

A BALANCED THEORY OF SOURCING, COLLABORATION AND NETWORKS

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A Balanced Theory of Sourcing, Collaboration and Networks

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Abstract

In a synthesis of recent advances, this article gives a fresh, balanced theory of inter-organizational relations. It integrates competence and governance perspectives. It considers the choice between mergers/acquisitions and alliances. It offers a toolbox of instruments to govern relational risk, and the contingencies for their selection. Relationships can last too long. Therefore, the article also looks at how to end relationships. Beyond dyads of collaborating firms, it includes effects of network structure and position.

Introduction

The sourcing decision -what to make or buy- is a special case of the more general decision what to do inside one's own organisation, and what to do outside, in collaboration with other organisations. Sourcing entails vertical collaboration, in the supply chain. Other forms of collaboration may be horizontal, with competitors, or lateral, with firms in other industries. Next to the question *what* to do inside or outside, and *why*, there are the questions *with whom* to collaborate, and *how*: in what *forms of organisation* and with what *instruments for governance*.

The time is ripe for a unified theory, which analyses all these questions, balancing different perspectives and arguments that have emerged in recent advances from different disciplines. In particular, there is a need to combine perspectives of competence and governance (Williamson 1999). From the competence perspective, there has been a focus on the development of competencies and learning, with a neglect of relational risk and its governance. TCE has focused on 'hold-up risk' and the hazards of opportunism, to the neglect of learning and the potential of trust.

This article avoids claims of universal best practice. In the literature, important new insights have been generated, but they tend to focus on few aspects, resulting in one-sided conclusions. Opinion seems to have settled on a rather extreme view in favour of outsourcing everything that is not part of 'core competencies'. This is problematic (Bettis, Bradley & Hamel 1992).

This article looks not only at the positive but also at the negative side of relationships, and at how relationships may be ended. An attempt is made to find a balance between unconstrained flexibility, inspired by US experience, and more stable relations in European traditions.

Outside sociology there still is a tendency to look at relations in terms of dyads. This article also looks at network effects of multiple partners and indirect linkages, studied in sociology (see e.g. Powell 1990, Burt 1992, Uzzi 1996).

The article proceeds as follows. First comes an integrated summary of theoretical perspectives. Then there is a summary of goals of collaboration, forms of organisation and the choice between them, instruments for governance of relational risk, contingencies for their choice, network effects, and relationship development.

PERSPECTIVES

Learning

There is widespread dissatisfaction with the transaction cost explanation of organisation. First, by its own admission (Williamson 1985: 144-145, 1999), it has little to say about learning and innovation. Second, contrary to what Williamson (1993) claimed, trust and loyalty matter. Other theoretical sources are needed to incorporate learning and trust. I claim that for this different elements of theory can be integrated into a coherent whole.

The first extension draws from the competence view. While transaction cost economics focuses on static efficiency – by trading off production costs, transaction costs and costs of organisation, given a certain state of knowledge, technology and preferences– we require a perspective of dynamic efficiency or innovation, incorporating shifts of knowledge, technology and preferences. It is now a priority for firms to develop 'dynamic capabilities'. For this, they need to maintain flexibility of configurations of competencies, for the sake of innovation in the form of Schumpeterian 'novel combinations'. This yields the claim that firms should concentrate on the activities at which they are best and outsource the other activities as much as strategically possible. For example, in order to reduce development

times of new products and to reduce risks of maladjustment to customer needs, the supplier should be brought in as a partner in developing and launching a new product. However, note the qualification of strategic possibilities. One may need to integrate activities in order to control risks of dependence and spillover, or to preserve options for future core competencies.

In addition to the usual considerations of efficiency, flexibility, and speed, learning is an important goal of collaboration. This is supported by a theory of knowledge that suggests that people's perceptions and interpretations are dependent on mental frameworks (Johnson-Laird 1983), which develop from the experience they have. Those frameworks constitute 'absorptive capacity' (Cohen & Levinthal, 1990). In organisations, a focus is needed of shared perceptions, interpretations, and values, in order to achieve common goals. This yields the idea of an organisation as a 'sensemaking system' (Weick, 1979, 1995), 'system of shared meaning' (Smircich, 1983), 'focusing device' (Nooteboom, 1992, 1999), or 'interpretation system' (Choo, 1998). This is more fundamental for organisations than the need to reduce transaction costs. However, such organisational focus creates a risk of myopia, which needs to be redressed by employing complementary cognition from outside partners, at a 'cognitive distance' that is sufficiently large to yield novel insight and sufficiently small to ensure that it is still comprehensible (Nooteboom, 1992, 2000).

This yields a prediction that is opposite to a prediction from TCE. According to the latter, firms integrate more when uncertainty increases, since inside the control of 'hold-up' risk is more feasible than in outside contracting. I argue that when uncertainty increases, in the sense that technologies and markets become more complex and change becomes faster, firms have a greater need for outside complementary competence, for the sake of flexibility and learning. As a result, under higher uncertainty firms should use outside suppliers more rather than less.

Transactions and relations

Competencies are not off-the-shelf products but are embedded in the heads and hands of people, in teams, organisational structure and procedures, and organisational culture. They have a strong tacit dimension, especially in innovation. Their development is path-dependent: they build upon preceding firm-specific assets and organisational learning (cf. Lippman & Rumelt 1982). Ongoing or intermittent interaction is needed to enable the exchange of tacit knowledge. Some scholars conclude that this requires full organisational integration, but I deny that. However, the exchange and joint production of knowledge between firms with different perspectives and competencies does require mutual absorptive capacity and a shared language for communication, to cross 'cognitive distance'. This takes time to develop, and can require a dedicated investment, so that relations have to last a sufficiently long time to make the investment worthwhile. Here, in this new perspective on specific investments, needed to achieve mutual understanding, there is a connection between the competence perspective and transaction cost thinking.

Mutual understanding and trust emerge in a process of interaction. As a result, we need to consider not transactions by themselves, but transactions in the setting of an exchange relationship that develops in time (Granovetter, 1985; Helper, 1987; Ring & Van de Ven, 1992; Sako, 1992; Gulati, 1995; Nooteboom, 1996).

