JAPANESE CONSTRUCTION ALLIANCES

By David N. Sillars[1] and Roozbeh Kangari,[2] Members, ASCE

ABSTRACT: As a result of increased globalization, characterized by freely accessible communications and transportation systems, the traditionally geographically dependent construction industry finds itself in the midst of industry changes in which the borders between competitors are being removed. As a result, construction industry organizations need to react to change and increased competition. One method for doing so is formation of construction alliances to provide for the resource, geography specific, and technological needs of project owners. The objective of this paper is to present the results of interviews with leaders in the Japanese construction industry, with a perspective on perceptions of change in the international and domestic market, and the use of alliances to react to those changes. The results indicate an increasing need to form alliances to remain competitive across and within traditional market borders. Additionally, the impact of the spread of the free market economy is noted as a significant factor in the rise of increasing competitiveness. The importance of alliance success is stressed, and the means to that success is careful integration of cultures and technology during alliance formation.

INTRODUCTION

Competitiveness within the construction industry is increasing as market borders are being expanded through use of widely available telecommunications and increasingly efficient transportation systems. In this competitive environment, firms must look to a variety of strategies to assemble the services required to successfully acquire new projects and new revenues. Alliance formation is one way to provide these services by combining the strengths of firms that provide complementary services.

The objective of this paper is to present the results of interviews conducted with members of large international Japanese general contractors regarding their experience and views on alliance formation. The interviews explore the interviewees' perspectives on changes in the nature of construction industry competition and the use of alliances both within Japan and internationally. Also discussed are the lessons that demonstrate that alliances are often formed to bring financial resources to a project, to react to political demands, or to assemble new technologies, among other reasons. Alliance operation is reported to be structured as an integrated effort between the joined firms, where attention to communication and cultural differences is of strong importance for successful operation.

GLOBALIZATION

Effects on General Industry

The world market is changing in a number of directions, and will continue to do so (Naisbitt and Aburdene 1990). Most such changes are an outgrowth of the increasing world population and the decreasing size of the world in terms of both communicational and physical accessibility measurements. This globalization is accompanied by an unprecedented increase in the rate at which new technologies are introduced, changing the strategies required by industry members to remain competitive. The continued expansion of industry across the globe will increase competition within geographical borders while also providing increased access outwardly to markets previously inaccessible. "It looks as if industries are being increasingly globalized . . . requiring the successful firm to have scale and/or scope advantages at least at a par with its competitors" [Lorange and Roos (1992), p. 273]. It will be important for the construction services firm of the future to react with the proper management tools to thrive in this changing environment.

The development of a highly sophisticated and economically accessible global transportation system has opened up local markets to the access of outside specialists in what were previously inaccessible areas. Additionally, telecommunications, both nationally and internationally have produced a network of information that creates virtually equal access to information anywhere on the globe. This continued trend toward removal of barriers to access of information and markets will create an atmosphere of increasing competition across the United States and internationally (Naisbitt 1982). The resulting increase in competition will create a need for firms to evaluate their methods of doing business in terms of the methods of competition from other regions (Bienviste 1994).

Effects on Construction Industry

A review of trends in the construction industry indicates similarities to other industries. In the 1960s, the United States was the predominant player in providing international construction services. The U.S. construction services industry has felt a decline in its dominance in the global construction market. Between 1982 and 1986, for instance, the amount of international construction contracts held by U.S. firms had declined by more than 40% (*Building* 1988). Additionally, inroads are being made into the U.S. construction market by foreign firms. As with industry in general, the U.S. construction industry is facing increased competition from abroad. Revenue of foreign construction firms providing services in the United States increased at an annual rate of 35% during the period from 1978 to 1982 (*Building* 1988). "By the turn of the century the construction industry will be populated with many competent firms from a variety of countries and these firms will all be capable of the type of work that the current leaders in the E&C [engineering and construction] business now undertake" [Yates (1991), p. 124].

