

MIT

Massachusetts
Institute of Technology

Spring 1999

Volume 40
Number 3

SLOAN

Management Review

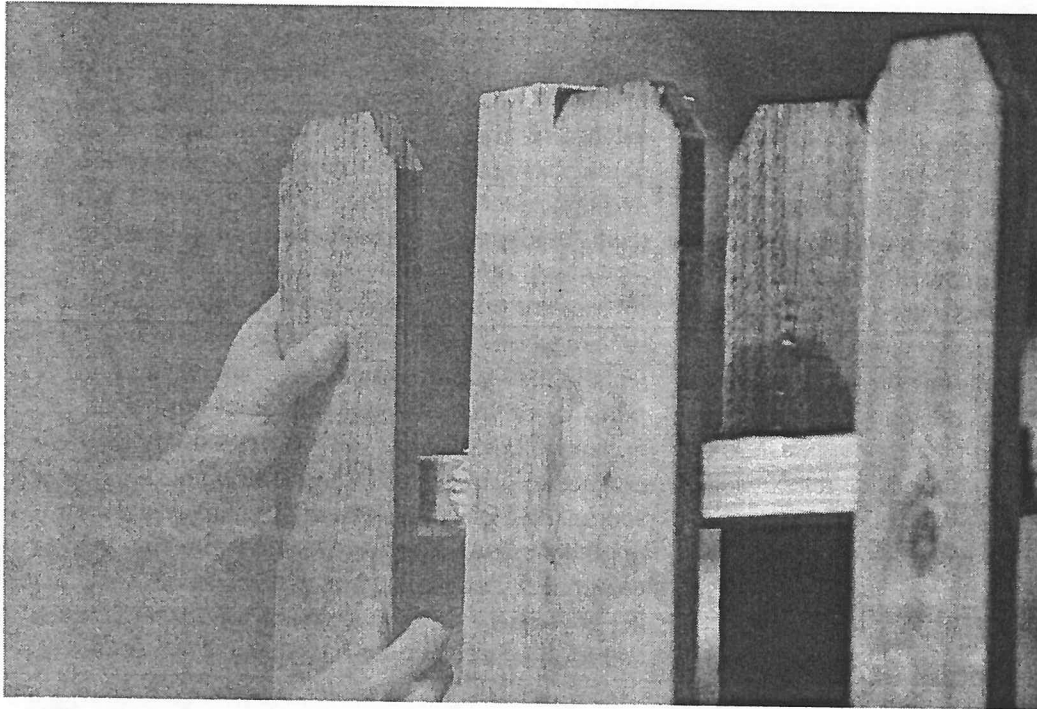
Jay B. Barney

**How a Firm's Capabilities Affect Boundary
Decisions**

Reprint 40313

How a Firm's Capabilities Affect Boundary Decisions

Jay B. Barney



Under certain conditions, a firm's capabilities and those of its potential partners can influence boundary decisions.

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In a world of corporate refocusing, downsizing, and outsourcing, a critical strategic decision that many senior managers make is determining their firm's boundary. "Which business activities should be brought within the boundary of the firm?" and "Which business activities should be outsourced?" are essential strategic questions in determining a firm's boundary. Firms that bring the wrong business activities within their boundaries risk losing strategic focus and becoming bloated and bureaucratic. Firms that fail to bring the right business activities within their boundaries risk losing their competitive advantages and becoming "hollow corporations."¹

Fortunately, a well-developed approach exists for determining a firm's boundary. Called *transactions cost economics*, this approach specifies the conditions under which firms should manage a particular economic exchange within their organizational boundary as well as the conditions under which it should be outsourced.² Not only is this approach well developed, it is remarkably simple, and many of its predictions and prescriptions have received empirical support.³ Indeed, in its most popular version, this approach requires managers to consider only a single characteristic of an economic exchange — the level of transaction-specific investment — in order to decide

whether to include an exchange within a firm's boundary. To date, the simplest conclusion one can make about transactions cost economic analysis of firm boundaries is that it seems to work.