According to TCE, it is impossible to reliably judge possible limits to other people's opportunism, and therefore trust does not yield a reliable safeguard (Williamson, 1975: 31-37). If trust goes beyond calculative self-interest, it yields blind, unconditional trust, which is not wise and will not survive in markets (Williamson, 1993). From a social science perspective, many others take the view that trust is viable, without necessarily becoming blind or unconditional (Macaulay, 1963; Deutsch, 1973; Granovetter, 1973; Ouchi, 1980; Gambetta, 1988; Bradach & Eccles, 1989; Helper, 1990; Hill, 1990; Bromiley & Cummings,

1992; Murakami & Rohlen, 1992; Dyer & Ouchi, 1993; Ring and Van de Ven, 1994; Gulati, 1995; McAllister, 1995; Chiles & MacMackin, 1996; Noorderhaven, 1996; Nooteboom, 1996; Nooteboom, Berger & Noorderhaven, 1997). Man is not only self-interested and opportunistic, and in business also common honesty and decency are found. Partners may develop mutual empathy. They may voluntarily refrain from opportunism. Trust, then, enables a leap beyond the expectations that reason and experience alone would warrant (Bradach & Eccles, 1989), and thus beyond formal control mechanisms. A committed partner does not immediately exit from the relationship in case of unforeseen problems, but engages in 'voice' (Hirschman, 1979; Helper, 1987). Voice and commitment need not and should not entail that relations last endlessly. Indeed, relations can become too durable, and too exclusive, with too much mutual identification and trust, yielding rigidities and lack of the variety that is needed for learning. Social capital can deteriorate into social liability (Leenders & Gabbay, 1999; Gargiulo & Benassi, 1999).

In spite of fundamental criticism of TCE, it still yields useful insights for governance. It has been used empirically with sometimes considerable and sometimes limited success. Its core insight is that dedicated investments yield switching costs, which create dependence, resulting in a risk of 'hold-up'. Given hazards of opportunism, this risk must be 'governed'. That insight has been widely corroborated in empirical studies (Anderson & Gatignon, 1986; Hennart, 1988; Parkhe, 1993; Berger, Noorderhaven & Nooteboom, 1995; Chiles & MacMackin, 1996; Nooteboom, Noorderhaven & Berger, 1997). TCE next claims that when the risk is high, it requires organisational integration to control it (Williamson, 1975). Full integration entails MA, but there are intermediate forms of semi-integration by means of detailed 'bilateral governance' (Williamson, 1985). When the frequency of transactions does not warrant the investment in detailed bilateral governance, one can employ a third party for arbitration, in 'trilateral' governance. Here, in the prediction of organisational forms of collaboration, the empirical results of TCE are mixed and inconclusive. I propose that this is due to lack of attention to dynamic capabilities. As suggested above, uncertainty may lead to more, not less outside partnerships, and looser, not tighter control.

Propositions

The analysis yields the following propositions:

- H1: Counter to TCE, learning and trust are essential features of inter-firm relationships.
- H2: Counter to TCE, the relationship rather the transaction should be the unit of analysis.
- H3: Counter to TCE, for the existence of the firm the creation of a cognitive focus is more fundamental than the reduction of transaction costs (which can be achieved also in collaboration between firms).
- H4: Obtaining complementary cognitive scope is an additional argument for outsourcing.
- H5: Counter to TCE, under greater uncertainty complexity and change, firms (should) outsource more, not less, with looser, not tighter control.
- H6: TCE still yields useful features concerning relational risk and instruments for governance.
- H7: Relationships can deteriorate into rigidities, and ending a relationship may be as important as starting one.

GOALS AND RELATIONAL RISK

Goals

There are a variety of goals of collaboration. Table 1 gives a summary. The goals are grouped into considerations of efficiency, competencies and 'positional advantage' (Stoelhorst, 1997). All these goals of collaboration are familiar from the literature, and will not be fully discussed here (e.g. Killing, 1983; Anderson & Gatignon, 1986; Porter & Fuller,

1986; Contractor & Lorange, 1988; Hennart, 1988; Jarillo, 1988; Ohmae, 1989; Lamming, 1993; Faulkner, 1995).

Table 1 about here

I point out only a few items that may need to be highlighted. Economies of time entail the reduction of idle time of people, installations, or goods in stock, and set-up or switching times. Collaboration can help, for example, by reducing stocks in just-in-time delivery. One may want to swap products, e.g. in cross licensing, when the outcomes of R&D are unpredictable and turn out to yield products that do not fit in production or distribution (E4). An example is pharmaceutical products. For competencies, one may need to use complementary competencies of others that one could not oneself develop fast enough (C1). A new point concerns cognitive competence, with the need to prevent organisational myopia by supplementing perspectives from others, for extending ‘cognitive scope’, as indicated in the previous paragraph (C2). There is also an important argument of flexibility: one can more easily re-configure outside relations than build up and scrap activities within the firm (C3). Note that there are institutional differences here between different economies. In the US it is easier to hire and fire and to buy and sell parts of firms than it is in Europe. As a result, the need for outside collaboration is greater in (continental) Europe than in the US, resulting more in ‘networked economies’. Collaboration even between competitors may be desirable for developing and setting a joint standard in the market (P6), or for offering a joint portfolio of products (P4), especially in industrial markets. Large, global customers want a customised portfolio of goods/services at a range of different locations. We see this, for example, in ICT services. Of course a cartel -making price agreements or dividing the market between competitors (P7)- is forbidden by law, but firms may yet try it when they get the opportunity.

Relational risk

The goals represent the positive side of collaboration, but there is also a downside, in risks that it may entail. One is loss of capabilities and the other is relational risk, which has two forms: ‘hold-up’ and spillover risk. By outsourcing one may surrender the capability to assess the value of the offering of suppliers (Beije, 1998). Another problem is that one may drop a capability that later turns out to be crucial in order to utilise or replace elements of core competence. Teece (1986) proposed that the appropriation of returns on core competencies may require access to complementary assets. Even if those are not part of core competence, they may have to be integrated in the firm. One may therefore have to see such complementary assets as attached to core competence.