Construction technologies, defined here as bodies of knowledge about certain industry-specific techniques, have historically been slow to develop, but are now developing at a rapidly increasing pace. The acquisition of and ability to apply such new technologies will become increasingly important to construction industry endeavors of the future (Halpin 1993).

Client demands for services are broadening as the social impact of major construction works is felt in the areas where projects are built. Social needs and local customs that require

[1]Vice Pres., Hardin Constr. Group, Inc., 1380 W. Paces Ferry Rd., Atlanta, GA 30327.

[2]Assoc. Prof., Civ. and Envir. Engrg. School, Georgia Inst. of Technol., Atlanta, GA 30332-0355.

Note. Discussion open until November 1, 1997. To extend the closing date one month, a written request must be filed with the ASCE Manager of Journals. The manuscript for this paper was submitted for review and possible publication on May 1, 1996. This paper is part of the ***Journal of Construction Engineering and Management***, Vol. 123, No. 2, June, 1997. ©ASCE, ISSN 0733-9364/97/0002-0146–0152/$4.00 + $.50 per page. Paper No. 13182.

specialized knowledge will become a prerequisite for obtaining work in each culturally distinct area.

BACKGROUND IN ALLIANCES

Bienviste proposes that interdependent alliance relationships across organizations will become increasingly important (Bienviste 1994). "Already, many strategic alliances have been formed to meet the needs of what will be the consumer-driven information age. The industry establishment and entrepreneurial upstarts alike are partnering at a dizzying pace, fully aware that no single company—and no single country—can alone be a successful player in the new global game" (Naisbitt 1994). Alliances provide a means for multinational companies to access emerging technologies, and allow small to medium-sized firms to become international. The trend for alliances will continue, fueled by marketing, technology, and people needs (Drucker 1992).

As with other industries, researchers of construction industry trends indicate that alliances are among the tools that construction firms will need to successfully meet the future market demands. In a 1991 survey of 30 international construction executives, strategic alliances were considered by the interviewees as a necessity for U.S. construction firms if they wish to compete in the global marketplace (Badger and Mulligan 1995). "The 21st century will most likely usher in a whole new era of cooperation through alliances within the construction industry as it moves from domestic to foreign ventures" [Badger and Mulligan (1995), p. 111].

Clients, reacting to their changing needs, will in turn require changes in project delivery systems, and alliances will be used as one current tool to create these project delivery systems. Badger notes that projects of the future will be delivered by evolving tools such as strategic alliances.

Alliance is lexically defined as "a close association of nations or other groups, formed to advance common interests" (*American* 1993). This broad definition of the term alliance is echoed in the broad, varied language of alliance formation. "With the flood of news stories and other literature on alliances, the lines which differentiate one form of alliance from another have often become blurred" [Troy (1994), p. 11].

The Construction Industry Institute (CII) distinguishes alliances in terms of the alliance structure and the duration of the alliance. The CII in its reports more narrowly defines alliance as "a long-term association with a non-affiliated organization, used to further the common interests of the members" (Badger et al. 1993). The term partnering is frequently used when describing an association among firms that is single-project based. Joint venturing describes an association among horizontally related firms.

For the purposes of this paper, alliances are defined generally as strategic associations formed to further a common business interest, where risk is shared jointly. Traditional subcontracting, where risk is shifted, is not an alliance. In the interviews discussed later in this study, the term alliance was used most frequently in terms of horizontal alliances, structured as either marketing consortiums or as short-term joint ventures.

Alliance Type

In general industry, alliances have been categorized in terms of four archetypes—ad hoc pool, consortium, short-term joint venture, and full-blown joint venture (Lorange and Roos 1992). Resource input and recovery are vectors used to distinguish between the types. The ad hoc pool is characterized as the alliance requiring the least amount of resource input. At the other end of the alliance matrix is the full-blown joint venture requiring significant resource input. The output remains with, and is reinvested in, the joint venture; it is expected to remain a viable entity for a significant length of time, certainly spanning multiple projects. Consortiums are characterized by expectations of long-term relationships with parent resource input, but without a strong expectation for resource output. A marketing alliance is an example of a consortium. Finally, short-term joint ventures have significant resource input and are expected to return resources (profit) to the parents. This type of alliance may commonly be used on a project-by-project basis.

