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wp 97-5

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Revised draft, March 5, 1997

Forthcoming in
Tom Elfring and Henk W. Volberda, eds. (1997),
New Directions in Strategy,
London: Sage.

I. Introduction

The boundary school, we are told by the editors of this volume (Elfring and Volberda 1997), is a serious candidate for playing the role of a synthesizing school in strategic management. It bears promise of being able to organize crucial strategic issues and to draw on complementary insights.

As indicated by its name, the boundary school may be understood as a compilation of theories that are all concerned with analyzing what economists (and some organization theorists) refer to as "the boundaries of the firm".[1] In economics, the boundaries of the firm are normally defined in terms of *ownership* (Hart 1995): if firm A has ownership rights over asset a and firm B does not, asset a is inside the boundaries of firm A and outside the boundaries of firm B. More generally, the boundaries of firm A are defined by those assets that firm A owns. This has implications for the way that the boundaries issue is normally understood in the management studies, namely as the organization of *transactions*, for assets and transactions are usually bundled.[2]

Therefore, an aspect of the boundaries of the firm is the issue of which activities or transactions should be undertaken in firms (hierarchies), which should take place in various intermediate forms (such as franchising, licensing arrangements, long-term supplier contracts, joint-ventures, etc), and which should be handled in "anonymous" markets. These are the issues that are treated in different ways by the various approaches that may be seen as constituting the boundary school. Evidently, they are of paramount strategic significance. For example, the issues of diversification, outsourcing, partnering,

[1] Strictly speaking, we might as well talk of, for example, "the boundaries of the market".

[2] For example, internalizing a transaction means obtaining ownership rights to the equipment that support the transaction.

strategic alliances, virtual corporations, how foreign markets should be serviced, etc. all directly involve the issue of the boundaries of the firm.

From a mainstream strategy perspective (e.g., the resource-based perspective), the boundaries of the firm would seem to derive their importance from the fact that they determine the firm's sourcing of resources (in house or market sourcing), co-determine the terms at which resources may be acquired, influence the extent to which rents may be appropriated from, for example, valuable knowledge, etc. Thus, in such a scheme, the boundaries issue is seen to be directly relevant to the issue of sustained competitive advantage, arguably the key issue in strategy (content) research. This is because knowing something about a firm's boundaries (and therefore also its contracts), also tells us something about how and how efficiently strategic resources are organized. But there is more to it; for a firm's boundaries, including in a wider reading, its relations to, for example, outside suppliers, may in themselves constitute strategic resources, as in the case of Marks and Spencer.

From both a scientific and a normative perspective, we wish to know which entities and mechanisms are determinative of observed boundary choices. Innovation? Production costs? Knowledge-accumulation? Dependence considerations? Transaction costs? Intuitively, they would all seem relevant to some degree, but which factors are the most important, which may legitimately be kept in the background or abstracted from, and how is the mix between causal factors constituted in different situations? Should we rely on a power perspective or on an efficiency perspective for answering these questions? Etc.

Thus, there are many and difficult questions that have a bearing on the issue under consideration here – questions that are addressed and answered in different ways by different approaches in economics and sociological organization theory. And it should be recognized from the outset that talking about "the boundary school" is what doctrinal historians call a "rational

reconstruction". To put it more bluntly, there may not be such thing as *a* distinct boundary school in existence. However, there are undeniably a number of related theories that share an interest in a well-defined set of issues, and that may be overlapping or complementary. From a practical point of view, it may therefore make sense to talk about a "school" in the sense of a box of tools that may be applied to problem-solving in practice. To discuss this is one of the purposes of the present paper.

Among the theories that may be seen as constituting the boundary school are various manifestations of transaction cost economics, most notably Oliver Williamson's (1985, 1996) brand, the resource-dependency approach originally developed by Jeffrey Pfeffer and Gerald Salanzick (1978), various approaches to industrial networks (e.g., Axelsson and Easton 1992) and also the capabilities approach to firms (Penrose 1959; Richardson, 1972; Langlois and Robertson 1995; Langlois and Foss 1997).

Of course, the boundaries of the firm issue has always been center stage in the more explicitly managerial literature. For example, the make or buy decision is one of the classics of strategy, and has continuously received attention from management writers, such as in its recent guise under the rubric of "outsourcing". Similarly, the issue of the boundaries of the firm has emerged in all sorts of managerial discussions on, for example, diversification. However, it is characteristic of the more managerial literature that it is not explicitly founded in theory, and that this produces ambiguities.[3] I shall therefore stick to the four theories identified above.

[3] For example, it has often been asserted that vertical integration may arise because a downstream firm may wish to have timely delivery or a certain quality level of its inputs. Or, vertical integration is seen a means to break "bottlenecks" in the value chain. While all these motives may be real motives, and quite legitimate ones, we would still like to know why, for example, a long-term contract cannot handle these problems of delivery, quality, etc., and why vertical integration is required.

I shall also argue that some of these theories are related in various ways, ways that will be examined in more detail in the following. For example, there are some parallels between the (sociological) resource-dependency approach and transaction cost economics; many networks arguments can be given a straightforward transaction cost interpretation; capabilities and transaction cost resasoning may be fruitfully combined; etc.

The purpose of the present chapter is to further emphasize the strategic importance of the issue of the boundaries of the firm, to present a map of sorts over "the boundary school", and to to speculate on how the diverse constituent theories of this school connect. More specifically, I shall put forward and defend the following propositions:

- The issue of the boundaries of the firm is a crucial strategic issue; it goes right to the heart of corporate strategy and also involves business and functional strategy (Section II, "*The Strategic Importance of Firm Boundaries*").
- There are a number of theoretical approaches that, from different underlying disciplines, have approached the issue. To some extent these approaches can be harmonized; however, in some dimensions they are in conflict (Section III, "*Alternative Theories of the Boundaries of the Firm*", section IV, "*Implications*").
- Because of this, and other difficulties, such as the lack of clarity as to what exactly constitutes the boundaries of the firm, the strategic implications of the boundary school are not entirely clear. Further research and attempts to clarify and synthesize are needed (Section IV and V, "*Implications*", "*Concluding Comments*")

Assuredly, these are issues that individually may warrant a separate paper; the present paper must therefore necessarily be somewhat sketchy at times.

