

Excerpted by OKAYASU Kisaburo

The Knowledge Link

HOW FIRMS COMPETE THROUGH STRATEGIC ALLIANCES

1991

Joseph L. Badaracco, Jr.
Harvard Business School

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Preface

-Firms are, as one economist put it, islands of managerial coordination in a sea of market relationships. But this is an outdated view.

-my central focus is on the ways in which knowledge is reshaping firms' boundaries, altering the work of managers, and undermining many of our familiar, deeply rooted ways of thinking about companies.

Introduction

THE CITADEL PARADIGM

-Central sphere was defined by four kinds of organizational arrangement: administrative, financial, social, and contractual. All were ways of separating what was inside a firm from what was outside. (p. 2)

-Administrative arrangements defined a firm's boundaries by clearly designating a sphere of hierarchical control.

-The firm ~~stopped~~ where hierarchical control stopped and market allocation of resources began.

-Finance boundaries reinforced these administrative boundaries.

-The third ~~wall~~ that often separated companies from other organizations was social. Companies were not simply formal, rational hierarchies or aggregations of isolate individuals.

-Finally, firms defined and protected their spheres of managerial power through classical contracting.

MULTIPLYING ALLIANCE

-In essence, alliances are organizational arrangement and operating policies through which separate organizations share administrative authority, form social links and accept joint ownership, and which looser, more open-ended contractual arrangement replace highly specific arm's-length contract. (p. 4)

-Xblurred boundaries

-Sociologist Robert Eccles coined the term Xquasifirm.

-This book uses the term Xalliance to describe all of the cooperative relationships between companies and competitors, customers, suppliers, government bodies, universities, labor unions and other organizations. (p. 6)

TRADITIONAL EXPLANATIONS

-There are four traditional reasons why firms cooperate with other firms. (p.7)

-First, companies sometimes seek to cartelize an industry, reducing competition in order to raise profits or serve other purposes.

-A second reason is to share risks.

-The third motive is to bring together complementary resources.

-Finally, companies sometimes collaborate to surmount barriers to markets.

-Unfortunately, the word Xstrategy is now used so loosely that it is nearly meaningless. I use the word in its classic sense to describe Xa company's basic long-term goals and objectives and the way in which its managers take action and allocate resources to accomplish these goals.

THE GLOBALIZATION OF KNOWLEDGE

-A development I call the Xglobalization of knowledge helps explain the changing shape of the modern firm. (p.9)

-First, there is a vast pool of potentially commercializable knowledge in the world, and it is expanding rapidly, perhaps at an accelerating pace.

-Second, a growing number of countries, companies, universities, and other organizations are contributing to this pool of knowledge.

-Third, some of this knowledge is migratory. It can move very quickly and easily because it is encapsulated in formulas, designs, manuals, or books, or in pieces of machinery.

-Fourth, some of the knowledge being created around the world is embedded knowledge, and it moves slowly. The reason is that embedded knowledge reside in relationships, usually complex social relationships. A team, a department, or a company sometimes Xknows things that none of its individual members know, and some of its knowledge cannot be fully articulated.

-Migratory and embedded knowledge are ideal types: they present the essential features of two fundamentally different kinds of knowledge now driving competition among firms. In the actual, messy, empirical world, neither occurs in pure form. (p.10)

KNOWLEDGE AND ALLIANCE

-Alliances are both a cause and a effect of knowledge-intensive competition. Collaboration helps firms learn from each other and thus accelerates the movement of knowledge. (p.10)

-Through these alliances, knowledge diffuses even further. The intensifies, and tempest of

competition blows harder and harder. (p.11)

-early 1970s, , American firms began to rely more frequently upon a particular strategic: the product link. (p.11)

-In the 1980s, product links became more widespread as knowledge continued migrate around the world. But many firms also began to create knowledge links. (p.12)

-Knowledge links are defined by leaning and creation of knowledge. Many of these alliances reflect the special character of embedded knowledge. (p.12)

THE CITY-STATE PARADIGM

-A better image for many companies today is the Renaissance Italian city-state. . Their boundaries were open and porous. Artists like Leonardo da Vinci moved among the city-states; , city-states competed and cooperated with each other, often at the sometime. (p.13)

-The leaders of city-states such as the Medici of Florence raised diplomacy to a high art as they forged and managed a complex, changing network of strategic alliance.