So, in the face of this well-developed, empirically robust approach, why try to develop some new ideas about the best way to determine a firm's boundary? When I explain transactions cost economics to practicing managers and help them implement it, they often ask: "What role do firm capabilities play in this approach to firm boundaries?" To their great surprise, the answer to this question is: "Very little." Transactions cost economics does not focus on the capabilities of a firm or on the capabilities of its potential partners when deciding which economic exchanges to include within a firm's boundary and which to outsource.

Managers are often mystified by this response. "After all," they argue, "isn't the reason we make boundary choices simply an effort to discover the best way to gain access to the capabilities we need to be successful? And aren't some firms simply better at doing some things than we are? Shouldn't these differences have an impact on whether to outsource a particular exchange?"

In transactions cost economics, governance is the mechanism through which a firm manages an economic exchange.

I agree with these managers — the capabilities possessed by a firm and by its potential partners often should have a significant impact on boundary decisions. This paper describes the conditions under which a firm's decisions about how to manage its business activities should be affected by its capabilities and those of its potential partners. When these conditions hold — conditions that I argue are particularly common in rapidly evolving high-technology industries — firms should make boundary decisions that differ significantly from what would be suggested by traditional transactions cost analyses.

I begin by briefly summarizing transactions cost economics as applied to a firm's boundary decisions. Then I discuss the conditions under which capability considerations should figure prominently in those

decisions. Finally, I discuss whether these conditions are common, and thus how frequently transactions cost logic must be augmented by the capability logic presented here. I suggest that these conditions are not ubiquitous, but occur more frequently in certain industries, including rapidly evolving high-technology industries.

Transactions Cost Analyses of Boundary Decisions

Three concepts aid in understanding transactions cost economics as applied to firm boundary decisions: governance, opportunism, and transaction-specific investment.

In transactions cost economics, governance is the mechanism through which a firm manages an economic exchange. These mechanisms can be grouped into three broad categories: market governance, intermediate governance, and hierarchical governance.

- Firms use *market governance* to manage an exchange when they interact with other firms at arm's length across a nameless, faceless market and rely primarily on market-determined prices to manage an exchange. For example, oil refineries use market governance to gain access to crude oil purchased on the spot market; electronics firms use market governance to obtain standardized electrical components from component distributors; and food processors use market governance when purchasing food from farmers and food brokers.
- Firms use *intermediate governance* when they use complex contracts and other forms of strategic alliances, including joint ventures, to manage an exchange. For example, retail firms use intermediate governance to obtain products by negotiating long-term supply contracts with suppliers, by establishing electronic data interchange linkages with those suppliers, and when those suppliers locate critical operations near a retail firm's headquarters. Firms use intermediate governance when partnering to form a joint venture and when they use complex franchise agreements to manage an exchange. In all these cases, more complex contractual forms of governance replace independent arm's-length market relations.
- Firms use *hierarchical governance* when they bring an exchange within their boundary. For example, a manufacturing firm uses hierarchical gover-

nance when it owns and operates a factory supplying the products that it sells. A retail firm uses hierarchical governance when it owns and operates its own stores. A diversified firm uses hierarchical governance when it operates a sales and distribution network that two or more of the businesses it owns use to sell and distribute their products. In these cases, the parties to an exchange are no longer independent. Rather, some third party ("the boss") has the right to direct actions and decision making.

According to transactions cost logic, firms can use governance to mitigate the threat of opportunism.

In choosing how to govern an exchange, a firm determines its boundary. All exchanges managed through market and intermediate forms of governance are outside the boundary of the firm, and all exchanges managed through hierarchical forms of governance are within the boundary of the firm. According to transactions cost economics, managers determining their firm's boundary must constantly ask themselves: "Given the attributes of this exchange, what is the most efficient way to govern it?"

Transactions cost economics suggests that two issues are relevant when answering this question: the cost of a governance mechanism and the threat of opportunism in an exchange. In general, the more elaborate the governance, the more costly the governance.⁴ Thus, the cost of using market governance to manage an exchange is less than the cost of using intermediate governance to manage it. In turn, the cost of using intermediate governance to manage an exchange is less than the cost of using hierarchical governance. If minimizing the cost of governance were the only goal, managers would always choose nonhierarchical forms of governance over hierarchical forms of governance, and they would always narrowly draw the boundary of their firm.