In fact, some people argue that because of these problems outsourcing does not increase flexibility, as I argued above, but decreases it (Bettis, Bradley & Hamel 1992, Mol 2001). However, there are ways to mitigate these problems. One is to make use of a benchmarking service, so that one can compare a supplier’s offering with best practice. A second is to maintain sufficient R&D in the outsourced activity to maintain ‘absorptive capacity’, i.e. the ability to judge developments in the field. This may also help to retain the option of re-entry later, to retain options for future core competencies, perhaps as a second mover, but still fast enough to be a serious player. This is reflected in empirical evidence that firms retain an R&D capability in activities that were outsourced (Granstrand, Pavel & Pavitt, 1997). However, such R&D can perhaps be done in collaboration with others, in an R&D consortium. One may also try to retain the required openings in distribution channels, perhaps by means of alliances. In other words, outside collaboration may also be used to retain options for the utilisation or modification of core competencies. Here, the flexibility of outside

collaboration returns: one may use it to maintain more flexibility also in options for future core competence.

As defined in TCE, the problem of hold-up results from dependence, in the form of switching costs: one incurs a loss if the relationship breaks. Part of that is the loss of relation-specific investments, and the need for new ones in another relationship. As also argued by TCE, one may lose a hostage. There are also opportunity costs: the loss of the value that the current partner offers relative to the next best alternative. This depends on the availability of alternative partners, or the possibility of doing an activity oneself, and the extent that the partner offers something unique. In other words, it depends on the extent that a partner has a monopoly in his offering. The partner may achieve this by engaging in specific investments, to establish a unique offer. The 'hold-up' risk is that the partner may opportunistically use asymmetric dependence to demand a higher share of jointly produced added value, under the threat of exiting from the relationship.

One refinement is needed. Specificity of products does not necessarily entail specificity of the assets needed to produce them (Nooteboom, 1993). If production technology is flexible, one can produce specific, differentiated products with generic assets. This is important, because one of the effects of ICT is that a number of processes in design, production and marketing have become more flexible, thereby reducing the problem of specific investments. For example, in production one can change the program in a computer-numerically-controlled (CNC) machine relatively easily, to craft different shapes and functions. Virtual specification and testing of prototypes yields much more flexibility and speed of development than real, physical prototyping and testing.

Spillover yields another kind of appropriation problem. It entails that knowledge which constitutes competitive advantage reaches competitors and is used by them for imitation. The risk may be direct, in the partner becoming a competitor, or indirect, with knowledge spilling over to a competitor via a partner. In the past many firms have been overly concerned with spillover risk. First of all, one should realise that to get knowledge one must offer knowledge. The question is not how much knowledge one loses, but what the net balance is of giving and receiving knowledge. Second, when knowledge is tacit it spills over less easily than when it is documented. However, even then it can spill over, for example when the staff or the division in which the knowledge is embedded are poached, or when the staff involved have more allegiance to their profession than to the interests of the firm (Grey & Garsten, 2001), and professional vanity leads them to divulge too much in meetings with outside colleagues. Furthermore, the question is not whether information reaches a competitor but whether he will also be able to turn it into effective competition. For this he needs to understand it, and his absorptive capacity may not enable that. There may be 'causal ambiguity' (Lippman & Rumelt, 1982). Next, he will need to effectively implement it in his organisation. And finally, if by that time the knowledge has shifted, one does not care.

Propositions

- H8: To some extent, more flexible technology has reduced the importance of specific investments, reducing hold-up risk. However, specific investments in developing mutual understanding and in the development of trust have become more pronounced.
- H9: Spillover risk is often low, due to constraints in absorptive capacity of competitors, and rapid change of knowledge.
- H10: Outsourcing may yield loss of absorptive capacity and options for future core competencies. However, there are ways to maintain them also in outside relations.

ORGANISATIONAL FORMS

Mergers/acquisitions or alliances?

In collaboration, full integration entails a merger or acquisition (MA). Short of that, there is wide range of possible forms of collaboration 'between market and hierarchy'. One intermediate form is a joint venture (JV), with a sharing of ownership and management among the parents. Other forms are: franchising, consortia, associations, Japanese 'keiretsu', 'industrial districts', among others. These forms differ in centralisation of ownership and management, the number of participants, and the durability and content of collaboration. Consortia are often used for research, to spread costs and risks between multiple partners. Associations are typically used for joint advertising, lobbying, training, and certification. Franchising is typically used for distribution.

A central question is when and why firms should engage in full integration, in an MA, and when they should remain more or less separate, in an alliance, with an equity joint venture as an intermediate form. Table 2 summarises the argument for the alternatives of an MA and an alliance.

Table 2 about here

Overall, the argument for integration, in an MA, is that it yields more control, in particular of hold-up and spillover risk. For hold-up, the argument comes from TCE. Within a firm, under the grasp of administrative fiat, one can demand more information for control and can impose more decisions than one could in respect of an independent partner. A similar argument applies to spillover risk: one can monitor and control better what happens to information.

Overall, the argument for an alliance is that it allows partners to maintain more focus of core competence, more flexibility of configuration, and more variety of competence for the sake of innovation and learning, as discussed before. Also, as recognised in TCE, an independent firm that is responsible for its own survival will be more motivated to perform than an internal department that is assured of its custom. Another great advantage of an alliance is that it entails fewer problems of clashes between different cultures, structures and procedures, in management, decision making, remuneration, labour conditions, information and communication, which often turn out to be the biggest obstacles for a successful MA. Of course such clashes can also occur in alliances, but less integration still entails fewer problems of integration.

The take-over of a young, dynamic, innovative firm may serve to rejuvenate an old firm (Vermeulen & Barkema, 2001). In a growing new firm, the entrepreneur often has to turn himself around to the role of an administrator, or hire one, to delegate work and institute formal structures and procedures for the coordination of more specialised activities in larger scale production. He may not be able or willing to do that, and it may be to the benefit of the firm when it is taken over by a firm with a better managerial capability. However, it may be more likely that the entrepreneurial dynamic of the small firm gets stifled in the bureaucracy of the acquirer, in which case it should stay separate.

