Analysis Of International Construction Joint Ventures Between General Contractors Using The Value Chain Framework

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Submitted to the Sloan School of Management and
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Abstract

Contractual Joint Ventures in the construction industry have been used for several decades. In some cases, they are used because a project is too large, technologically complex and/or risky to be undertaken by one company alone. In other cases, they are used because they are required by the local governments or the international financial institutions. Most of the time, they are used because they are the easiest way for an international contractor to enter a new, unknown market.

This thesis studies the Joint Ventures between general contractors for projects that take place in Less Developed Countries. The objective is to identify the benefits and costs that the use of this type of Strategic Alliance has for both the local and the foreign partner vis-à-vis their respective alternatives, in order to facilitate the decision making process of both firms. The analysis is done using Michael Porter's Value Chain framework, after being adapted to the construction industry in what is called the Project Value Chain.

The thesis is organized as follows. First, the existing literature on Strategic Alliances and Joint Ventures is reviewed. Second, this theory is applied to the construction industry, indicating its unique characteristics and developing a Project Value Chain for the general contractor. Then, the Joint Ventures are analyzed using this Value Chain in the context of the alternatives that contractors have to do business (i.e. subcontracting, do it alone, merger and acquisitions, etc.). Finally, some opportunities for the use of long-term Strategic Alliances in the construction industry are explored.

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Chapter 1. Introduction.

1.1. Overview and Rationale.

The use of Joint Ventures in construction is widely popular. In some cases, they are used because a project is too large, technologically complex and/or risky to be undertaken by one company. In other cases, they are used because they are required by the local governments or the international financial institutions. Most of the time, they are used because is the easiest way for an international contractor to enter a new, unknown market.

As Nagi (1981) points out, the first known construction Joint Venture was the Hoover dam, in Colorado, US. The construction of the dam ran from 1931 to 1935, and at that time the $50 million that it cost was considered enormous. Because of its size and the multiple technical construction problems that it included, it could not be handled by one contractor. A Joint Venture of six contractors was formed to build it, and the project was a success: it was completed with an unprecedented, high quality performance. Since then, the use of Joint Ventures has been widespread both in the U. S. and internationally.

However, it is not always clear for a contractor which projects it should Joint Venture with another company vis-à-vis doing it alone. This thesis develops a framework to help management in this decision. Using the Value Chain concept developed by Porter (1980), the framework compares the benefits and costs that the use of the Joint Venture will have for each partners in every

part of the Value Chain. By assessing the relative importance and intensity of these implications, a contractor will have a better perspective of what a particular Joint Venture entails for the project that he or she has on hand.

The thesis is organized as follows. The remainder of this chapter is devoted to explaining the assumptions used throughout this study. Chapter 2 reviews the existing literature on Strategic Alliances and Joint Ventures. Chapter 3 applies these generic theories to the construction industry, pointing out its unique characteristics and developing a Value Chain for the general contractor. With this background, chapter 4 --the core chapter of the thesis-- presents the analysis of Joint Ventures between general contractors. This is done in the context of the alternatives that these firms have to do business (i.e. subcontracting, do it alone, merger and acquisitions, etc.). Then, chapter 5 briefly outlines some ideas regarding the opportunity to use long term strategic alliances in the construction industry. Finally, chapter 6 summarizes the framework developed and presents the conclusions of this study.

1.2. Assumptions.

To effectively understand and analyze a problem, it is fundamental to define it as precisely as possible, in order to have a clear idea of what the object of the study is. To do so, it is necessary to limit the scope of the problem --by considering some explicit hypothetical assumptions-- to be concrete and precise in the analysis, and to be able to draw specific conclusions and recommendations.

In this regard, when analyzing international construction Joint Ventures in this thesis, the following characteristics are assumed:

1. The Joint Venture is project-specific, i.e. it is a contractual --instead of an equity-- Joint Venture.
2. It is between two general contractors, not between any other players that take part in the project (i.e. architects, developers, consultants, engineers, specialty subcontractors, etc.)
3. The project takes place in a Less Developed Country.
4. One of the contractors is "local", which means that its headquarters are located in the country where the project is located. The other contractor --called the "foreign" partner in this thesis-- is assumed to be an international company, larger and with more technical and managerial expertise than the local partner.
5. The contractor is solely responsible for the construction of the facility: the design --i.e. the plans and specifications-- and operation of the project are not the responsibility of the general contractors, and are assumed to be

provided by the owner (e.g. the development firm, the manufacturing firm, the government, or another entity purchasing a contractor's services). To accomplish this task, the general contractor exclusively need the resources, knowledge and experience necessary to transform the given design into its tangible form.