However, managers also must consider the threat of opportunism in an exchange. *Opportunism* exists when a party to an exchange takes unfair advantage of other parties to that exchange. For example, if a firm promising high-quality supplies instead delivers low-quality goods, it is behaving opportunistically. If a firm is consistently late in delivering a promised

product or service or charges a price higher than originally promised, it is being opportunistic.

But when will firms in an exchange be tempted to behave opportunistically? Transactions cost economics suggests that when one party to an exchange has made a large *transaction-specific investment* in that exchange, other parties to that exchange have a strong incentive to behave opportunistically. A transaction-specific investment is any investment that is significantly more valuable in a particular exchange than in any alternative exchange. For example, suppose that an oil pipeline company has built a pipeline from an oil field to supply an oil refinery owned by a second firm. Presumably, this pipeline is valuable if it is used to pump crude oil to the refinery. What is its value if it does not pump crude oil? Assuming there are no other refineries that could be supplied by the pipeline, the value of the pipeline drops significantly if it is not supplying this one refinery. Thus, this pipeline is a transaction-specific investment, since its value in a particular transaction is much greater than its value in alternative transactions.

The threat of opportunism exists when one party to an exchange has made a transaction-specific investment, while others have not made such an investment. Continuing with the pipeline example, suppose the refinery has alternative supplies of crude oil. If the refinery is not receiving crude oil through the pipeline, its value remains almost unchanged. The firm owning the refinery has not made a transaction-specific investment. In this setting, the refinery could demand that the pipeline company reduce the price of its crude oil, increase the quality of the crude it is delivering, or share in some upgrade expenses in the refinery. The pipeline company would have few alternatives but to do what the refinery asked. Because the pipeline firm made a transaction-specific investment and the refining firm did not make such an investment, the refining company could behave opportunistically.

According to transactions cost logic, firms can use governance to mitigate the threat of opportunism. In general, the more elaborate the governance mechanism, the more effective it will be in reducing the threat of opportunism created by transaction-specific investment. Thus, when high levels of transaction-specific investment characterize exchanges, the high cost of hierarchical governance is offset by its ability to reduce the threat of opportunism. When moderate

levels of transaction-specific investment characterize exchanges, intermediate governance can reduce the threat of opportunism without the extra cost of hierarchical governance. Exchanges characterized by low levels of transaction-specific investment are not prone to opportunism, so firms should opt for the least costly form of governance available — market governance.

Firm capabilities do not play a significant role in traditional transactions cost analyses of boundaries.

Notice that in this entire discussion, never once do questions about the relative capabilities of a firm and its exchange partners arise. Firm capabilities simply do not play a significant role in traditional transactions cost analyses of firm boundaries.

Capability Considerations in Boundary Decisions

Now, suppose a firm finds that it does not possess all the capabilities it needs to be successful. In this setting, a firm has three ways it can gain access to the capabilities it needs.

- It can cooperate with firms that already possess the capabilities it needs. Here, a firm uses market or intermediate governance to gain access to these capabilities.
- It can try to develop these capabilities on its own. This is an example of using hierarchical governance to gain access to these capabilities.
- It can try to acquire another firm that already possesses these capabilities. This is another form of using hierarchical governance to gain access to capabilities.

Transactions cost logic suggests that the choice among these alternatives should depend on the level of transaction-specific investment required to gain access to the capabilities a firm needs. If required transaction-specific investment is high, then market and intermediate governance approaches to gain access to these capabilities should be abandoned in favor of hierarchical forms of governance. In this setting, firms should either develop the necessary capa-

bilities on their own, or they should acquire another firm that already possesses these capabilities.

But, what if these hierarchical approaches to gaining access to capabilities are themselves costly? In this setting, the decision about how to gain access to the capabilities that the firm needs does not depend only on the required level of specific investment, but also on the cost of developing these capabilities and on the cost of acquiring another firm that already possesses them. Indeed, when the costs of hierarchical governance are high, a firm might want to choose nonhierarchical approaches to gain access to needed capabilities even if there are significant transaction-specific investments — and thus significant threats of opportunism — associated with this approach.