Alliance Form

Studies of alliances cite examples of alliance formation that occurs either between entities that provide complementary services in an industry (vertical alliances), or between entities that compete (horizontal alliances) (Niosi 1994). Vertical alliances may occur among firms that are dependent along the chain of services toward project completion, as between a windshield manufacturer and an automobile manufacturer, or between a structural steel erector and a structural steel fabricator. Such alliances may also include the owner or client. Alternatively, horizontal alliances may occur among members of a peer group, including competitors. Examples of such alliances would include alliances between automobile companies, or a joint venture between a minority and a majority construction manager. Although client alliances and subcontractor/subconsultant alliances were briefly discussed in the interviews, the form discussed most frequently was the use of horizontal alliances.

There is history of alliance formation within segments of the construction industry, especially among those who have been involved at the international level. Further, projections of the future of the borderless environment indicate that alliance formation will become a required skill at most levels of organizational size and across many geographies. Multinational and international corporations will continue to grow, and will create a need for these firms to form relationships with smaller, specialty firms across the world (Cetron and Davies 1991). The complicated nature of alliances requires a systematic approach to their formation and operation. "Alliances, while needed, are anything but easy. They require extreme—and totally unaccustomed—clarity in respect of objectives, strategies, policies, relationships, and people" (Drucker 1992).

INTERVIEWS

Objective

Models that guide the process of alliance formation and operation are needed to enable construction industry firms to compete in the increasingly global world. This report is part of a larger study on developing a model for construction industry alliances, primarily focused on the U.S. construction industry. As a part of that study, research of non-U.S. alliances is performed to provide perspective and insight into the global alliance process. Japan has been a major player in the global construction market, and Japanese construction contracting firms were selected as being able to provide a historical perspective to alliance formation.

The objective of this series of interviews was to gather empirical information regarding large international Japanese construction contractors' views toward perceived global changes —especially along the vectors of communications and transportation, the role of technology in terms of globalization, the business purpose of alliances in the industry, the differences, if any, that exist among alliances in different parts of the world, and the areas of experience in alliance formation and operation. Quotations shown in this section are taken from

the various interviews. To respect the respondents' confidentiality, the quotations are not attributed and certain identifying information has been removed.

Methodology

The criteria for the interview pool were candidates that performed construction within Japan, had global construction experience, and spoke English fluently (budgeting did not allow use of a translator). For recommendations on potential interview candidates that met these criteria, the Japan Federation of Construction Contractors located in Washington, D.C. was contacted. It supplied a list of the ten largest Japanese construction and engineering firms working in the United States, all of which belonged to the federation.

After verifying contact names, addresses, and telephone numbers, these general contractors were initially contacted by fax. Since titles vary considerably within each organization, the primary contact person in each organization was the president. Initially, only one response was received. The poor response rate may have been attributable to the lack of importance that the presidents of each company may have placed on the request for an interview date.

To increase the number of responses, telephone calls to the nonrespondents were made. A mixture of responses was received. In each case, it became clear that the initial mailing to the presidents of each company had not received much attention; perhaps the company presidents did not have time to address the letter. The Japan Federation of Construction Contractors was asked to supply contacts within the United States for those who had not responded to the first solicitation. The federation suggested contact with the overseas manager; this round of contact, including a second fax mailing, added three additional interviewees. Despite further efforts at contact, including follow-up phone calls, no additional candidates were secured. The interviewees all held positions as managers and all were involved in international planning and operations.