-Its (a company's) strength lies its openness to ideas from outside. Knowledge has become the currency of modern economic competition, and a company must seek to acquire it through every means possible. (p.13)

-Most important, in an age of rapidly proliferating knowledge, the central domain is a social network that absorbs, creates, stores, transforms, buys, sells, and communicates knowledge. (p.14)

-Successful strategies depend upon learning, creating, adapting, and commercializing knowledge and skills. (p.14)

-Strategic decisions, as a result, are not only choices about the allocation of resources, but also about what a company will learn, what core skills it will build, and the extent to which it will do so on its own or through alliance. (p.14)

1. The Globalization of Knowledge

-Using knowledge to explain economic or social changes is a perilous exercise. (p.17)

A VAST POOL OF KNOWLEDGE

-Just as new knowledge creates new technology, so new technology creates new knowledge. (p.26)

MORE SOURCES OF KNOWLEDGE

-The globalization of knowledge also means that an increasing number of countries have taken part in the process of creating new knowledge. (p.28)

-A broader historical perspective offers reasons to expect convergence among nations and suggests that we should view knowledge production in global rather than national terms. (p.31)

-How and why this knowledge moves across national borders also requires careful analysis. (p.32)

2. Migratory Knowledge

-For knowledge to migrate quickly, four broad conditions must hold.

>First, the knowledge must be clearly articulated and reside in a package.

>Second, a person or group must be capable of opening the package, of understanding and grasping the knowledge.

>Third, the person or group must have sufficient incentives to do so, and

>Fourth, no barriers must stop them. (p.34)

Packaged, Articulated, Mobile Knowledge

-Examples of migratory knowledge are enormously varied, but they fall into three basic types. (p.35)

-Knowledge contained in designs. . Some economists have described this kind of knowledge as a book of blueprint. (p.35)

-Knowledge contained in machines. . As economist Kenneth Boulding observed more than two decades ago, machines are frozen knowledge. (p.36)

-Knowledge contained in individual minds. (p.37)

Brakes and Accelerators

-Complementary capabilities. Knowledge cannot migrate and become useful to a company unless the company has the appropriate social software. (p.40)

-A firm needs personnel who have training, experience, and equipment that will enable them to ; unpack a particular form of knowledge.

-Imitators, whether individuals or companies, have the skills to analyze a product, frequently a complex one, and understand how it works or how it was made. (p.40)

-Imitators may not be shackled by the traditions, customer requirements, or standard operating procedures of the inventors and so are freer to create new combinations.

-Such effort can lead to a self-accelerating cycle of imitation, innovation, strengthened capabilities, and further imitation and innovation. (p.41)

-In short, knowledge migrates quickly when organizations or nations have the capabilities to understand, assess, manage, and deploy the knowledge. (p.42)

-Incentives. Knowledge will not migrate unless some person or organization has incentives to make it do so. (p.42)

-Barriers. . Language is often an obstacle. . Corporate policy is another barrier. (p.45)

-More important, governments often try to impede the flow of information across their boundaries. (p.45)

Small Computers

Small Cars

3. Product Links

-Product links are an important way in which firms can respond to the challenge of migratory knowledge. (p.76)

-In some ways, they (product links) are pacts with the devil. In exchange for a product today, a company helps to strengthen a competitor, providing it with distribution, technology, scale and experience economies, profits, for further investment, and confidence that its products can sell successfully in its partner's market.

-At best, a product link will only help a company match the products its competitors are deploying against it. Hence, the alliances discussed in this chapter are essentially defence, and they offer little prospect of an enduring competitive advantage. (p.77)

4. Embedded Knowledge

-Migratory knowledge can be clearly fully articulated—it reside in tidy, mobile packages, in machines, and in the minds of individuals. (p.79)

-In contrast, embedded knowledge reside primarily in specialized relationships among individuals and groups and in the particular norms, attitudes, information flows, and ways of making decisions that shape their dealings with each other.