Consider a firm that needs a distribution network in a foreign country in order to grow its business in that country. Suppose that such a distribution network already exists, but that another firm owns it. Using this other firm's distribution network may require high levels of transaction-specific investment, which could lead to opportunism in the future. This suggests that, other things being equal, this firm would prefer not to use the other firm's network to grow its business. However, other things are not always equal. If the cost to this firm of building a new distribution network in this foreign country is high and if it is not possible to acquire the firm that owns this distribution network,⁵ then cooperating with this firm through intermediate or market governance to access the distribution network may be preferred over any alternatives. Opportunism stemming from transaction-specific investment is simply part of the cost of gaining access to capabilities that are too costly to obtain in alternative ways.⁶

Thus, for capabilities to play a significant role in determining a firm's boundary, it must be costly for a firm to create these capabilities on its own, and it must be costly for a firm to acquire another firm that already possesses these capabilities.

Creating Capabilities

There are numerous reasons why it might be costly for a firm to create a particular capability on its own.⁷ Four important reasons are:

- The ability to create a capability in a cost-effective way may depend on unique historical conditions that no longer exist.

- The creation of a capability may be “path dependent.”
- A capability may be socially complex.
- The actions that a firm would need to take to create a capability may not be fully known.

Historical Context. Sometimes a firm’s ability to create capabilities in a cost-effective way depends on being in the “right place at the right time.” Years later or under different circumstances, recreating certain opportunities may be impossible.

Caterpillar, for example, was able to create at low cost a worldwide service and support network for its heavy construction equipment business because it was the major supplier of this equipment to Allied forces during World War II. The Allies agreed to subsidize the creation of this service and support network because it was essential for the war effort and no similar firm had this type of network.

Being the only heavy construction equipment firm with such a network in place, Caterpillar had an enormous competitive advantage immediately after the war. Moreover, for competing firms to create this same kind of network at the same low cost as Caterpillar, the unique conditions that had existed for Caterpillar during World War II would have had to be recreated. Obviously, this was not possible. Now, even though international overnight air freight services have rendered Caterpillar’s traditional service and support network less important than at the end of World War II, the firm continues to enjoy the competitive head start it received by being in the “right place at the right time” in history.⁸

Path Dependence. Sometimes to create a particular capability, a firm must go through a long, difficult learning process. When no way to short-circuit this learning process exists, it is said to be *path dependent*. While other firms may want to create path-dependent capabilities for themselves, they must first go through the experiences that make it possible to develop those capabilities. This can be a time-consuming process that greatly increases the cost of creating a capability.

Consider, for example, the capability that some Japanese firms have to work cooperatively with their suppliers. Many U.S. manufacturers have coveted these capabilities to gain access to the low-cost, high-quality supplies that seem to be available to at least

some Japanese firms. However, quick creation of these capabilities among many U.S. manufacturers has been elusive. This difficulty is understandable when it is recognized that many Japanese firms have been working with the same network of suppliers for over 500 years. The experience that develops over 500 years is costly to create in a short period of time.⁹

Social Complexity. Sometimes it will be costly for a firm to create a particular capability because that capability is socially complex in nature. Examples of these socially complex firm capabilities include a firm’s culture, its reputation among customers and suppliers, its trustworthiness, and so forth. These kinds of capabilities can enable a firm to pursue valuable business and corporate strategies. Firms without these capabilities may find it difficult to conceive of, let alone implement, these same strategies.

Socially complex capabilities are generally beyond the ability of managers to change in the short term.

However, even though the value of these capabilities may be known, it may still be difficult for a firm without them to create them. Socially complex capabilities are generally beyond the ability of managers to change in the short term. Rather, they evolve and change slowly over time.

Consider, for example, the economic performance of the “visionary” firms identified by Collins and Porras.¹⁰ These well-known firms — including General Electric, Hewlett-Packard, Johnson & Johnson, Merck, Sony, Wal-Mart, and Disney — are organized around unique visions of their roles in the economy, their responsibilities to their customers and suppliers, and their commitment to their employees. These socially complex visions have profoundly affected the decisions made by these firms and the strategies they have pursued. Moreover, these firms have provided much higher returns to shareholders than competitors that do not have such socially complex visions.¹¹ Despite the well-documented success of these firms over many decades, many of their competitors have been unable to create their own unique visions and generate the same level of economic performance. When capabilities are socially complex — as the visions of these high-performing firms are — it can be difficult to create them.