Approximately one week prior to the interviews, an interview guide was faxed to Tokyo to each of the potential interviewees, along with a cover confirmation letter. The interview guide, detailed in Appendix I, included questions related to the respondents' perceptions of the current and future industry environment, the role of alliances in that environment, and several factors related to alliances, including alliance formation, structure, process, and dynamics. The actual interview was conducted in a semistructured format; this technique was selected to allow for flexibility to reach to anticipated language difficulties, and to be able to solicit empirical information on a subject that is still under development.

To avoid the slow pace of interviewing with note taking and memory loss in anticipated one-hour or more interviews, and to increase the amount of personal contact, the interviews were tape recorded. Each interviewee was assured of confidentiality, and nothing during the interviews indicated a lack of openness due to the presence of the recording equipment. The tapes were then transcribed, yielding over 4-1/2 hours of response. While the semistructured nature of the interview process did not allow for a tabular comparison of responses, the findings that follow indicate opinions that were highly correlated among the interviewees, unless otherwise noted.

Findings

Globalization

All of the interviewees expressed a perception of a changing global environment. Increased communications and readily available transportation were cited as causes of globalization. The use of telecommunications was commonly noted as being very easy to obtain and use, regardless of location; consistency of technology around the world removes barriers to such communications. Air transportation, used to move both equipment and personnel has become more efficient and allows for cost-effective global movement of resources.

A further factor cited by all of the interviewees that is driving them to change the way they look at doing business is a shift in the political environment of the global market. This shift is the clear trend toward a global free market. The following comment is typical of the attitude toward opening competition throughout the world. "Economies globally are very inter-locked, so you just can't have Japan prospering and everybody else being poor; you need to have the United States prospering; you need to have the Chinese prospering; and there's this kind of synergy that is developed in the global economy. And if the Japanese economy wants to be successful, I think that Japanese companies need to be more globalized and more interactive with foreign competitors and so on."

This trend toward a global embrace of the free market was noted as currently highly active in Southeast Asia and China. The influence of the United States on this part of the world was specifically noted. This impact of the United States on encouraging establishment of free market principles is particularly strong due to the influence of the large U.S. marketplace. Political pressure by the U.S. government is effective due to the government's threat of withholding access to the U.S. market from foreigners. Therefore, to retain access to the U.S. market, the interviewees understand that reciprocally open Japanese markets must be created. Particularly important to the interviewees is the effect that this trend toward free market economies is having in Japan. All of the interviewees discussed that large Japanese manufacturers have become more cost conscious; they are calling other construction companies, getting estimates, and the competition is becoming more fierce. Additionally, public sector construction work is becoming more open because of the pressure from outside countries that want to have a part in the public works market.

Effect on Clients' Needs

In terms of construction industry clients, these changes play out due to the clients' need to react to the changing, more competitive marketplace. The effect on the Japanese construction industry is being felt due to the influence of large corporate clients such as Sony, Toshiba, Toyota, and Nissan. Due to the pressure of increasing global competition, they are finding it necessary to become more cost competitive and in turn are needing to be more conscious of the cost of their facilities. These companies at one time would just ask a favored construction company to provide construction services, but are now calling for cost-competitive proposals; the competition is becoming more fierce.

The effects are also felt in the public sector. Decreasing margins at the corporate level translate to decreasing income at the personal level. Consequently, public administrators are under demand to be more frugal in their delivery of public facilities. In a more competitive world, employee compensation is tightening and the Japanese people have become increasingly conscious of how their taxes are being spent.

A sense of the need for Japanese industry to react to this more globally competitive world was discussed by all interviewees. The need for understanding other cultures and having the ability to react to the dynamic world with changing business practices is seen as the survival technique for the future. As one interviewee put it, "If the Japanese economy wants to be successful I think that Japanese companies need to be more globalized and more interactive with foreign competitors . . . we need to expose our employees more to the international side and make them open their minds."