II. The Strategic Importance of Firm Boundaries

A. Strategizing and Economizing

Oliver Williamson (1994) – the flagbearer of the arguably most important economic approach belonging to the boundary school, namely the transaction cost approach – recently argued that there is a sharp distinction between "economizing" (on transaction and production costs) and "strategizing" (by engaging in various clever ploys against other players in product markets). An important aspect of "economizing" is to choose the boundaries of the firm correctly; lest this is done, the firm may suffer severe transaction and production cost penalties. Moreover, Williamson argued that economizing is superior to strategizing:

> "...economizing is much more fundamental than strategizing. This is because strategizing is relevant principally to firms that possess market power – which are a small fraction of the total ... I advance the argument that ... *economy is the best strategy*. That is the central and unchanging message of the transaction cost economics perspective ... To be sure, economizing and strategizing are not mutally exclusive. Strategic ploys are sometimes used to disguise economic weaknesses" (Williamson 1994: 362; emph. in original).

In contrast, I here advance the argument that Professor Williamson confuses strategy in general with a very specific model of strategy, namely the one derived from industrial economics (e.g., Porter 1980). Admittedly, this model does emphasize tactical ploys, threats, etc. However, the strategy field in general is not at all committed to this specific model; for example, it is questioned by the recent resource-based school in strategy research (Foss

1997a). This misunderstanding leads Williamson to portray a false relation between strategizing and economizing. Not only is economizing often an important aspect of strategizing, but strategizing considerations sometimes overrule economizing, and rightly so.[4] Strategizing decisions are concerned with the creation of rents through strategic and entrepreneurial initiative; economizing, on the other hand, is concerned with increasing rents through reducing inefficiencies.[5] But these are not in conflict; they are complementary aspects of the rent-creation process.

Williamson presumably would not disagree with the main point of this section – that the boundaries of the firm is a variable of paramount strategic importance. At any rate, principles relating to the boundaries of the firm are increasingly being translated into more managerial prose and are explicitly seen as being of strategic significance, as witness, for example, the work of the highly respected transaction cost theorists, Paul Rubin (1990) and Paul Milgrom and John Roberts (1992). Thus, economizing and strategizing are not opposed. On the contrary, economizing considerations will usually accompany strategizing considerations; the two perspectives complement each other. In the following, I discuss a number of issues in which the boundaries of the firm enter as a crucial choice variable and in which an economizing orientation is also appropriate.

B. The Boundaries of the Firm as a Strategic Variable

Chandler on the Corporation

[4] For example, firms may engage in substantial knowledge exchange and learning from other firms, although this may expose them to serious transaction cost problems. However, the long-term benefits easily outweigh short-term transaction costs. Similar points will be elaborated later.

[5] For more on these distinctions, see Foss (1997b) and Langlois and Foss (1997).

Consider as a first illustration of the importance – indeed, the crucial importance – of the boundaries of the firm as a strategic variable the work of Alfred Chandler's (e.g., 1962, 1990). This work is the standard reference on the emergence of the corporate form, and particularly on the emergence of the diversified company and the change in organizational structures that, at least in the US, accompanied increasing diversification. Chandler's basic story can be summarized as follows.

Technological change, particularly the telegraph, the railroad, the steamship and the cable allowed a tremendous increase in the extent of the market – one that opened up a huge potential for scale- based mass-production with an emphasis on "economies of speed" (Chandler, 1962). This created a strong need for coordination. The organizational and technological innovations required for taking advantage of the new opportunities complementary, in the sense that doing more of one of the activities increased the returns from doing more of the other activity (Milgrom and Roberts 1992). Moreover, the relevant innovation were often "systemic" in nature, that is, they required simultaneous changes in adjacent stages of production. Finally, large geographical distances were involved. All of this required intensive coordinative efforts.

The institution that arose to take advantage of the opportunities presented by the technologically induced widening of markets and solve the accompanying coordination problems was the modern corporation. This institution possessed the coordinative capability not possessed by the market organization under the specific regime of economic change then prevailing in the American economy. Or, to be more precise, the corporation mobilized the required coordinative capability that would have been prohibitively costly to organize in the context of market relations. (Thus, strategizing and economizing join hands). In fact, William Lazonick (1991) seem to sharpen Chandler's argument into the proposition that undertaking the massive,

systemic innovations in processes and organization that were undertaken by the early American corporations is something the market is inherently incapable of.[6]

Chandler's (and certainly Lazonick's) argument may sometimes read as a ringing endorsement of the merits of vertical integration. Indeed, according to Chandler (1990), being big and heavily vertically integrated is a necessary condition for successful performance, at least on the global arena; this best makes it possible to stimulate efficient throughput, innovation and development of capabilities. The highly vertically integrated company is currently out of fashion, and at any rate, Chandler's views are flatly contradicted by those who advocate "the virtual corporation", to wit, the relatively short-lived but very flexible partnering that develops in order to reap temporary technological opportunities, as the organizational form of the future, by various advocates of "networking", of "industrial districts" and the like.

The point here is that these disagreements stem from different understandings of the strategic implications of the boundary choice. For example, there is an underlying disagreement whether productive and innovative capabilities be created and nurtured across the boundaries of several networked firms or cannot.