Possessing invisible assets can enable a firm to create certain kinds of capabilities.

Causal Ambiguity. Finally, sometimes it is not clear which actions a firm should take to create a particular capability. When the relationship between actions a firm takes and the capabilities it creates is causally ambiguous, it can be difficult to create a particular set of capabilities.

Causal ambiguity about how to create capabilities exists whenever there are multiple competing hypotheses about how to create those capabilities and when these hypotheses cannot be tested. These conditions are particularly likely when the sources of a firm's capabilities are taken-for-granted, unspoken, and tacit attributes of a firm. Such organizational attributes have been described as "invisible assets."¹²

Possessing invisible assets can enable a firm to create certain kinds of capabilities. However, when the assets needed to create capabilities are invisible, it can be difficult for firms seeking to create these capabilities to know what they should do to create them. As long as multiple competing hypotheses about what a firm needs to do to create particular capabilities exist, a condition of causal ambiguity prevails, and firms cannot be sure what they must do to create them. Not knowing what to do to create a set of capabilities increases the difficulty of creating them.

Acquiring Capabilities

If firms cannot create capabilities on their own, they can still use hierarchical governance to gain access to those capabilities by acquiring other firms that already possess them. However, sometimes it can be costly to use acquisitions to gain access to capabilities. This can happen for at least five reasons:¹³

- There may be legal constraints on an acquisition.
- An acquisition may reduce the value of the capabilities that are held in the acquired firm.
- An acquisition can be costly to reverse if it turns out not to be valuable.
- There may be substantial "unwanted baggage" inextricably bound with the desired capabilities in the acquired firm.
- Leveraging acquired capabilities throughout an acquiring firm can be costly.

Legal Constraints on Acquisitions. Efforts to acquire a firm for its capabilities can be foiled by antitrust and local ownership restrictions.

For example, several years ago, Microsoft wanted to purchase Intuit, which had developed and marketed the most successful home accounting software on the market — Quicken. Undoubtedly, this acquisition would have benefited Microsoft, assuming it could have negotiated a reasonable price. Microsoft would have gained access to Intuit's programming capability, its installed base of users, and its reputation in the home accounting software market. However, this acquisition did not pass antitrust scrutiny, and Microsoft had to find another approach for entering this market.¹⁴

For political reasons, nations can restrict foreign ownership of domestic firms, making it illegal for a non-domestic firm to acquire a domestic firm. If a domestic firm possesses capabilities that a nondomestic firm needs and a nondomestic firm is unable to develop these capabilities on its own, it will have to find some alternative to acquisition to gain access to those capabilities.

Effect on the Value of Capabilities. Sometimes the acquisition of a firm can reduce the value of the capabilities that are being sought. Consider, for example, Publicis, the French advertising agency. One of this firm's greatest assets was its long-term contracts with several large French companies, many of which were at least partially owned by the French government. These clients strongly preferred working with a French advertising agency. If, during the consolidation of the international advertising industry in the late 1980s and early 1990s, Publicis had been acquired by, say, a U.S. advertising agency, the very thing that the U.S. agency may have been trying to purchase — Publicis' relationship with large French companies — would have been jeopardized. In this context, a firm interested in gaining access to Publicis' capabilities would have to find an alternative to acquisition, since the act of acquiring Publicis would have reduced the value of the capabilities being sought. Ultimately, Publicis entered into a strategic alliance with Foote, Cone & Belding, rather than be acquired.¹⁵

Strategic Flexibility and Uncertainty. Under conditions of high market uncertainty, a firm may not know what capabilities are needed for long-term suc-

cess. In this situation, it has a strong incentive to maintain its flexibility, so it can move quickly to develop the required capabilities after uncertainty is resolved.

In an uncertain environment, acquiring another firm to gain access to its capabilities is a less flexible governance choice than, say, using intermediate or market governance to gain access to those capabilities. One firm may acquire another only to discover that the capabilities it was seeking are not valuable. As a result, this firm may have to sell the newly acquired firm. On the other hand, if a firm had used intermediate or market governance to gain access to these capabilities, the cost of withdrawing from that form of governance would have been much lower than the cost of selling an acquisition.