-Firms appear not as separate administrative, social, and economic spheres, but as open, porous forms of organization that learn, create, transmit, deploy, and control knowledge. They are, in essence, vast, complex, repositories of embedded knowledge. (p.80)

Craftsmanship

-Much of knowledge of such craftsmen and specialists is incapable of quick migration. (p.82,)

-Moreover a machinist, scheduler, industrial engineer, sales representative, or manager often cannot take all his knowledge and skills to another company.

-Because the knowledge depends upon specific relationships: running certain types of machines, scheduling certain tasks, selling a particular product to a particular sort of customer.

-The knowledge takes the form of competence, of a capability. It is knowledge of how to do something. As we well see, a company, too, can possess exactly this kind of practical knowledge, but on a larger and more complex scale. (p.83)

Teams

-Just as individual craftsmen have tacit knowledge, which they cannot communicate fully to others, so do successful teams, small groups, and departments in companies. (p.83)

-The power of subtle interactions among members of a team and their unspoken knowledge of how they can work together best is suggested most dramatically
by cohesive athletic team that defeat opponents with superior individual talent,
by elite military units that overcome much larger, better-equipped adversaries, and
by fledgling entrepreneurial units, that wrest markets away from larger, better-financed,
and better-staffed competitors. (p.84)

-One learns how to be a member of a team either by joining it or through an apprenticeship of some sort. Mines learn to work and fight as Marines in bootcamp and in combat, not through mail-order instruction manuals. (p.86)

-Much of the crucial knowledge that resides in teams can be glimpsed only by their members, and often none of them knows all that team knows.

Firms

-A firm is an embodiment of knowledge: it can learn, remember, and know things that none of the individuals or teams within it know. It is , in essence, very large team, or confederation of

teams, in which enormously complex skills and knowledge are embedded in the minds of its members and in the formal and informal social relationships that orchestrate their effort. (p.87)

- Toyota's knowledge of how to make cars lies embedded in highly specialized social and organizational relationships that have evolved through decades of common effort.

- How does a firm learn what it knows? Its knowledge is drawn from myriad sources. Some of it, the smaller fraction, comes from explicit effort such as market research, R&D, or licensing technology from other firms. (p.87)

- Much else is learned by doing: through countless, small, daily endeavors, and through endless adjustments to routines. (p.87)

- Horiyuki Itami, a Japanese business scholar, argues that the most valuable assets of firms are invisible—they are information-based assets—and that they are learned by the whole organization. (p.88)

- How does a firm remember what it knows? In part, through a 'memory' that consists of its standard operating procedures, the formal and informal routines its members use to get their work accomplished. (p.88)

- Organizations remember by doing, Richard Nelson and Sidney Winter arguing.

- In what sense does a firm 'think'? The answer is implicit in Chester Barnard's widely quoted statement that 'the first executive function is to develop and maintain a system of communication.' (p.88)

- Organizations 'think' and 'decide' by processing—transmitting, altering, refining, elaborating, ignoring, and combining—both hard and soft information. (p.89)

- Herbert A. Simon first conceptualized the firm as an information-processing system.

- 'The anatomy of an organization viewed as a decision-making and information-processing system may look very different from the anatomy of the same organization viewed as a collection of people.

The latter viewpoint, which is a traditional one, focuses attention on groupings of human beings—that is, the departmentalization. The former viewpoint, on the other hand, focuses on the decision-making process itself—that is, upon the flows and transformations of symbols. (Administrative Behavior: Simon) (p.89,)

- A firm distinctive competence is its capability to perform particular tasks more effectively than comparable organizations. (p.90)

- Organizations do not know what they know in the same way as individuals, but knowledge and capabilities do reside in the interstice of their routines, practices, cultures, and working relationships.