There is an argument of scale for both forms. In production, many economies of scale have been reduced, e.g. in computing. However, there is still economy of scale in, for instance, distribution channels, communication networks, network externalities, and brand name. For integration, the argument of scale is that one pools volume in activities in which one specialises. For outsourcing, the argument is that for activities that one does not specialise in, an outside, specialised producer can collect more volume, producing for multiple users.

That may also offer more opportunities for professional development and career to staff that are specialised in that activity. Note the argument from TCE that if assets are so dedicated that a supplier can produce only for the one user, the scale argument for outsourcing disappears.

There is an argument of economies of scale or scope for integration only if they are inseparable (Williamson, 1975). It depends how 'systemic' rather than 'stand-alone' activities are (Langlois & Robertson, 1995). There are different forms of economy of scale. One of them, going back to Adam Smith, is greater efficiency by specialisation. Often, specialised activities can be outsourced. One form of economy of scope is that different activities share the same underlying fixed cost, for example of R&D, management and administration, communication network, or brand name. When one of the activities is dropped, the utilisation of fixed costs may drop. However, this is not necessarily so. It may be possible to share such overhead with others, as happens, for example, in 'incubators' for small firms, or collaboration in an R&D consortium.

From the perspective of brand image there are arguments for both integration and separation. In an alliance there may be too great a risk that the image or quality of a brand allotted to partners will not be maintained sufficiently scrupulously. On the other hand, it may be better to maintain an independent, outside brand, to preserve its local identity.

Finally, there are reasons of default. One is that one would like to take one form but it is not available, because a partner is only available for the other form, or because it is forbidden by competition authorities. In the airline business, for example, MA are problematic for reasons of national interest, and the fact that landing rights are nationally allocated. Another default is that one would like to take over only part of a larger firm, but it is not separately available for takeover, without the rest, in which one is not interested and which would dilute core competence. Another is that one cannot judge the value of a take-over candidate and needs some period of collaboration in an alliance to find out. Previously, value could more easily be judged by adding up values of material assets than now, when intangibles such as brand name, reputation, skills and knowledge are often more important.

Thus, the choice between MA and alliance is quite complex. If one wants a simpler, general rule of thumb, it is as follows: consider full integration, in an MA, only if the partner engages in the same core activities in the same markets. In all other cases, i.e. when activities or markets are different, the rule of thumb suggests an alliance. According to this rule, what one would expect, on the whole, is vertical disintegration and horizontal integration.

The theoretical argument is as follows. In horizontal collaboration, with the same activities in the same markets, partners are direct competitors, and it is most difficult to control conflict without integration. The game is more likely to be zero-sum. The temptation to exploit dependence is greatest. There is a threat of direct rather than indirect spillover. In horizontal collaboration core competence is more similar, so that integration does not dilute it too much. Also, here the advantages of alliances are less: the diversity in knowledge is already minimal, with small cognitive distance, and thus there is less need to preserve it by staying apart. Finally, with the same products, technology and markets, differences in culture, structure, and procedures are likely to be minimal. Of course, they can still be substantial. An example where integration went wrong in spite of similarity of product, technology and markets was the failed merger between Dutch and German steel, many years ago.

The argument for this rule is not only theoretical. Bleeke & Ernst (1991) showed empirically that when this rule is applied, the success rate of both MA and alliances rises substantially. If for a given method of measurement the success rate is less than 50 % without the rule, success rises to 75 % with the rule, for both MA and alliances. However, I emphasize that the rule given above is only a rule of thumb, to which there are exceptions. For more detailed analysis one can use Table 2 and the logic set out previously.

Next to good reasons for MA, alliances and outsourcing, there are also reasons that are bad, in the sense that they are not in the interests of the firms involved. One such reason is the bandwagon effect: one engages in a practice because it is the fashion to do so. Another reason is a prisoner's dilemma that applies especially to MA: if one does not take over one may be taken over, which may yield a loss of managerial position, so one tries to be the first to take over, even though it would be best for all to stay apart. Another reason is managerial 'hubris': managers want to make a mark and appear decisive or macho. This also applies especially to MA's: those are quicker, more visible and dramatic than collaboration between independent firms. There is also the often illusory presumption that a take-over is easier than an alliance. Subsequently, however, the MA often fails due to problems of integration and has to be disentangled again. Even speed is a dubious argument. It may on the surface seem that an MA is in place faster than an alliance, for which one must negotiate longer and set up an elaborate system of 'bilateral governance'. However, the speed of an MA is misleading: the decision may be made quickly, but the subsequent process of integration is often much slower and more problematic than assumed.

An equity joint venture is an intermediate case. It yields advantages of control without full integration of all activities of the parents. Thereby, it allows for more focus on core competencies and limits integration problems. It can separate off and protect a new, entrepreneurial activity from established bureaucracy. By separating activities off from the parents one can also better control spillover problems for existing partners. If an existing partner of one of the parents is suspicious that his knowledge may spill over to parts of the other parent that compete with him, in a joint venture that can be shielded off. The new venture may also offer new opportunities for financing.

A well-known question concerning the governance of JV's is whether ownership and control should be symmetric or concentrated in a clear majority shareholder (Killing, 1983; Anderson & Gatignon, 1986; Geringer & Hebert, 1989; Bleeke & Ernst, 1991). The argument for the latter is that it yields more decisiveness. The argument for the former is that a minority participant may suffer from a 'Calimero syndrome': being relatively small and dependent, he may not be motivated to do his best and may be overly suspicious of becoming the victim of opportunism, which blocks the building of trust. A solution may be to separate ownership and management, with a clear initiative in management for one side, whose actions are monitored by a balanced supervisory board.

Networks

Inter-firm relations go beyond dyads. There may be multiple participants and indirect linkages in networks. Those have implications for the value, risk and governance of relations. One may value a partner not for himself but for the access that he provides to others (see the 'positional advantage' of relations included in Table 1). In an alliance, one may need to assess the risk that the partner may be taken over by a competitor, possibly in an indirect way, in which he takes over a majority shareholder of the partner (Lorange & Roos, 1992). Spillover risk can be indirect, through partners to competitors. If one already has many partners, adding a new one might raise spillover risk for existing partners.