Both domestically and internally, these large Japanese construction contracting companies are devising means to maintain (and grow) their position in the industry. Three methods of remaining viable through meeting clients' needs, were discussed: (1) being prepared to work globally through political awareness; (2) assembling required resources to meet client demands; and (3) providing the most cost-efficient and client-responsive technologies.

Political Considerations

To expand globally, the interviewees reported a need for politically based awareness. This political awareness is needed to address client needs, and to successfully work with subcontractors or subconsultants.

Clients, especially governments, often impose requirements that protect the interests of their constituency. As reported by the interviewees, such requirements may include a need to distribute work (within Japan) to other than the largest construction companies (often through unofficially suggested joint ventures), transfer technology on foreign projects to a foreign firm, or obtain a local partner on foreign projects to share profits and employ local workforce. Within Japan, Japanese bureaucrats may want to control the competitiveness in the construction industry, and they want the industry to share equally. They do not want very large companies to control the market, so they may subtly require larger firms to share with smaller firms (form alliances). Outside of Japan, all interviewees noted another form of governmental control, summarized as follows by one of the interviewees, "The (foreign) government requires foreign companies to form joint ventures with local companies. . . They (the local companies) are bringing the social, political connections, and they know the local manpower suppliers."

Additionally, the foreign clients' social and cultural environment was described as varying from Japanese custom. Foreign laws and customary approaches to the legal system may require special handling. Import/export requirements, contractual methods and local code requirements were all cited as requiring special understanding. For example, one interviewee discussed the hiring of local designers to complete detailed drawings, due to their familiarity of local building codes.

Contractual methods and customs in different global regions were discussed. Dependence on legally drawn contracts to define performance criteria varies around the world. The United States is more tied to performance based on contractual expectations ("very, very tight"), with Asia characterized as being most likely to be "very loose," while Europe is characterized as somewhere in between Asia and the United States in contractual approach. Typical comments included, "We (Asians) make a contract, but nobody looks at the contract to do the job. There's no dispute, no claims. . . We negotiate; we don't dispute but we negotiate."

In spite of this generalization, however, one interviewee noted that there may be contractual variances that occur between countries within a cultural region. For example, within the Asian countries, contractual arrangements and attitudes may vary considerably among Japan, China, and Southeast Asia.

In foreign countries, understanding of the capabilities and customs of subcontractors, subconsultants, and the work force was described as being important to the eventual success of a project.

Technological Considerations

The provision of new technologies was seen as a method for obtaining work in an environment where low cost may otherwise dictate project awards, and low-cost pricing may favor a more local construction firm. Buildings, including office buildings, apartment buildings, and factories are becoming increasingly high tech. The energy efficiency of structures is gaining more focus and how these structures or buildings will adapt to the telecommunications age needs to be addressed. The need to provide current technologies to overcome commodity-type, low-cost pricing was noted as a problem in both foreign and Japanese markets.

Interestingly, there is ambivalence among the interviewees in the corporate philosophies regarding research and development (R&D). The need to have access to newly developed technologies is considered a key market strategy. However, at the same time it was noted that the burden carried with R&D may create a situation of cost inefficiency. "[Our] biggest advantage in the overseas market, is because we have this kind of technology. Otherwise we lose the competition. Just cost-wise, [foreign construction competitors] are much lower than our price, because they are there. We have to go overseas and that creates more cost than them. So, we can sell our new technology."

Resource Considerations

Size of firm and ability to tap a large resource pool to assemble the services required of the client were indicated as important. Through consolidation of smaller firms to larger firms, a lot of competitors will be "falling out or will be merging with larger competitors." Clients are demanding broader services from construction industry companies both in terms of construction technology and in the provision of full construction services for larger projects. The largest Japanese construction and engineering companies have a variety of types of research, including very large R&D and personnel expenditures. These programs allow them to compete in a technologically competitive world.

In addition to traditional provision of building and construction management technologies, a trend is for client-requested financing services. Sometimes, foreign governments "think the contractor's financial ability is a very big point to decide which company they pick up for that project." Both Japanese and European (especially German) companies were discussed as being particularly adept at financing.