Outsourcing

Another – but related – example has to do with the highly topical debate on *outsourcing* (as summarized in Bettis, Bradley and Hamel, 1992). Outsourcing simply means letting suppliers take over activities that were once undertaken in-house; thus, it is an instance of vertical disintegration. Because it allows the firm to

[6] Richard Langlois and Paul Robertson (1995), on the other hand, argue that the market is capable of accomplishing a great deal more than Lazonick claims – innovative capability does not rest solely with the corporate form of organization. For example, the development of the PC is an example of the strong innovative capabilities that may reside in a network of competing and cooperating relatively small firms.

get access to the high-powered incentives of market supply (rather than the dulled incentives of internal procurement), and because it allows the firm to eliminate some fixed costs, outsourcing may be an attractive strategy, particularly for lagging business units. Moreover, a clever outsourcing strategy freed financial resources that can be used for expanding core business.

However, unless it is carefully executed, outsourcing may be associated with serious perils. In fact, the critics of outsourcing (such as Bettis, Bradley and Hamel 1992) have (unknowingly) taken a Chandlerian position and have argued that excessive outsourcing on the part of Western firms to Japanese and South-East Asian firms has led to a loss of ability to upgrade capabilities on the part of Western firms in many industries. Thus, myopic economizing considerations harm longer-run strategizing considerations. This is because Western firms have not understood the strategic intentions of their Asian suppliers (namely to *learn* from the relation rather than to simply supply), who have later emerged as vigorous competitors. It is also because Western firms have allowed Asian supplier firms to get "too close" to core capabilities (for example, by outsourcing core products) and have lost track of important technological developments in components and the manufacture of components, etc.

Again the point is that a boundary choice – whether to vertically disintegrate or not – strongly influences longer-run strategic considerations, whether management is aware of this or not. For example, outsourcing activities that are close to the corporate core to partners whose intentions are ill-understood seriously risk harming longer-run knowledge-building efforts.

C. Implications and Desiderata

The upshot of this section is that the boundary choice relates to a number of crucial strategic issues. Extrapolating somewhat from the examples given, the

boundary choice may be seen to be directly relevant to decisions relating to diversification, make and buy, outsourcing, participation in business networks, strategic alliances, joint-ventures, franchising, etc. etc. To put it briefly, virtually all issues of corporate strategy involves the boundaries of the firm.

As traditionally understood, corporate strategy involves the twin issues of 1) which markets the firm should be operative in, and 2) how divisions should be managed. Obviously, the boundaries of the firm issue is directly relevant to the first issue, since this issue can be reformulated as a matter of where the firm's efficient boundaries should lie. However, the other issue is also relevant. For managing a division from a corporate headquarters is only justified to the extent that the headquarters add more value to the operation of the division; otherwise, it would be more efficient to let the division stand alone (as a separate legal entity) or perhaps let it be owned by another firm. But obviously, these considerations again involve the boundaries issue, since they raise the issue of who should own (and control) the division (i.e., the assets of the division).

The boundaries issue also relates to business strategy, since choosing the right boundaries may be conducive to both a low cost or a quality strategy. For example, both strategies may require some vertical integration, albeit for different reasons (controlling throughput vs controlling the quality of inputs). Moreover, where the boundaries are drawn may also relate to the issue of appropriability, because a higher degree of vertical integration may help keep would-be imitators at bay (by making the firm more complex and hence more difficult to imitate and by more control over knowledge flows).

Indeed, to the extent that one views strategy as a matter of accumulating and deploying valuable bundles of knowledge assets – such as capabilities or core competencies – and appropriating the rents from these assets, the boundaries issue enters the picture as a crucial one. For example,

collaboration between firms – a specific way of drawing the boundaries of the firm – may provide opportunities for firms to internalize the skills of their partners (e.g., Hamel 1991). The boundary choice therefore influences the possibilities of reaping rents from the firms' scarce resources and capabilities, not only because it influences appropriability (knowledge protection), but also because it is a mechanism behind knowledge aquisition.

As a general normative matter, we may therefore suggest that the boundaries of the firm (in both the vertical and the horizontal dimensions) should be chosen so that these rents are maximized.[7] A specific desideratum clearly is that we would like to know more about the connection between the boundary choice and the accumulation of capabilities. We have substantial relevant empirical evidence – for example, from the debate on outsourcing, from business history, etc. – but it is more doubtful that we have theorizing that is adequate to allow us to approach the issue in all its complexities. The following section addresses theories of the boundaries of the firm in some detail.

III. Alternative Theories of the Boundaries of the Firm

Theories of the boundaries of the firm are a fretful lot. They identify different aspects of the boundaries of the firm and different explanatory mechanisms behind these, they are drawn from different disciplines, and, not surprisingly,

[7] As we shall see, transaction cost economics formally allows us to say where the boundaries should be drawn so that quasi-rents (joint surplus) on assets are maximied. But this theory does not say anything about maximizing rents from knowledge acquisition that is brought about in, for example, a joint venture (although it may not be incapable of doing this). The theory is essentially about how the boundaries of the firm connect with the appropriability question rather than about how the boundaries of the firm connect with asset-building.

they reach different managerial implications. One partial reason for the plurality of theories of the boundaries of the firm is that these theories are, at least in economics, derived from more general theories of the firm. And economics has witnessed a virtual explosion of work on the theory of the firm over the last 15 to 20 years. In this section, I review what I see as the primary contestants, beginning with the arguably most highly developed theory,[8] or, rather, theories, namely transaction cost theories.