Outside Organizations

- Many important relationships in which knowledge and capabilities are embedded are not inside the firm. Close relationships between a firm and external organization often provide the chance for specialized knowledge and capabilities to take root and grow. (p.90)

- Toyota is at the core of a vast network of firms consisting of hundreds of primary, secondary, and tertiary suppliers. The dominant firm in these networks concentrates on assembly work and marketing. (p.90)

Group Affiliations

- Knowledge can also be embedded in looser affiliations between a company and other organizations. (p.92)

-Zaibatsu, Sogo shosha

-Networks of personal relationships linking employees of the trading company to one another and to the firms they serve are the single most important aspect of the management system of the sogo shosha. They account for much of the institution's capacity to cope with diversity, complexity, and change. (The invisible Link: M. Y. Yoshino and T. B. Lifson) (p.94)

Geography and Knowledge

-Knowledge and capabilities can also reside in geographic regions in the interstice of the social, financial, technological, and managerial relationships that can link nearby organizations. (p.95)

-Silicon Valley

-The Greater Tokyo area

-Wall Street, the City of London, and Route 128 near Boston

THE CHALLENGES OF EMBEDDED KNOWLEDGE

-Embedded knowledge in its many forms poses a fundamentally different challenge for companies than migratory knowledge. (p.96)

-Embedded knowledge leads to battles fought with capabilities as well as products. (p.97)

-The challenge for a company arises;

1) when it is confronted by competitors capable of working faster, more flexibly, more efficiently, more cost-effectively, or more imaginatively than itself; or

2) when it seeks to enhance its own capabilities or create new ones; or

3) when it needs to gain access to knowledge and skills that are embedded in relationships outside its boundaries. (p.97)

-In each of these situations, embedded knowledge, which by its very nature is inaccessible, presents a different challenge than migratory knowledge.

-Reading a book about another company's operations or hiring away one of its managers will not enable a firm to secure the knowledge it seeks.

-The three classic approaches to strengthening a firm's capabilities may prove inadequate. Three approaches include:

1) using arm-length market transactions to buy resources from other organizations,

2) going-it-alone, and

3) relying on mergers and acquisitions. (pp. 97-98)

Market Transactions

-Managers secure many important resources from other organizations through arm's-length, competitive transactions in the marketplace. In competitive markets, prices are a simple, readily understood method for distilling and communicating a wide range of judgments about scarcity, need, and value, now and in the future. (p.98)

-The price mechanism works less effectively, however, for transactions involving information and knowledge. The seller confronts what economists call the paradox of information.

-Its value for the purchaser is not known until he has the information, but then he has in effect acquired it without cost. (K. Arrow) This problem is especially acute for transactions involving migratory knowledge, which is available in dangerously mobile packages.

- When knowledge is embedded, particular problems arise. . For one organization to secure embedded knowledge from another, its personnel must have direct, intimate, and extensive exposure to the social relationships of the other organization.
- GM has tried to create a North American hybrid of the Toyota production system through a long, complex, and, at times, frustrating effort. Scores of GM managers and thousands of workers have worked at NUMMI (GM-Toyota joint venture) or at least visited the operation. (p.100)
- It would have been much simpler for GM to buy from Toyota the manual How to Create the Toyota Production System, but the document does not exist and, in a fundamental sense, could not be written.
- Much of what Toyota ~~knows~~ reside in routines, company culture, and long-established working relationships in the Toyota Group.
- In essence, the capability-sharing, capability-creating relationship between the companies requires some other than a traditional market transaction.
- Once the two parties have gone even a short way down the path toward collaboration, arm's-length market relationships fail to meet intrinsic requirements of the tasks that the company and its supplier face.

Going-It-Alone

- To avoid the problem of market contracting, a company could opt to develop capabilities on its own.
- The basic problem with the ~~go-it-alone~~ approach is that autonomous efforts are often slow and limiting: they are dangerous in a world of specialized capabilities, shortening product life cycles, and time-based competition, where windows for earning profit open and slam shut quickly.
- Companies do need pursue go-it-alone strategies for crucial resources, core capabilities, and key technologies. But the worldwide creation of embedded knowledge makes it increasingly hard for them to use this strategy for all the supporting capabilities a company may need.
- The destruction of traditional boundaries separating industries is only of the factors that will make it necessary for firms to have a growing range of capabilities. The other is the continued proliferation of capabilities within industries. (p.102)
- When a multitude of specialized capabilities bursts forth in an industry, as in the case of computers, or when they dissolve the barriers among industries, as in the case of automobiles, go-it-alone strategies are increasingly problematic.