Role of Alliances

In pursuing market expansion, the first strategy for winning and undertaking a project was typically reported as performing the project with the individual corporation's own forces. The joint venture is not really the strategy that they want to pursue. If they can establish a local company in foreign countries, then they don't want to form a joint venture. But, if it is necessary, they depend on forming alliances.

Pursuit of work in the changing market requires matching the client's needs in terms of technology, resources, and political understanding. Where these needs are not matched, the interviewees reported alliance formation as a key strategy in obtaining work. Interestingly, two of the firms interviewed stressed being able to corporately structure as a holding company (not possible under Japanese law as of the interview date) as important to peeling off divisions of their corporations so that they could partner with other firms and assemble viable project teams. For example, the design entity of one of the interviewees could ally with the construction entity of a U.S. construction company to combine high technology and efficient construction services on a project in the United States. A typical sentiment is noted in the following observation, "We think that not everything needs to be done by [us]. . . . we would form project-based alliances. I think in the long-term we will see a lot more of that happening. And it will be easier

for us to form that kind of alliance because holding companies in Japan will become popular."

Alliances were reported as important in providing key technologies. For example, one interviewee reported that to pursue a project that requires techniques in oil rigs in the deep sea, it is necessary to form an alliance with a firm from The Netherlands or the United States. In forming alliances to respond to the political and cultural requirements of a project, many projects in China, Malaysia, and Indonesia have been performed as joint ventures to respond to the local governments' requirements to provide for technology transfer. And, responding to the need to bring proper resources to a project, foreign firms coming to Japan would find it very difficult to access the local subcontractor market without a Japanese partner.

Alliance Type

Two strategic types of alliance were highlighted during the interviews—long-term and short-term project alliances. The long-term alliance is characterized as being used for strategic marketing purposes, often to market or offer a specific new technology. The development of such an alliance requires significant upper-level executive management involvement, perhaps at the presidential level. The alliance is based on an understanding that may take the form of a very loose contractual agreement, and allows the flexibility for each party to sever themselves from the relationship relatively easily.

By contrast, short-term alliances are characterized as primarily for operational, or project purposes. These alliances are formed through associations developed through other management, perhaps overseas managers. These alliances types are often used for specific projects, to acquire partners for specific client needs such as political requirements, to acquire a single-use technology such as special tunneling techniques, or to ensure resources such as local engineers or local trade labor.

Alliance Formation

Forming an alliance is a key element in determining the eventual success of the partnership. When asked to describe the reason for a specific alliance failure, one interviewee reported, "I think that the lack of strategic thinking on our part and also the difference in cultures and communications, differences in how we approach the work, different values [caused the failure]." This observation of alliance failures caused by communication breakdowns was typical of all respondents.

Several questions were asked relating to choosing alliance partners. There was commonly little value seen in forming alliances with either clients ("What would be the value?") or with subcontractors. The predominant form of alliance discussed was the horizontal alliance, formed with others who provide similar natures of services and with whom a unique combination of complementary strengths could be formed.

Responses indicated that a significant amount of effort is placed on performing a thorough investigation of potential alliance partners. Maintaining a presence in foreign countries, or at a minimum maintaining "operatives" in those countries provides access to current information about potential partners. Information such as financial data, technological data, and reputation is gathered prior to making a decision on the potential partner. Where this information is not known directly, often other sources are used to evaluate local companies. Large Japanese manufacturing and trading companies that have global networks may be relied on to provide information about potential local partners.

Once a potential partner is identified, the alliance relationship is established through management contact. In the case of long-term alliances, the relationship may be formed through presidential meetings. These relationships are often for strategic marketing of new technologies. In short-term alliances, which are often single-project based, the relationships may be established through interaction between overseas managers in a business-like environment. When establishing these relationships, there is mixed success in reconciling the interactions of diverse cultures. "It is still very, very difficult to make these kinds of alliances work or live up to our expectations. . . Not just language-wise, but understanding the values of Western as opposed to Asian values. And understanding how Europeans or Americans work, or just understanding how these people in Southeast Asia work. That really is a formidable barrier."

