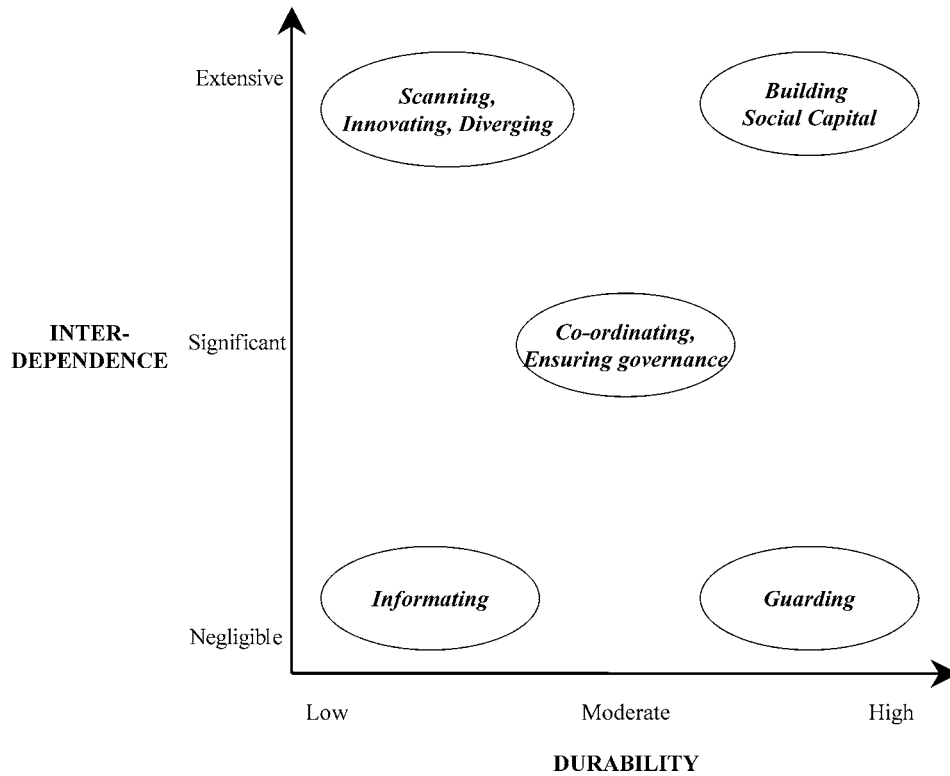


Figure 3. Key aspects of directors' roles in different network types.

5. Conclusion

The contributions of this paper are fourfold: Firstly, drawing from relevant literature, we developed a typology of inter-organisational networks based on the key dimensions of organisational interdependence and network durability, identifying five 'ideal types' of networks: atomistic, association, brokered, edge of chaos, and embedded networks. We argued that the characteristics and strategic consequences of each type of network differ considerably, and therefore a more explicit and nuanced categorisation of such networks is required. This development helps to place the network discourse in context by explicitly suggesting that network features and processes vary in different types of networks and affording a more elaborate and structured way to research and understand these different types. For example, further research could explore the comparative importance of the two underlying dimensions or whether there is a third underlying dimension that proves more useful for understanding such processes.

Secondly, we expanded consideration of the network type most relevant to East Asia, the 'embedded' network, and developed a 'micro-typology' of embedded networks based on the dimensions of formalisation of ties and networking scope. We then located on

this typology the three dominant network types in East Asia: the Japanese Keiretsu, the Korean Chaebol, and Chinese Business Networks. This typology can similarly help to inform further research and understanding of the embedded type of inter-organisational networks, with a focus on factors or issues that are relevant to the Asian region. For example, is there a relationship between minimal corruption or more transparent operation of the rule of law, and the efficient and effective operation of these types of networks? Which type of network is more able to withstand environmental volatility such as the recent Asian crisis, and improve the adaptiveness of its members to such events? Which network type(s) can best address important strategic imperatives such as globalisation, for the firms concerned?

Thirdly, we elaborated on the suggestion that in the context of achieving more effective governance, key aspects of (interlocking) directors' roles (should) differ based on the type of network in which they are engaged. In this connection, we clarified the strategic functions of interlocks in different types of networks and suggested that the strategic role of directors, and especially interlocking directors, would be more effectively fulfilled if directors consciously create and exploit interlocks to ensure that networks deliver the highest possible strategic benefits to the firms and their partners. We then developed specific propositions for further investigation that link different types of network, functions of interlocking directors, and positive consequences if these functions are fulfilled.

Fourthly, this analysis of how (interlocking) director roles vary in different types of networks contributes to the literature on interlocking directorates that, to the best of our knowledge, has not addressed this issue. In relation to the wider corporate governance literature, it raises questions about the adequacy of the scope of traditional perspectives on corporate governance in a world of networks. Traditional perspectives have tended to follow a universalist approach, proposing 'best practices' that are intended to apply in all contexts (for example the separation of the Chair/CEO roles or having a balance of inside/outside board composition). Assessments of whether such 'best practices' can lead to improved performance, however, have been disappointing, raising the possibility that what is required are best practices *in particular contexts* (Heracleous, 2001). The current paper is a step in this direction.

One limitation of our study is that in the absence of empirical evidence, the pragmatic validity of our theoretical reasoning has yet to be confirmed. However, we have endeavoured to clarify our propositions and to make them amenable to empirical testing so that this issue can be addressed in future.

Important directions for future research include: more detailed empirical exploration of the characteristics of the network typologies proposed; testing of the validity of the dimensions used; investigation of the empirical variation in roles of directors in general and interlocking directors in particular; and relating these factors to firm and network level performance.

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Notes

1. Even though the extensive strategic alliance literature (Das and Teng, 1998; Hitt et al., 2000; Inkpen, 1998) would be relevant here, we have had to delineate our focus to literature on inter-organisational networks from a strategic management perspective for reasons of space.
2. This discussion does not imply that only embedded networks can be found in Asia, or that the only types of embedded networks in Asia are the three types discussed. However, these are the dominant types and for space reasons we do not discuss such entities as former colonial trading houses (hongs), or state-owned enterprises.
3. This conceptual direction is aligned with directors' role of creating useful linkages with external resources, consistent with the resource dependence perspective (Pfeffer and Salancik, 1978). Directors still have to perform their basic and essential governance functions, however, which include their monitoring role (as advocated by agency theory); and their expertise and counsel roles (consistent with stewardship theory) (Dalton et al., 1999). In addition, in advancing this discussion we do not assume that only interlocking directors can fulfil boundary-spanning roles; but merely suggest that more effective corporate governance can be achieved if directors are sensitive as to how their strategic contributions can be improved based on the particular networks their organisation is part of.

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