A. Transaction Cost Theories: Coase, Williamson and Hart

Transaction cost theories of the boundaries of the firm includes, most notably, the edifice that Oliver Williamson has been constructing over the last three decades.[9] However, the story begins with Ronald Coase. What Coase observed was that, in the world of standard neoclassical economics, firms have no reason to exist. According to the economics textbook, the decentralized price system is the ideal structure for carrying out economic coordination. Why then do we observe some transactions to be removed from the price system to the interior of organizations called firms? The answer, Coase reasoned, must be that there is a "cost to using the price mechanism" (Coase 1937, p. 390). Thus was born the idea of transaction costs: costs that stand separate from and in addition to ordinary production costs. In the 1937 article, Coase lists several sources of those "costs of using the price mechanism" that give rise to the institution of the

[8] This is, of course, a controversial point of view. However, I think that it would be generally agreed that at least in terms of such criteria as formalization, precision, and falsifiable predictions, transaction cost economics is more highly developed than the other approaches under consideration here.

[9] Principal/agent theory is sometimes interpreted as a transaction cost theory of the boundaries of the firm. It is not. First, principal/agent theory abstracts from the costs of writing contracts (if not of enforcing them). Second, the theory does not allow to discriminate between, for example, an employment relation and a relation between a firm and its supplier. Arguably, this is because the category of ownership cannot be adequately treated in the comprehensive contracting set-up used in principal/agent models. For further discussion, see Hart (1995).

firm. In part, these are the costs of writing contracts. The "most obvious cost of 'organising' production through the price mechanism is that of discovering what the relevant prices are" (Coase 1937, p. 390). A second type of cost is that of executing separate contracts for each of the multifold market transactions that would be necessary to coordinate some complex production activity. These costs can be avoided by firm organization.

However, Coase's basic insights were essentially neglected until the beginning of the 1970s. Since then the economics of transaction costs as applied to organization has burgeoned into a major subfield in the economics discipline, and has had a strong influence in the organization and strategy departments of business schools, no doubt because the theory addresses core issues in organization and strategy in a precise and convincing manner.[10] An early development was Alchian and Demsetz (1972) and Jensen and Meckling (1976), two seminal and founding contributions of that brand of transaction cost economics that is often referred to as "nexus of contracts" theory. However, it is characteristic of this brand that the very notion of the boundaries of the firm is very elusive: It is not really clear what is "inside" and what is "outside" the firm.[11] Because these theories essentially deny the central phenomenon under discussion here, I take the step of disregarding them in the following pages, and proceed instead to the other dominant branch of transaction cost economics, namely that associated with Williamson.

Building on Coasian foundations and mixing these with essential ideas of the Carnegie-Mellon school in organization theory (notably bounded

[10] However, it has met with steadfast resistance and critique among more traditionally minded organization scholars. The most recent and probably most sophisticated attack on organizational economics (in the guise of Williamson's transaction cost theory) is Ghoshal and Moran (1996).

[11] For a particularly explicit statement, se Cheung (1983). It should be mentioned that the inability of nexus of contracts theorists to identify something called "the boundaries of the firm" are seen by them as a virtue rather than a vice.

rationality) and his own ideas (such as that of opportunism), Williamson has over more than three decades constructed an impressive, if sometimes unnecessarily complicated, theoretical edifice. Perhaps most notably, he has been instrumental in extending the traditional concern with the theory of the firm to a much broader concern with economic organization in general.

Williamson (1985, 1996) has increasingly focused in on what has become the perhaps central concept in the present-day economics of organization: *asset specificity*. It is a concept that has apparently come to crowd out all others in the explanatory pantheon. The logic is basically simple. Assets are highly specific when they have value within the context of a particular transaction but have relatively little value outside the transaction. This opens the door to opportunism, particularly under circumstances where the relevant contract between the parties is incomplete, that is, does not cover all future contingencies Once the contract is signed and the assets deployed, one of the parties may use some unforeseen contingency (e.g., changing demand or technology) to effect a "hold-up". For example, he may demand a price reduction and support this by threatening to pull out of the arrangement — thereby reducing the value of the specific assets — unless a greater share of the quasi-rents of joint production find their way into the threat-maker's pockets.

Fear of such "hold up" *ex post* will affect investment choices *ex ante.* In the absence of appropriate contractual safeguards, the transacting parties may choose less specific — and therefore less specialized and less productive — technology. If, by contrast, the transacting parties were to pool their capital into a single enterprise in whose profits they jointly shared, or if one of the parties were given all ownership rights to the relevant assets, the incentives for unproductive rent-seeking would be attenuated, and the more productive specialized technology would be chosen.

With asset-specificity as his central explanatory component, Williamson has constructed an impressive and rich theory of not only firms but really all sorts of contractual organization, and has explicitly tied this to contract law. For example, he has increasingly emphasized the importance of what he calls "hybrids" (Williamson 1996: chapter 4), that is to say, those governance structures[12] that are intermediate between markets and hierarchies. These are seen as arising under conditions of medium asset-specificity, and to be supported by their own kind of implicit contract law.

The work of Oliver Hart and others (Grossman and Hart 1986; Hart 1995) — called the incomplete contracts literature — is in many ways a formal continuation and formalization of Williamsonian insights. The literature distinguishes two types of rights under contract: specific rights and residual rights. The latter are generic rights to make production decisions in circumstances not spelled out in the contract. The choice between contract and internal organization reduces to a question of the efficient allocation of the residual rights of control when contracts are incomplete and assets highly specific. Suppose there are two parties cooperating in production, each bringing to the arrangement a bundle of assets. If none of the assets is highly specific, opportunism is impossible *ceteris paribus*, as either party can liquidate at no or low cost as soon as troublesome unforeseen contingencies arise. If, however, assets are specific, or if opportunism becomes possible for other reasons, it may be efficient to place the residual rights of control in the hands of only one of the parties by giving that party ownership of both sets of assets. In general, the owner ought to be the party whose possession of the residual right

[12] This is Williamson's term for the contractual institutions that regulate transactions and contracts, namely firms, hybrids, and markets. They should not be confused with the actual contracts themselves, but are rather to be thought of as supporting frameworks, specifically frameworks that embody mechanisms for conflict resolution.

minimizes rent-seeking costs, which typically means the party whose contribution to the quasirents of cooperation is greater.