Mergers and Acquisitions

- A company that needs to gain new capabilities often tries to avoid both of the problems we have just discussed—the limits of market transactions and the difficulties of a go-it-alone strategy—by acquiring or merging with a firm that has the knowledge or capabilities that it needs. But this approach has serious handicaps. (p.104)
- (It is simply ~~not for sale~~.) The same holds true for the capabilities of university laboratories.
- Limited financial and managerial resources bring a company's efforts at vertical integration to a halt. . It will not be able to buy every company that has knowledge likely to prove useful to it in the future. (p.104,)
- But even when acquisitions are possible, another hazard emerges. Mergers and acquisitions often threaten to impair or even destroy the operating practices and the sense of trust, independence, and entrepreneurship on which a firm's special capabilities rest.
- To the extent that a company's knowledge and capabilities depend on its culture and spirit, a

merger threatens to destroy the very thing that it was intended to secure.

-Finally, even if a magic wand could dispel these problems, an acquisition makes little sense;

1) when a company is interested in learning only one of the many capabilities of another organization or

2) when markets or technology may change quickly.

Tomorrow's needs may differ from today's, and an acquisition may become an albatross around a company's neck. (p.105,)

-Under these circumstances, the most successful response to need for new capabilities is a particular kind of strategic alliance, a knowledge link.

5. Knowledge Links

-Managers are playing with fire when their company does not own and control its crucial resources, core capabilities, and key technologies. (p.107)

-Embedded knowledge and specialized capabilities are created in a growing number of companies and other organizations around the world.

-In the words of IBM president, Jack Kuehler, "It is a dangerous thing to think we know everything."

-In response, many firms are creating knowledge links—alliances that give them access to the skills and capabilities of other organizations and sometimes enable them to work with other organizations to create new capabilities.

CHARACTERISTICS OF KNOWLEDGE LINKS

-The first distinguishing trait of knowledge links is that learning and creating knowledge is a central objective of the alliance. (p.109)

-Second, knowledge links are more intimate than product links. In order for two organizations to learn, create, or strengthen specialized capabilities, personnel from each must work together closely.

You follow your master because you trust his manner of doing things even when you cannot analyze and account in detail for its effectiveness. By watching the master and emulating his efforts in the presence of his example, the apprentice learns unconsciously, picks up the rules of the art, including those which are not explicitly known to the master himself. These hidden rules can be assimilated only by a person who surrenders himself uncritically to the imitation of another. (Michael Polanyi)

-The third distinctive feature of knowledge links is the extraordinarily wide range of partners with which these links can be formed. Product links are usually formed with competitors or potential competitors. Knowledge links, in contrast, can be formed with virtually any other organization—as long as it has a specialized capability to contribute to the partnership. (p.110)

-Finally, knowledge links differ from product links because of their greater strategic potential. (p.110)

EXTENDING CAPABILITIES THROUGH ALLIANCES

-When go-it-alone strategies, classic market transactions, or mergers and acquisitions seem unable to meet a company's needs, knowledge links can help a company gain access to the capabilities of other organizations or work with them to create new capabilities. (p.112)

-GMF (GMFanuc Robotics Corporation: GM-Fanuc joint venture)

TRANSFORMING CAPABILITIES THROUGH ALLIANCES

-Viewed cumulatively rather than one at a time, the knowledge links created by GM and IBM in the 1980s were genuinely strategic. They were not simply product links. (p.115)

-IBM, in short, was trying to transform its products; GM, its operations.

-How much these alliances contribute to the two companies' efforts to secure embedded knowledge, extend their capabilities, and transform themselves will depend on;

> how well these alliances are managed and

> how quickly these longtime citadels can learn from close relationships with outside organizations.

6. Managing Alliances

-Managing alliances, particularly knowledge links, is at bottom a process of learning, creating, sharing, and controlling knowledge. (p.129)

-Creating and managing alliances is an unnatural act for many American Managers. Intellectually and intuitively, they believe that firms are best run as citadels.