Alliance Operation

Discussion of alliance operations revolved around two key aspects—structure and staffing. Organizational structure for long-term marketing alliances was generally described in terms of a loose structure, without direct expectations for immediate profit, but rather as an association to which each partner dedicates some resources for marketing purposes to develop potential client interest.

On the other hand, the short-term project alliance is described as organizationally a formal joint venture to which specific resources are contractually promised, and from which profits were contractually expected. At this project level, generally each team contributes staff to a combined hierarchical organization since the project success is not often easily divided into specific and separable responsibilities between firms. Financial reporting is on a total project basis, with each parent corporation receiving monthly progress reports. Success at the project level is expected to be achieved if good communication is established among the combined project staff. In fact, it was characterized by the interviewees that joint venture communication at the project level is often more important than at the parent company level.

Choosing the proper staffing for the alliance is linked to the success of intraalliance communication. Why do alliances go badly? Alliances go badly due to "lack of communication," "different culture," and "lack of using language." These cultural differences are reported by all three respondents as having a significant relationship with the eventual success of the alliance. These beliefs are well summarized by the following comment, "I think the key from the Japanese company's perspective is that we need to have more people who are bilingual, bicultural and who can handle international communications and also have a good handle on the specific work that we handle. We need to have a lot of internationally capable managers; not just managers who are sensitive working for a Japanese client and working among Japanese people, but managers who are able to go out there wherever it is and make things go smoothly without a lot of international friction. I would start with the personnel because that's where it all happens. And then the decision-making process is the structural part."

CONCLUSIONS

The interviews confirmed that perceived global changes are affecting the way construction/engineering companies must strategically plan to acquire new business. Factors include increased communications and availability of transportation. These changes are necessary to react to clients' needs for more efficient project delivery across a diverse geography. Political awareness, strength of resources, and current and efficient technology are required.

The political influence of the global free market, especially driven by the United States was an unexpected outcome of the

interviews. The impact of these international politics was strongly voiced by all interviewees. There appears to be growing commonality among nations in terms of the free market economy, even while there at the same time appears to be a strong desire to maintain distinct cultural heritages. While transportation and communication, coupled with consistency of economies, may allow firms to work beyond their traditional borders, the need to respect and complement diverse cultures presents a challenge to any firm working beyond its area. Even working within Asia, the interviewees reported cultural differences. In an area as large as the United States, perhaps the same cultural difference effects may be felt within its borders.

Each of the firms interviewed expressed the strategic value of alliance formation in obtaining new work in the increasingly global environment. Horizontal alliance formation allows them to add any of the elements of current technology, local knowledge, or resource strength to a given project.

The influence on cultural alignment of team members in determining the success of the alliance relationship is surprisingly strong. Historic failures in alliances are attributed to breakdowns of communication due to these cultural differences, in both language and values.

ACKNOWLEDGMENTS

The writers would like to thank Kajima Corporation, Obiyashi Corporation, and Shimizu Corporation for providing the opportunity to interview members of their organizations, and the Japan Federation of Construction Contractors for providing contact information. Additionally, input provided by Nabeel Ahmed, a graduate student at Georgia Tech, and review by Diedre Paris, a Georgia Tech graduate research assistant, was valuable in preparation of this paper.

APPENDIX I. INTERVIEW GUIDE

Industry Environment

1. Do you believe that the construction industry is undergoing any significant changes in environment?
2. What do you believe are the driving forces behind such changes, if any?
3. Do you see changes in the needs of domestic clients?
4. Do you see changes in the needs of foreign clients?
5. Do you see changes in the domestic competition?
6. Do you see changes in the foreign competition?
7. In what ways are you performing your business differently to react to such changes?
8. What effects do you see from the increasing rate of change in new technologies?
9. What effects do you see from the increasing availability of global transportation?
10. What effects do you see from the increasing ease of global communication?