Thus, the incomplete contracts literature allows us to say who should (efficiently) own which assets (that is, who integrates whom). Moreover, it does something few have been able to do before: to define the boundaries of the firm in a consistent and unambiguous way. Thus, a firm is defined by the bundle of assets under common ownership. This "formal" definition of the firm and its boundaries is somewhat at variance with the next approach to be considered.

B. The Resource Dependence Approach

The (largely sociological) resource dependence approach was launched with a number of publications during the 1970s by Jeffrey Pfeffer and Gerald Salancik, either separately or jointly, and culminating with the publication in 1978 of their joint book, *The External Control of Organizations: A Resource Dependence Perspective*. In the context of organization theory, the approach is perhaps best thought of as an important correction to structural contingency theory. Where the theory asserted that firms had to adopt internal structure to external contingencies, Pfeffer and Salancik elaborated the essentially simple point that firms may as well try to influence these contingencies and environments rather than passively responding to them. Although others have made contributions and the approach has been extended somewhat, I here refer to this classic contribution exclusively.[13]

Pfeffer and Salancik essentially follow Cyert and March (1963) in assuming that firms try to accumulate slack resources and profits, and that they will actively influence their environments in order to reach this end. One way

[13] In contrast to the other parts of the boundary school that are under consideration here, it is doubtful whether there really still is a viable resource dependence approach. Already in 1982, Pfeffer assimilated the approach with the population ecology perspective (Pfeffer 1982). However, the justification for including it here is that Pfeffer and Salancik's book is still a standard reference in much organization theory literature on firm boundaries.

of accomplishing this is to reduce dependence on external factors, such as other firms.[14] Dependence is conceptualized thus:

> "Concentration of the control over discretion over resources and the importance of the resources to the organization together determine the focal organization's dependence on any given other group or organization. Dependence can then be defined as the product of the importance of a given input or output to the organization and the extent to which it is controlled by a relatively few organizations" (Pfeffer and Salancik 1978: 51).

Now, reducing dependence may take place through strategies that involve direct changes of the boundaries of the firm, that is, the transferring of ownership titles to various assets. This is essentially the cases mainly examined in transaction cost economics, and include vertical integration, diversification, and horizontal integration. In fact, the resource-dependence approach sometimes reads as a sort of sociological version of transaction cost economics, among other things, because of the distinction between various sorts of interdependencies. For example, the distinction between "reciprocal" and "asymmetric" interdependence (Pfeffer and Salancik 1978: 52-3) is a complete *pendant* to the concepts of "complementary" and "specific assets" of transaction cost economics.

However, it would be clearly wrong to say that the resource dependence approach is no more than a sociological version of transaction cost

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[14] In other words, it is seen as desirable to reduce the "power" of other firms over one's firm. There is a presumption in the resource-dependency perspective that dependence is "bad" and that firms will actively seek to avoid this. From a transaction cost perspective, this does not necessarily make sense if contracting is "seen in its entirety" (Williamson 1996). This is because even relations that are characterized by a high degree of dependence may be well-working, efficient, desirable, etc. because they are supported by the appropriate governance mechanisms (e.g., hostages).

economics. One aspect, of course, is that the approach is not an efficiency approach, but is rather based on power considerations and on uncertainty reduction (rather than the maximization of rents) as an overriding motive of economic actors. More to the point, however, Pfeffer and Salancik forcefully argue that reduction of dependence may also be accomplished through other, less formal, means than direct ownership, such as the formation of cartels, business associations, social norms, interlocking boards of directors, etc.

In other words, they introduce the important distinction (well-known from sociology) between "real" and "formal control", a distinction that has not been recognized in economics (at least until rather recently, cf. Hart 1995). These latter strategies make the firm's environment a negotiated environment (Grandori 1987: 61), and will sometimes be chosen because they confer coordination and particularly flexibility benefits that direct ownership may not confer. As Pfeffer and Salancik argue, anticipating recent ideas on the virtual corporation: "Relationships established through communication and consensus can be established, renegotiated, and reestablished with more ease than the integration of organizations by merger can be altered" (Pfeffer and Salancik 1978: 145). That "informal" cooperative strategies may sometimes be more flexible than direct ownership is also a theme of the next approach to be considered.

C. Network Approaches

During the last two decades, many scholars have written about firm networks, particularly in an industrial marketing context, and several distinct groups of network theorists may be distinguished, for example, in the UK and in Sweden (Axelsson and Easton 1992). Moreover, "network" has increasingly become a strategic management buzzword, and has now lost its earlier almost exclusive affiliation with industrial marketing. Finally, contributors to the network approach appear to draw on a diversity of different disciplines, insights and contributions,

for example, exchange sociology, organizational economics, the resource-dependency approach, sociological work on networks and embeddedness, etc. Accordingly, it is not easy to reconstruct a set of well-defined themes that run through the various contributions to "the" network approach. However, the following related broad ideas may perhaps be singled out as common themes.

First, there is a view that networks of cooperating firms are quite pervasive social institutions.[15] As Thorelli (1986) says "The point taken here is that the entire economy may be viewed as a network of organizations with a vast hierarchy of sub-ordinate, criss-crossing networks" (Thorelli 1986: 38).

Second, networks are seen as structuring exchange relations on a par with hierarchies and markets, and to be just as worthy of scientific inquiry. The firm's "environment" is a complex context consisting of heterogeneous competitors and cooperating firms who condition the firm's behavior. Therefore, proponents of the network approach are often highly critical of those theories and approaches which they take to portray firms as confronting anonymous environment (such as mainstream strategic management or industrial organization) (Håkansson and Snehote 1989).