-Indeed, the best starting point for understanding how to manage alliances is examination of the factors that encourage or impede the acquisition, communication, and creation of knowledge within an organization. (p.130)

-In short, what matter are leadership, trust, and commitment. These commodities are often scarce inside companies, because of politics, bureaucracy, and other impediments. In alliances, the challenges are even greater. (p.130,)

-The first condition is that managers considering an alliance must have a clear, strategic understanding of their company's current capabilities and the capabilities it will need in the future. (p.131)

-Sustained strength is strength continually renewed.

-The second condition is that managers must consider a wide range of possible alliances. (p.133)

-The first is the choice of a partner.

-The second choice is deciding which activities the cooperative endeavor will undertake.

-The third condition is that before committing their company to an alliance, managers must scrutinize the values, commitment, and capabilities of prospective partners. (p.133)

-The fourth condition is that managers must understand the risks of opportunism, knowledge leaks, and obsolescence. (p.135)

-Dealings between companies engaged in knowledge-intensive competition are unlikely to be guided solely by harmony and goodwill. (p.135)

-Knowledge links, managed carelessly, can become knowledge leaks. (p.136)

-The fifth condition is avoiding undue dependence on alliances. Alliances, in general, should be ways of supplementing and improving a firm's embedded knowledge, not substitutes for internal development. (p.137)

- The sixth condition is that a company's alliances must be structured and managed like separate companies. (p.139)
- An alliance should be a sphere of activity with
 - > an explicit mission and specific performance objectives,
 - > a timetable for their achievement,
 - > its own resources and control systems, and
 - > personnel with a sense of loyalty and commitment to the alliance's success. (p.140)
- It should have clear guidance on
 - > what technology and know-how will be contributed to the alliance,
 - > what will remain proprietary, and
 - > what administrative mechanisms will resolve questionable cases. (p.140)
- In the creation of these unique, often fragile minicompanies, painstaking attention to detail is crucial. In the phrase of architect Mies van der Rohe, *God resides in the details.*
- The seventh condition is that the partners must come to trust each other. (p.142)
- When managers are asked what matters most to successful alliances, they say consistently and with conviction that trust and open communication are indispensable. (p.142)
- The eighth condition is that managers must change their core operations and traditional organizations so that they will be open to learning from alliances. (p.143)
- The final condition is that alliances must be led, not just managed. . Through words and actions, senior executives must clearly communicate the purpose, importance, and legitimacy of each alliance. They also need to set personal examples of commitment, patience, and flexibility, in order to show how concerned they are that the relationship succeed. (pp. 145-146)

7. Conclusion

- If optimistic scenarios prove accurate, the globalization of knowledge will continue. Firms and other organizations in Europe will contribute even more to worldwide pool of commercializable knowledge. (p.151)
- Competition will intensify, more alliances will be formed, and the boundaries of firms will grow even more complex.
- If knowledge-based competition continues to intensify, many familiar ways of thinking and managing will change.
- As before, a comparison with the Italian city-states is provocative and illuminating.
- The blurring of firms' boundaries poses many questions for managers and scholars. Are other familiar boundaries, for example, now eroding? Already, departments and functional areas in many companies are no longer separate baronies. (p.152)
- Advances in computer technology and telecommunications have enabled companies to pare away layers of middle management, reducing the barriers between executives and company operations. (p.152)
- If boundaries between traditional departments blur at the same time the boundaries of firms are blurring, will companies become less like hierarchies and more like networks?

- A cluster of overlapping circles may come to represent a company more accurately than a table of organization with a boss at a top.
- The center of the cluster would represent a firm's core capabilities. . The surrounding circles would represent supporting skills. . Further from the core would be the product links.
- The success of senior executives will probably come to depend more heavily on their ability to safeguard and strengthen their firms' core skills, in addition to their traditional responsibility of using those skills to produce competitive products. (p.153)
- Finding ways to keep these diffuse teams focused and efficient—and defining new models of leadership for them—will be major challenges. (p.153)
- Against the broad sweep of the history of commerce and business organization, companies as citadel—clearly defined zones of ownership and control surrounded by market relations—are the anomaly. This form of economic organization will not disappear, but it is changing dramatically, in ways that could again reshape economic life. That may be larger picture emerging from the intricate mosaic of today's strategic alliances. (p.154)

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