Under conditions of high uncertainty, firms prefer to gain access to another firm's capabilities through strategic alliances.

Indeed, empirical research strongly suggests that, under conditions of high uncertainty, firms prefer to gain access to another firm's capabilities through strategic alliances (as forms of intermediate governance) rather than through acquisitions.¹⁶ Only after this uncertainty is resolved do firms use acquisitions to gain access to capabilities.

Unwanted "Baggage" and Diffused Capabilities.

Firms are bundles of capabilities that are often difficult to disentangle from each other. Rarely are desired capabilities conveniently located in a single division or group. Rather, they are often spread globally across multiple individuals, divisions, and groups. Such diffused capabilities cannot be easily extracted from their operating environments. In this setting, to gain access to a particular capability possessed by another firm through an acquisition, that entire firm may have to be acquired.

Whenever an entire firm is acquired, both desirable and undesirable capabilities are acquired. In principle, the problem of acquiring unwanted capability "baggage" can be solved by spinning off those parts of the acquired firm that are not important to the acquiring firm. However, when a firm's capabilities are diffused throughout its organization, it may be impossible to separate the desirable from the undesir-

able, the core from the baggage. In this setting, acquiring the baggage to access important capabilities significantly increases the cost of acquisition.

Leveraging Acquired Capabilities. Even if none of these other problems exists, acquiring another firm to gain access to its capabilities can still be costly. This is because it is often difficult to leverage the acquired capabilities across the relevant parts of the acquiring firm's operations.

Research indicates that most acquisitions fail.¹⁷ By far the most important reason for this failure is the inability of acquiring firms to take full advantage of newly acquired capabilities. Integration difficulties stem from differences in culture, systems, approach, and so forth. Such differences raise the cost of using acquisitions to gain access to capabilities.

Bringing Capabilities into Boundary Decisions

Thus, when the cost of using hierarchical governance to gain access to capabilities is high, a firm may prefer using nonhierarchical governance for this purpose, even if the threat of opportunism is real. Opportunism is simply part of the cost of gaining access to the special capabilities controlled by another firm that cannot be developed internally or accessed through acquisition in a cost-effective way.¹⁸ A firm seeking capabilities it needs for success must weigh the cost of any opportunism that might arise through gaining access to these capabilities via non-hierarchical means against the cost of gaining access to these capabilities through hierarchical forms of governance. Understanding the conditions under which capabilities are costly to gain access to through hierarchical governance thus becomes an important determinant of a firm's boundary choices.

Prevalence of These Exchange Conditions

At this point, a careful reader is probably asking: "So what?" This discussion is only relevant if the conditions under which it is costly to use hierarchical governance to gain access to capabilities actually exist in some industries. If these conditions are rare, the issues raised here are managerially irrelevant. However, I believe that these conditions are not uncommon. In fact, in rapidly evolving high-technology industries they are quite common. Examples of such industries

include biotechnology, microelectronics, and certain sectors of computer software.

Costliness of Creating Capabilities

Capabilities in these industries are often costly to create. History matters in these industries, and technology trajectories of different firms are highly path dependent. For example, biotechnology firms that want to manufacture on a large scale must almost certainly first learn how to manufacture in small batches. Firms that want to write complex software must have, first, the ability to write software modules within these complex programs and, second, the ability to continuously integrate these modules to create their software products. There is no known way to short-circuit these path-dependent capability development processes.¹⁹

Firms in these industries also rely on socially complex capabilities to pursue strategic objectives. Research in the pharmaceutical industry, for example, suggests that some firms are highly skilled at integrating product development efforts across multiple scientific disciplines, whereas other firms are less skilled in this way.²⁰ These socially complex capabilities are costly for firms to create on their own.

Finally, given the uncertainty in these industries, there can be causal ambiguity about how to develop capabilities that are critical to success. Often, this is due to the underdeveloped scientific knowledge that underpins these industries. For example, biotechnology firms often have difficulty replicating their own successful manufacturing efforts, let alone providing guidance to other firms on how to develop manufacturing capabilities.²¹ This lack of scientific knowledge, together with the thousands of small decisions that make up some of the core processes in these industries, leads to high levels of causal ambiguity. When firms cannot know definitively what they should do to build capabilities, internal development can be costly.