Third, trust is seen as a much more descriptively accurate assumption about firm interaction than, in particular, opportunism (Johansson and Mattson 1987), since empirical research has revealed many cases of firms willingly putting themselves in the position of risking to be opportunistically held-up.[16] Trust is gradually built in long-lived business relations. Indeed, the typical and interesting kind of interaction envisaged as taking place between the firms in the network is informal contacts made by actors with close interpersonal relations.

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[15] An idea that is strongly supported by the new economic sociology (e.g., Granovetter 1985).

[16] For an extended critique of this argument, see Foss and Koch (1996).

Fourth, as in the resource dependence perspective, on which many contributors to the network approach draw, power and its distribution among the actors of the network are assumed to be important. Underlying the distributions of power between actors are in turn relations of dependence between the participants. As noted by Johanson and Mattsson (1987: 36), it is "A basic assumption in the network model ... that the individual firm is dependent on resources controlled by other firms", but there is not in the network approach the same of drama associated with this condition as in the resource dependence perspective.

Fifth, long-lived, trust-based network relations are seen as supporting individual firms' processes of accumulation of resources and capabilities (Jarillo, 1993). Firms engage themselves in repeated interaction with other firms in order to obtain access to the complementary but dissimilar resources and capabilities of other firms, and to ease their own accumulation processes. Moreover, firms may obtain the benefits of diversity (including diversity in technological experimentation) from participation in broad networks (Foss 1997d).

As noted by Johanson and Mattsson (1993: 3), "[m]uch work is needed before the network approach can be considered a coherent theory". In line with this view, it seems that a considerable part of what count as the theoretical part of the literature on networks should be considered as collections of "stylized facts", and attempts to proceed from these in a more or less inductive manner, than full-fledged theoretical components. It is, therefore, tempting to paraphrase what Ronald Coase once said of the institutional economics of Veblen, Commons, and Ayres, namely that the network approach is essentially a mass of empirical data in need of a theory – or a bonfire!

This would be wrong, however, for there are valuable insights associated with the approach that are, if not entirely neglected in other approaches, then certainly more strongly emphasized in network approach. For example, that networks are organized to increase access to information, that "transactions" are far

from being homogenous and are rather multiplex and dense, that trust is a critical contingency, and that social embeddedness matters are certainly points that are particularly emphasized by the network approach.

However, I think that it is fair to say that the network approach is not a theory about the boundaries of the firm proper. At least, it does not at all match the transaction cost approach (which its proponents so often criticize) in terms of precise insights in this issue. However, network ideas are certainly relevant for understanding, for example, the connection between information acquisition and the boundaries of the firm, or how social embeddedness may influence where these boundaries are located. Thus, the network approach is in the end more a theory of firm learning and of the firm's embeddedness that it is an approach directed at understanding firm boundaries. Something similar may be perhaps be said of the next approach to be considered.

D. The Capabilities Approach

How can firms make best use of their distinctive capabilities? How have they done this in the past? And how can they go on developing new valuable capabilities? Such questions have been central in the strategy field since its inception at the end of the 1950s. According to the editors of the present book (Elfring and Volberda, 1997), the capabilities perspective (or "school"), which is a collection of resource-based and evolutionary perspectives on the firm, is in fact one of the important candidates for playing the role of a synthesizing school in the context of strategic management research. However, as I briefly argue here, there is some overlap between the boundary school and the capabilities school, since the latter also contains insights of relevance for the issue of the boundaries of the firm.

In a very brief *signallement*, the capabilities school may be said to be founded on the common-sense recognition that individuals — and organizations — are necessarily limited in what they know how to do well.

Indeed, the main interest of the capabilities view is to understand what is distinctive about firms as unitary, historical organizations of co-operating individuals. The conceptualization of the firm that underlies much work on capabilities was perhaps best expressed in the late Edith Penrose's *The Theory of the Growth of the Firm* (1959). "The firm," Penrose says, "is ... a collection of productive resources the disposal of which between different uses and over time is determined by administrative decision" (Penrose 1959, p. 24).

Now, resources in Penrose's view yield services, and it is these services – clearly a theoretical precursor to the concept of capabilities – that interest her the most. Although resources / services are firm-specific, they are nevertheless somewhat "fungible" inside the firm, and, when in excess, provide a stepping-stone for diversifying to new markets. Clearly, this is a first stab at a theory of firm boundaries that is based on capabilities considerations. Later research (e.g., Teece 1982) has further refined Penrose's story; in fact, Penrose's notion of deploying excess capabilities to neighboring markets, combined with transaction-cost considerations, is perhaps the dominant mode of explanation in diversification studies (Montgomery 1994).

Roughly speaking, the story is this. As firms carry on their normal business, they are likely to accumulate excess resources, for example, excess managerial capabilities. In principle, rents from these resources may be captured in different ways, for example, through market exchange, long-term contracts, or in-house use. Because of transaction-cost problems, which may be particularly severe when the excess resources involved are knowledge resources, in-house use is more efficient, and the firm will accordingly apply the resources that are in excess to neighboring markets.

A few years after Penrose, British economist George Richardson (1972) even more explicitly tied together the issues of capabilities and the boundaries of the firm. In Richardson's terminology, production can be broken down into

various stages or *activities* (á la Porter 1985). Some activities are *similar*, in that they draw on the same general capabilities. Activities can also be *complementary* in that they are connected in the chain of production and therefore need to be coordinated with one another. Juxtaposing different degrees of similarity against different degrees of complementarity produces a matrix that maps different types of economic organization. For example, closely complementary and similar activities may be best undertaken under unified governance. Closely complementary, but dissimilar, activities, on the other hand, are best undertaken in some sort of inter-firm arrangement.