Simmel (1950) argued that a fundamental shift occurs in going from dyadic to triadic relations (Krackhardt, 1999). In dyadic relations coalitions can occur, and no majority can outvote an individual. In a triad any member by himself has less bargaining power than in a dyad. The threat of exit carries less weight, since the two remaining partners would still have each other. In a triad, conflict is more readily solved. When any two players enter conflict, the third can act as a moderator or 'go-between'. One stream of literature on networks suggests that players who span 'structural holes' can gain advantage (Burt, 1992). If individuals or communities A and B are connected only by C, then C can take advantage of his bridging

position by accessing resources that others cannot access, and by playing off A and B against each other. As a result, the third party is maximally powerful and minimally constrained in his actions. Krackhardt pointed out that this principle goes back to Simmel (1950). However, Krackhardt shows that Simmel also indicated that under some conditions the third party is maximally instead of minimally constrained. This occurs when he bridges two different cliques, with dense and strong internal ties, who entertain different values and norms, while both can observe his actions. The third party then has to satisfy the rules or norms of both cliques (the intersection of norm sets), and thereby he is constrained in his actions. The key factor that determines whether the bridging party is minimally or maximally constrained is the degree to which his actions are public, or at least known to both A and B. If not, then the situation described by Burt obtains, and he is minimally constrained. If his actions are public, he is maximally constrained. Membership of multiple cliques then yields a position of potential power, but also constrains the use of it. This often applies to managers or boundary spanners who bridge different departments or organizations. It can apply to the manager of a joint venture who still has allegiance to the parent who is his employer.

One characteristic of network structure is density: the extent to which participants are linked to each other. With n participants, the maximum number of direct connections, where everyone is connected with everyone else, is $n(n-1)/2$. Thus, complexity rises with the square of the number of participants. With high density there is much redundancy of contacts, which can reduce efficiency and raise confusion. This is why we invented hierarchies. An alternative to avoid redundancy is a hub-and-spoke system, with the central hub collecting and distributing flows from all to all. High density increases risk of spillover, increases opportunities for coalitions, and enhances reputation mechanisms. It also reduces flexibility of configuration: there are more connections one has to get out of, and coalitions may prevent exit. A characteristic of network position is centrality: the extent to which there are participants with a large number of direct connections compared to others. One's centrality in a network increases the dependence of partners, since one offers them more opportunities for indirect access to competence, knowledge, or markets. It can also raise spillover risks for partners. It limits flexibility of reconfiguring network relations. It subjects one to more conflicting norm sets, which may constrain actions (see the Simmelian argument discussed before). It subjects one to a more stringent reputation mechanism. Finally, dense network structure and centrality can yield reverberations, repercussions, and negative and positive feedbacks in the network, which can yield unforeseeable, chaotic results.

Propositions

- H11: There are many contingencies to be taken into account in the choice between MA and alliance. There are good reasons for both. A simpler rule of thumb, with its exceptions, is to engage in MA only when partners have the same products in the same market. In all other cases the base case is an alliance.
- H12: One should look beyond dyads to network structure and position, to take into account redundancy, indirect spillover and take-over risks, reputation effects, and limits to flexibility.
- H13: Third parties bridging structural holes can be both minimally and maximally constrained, depending on whether their conduct is public or not.

GOVERNANCE

Instruments

Instruments for governance, i.e. for controlling relational risk, derive from several theoretical perspectives. TCE yields the instruments of mutual dependence, sharing ownership and risk of specific assets, and hostages. Social exchange theory yields insight in the basis,

limits and process of trust. Social network theory yields insights in the role of network structure and position and third parties. The instruments are summarized in Table 3.

Table 3 about here

The first two instruments in the table fall outside the scope of alliances. The first entails a cop-out: in view of relational risk hold-up is avoided by not engaging in dedicated investments, and spillover is avoided by not giving away any sensitive knowledge. The opportunity cost of this is that one may miss opportunities to achieve high added value in the production of specialties by investing in collaboration and learning with partners. The second instrument is integration in an MA, with the advantages and drawbacks discussed above. Below the line, we find the instruments for alliances, where one accepts the problems of dependence due to dedicated investment and possibilities of spillover, and seeks to control them by other means than full integration.

One is to maintain multiple partners, in order not to become dependent on any one of them, and to demand exclusiveness from any partner, to prevent spillover. Exclusiveness entails that in the specific activity involved one forbids the partner to engage in relations with one's competitors. The first problem with this is that the demand of exclusiveness forbids the partner what one allows oneself: partnerships with the partner's competitors. By having those relations one increases the spillover risk for partners. As a result, none of them may be willing to give sensitive information, which degrades their value as sources of complementary competence and learning. Also, maintaining relations with alternative partners entails a multiplication of costs in dedicated investments and the governance needed to control the risks involved. Furthermore, the demand for exclusiveness blocks the variety of the partner's sources of learning, which reduces his value as a partner in learning, at a cognitive distance that is maintained by his outside contacts. Hence one should consider whether spillover is really a significant risk, as discussed before. If it is not, all parties can gain from maintaining multiple partners, not so much for maintaining bargaining position as for maintaining variety of sources of learning and flexibility of configurations.

A second instrument is a contract, in an attempt to close off 'opportunities for opportunism' (Nooteboom, 1996). The problem with this instrument is fourfold. It can be expensive to set up. It can be ineffective for lack of possibilities to monitor compliance, due to asymmetric information. It can be impossible because of uncertainty concerning future contingencies that affect contract execution. Finally, detailed contracts for the purpose of closing off opportunities for opportunism express distrust, which can raise reciprocal suspicion and distrust, with the risk of ending up in a vicious circle of regulation and distrust that limits the scope for exploration of novelty and obstructs the build-up of trust as an alternative approach to governance.