Alliances

1. In what manner do you use construction alliances to increase your effectiveness in the future environment?
2. With what type of partners do you find yourself forming alliances?
3. Do you establish alliances on a long-term or short-term basis?
4. How may alliances respond to the future needs of future clients?
5. How do alliances improve your ability to be competitive?

Alliance Formation

1. How is the decision to form an alliance made?
2. How are the partners for alliances chosen?
3. What role do clients play in the formation of alliances?
4. What role does risk analysis play in the formation of alliances?
5. What role does the need for new technology play?
6. What are the barriers to domestic alliance formation?
7. What are the barriers to foreign alliance formation?

Alliance Structure

1. Are alliances structured to be independent of or dependent on their parents?
2. Are alliances structured to retain their output, or return the output to their parents?
3. Are the partners differentiated in the alliances with distinct roles?
4. Is there a difference in structuring between alliances that is among competitors or those with a client or provider?
5. What are the barriers to successful alliance structures?

Alliance Process

1. By what process is the alliance begun?
2. What individuals are involved in the initial stages of alliance formation?
3. What steps are followed to create the alliance?
4. How is the creation of the alliance documented?
5. Once envisioned, what steps are taken to identify the individuals to manage the alliance?
6. What steps are taken to ensure that personnel within the alliance understand the original purpose?
7. What measures are used to establish operating procedures for the alliance; how are they documented and communicated?
8. Are there any specific operating procedures that are unique to alliances?
9. How is alliance reporting managed to the parent companies?

Alliance Dynamics

1. In what way are alliances formed to be able to react to the changing global environment?
2. How is alliance formation expected to change as the construction environment changes?
3. In what way are alliances expected to remain the same regardless of future changes?

APPENDIX II. REFERENCES

American heritage college dictionary. (1993). Houghton Mifflin Co., Boston, Mass.

Badger, W., et al. (1993). "Alliances in international construction." *Source Document 89*, Construction Industry Inst., Austin, Tex.

Badger, W., and Mulligan, D. (1995). "Rationale and benefits associated with international alliances." *J. Constr. Engrg. and Mgmt.*, ASCE, 121(1), 100–111.

Bienviste, G. (1994). *The twenty-first century organization.* Jossey-Bass Publishers, San Francisco, Calif.

Building for tomorrow—global enterprise and the U.S. construction industry. (1988). National Research Council. National Academy Press, Washington, D.C.

Cetron, M., and Davies O. (1991). "Trends shaping the world." *The Futurist*, 25(5), 11–21.

Drucker, P. (1992). *Managing for the future.* Truman Talley Books, Dutton, N.Y.

Halpin, D. W. (1993). "The future of the construction industry's worldwide customers." *Source Document 90*, Construction Industry Inst., Austin, Tex.

Lorange, P., and Roos, J. (1992). *Strategic alliances: formation, implementation and evolution.* Blackwell Scientific Publications, Ltd., Cambridge, Mass.

Naisbitt, J. (1982). *Megatrends.* Warner Books, New York, N.Y.

Naisbitt, J. (1994). *Global paradox.* William Morrow and Co., New York, N.Y.
Naisbitt, J., and Aburdene, P. (1990). *Megatrends 2000.* Sidgwick and Jackson, London, England.
Niosi, J. (ed.). (1994). "Technological alliance in Canadian industry." *New technology policy and social innovations in the firm,* 1st Ed., J. Niosi, ed., Pinter Publishers Ltd., London, England, 75–94.
Troy, K. (1994). *Change management: strategic alliances.* The Conf. Board, New York, N.Y.
Yates, J. K. (1991). "Anatomy of construction industry competition in the year 2000." *Source Document 64,* Constr. Industry Inst., Austin, Tex.