As the examples of Penrose and Richardson demonstrates, the capabilities perspective clearly has important implications for the boundaries of the firm. In fact, a number of writers have recently suggested that it is a perspective on this issue that is *distinct* from the transaction cost approach(es) (Foss 1993; Langlois and Robertson 1995; Langlois and Foss 1997). They argue that – as a quite general matter – capabilities are determinants of the boundaries of the firm on a par with asset-specificity. To be more specific, problems of economic organization may crucially reflect the possibility that a firm may control production knowledge that is, in important dimensions, strongly different from what others control – that the underlying capabilities are highly dissimilar. Thus members of one firm may quite literally not understand what another firm wants from them (for example, in supplier contracts) or is offering them (for example, in license contracts). Because of the extreme specificity and tacitness of much productive knowledge, one firm may have difficulties understanding another firm's capabilities; and both firms separately and together may know more than their contracts can. In this setting, the costs of making contacts with potential partners, of educating potential licensees and franchisees, of

teaching suppliers what it is one needs from them, etc., become very real factors determining where the boundaries of firms will be placed.[17]

E. Summing Up

Given what has been said in the preceding pages about the possible constituent theories of the boundary school, we may now sum up their main characteristics in a more synoptic form, as in *Table 1*.

Table 1
A taxonomy of approaches constituting the boundary school

	Transaction Cost Economics	**The Resource-Dependency Approach**	**The Network Approach**	**The Capabilities Approach**
Main Thrust	The efficient org. of transactions and assets	The control over and dependence on resources	Networks as informational structures	Competitive advantage; knowledge accumulation
Unit of Analysis	The transaction	The dependence relation	The relation	Capabilities
Time frame	Static (comparative statics)	Static	Dynamic	Dynamic
Disciplinary orientation	Neoclassical economics	Mainly sociology	Mainly sociology	Evolutionary economics
Understanding of boundaries	Asset specificity is key. Efficient boundaries understood in	Reflect attempts to reduce dependence. Contrast between	Not well developed, but has important implications for	Turns on the degree of complementarity and similarity of

[17] Note that these "dynamic transaction costs" (Langlois and Robertson 1995) are in a different category from the transaction costs usually considered in the modern economics of organization. Transacting difficulties are not a matter of incentive problems within an otherwise well-defined and well-understood exchange context, but a matter of basic coordination problems. For evidence of this view, see Chandler (1962) and Langlois and Robertson (1995).

	terms of incentives and transaction costs	formal ownership and control.	boundaries.	capabilities
Relevance to strategic management	Connection between ownership and inv. incentives.	Not necessary to own assets to control them	The importance of trust relations and inter-firm learning.	Connection between competitive adv. and firm boundaries

IV. Implications

A. Differences and Ambiguities

As table 1 reveals, there are many and deep differences between the various constituent approaches of the boundary school. Some emphasize static incentive alignment issues and a basic efficiency orientation (the transaction cost approach), while other approaches put the emphasis on power considerations (the resource dependence approach), and other approaches again put more of an emphasis on knowledge accumulation issues (the network approach and the capabilities approach). The approaches are founded on different disciplines (economics, sociology), on different orientations (power, effiency), use different units of analysis, and would seem to have different implications for managerial practice.

In others words, the various approaches utilize what may be called different "explanatory languages" for addressing the boundaries of firm. For example, do the boundaries of the firm primarily matter because they influence the costs of aligning incentives and creating efficient investment levels or because they may reduce uncertainty and dependence or because the reflect various aspects of capabilities? In fact, the very notion of the boundaries of the firm is not unambigious in the context of the four approaches. In fact, only two

of them, namely the transaction cost and the resource dependence approach, are distinctly about this issue, while the remaining two more indirectly relate to it. Transaction cost theories of the firm tells us that ownership of assets and the boundaries of the firm coincide, while the resource-dependence perspective points out that formal ownership does not necessarily coincide with effective control (real ownership?).

Thus, the differences seem to be more pronounced than the similarities. On the overall level, this threatens the very project of talking about *a* boundary school. Evidently, it is rather meaningless to claim a school to exist simply because a diversity of theories share some explanandum, and particularly so if the theories stand in a rivalrous relation; on the contrary, we should talk about a multifold of schools. Of course, there will be no clear managerial implications from what is merely a collection of heterogeneous, and perhaps even conflicting, theories. Thus, what is really at stake here is the relation between the theories that we take to constitute the boundary school. I examine this issue in the following pages.

B. Relations Between the Theories of the Boundary School

The methodological comparison of different theories is a notoriously difficult area (see, e.g., Krajewski 1977), and I will not here go into all the philosophical difficulties, but just venture a few suggestions.[18]

As a starting point, we may ask whether the theories are *commensurable* in the sense that they share domain of application. Since all of the theories under consideration are about, or have direct implications for, the boundaries of the firm this is clearly the case. The next thing to inquire into is what I earlier called their "theoretical language", that is, the central concepts, explanatory

[18] Foss (1997c) is an extended analysis of the relation between transaction cost theories and capabilities theories of the firm, based on Krajewski (1977).

mechanisms, mode of analysis, degree of formalization, etc., that the theories employ. As we have seen already, there is very substantial divergence here. As a result, the theories cannot be *equivalent* in any sense.

This leaves us with a number of other possibilities with respect to the four theories. For example, are they *competitive* and perhaps in *contradiction* to each other; or, is it possible to establish some sort of *correspondence* between them; or, is it perhaps even possible to show to *reduce* one of the theories to the other one (see Krajewski 1977)?