Another approach is to aim at the self-interest of the partner and limit incentives to utilise any opportunities for opportunism left by incomplete contracts. These instruments have been mostly developed in TCE. Self-interest may arise from mutual dependence, in several ways. One is that the partner participates more or less equally in the ownership and hence the risk of dedicated assets. A second is that one uses one's own dedicated investments to build and offer a unique, valuable competence to the partner. Thus, the effect of dedicated investments can go in different directions: it makes one dependent due to switching costs, but it can also make the partner dependent by offering him high and unique value. This instrument can yield an upward spiral of value, where partners engage in a competition to be of unique value for each other. Dependence also arises from a hostage, as also suggested by TCE. One form of hostage is a minority participation, where one can sell one's shares to someone who is eager to take over the partner. A more prevalent form is sensitive

information. Here, the notion of hostage connects with the notion of spillover. One may threaten to pass on sensitive knowledge to a partner's competitor. Reputation also is a matter of self-interest: one behaves well in order not to sacrifice potentially profitable relations with others in the future (Weigelt & Camerer 1988).

The limitation of instruments aimed at self-interest is that they are not based on intrinsic motivation, and require monitoring, which may be difficult. Furthermore, balance of mutual dependence is sensitive to technological change and to the entry of new players that might offer more attractive partnerships. Hostages may die or may not be returned in spite of compliance to the agreement. Reputation mechanisms may not be in place, or may work imperfectly (Hill, 1990; Lazaric & Lorenz, 1998). They require that a defector cannot escape and dodge a breakdown of reputation, perhaps because he is selling the business or switching to another industry or another country. It requires that complaints of bad behavior be checked for their truth and communicated to potential future partners of the culprit.

Trust

Trust is a slippery and complex notion, which cannot be dealt with completely in this paper (for a full treatment, see Nooteboom, 2002). A common definition of trust is that it entails an acceptance of relational risk, in the expectation that no harm will be done. Most people would agree that one couldn't speak of 'real' trust when the expectation is based on coercion by hierarchy, contract or incentives of self-interest. Real trust is then defined as the expectation that no harm will be done, even though the partner has both the opportunity and the incentive to defect (Bradach & Eccles, 1984; Chiles & McMackin, 1996; Nooteboom, 1996). That can be based on 'universalistic' ethics, values and norms of reciprocity or obligation that prevail in a culture, on characteristics such as membership of a family or association, in 'characteristics based trust' (Zucker, 1986), or on 'particularistic' bonding in a specific relationship, on the basis of empathy or mutual identification, friendship or habitualisation (McAllister 1995, Gulati, 1995, Lewicki & Bunker 1996, Nooteboom, Noorderhaven & Berger 1997).

Another important point is that trustworthiness will almost always have its limits. Williamson (1993) was surely correct to say that blind, unconditional trust is generally unwise. Even the sincerest wish to be loyal may break down under temptation or pressures. Even of one's best friend one cannot really expect that he will remain loyal even under the direst pressures of survival, such as torture, and it would be unethical to demand that. Thus, trust is subject to tolerance levels: one trusts within limits of observed conditions and actions. Within those limits, one does not continually question competencies and loyalties, and one is not continually on the lookout for opportunities for opportunism. When the limits are exceeded, one starts to be aware of potential opportunism, and to consider exit. In voice, such concerns are communicated, in an effort to jointly resolve them. Nevertheless, voice is constrained by the possibility of exit, as Hirschman recognised. However, though this may seem paradoxical, one can exit also with the use of voice. I will return to this later.

If trust is not in place prior to collaboration, it has to be built up in the relation, in 'process based trust'. One cannot buy and install trust, but one can create the conditions for it to develop, in 'trust-sensitive management' (Sydow, 2000: 54). As a relationship develops, partners begin to know each other better, and can better assess the extent and limits of trustworthiness ('knowledge based trust'). Convergence of cognitive frameworks may arise, which can lead to mutual identification ('identification based trust') (McAllister 1995, Lewicki and Bunker 1996). Partners understand and can identify with each other's goals, weaknesses and mistakes, and are able to engage in the give and take of voice. This does not entail that they always agree. There may be sharp disagreements, but those are combined with

a willingness to express and discuss them more or less openly, in 'voice', offering mutual benefit of the doubt. As a result, conflicts may deepen trust rather than breaking it.

Lewicki and Bunker claimed that when trust is not in place at the beginning, one has to start with control, and later switch to trust based on the growth of identification. However, as noted before, control in the form of detailed contracts to close off opportunities for opportunism can yield an escalation of mutual distrust that precludes the building of trust. Alternatively, one could start a relationship with small steps of low-level mutual dependence, and increase commitment as trust in competence and commitment grows (Shapiro, 1987). One limitation of this is that one may not have the time to build trust in this way.

Mutual openness is needed to pool complementary assets and competencies. It is also essential to the building of trust (Zand, 1972). A rich flow of information is needed for the 'let's work things out' approach of the voice strategy (Maguire, Philips & Hardy, 2001). Things may go wrong in a relation because of outside accidents, mistakes, lack of competence or because of opportunism, but in practice they are difficult to identify because an opportunist will claim mishaps or mistakes as the cause of disappointing results. That is why openness also about one's mistakes is crucial, to prevent their being interpreted as opportunism.

In buyer-supplier relationships, for example, one needs to achieve the openness that is needed in co-makership and early supplier involvement, and to build and maintain trust. However, it is difficult to achieve openness when the focus is on bargaining for price, to secure sufficient profit. One may need to hide information on costs and competence to maintain bargaining position. Therefore, partners must grant each other profit, in 'price-minus costing': production cost is set at price minus a profit margin for the supplier. One argument for this is that there is lack of continuity in a partner who may go broke for lack of profit. Another is to 'earn' the partner's openness. What may be lost in price may be more than regained in quality and speed. This is particularly so when contracts cannot be closed, and a partner regains profit in unforeseen and uncontracted work. An example of this is the building industry. Bargaining focuses on minimum price, which yields closure of information, which inhibits opportunities to collaborate for optimal quality, speed, and fit in time, place and technical interfaces. Insiders claim that up to 25% of final cost is due to such mismatches. And then the builder recoups profit in unforeseen work, so that minimum price is not actually achieved.