Costliness of Acquiring Capabilities

Even if a firm finds that it is costly to develop the capabilities it needs on its own, it could still use hier-

archical governance to gain access to these capabilities by acquiring a firm that already possesses them. However, the cost of such acquisitions in rapidly evolving high-technology industries can also be high. Over and above any legal, ownership, and asset value constraints on acquisitions, uncertainty about the future puts a premium on maintaining flexibility in these industries. Acquisitions in high-technology industries constrain a firm's options in a costly-to-reverse way, suggesting that nonhierarchical forms of governance as a way to gain access to capabilities are preferred.²²

Moreover, given the rapidly changing technical needs of firms in these industries, it is not unusual for capabilities to be required by a firm for limited activities, for short time periods, or for highly specialized purposes.²³ It is unlikely that an acquiring firm will be able to integrate an acquired firm's capabilities rapidly enough to address these kinds of episodic needs. And even if this integration occurs, after the acquiring firm no longer needs these capabilities, they become costly unwanted baggage.

Conclusion

All this suggests that firms in rapidly evolving high-technology industries will often prefer to gain access to capabilities through nonhierarchical forms of governance, despite the threat of opportunism that such a decision may entail. Because it can be costly for these firms to develop capabilities on their own and costly to acquire another firm that already possesses these capabilities, using market or intermediate forms of governance becomes a more attractive alternative. The cost of using hierarchical governance to acquire capabilities must be compared with the cost of using nonhierarchical governance to gain access to capabilities. While the threat of opportunism stemming from transaction-specific investment is an important consideration in making this boundary decision, it is certainly not the only consideration. Stated differently, the attributes of the capabilities a firm is trying to gain access to can have an important impact on the firm's boundary choices.

References

■ 1. The concept of a "hollow corporation" was first introduced in:
N. Jones, "The Hollow Corporation," *Business Week*, 3 March 1986, pp. 56-59; and
M. Postin, "The Hollow Corporation," *Executive Excellence*, volume 5, May 1988, pp. 11-12.

■ 2. The foundations of transactions cost economics were outlined in:
Ronald Coase, "The Nature of the Firm," *Economica*, volume 4, 1937, pp. 386-405.
However, these ideas remained somewhat underdeveloped until the work of Oliver Williamson, beginning in the 1960s. Williamson's work is summarized in two books:

O. Williamson, *Markets and Hierarchies: Analysis and Anti-Trust Implications* (New York: Free Press, 1975); and
O. Williamson, *The Economic Institutions of Capitalism* (New York: Free Press, 1985).
■ 3. Empirical tests of transactions cost economics are reviewed in:
J. Barney and W. Hesterly, "Organizational

Economics: Understanding the Relationship between Organizations and Economic Analysis," in S. Clegg, C. Hardy, and W. Nord, eds., *Handbook of Organization Theory* (London: Sage, 1996), pp. 115-147; and

J. Mahoney, "The Choice of Organizational Form: Vertical Financial Ownership versus Other Methods of Vertical Integration," *Strategic Management Journal*, volume 13, November 1992, pp. 559-584. Some of the secondary predictions of transactions cost economics and especially those that deal with the role of uncertainty in determining a firm's boundaries do not receive as consistent support as its primary predictions. Also, many transactions cost predictions do not seem to hold as consistently in high-technology industries. These empirical limitations of transactions cost thinking are important for subsequent sections of this paper.

■ 4. Direct costs, indirect costs, and opportunity costs are relevant in determining the cost of a governance mechanism for a firm.

■ 5. Perhaps, for example, this foreign firm may be owned by the government.

■ 6. More formally, firms will choose nonhierarchical governance when the value of an exchange is greater than the cost of opportunism stemming from transaction-specific investment and when the cost of opportunism from transaction-specific investment is less than the cost of using hierarchical governance.