Theories may be competitive in the sense that they address the same object of explanation and the hypotheses that underlie the relevant alternative theories have some implications where they are in opposition, and where it is, therefore, possible to discriminate between them. It would indeed seem to be reasonable to argue that the theories under consideration are, in fact, competitive. For example, the capabilities perspective and the transaction cost perspective may have rival implications as to where the boundaries of the firm should optimally drawn, because the first perspective explicitly incorporates long-run knowledge accumulation issues whereas the latter does not.

However, it is a rather general recognition that one way in which science may make progress is by it being demonstrated that seemingly opposed theories are in reality closer to each other than was immediately apparent. Such a demonstration may be accomplished in many ways. For example, it may be demonstrated that one of the theories under consideration can be reduced to the other theory. Or, one may build a more general theory that incorporates the seemingly rival theories as special cases. Or, one may pursue a pragmatic research strategy in which one eclectically combines those key insights of the relevant theories that can be combined. It is this latter strategy that I shall briefly discuss here.

C. A Pragmatic Research Strategy

Although it is undeniably the case that there are many and deep-seated differences between the explanatory apparatuses that are employed by the four approaches, some of these differences may do more to differentiate the approaches from each other than other differences. For example, it may be argued that the fact that the network, resource-dependence and capabilities approaches do not make substantial use of the incentive-alignment arguments of transaction cost economics is a relatively unimportant difference, since these arguments can be integrated with the core ideas of the first three approaches. For example, we may ask, Given that we wish to engage ourselves in learning through network interaction, are the right incentives in place? That is, is there a sufficient number of credible commitments (cf. Williamson 1985) and are relations of trust sufficiently widespread (cf. Williamson 1996: chapter 10) that we dare take the risk of, for example, making some of our critical knowledge visible to network partners?

Thus, a pragmatic research strategy may be to combine those aspects of the four approaches that can *usefully* be aligned – and side-step the more troublesome aspects. This is in line with the approach taken to synthesizing schools by Elfring and Volberda (1997), who basically take the stance that it is possible to align approaches in a *practical* dimension, where the practical problem statements with which managers are confronted serve as the synthesizing mechanisms. The real goal is to solve the problem and it is legitimate to draw on many perspectives; what counts is the ability of a combination of theories to bring new and real insight. Obviously, such an eclectic approach does not get killed by arguments that, for example, underlying assumptions are in conflict.

To continue this sort of reasoning, there may be practical problem areas where the theories under consideration here *complement* each other in the sense that one of the theories is made richer by including some insights and propositions of

the other theory. Consider the following points as impressionistic exemplifications of this:

- The resource-dependence approach points to the importance of non-formal mechanisms of control and dependence reduction and to the flexibility advantages this may sometimes confer. This clearly complement the formal perspective on control (ownership) in transaction cost theories.
- The network and capabilities approaches point to the importance of the boundaries of the firm for building knowledge assets. This is again a complement to transaction cost theorie.
- Transaction cost theories, on the other hand, provides an understanding of the economic mechanisms (e.g., hostages and other credible commitments) that underlie the long-lived trust relations, discussed in the network approach.
- The network approach adds a conceptualization of being embedded in a web of cooperating and competing firms that complements the rather "introspective" stance of the capabilities approach.
- The network approach also helps theorize market transaction costs by pointing to the importance of trust relations, etc.
- The focus on the longer-run issue of knowledge building that characterize the capabilities and the network approach complement the shorter-run focus on transaction minimization and power and dependence that characterize the transaction cost and resource-dependence approaches. In fact, these are considerations that should be balanced against each other; arguably, there is a trade-off, akin to the one between static and dynamic efficiency, between them. At any rate, pursuing a myopic "economizing" strategy exclusively is a guaranteed recipe for longer-run sub-optimization.

As inspection of the above points indicates, there is a large potential for integrating selected insights from the four approaches, and in many practical

situations it will no doubt be advantageous to rely on more than one perspective. But the integrative potential is not only a matter of practical concerns; it is increasingly becoming a theoretical issue.

In fact, a growing number of contributions have emerged that are founded on the conviction that combining key ideas of some of the above approaches is a fruitful research strategy. For example, David Teece (1982) suggested to combine capabilities and transaction cost considerations for understanding efficient diversification, and he later used the same set of ideas for discussing the firm's innovation boundaries (Teece 1987). Torger Reve (1990) and John Kay (1993) also used transaction cost ideas and capabilities ideas to construct a strategic theory of the firm, while Foss and Koch (1996) argued that network ideas and transaction costs were to some extent overlapping, and where this was not the case, the two approaches were complementary rather than contradictory. These integrative efforts[19] imply that it may, after all, be increasingly meaningful to talk about "a boundary school".

V. Conclusions

This paper has been concerned with analyzing the boundary school within contemporary strategic management. The main conclusions can be summarized thus:

- There is no contrast between economizing (on transaction and production costs) and strategizing (creating new sources of rents); rather the two perspectives relate to different aspects of the rent-creation process.

[19] Much of the literature is surveyed and discussed in Langlois and Foss (1997).

Moreover, both may involve the boundaries of the firm. They are, accordingly, complementary.

- The boundaries of the firm is a central strategic issue, as evidenced by both business history (e.g., Chandler 1962) and more topical issues in strategic management (e.g., the debate on outsourcing). It relates directly to issues such diversification, vertical integration, joint ventures, strategic alliances, etc.

- The approaches that may be seen as composing the boundary school – the transaction cost approach, the resource dependence approach, the network approach and the capabilities approach – differ in a number of dimensions, such as the disciplines they draw on. Some emphasize static incentive alignment (the transaction cost approach), or power considerations (the resource dependence approach), while others put more of an emphasis on knowledge accumulation issues (the network approach and the capabilities approach).

- However, it has been argued that these different approaches are complementary, and that their essential insights might, and indeed should, be combined in an integrated model. Thus, it may, after all, be possible to begin to meaningfully speak of a boundary school.

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