This open-book contracting and price-minus costing is one of the lessons the West has learned from the Japanese, particularly in the car industry (Helper, 1990; Cusumano & Fujimoto, 1991; Dyer & Ouchi, 1993; Lamming, 1993; Kamath & Liker, 1994; Dyer, 1996; De Jong & Nooteboom, 2001). However, Western buyers did not copy the all too durable and exclusive buyer-supplier relations that were customary in the Japanese vertical structures of 'keiretsu'. As discussed before, some durability is needed to recoup dedicated investments, and exclusiveness may be needed to control spillover, but too durable and exclusive relations yield rigidities. The West adapted the system, with relations that are closer to optimal duration, and without unnecessary exclusiveness, in view of limited risks of spillover. Now the Japanese appear to be learning from that and are beginning to open up or break down their keiretsu (de Jong & Nooteboom, 2001).

If it is normal and desirable that relationships should end, before they create rigidities, the question arises how to do that. That may be at least as important as beginning a relationship, and is probably more difficult. If one wants to end a relation because a more attractive option has emerged, should one announce this intention at an early stage, or should one prepare one's exit in secret, and drop the bomb on the partner at the last moment? In other words should one go for an adversarial or a collaborative 'voice' mode of exit (Nooteboom, 1999)? With the second, one offers the partner a timely way out with least damage: he stops making specific investments that would maintain his switching cost, retrieves hostages, and one helps him to

find a new partner, in order to minimise disruption. A harsh exit approach to end a relationship may yield great trouble of emotional response, acrimony, resistance, and damage to reputation. A voice approach to exit does give the partner time to better obstruct one's departure. Nevertheless, collaborative divorce is viable if the partner can be expected to cut his losses and welcome the help to get out with minimal damage.

Go-betweens

One can use the services of third parties, 'guardians of trust' (Shapiro, 1987), 'Intermediate communities' (Fukuyama, 1995), or 'go-betweens' (Nooteboom, 1999). One role, recognized in TCE, is that of arbitration or mediation in 'trilateral governance'. A second is to assess the value of information before it is traded, to solve the 'revelation problem: if one wants to sell information, the partner will want to assess its value by looking into it, but then he already has the information and might no longer pay for it. This problem can be solved in several ways, and one of them is to let a go-between assess the value of the information for the potential buyer. A third role is to create mutual understanding, helping to cross cognitive distance. A fourth role is to monitor information flow as a guard against spillover. The reason for this role is that if partner A does the monitoring himself, in the firm of partner B, then this look into B's firm may increase the spillover from B to A. A fifth role is to act as a guardian of hostages. Without that, there may be a danger that the hostage keeper does not return the hostage even if the partner sticks to the agreement. The third party has an interest in maintaining symmetric trust and acceptance by both protagonists.

A sixth, and perhaps most crucial role, is to act as an intermediary in the building of trust. Trust relations are often entered with partners who are trusted partners of someone you trust (Sydow, 2000). If X trusts Y and Y trusts Z, then X may rationally give trust in Z a chance. X needs to feel that Y is able to judge well and has no intention to lie about his judgment. This can speed up the building of trust between strangers, which might otherwise take too long. This is particularly important in view of the dynamics of the build-up and breakdown of trust. I noted above that new relationships might have to start small, with low stakes that are raised as trust builds up. This may be needed especially when contracts are not feasible or desirable. As indicated, the disadvantage of such a procedure is its slowness. A go-between may provide help for a more speedy development. Intermediation in the first small and ginger steps of cooperation, to ensure that they are successful, can be very important in the building of a trust relation. The intermediary can perform valuable services in protecting trust when it is still fragile: to eliminate misunderstanding and allay suspicions when errors or mishaps are mistaken as signals of opportunism. A seventh role, related to the sixth, is to help in the timely and least destructive disentanglement of relations. To eliminate misunderstanding, and to prevent acrimonious and mutually damaging battles of divorce, a go-between can offer valuable services, to help in what I called 'a voice type of exit'. An eighth role is to support a reputation mechanism. As indicated earlier, for a reputation mechanism to work, infringement of agreements must be observable, its report must be credible, and it must reach potential future partners of the culprit. The go-between can help in all respects.

Contingencies

One will generally select some combination of mutually compatible and supporting instruments from the toolbox of governance, and the use of a single instrument will be rare. There is no single and universal best recipe. The choice and effectiveness of instruments depend on conditions: the goals of collaboration, characteristics of the participants, technology, markets and the institutional environment. For example, there is no sense in contracts when the appropriate institutions of laws are not in place, the police or judiciary is

corrupt, and when compliance cannot be monitored. When technology is flexible, so that one can produce a range of different specific products with one set-up, the specificity of investments and hence the problem of hold-up is limited. Possibilities of spillover are constrained when knowledge is tacit, and do not matter when technology changes fast. Reputation mechanisms don't work when there are ample exit opportunities for defectors. Trust is difficult in a distrustful environment, where cheating rather than loyalty is the norm.

Innovation has its special conditions. Exchange of knowledge is crucial, with corresponding risks of spillover. Especially in innovation the competencies and intentions of strangers are difficult to judge. Relevant reputation has not yet been built up. Uncertainty is large, limiting the possibility of specifying the contingencies of a contract. Specific investments are needed to set up mutual understanding. There is significant hold-up risk. Detailed contracts would limit the variety and scope for unpredictable actions and initiatives that innovation requires. With these problems in contracts, trust is most needed to limit relational risk. An additional problem with contracts is that they may obstruct the building of trust. This does not mean that there are no contracts, but that they cannot be too detailed with the purpose of controlling hold-up risk. A productive combination of instruments is mutual dependence complemented by trust on the basis of an emerging experience in competent and loyal collaboration. Trust is needed besides mutual dependence, because the latter is sensitive to changing conditions. Trust is more difficult under asymmetric dependence because the more dependent side may be overly suspicious (Klein Woolthuis, 1999). In all this, go-betweens can help, with the roles specified before. Without them the building of trust may be too slow.