■ 7. This discussion draws heavily on the resource-based view of the firm. This theory was first outlined in:

B. Wernerfelt, "A Resource-Based View of the Firm," *Strategic Management Journal*, volume 5, April-June 1984, pp. 171-180;

R. Rumelt, "Toward a Strategic Theory of the Firm," in R. Lamb, ed., *Competitive Strategic Management* (Englewood Cliffs, New Jersey: Prentice-Hall, 1984), pp. 556-570; and

J. Barney, "Strategic Factor Markets: Expectations, Luck, and Business Strategy," *Management Science*, volume 32, October 1986, pp. 1512-1514.

The reasons why some capabilities are costly to create are discussed in:

I. Dierickx and K. Cool, "Asset Stock Accumulation and Sustainability of Competitive Advantage," *Management Science*, volume 35, December 1989, pp. 1504-1511; and

J. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, volume 17, January 1991, pp. 99-120.

■ 8. Caterpillar's unique history is discussed in: M.J. Rukstad and J. Horn, "Caterpillar and the Construction Equipment Industry in 1988" (Boston: Harvard Business School, Case 9-389-097, 1989).

■ 9. These supply relationships and the value they create for Japanese firms are discussed in: J. Dyer and W. Ouchi, "Japanese Style Partnerships: Giving Companies a Competitive Edge," *Sloan Management Review*, volume 35, Fall 1993, pp. 51-63.

■ 10. See J.C. Collins and J. Porras, *Built to Last* (New York: HarperCollins, 1994).

■ 11. Collins and Porras estimate that \$1 invested in their sample of eighteen "visionary firms" in 1926 would have been worth \$6,536 in 1995, while \$1 invested in a matched sample of firms competing during the same time in the same industries would have been worth \$415. See: *Ibid.*, p. 3.

■ 12. The term "invisible assets" was introduced in: H. Itami, *Mobilizing Invisible Assets* (Cambridge, Massachusetts: Harvard University Press, 1987).

■ 13. Many of the reasons why the cost of acquiring a firm to gain access to its capabilities can rise are discussed in:

B. Kogut, "Joint Ventures: Theoretical and Empirical Perspectives," *Strategic Management Journal*, volume 9, August 1988, pp. 319-332;

J.F. Hennart, "A Transaction Cost Theory of Equity Joint Ventures," *Strategic Management Journal*, volume 9, August 1988, pp. 361-374; and

B. Kogut, "Joint Ventures and the Option to Expand and Acquire," *Management Science*, volume 37, January 1991, pp. 19-33.

■ 14. For a discussion of the specific antitrust issues in the Intuit-Microsoft case, see:

"Will Regulators Get Tough on M&A," *Mergers and*

Acquisitions, volume 31, July-August 1996, pp. 42-51.

■ 15. The Publicis and Foote, Cone & Belding alliance is described in:

R.M. Kanter, "FCB and Publicis (A): Forming the Alliance" (Boston: Harvard Business School, Case 9-393-099, 1993).

■ 16. Kogut (1991).

■ 17. M. Porter, "From Competitive Advantage to Corporate Strategy," *Harvard Business Review*, volume 67, May-June 1987, pp. 43-59.

■ 18. Of course, firms will want to minimize the threat of opportunism in this situation. This suggests that they will prefer some form of intermediate governance (i.e., a strategic alliance) over market forms of governance to access capabilities that they cannot develop internally and cannot access through an acquisition.

■ 19. The path-dependent nature of manufacturing in biotechnology is described in: G. Pisano, "Nucleon, Inc." (Boston: Harvard Business School, Case 9-692-041, 1991).

The path-dependent nature of software development is described in:

J.D. Blackburn, G. Hoedemakear, and L.N. Van Wassenhove, "Concurrent Software Engineering: Prospects and Pitfalls," *IEEE Transactions on Engineering Management*, volume 43, May 1996, pp. 179-188.

■ 20. See R. Henderson and I. Cockburn, "Measuring Competence: Exploring Firm Effects in Pharmaceutical Research," *Strategic Management Journal*, volume 15, Winter 1994 (special issue), pp. 63-84.

■ 21. Pisano (1991).

■ 22. Kogut (1991).

■ 23. For a discussion of these time dynamics in rapidly evolving high-technology industries, see: K. Eisenhardt and S. Brown, "Time Pacing: Competing in Markets That Won't Stand Still," *Harvard Business Review*, volume 76, March-April 1998, pp. 59-69.

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