In the literature, contracts and trust are primarily seen as substitutes. Less trust requires more contracts, and detailed contracts can obstruct the building of trust. However, this view is too simplistic. Trust and control can also be complements (Das & Teng 1998 2001, Klein Woolthuis 1999). There may be a need for an extensive contract, not so much to foreclose opportunities for opportunism, but to serve as a record of agreements in a situation where coordination is technically complex. A simple contract may provide the basis for building trust. One may need to build up trust before engaging in the costs and risks of setting up a contract. Signing a contract may be a ritual of agreement and a symbol of trust.

Finally, perhaps the most important point is that relationships should be seen as processes rather than entities that are instituted and left to themselves. Conditions may change. A frequent problem is that a relationship starts with a balance of dependence, but in time the attractiveness of one of the partners slips, due to slower learning, appropriation of his knowledge by the other, institutional, technological or commercial change. A classic example is the alliance between an American company that supplies design or technology, and a Japanese company that supplies access to the Japanese market. After a while, the Japanese company has copied the technology and competencies, but is itself still needed for market access. This often leads to a disentangling of the alliance or one side buying out the other. Alliances may from the start have been designed to have limited duration. It may be used to have a joint standard accepted in the market, or as an exploratory stage for an MA, to assess value and the viability of integrating cultures.

One needs to select instruments with a view to needs and opportunities for adapting or replacing them in the future. One example is not to go for detailed contracts to foreclose opportunities for opportunism, in order to maintain an opening for the building of trust. An aggressive stance of exit is often difficult to credibly turn around in a collaborative stance of voice. In the process of setting up collaboration a mistake often is that it starts with harsh negotiation between the leaders. Then it is thrown into the lap of an implementation manager, who is saddled with an atmosphere of distrust and acrimony that jeopardizes the relationship before it has properly started. A solution is to include the implementation manager in the

negotiation process, to charge negotiators also with implementation, or to make use of a skilled go-between. If earlier in the relation one took a voice approach, then an adversarial approach to ending the relation is likely to create more upheaval than if one took an exit stance to the relation from the beginning.

Propositions

- H14: There is no universal best tool for governance. There is a toolbox from which one should judiciously select a mix that fits with a range of contingencies.
- H15: Especially in innovation, formal control or deterrence has its limits, and mutual dependence combined with trust is to be preferred.
- H16: Trust is viable, but is subject to limits.
- H17: Trust and control are both complements and substitutes.
- H18: Go-betweens can help to solve a range of problems in governance.
- H19: Voice is constrained by exit, but there are voice forms of ending a relationship.
- H20: Relationships are dynamic, and instruments of governance should be chosen also with a view to later adjustment.

CONCLUSION

This article offers a coherent, balanced set of theoretical perspectives, goals, forms of collaboration and instruments for its governance. They form a toolbox from which one can select according to circumstances. Competence and governance views are integrated. Transaction Cost Economics suffers from fundamental shortcomings, but still retains elements that are useful for governance. Outsourcing all that does not belong to core competence can be problematic. One needs to consider loss of options on future core competencies and relational risk. However, some of these problems can also be solved in alliances. Trust is viable, but has its limits. Voice is limited by exit, but there are voice forms of ending a relationship. Ending relationships well is as important as setting them up.

The analysis yield tools for practice: for deciding what to do oneself and what to do outside, whether to go for a merger/acquisition or alliance, what instruments to use for governance, and under what conditions. Much of the logic set out in this paper can also be applied to relations within firms, but that is not the focus of this paper.

There is much more research to be done on the process side of trust and collaboration. In further research, I suggest that there is much to be gotten out of the use of social psychology. This could yield more insight in how people perceive and interpret actions of others, and infer or attribute motives and capabilities to partners.

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Table 1: goals of collaboration

Efficiency	
E1	avoid overcapacity
E2	economy of scale, scope or time
E3	spread risk
E4	combine or swap products
Competencies	
C1	complementary competencies
C2	variety of learning
C2	flexibility of configuration
Positioning	
P1	satisfy demands from local government on local content, repatriation of profits, use of expatriates
P2	fast access to new markets of products and inputs
P3	adjustment of products, technology or inputs to local markets and conditions
P4	the offer of a joint product package
P5	attack a competitor in his home market
P6	establish a standard in the market
P7	a cartel

Table 2: reasons for an MA vs. an alliance

	MA (integration)	Alliance (keeping distance)
Efficiency	inseparable economy of scale in core activities inseparable economy of scope	economy of scale in non-core activities motivating force of independence lower costs and risks of integration
Competence	maintain appropriability, options for future competence spillover control rejuvenation provide management for a growing firm	maintain focus on core competence maintain diversity, cognitive distance maintain entrepreneurial drive
Positional advantage	control hold-up risk control quality brand name protect other partners from spillover ensure against take-over keep out competition	maintain flexibility maintain local identity/brand of partner
By default	partner only available in MA difficulty of evaluating a take-over candidate collusion forbidden by competition authorities	partner only available in alliance interest only in part of a partner MA forbidden by competition authorities
<i>Rule of thumb</i>	<i>in case of same core competencies and same markets</i>	<i>in case of complementary competencies and markets</i>

Table 3: instruments of governance, and their drawbacks

Instrument	Drawback
<i>Risk avoidance:</i> no specific investments, no knowledge transfer	lower added value, with lesser product differentiation (in case of dedicated technology), no learning,
<i>Integration:</i> MA	less flexibility, variety, motivation, and problems of integration (see Table 2)
<i>Number of partners:</i> maintain alternatives demand exclusiveness	multiple set-up costs, spillover risk for partners limitation of variety and learning
<i>Contracts:</i>	problematic under uncertainty, can be expensive, straight-jacket in innovation, can generate distrust
<i>Self-interest:</i> mutual dependence hostages, reputation	opportunistic: requires monitoring and is sensitive to change of capabilities, conditions, and entry of new players
<i>Trust:</i>	needs building up if not already present has limits, how reliable? Relation between individual and organisation
<i>Go-betweens:</i>	may not be available, how reliable?
<i>Network position:</i>	needs time to build, side effects

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