6. A "lump-sum" contract is used in the project, and it is assumed to be awarded through a competitive bid, as has been traditional in the construction industry.

   This type of contract and the use of a competitive bid implies that general contractors compete primarily on price, and their incentive is to meet specifications at minimal cost, as their remuneration is the lump-sum price minus the final cost of materials and construction. If specifications change during the construction process, or if ground or weather conditions are "abnormal", the contractor usually gets further compensation from the owner. Normally, this is done through what is called "change orders".

Finally, it is necessary to point out that this thesis does not assess if these conditions are appropriate for the project -e.g. if a "lump-sum" is the best type of contract, if the design and/or operations should be part of the scope of the project, etc.--. It just assumes that the Joint Venture has the previous characteristics and draws on them. Again, it is necessary to note that, even if these assumptions limit the scope of the study, they are necessary to deduce specific conclusions and recommendations.

Other Considerations

Even though this thesis focuses on Joint Ventures where the project takes place in one of the countries of the participants, it is worthwhile to point out other variants that are currently taking place in the real world. Particularly, Garb (1988) has identified a trend toward having construction joint-venture groupings of two or more venturers from different countries combined to perform a project in a third country. At least, two examples of this trend can be mentioned: Hochtief, A. G. led a West German-Italian Joint Venture group in obtaining a $1.5 billion hydro project in northern Iraq in the 1980's. During the same period, West Germany's Thyssen Rheinstahl Technik and the U. S. firm of M. W. Kellogg teamed up as a Joint Venture to win a $1 billion chemical plant award in southern Sumatra, Indonesia.

Chapter 2. A Framework for Understanding Strategic Alliances.

Traditionally, multinationals have expanded their operations internationally through direct investments. Also, as an entry strategy tool, they have acquired foreign companies, which are later transformed into subsidiaries. In both cases, the multinational has retained the complete control over its operations abroad.

This expansion has allowed the multinationals to reach an ever increasing demand in foreign countries, with the opportunity to obtain larger economic returns. In addition, the phenomenon of internationalization has let them obtain larger and cheaper resources, both human and natural resources.

But, first due to covenants of foreign governments, and later due to strategic and economic reasons, these multinationals have started to look for partners to share the risks -and benefits-- of this expansion process. It has been done through different forms of interfirm cooperation or strategic alliances.

At the beginning, these alliances were mainly with partners from other countries and the companies were mainly looking for companies with a repertory of "complementary" competencies to their businesses. In recent years, however, these cooperative arrangements have included alliances between companies of the same country, and even with important competitors.

These days, corporate alliances are found in many industries and between firms of different sizes. The purposes behind them are diverse and the kind of relationship that links the different businesses are numerous. They involve companies in developed and developing countries, and they can be in almost every process performed by the firms.

Strategic alliances has been a hot topic in the last two decades. Major research has been done. Many books have been written. And, most importantly, a lot of experience has been gained by the participating companies, mainly due to the mistakes they have made.

Looking at all this, the question is: why all this interest in collaboration? There are two major reasons for cooperation. The first one is the emergence of global competition: companies have been adopting global strategies in response to a more global demand and supply of goods and services, as the barriers to international trade are diminished. And collaborative agreements are a fast and easy way to go global, normally with less resources and risks. The second reason is the increasing speed of technological change. Collaboration --sharing of information and efforts-- is a low-cost method to acquire technology, specially for new, small companies.

There are many aspects of strategic alliances. In this section, the objective is to discuss what they are, and to understand the different types of cooperation that exist. After this broad and quick review of cooperative arrangements, this chapter will concentrate on the Joint Venture as a particular type of cooperation. The reason for focusing on this particular kind of alliance is

because Joint Venture is the corporate alliance most commonly used in the construction industry, particularly between general contractors, and is the topic of this thesis.

2.1. Overview of Strategic Alliances.

2.1.1. Definition.

Alliances are something that most business people talk about but the term is still ambiguous --as it is with most of the terminology used in business strategy. Some people reduce alliances to equity Joint Ventures, and others include mergers among them. It is good to start defining what strategic alliance means.

There are many definitions of strategic alliance, and it is difficult to choose one that comprehensively contains all the important aspects of it. One that includes the essential points is presented by Yoshino and Rangan (1995). They affirm that a strategic alliance could be defined as possessing simultaneously the following three necessary and sufficient characteristics:

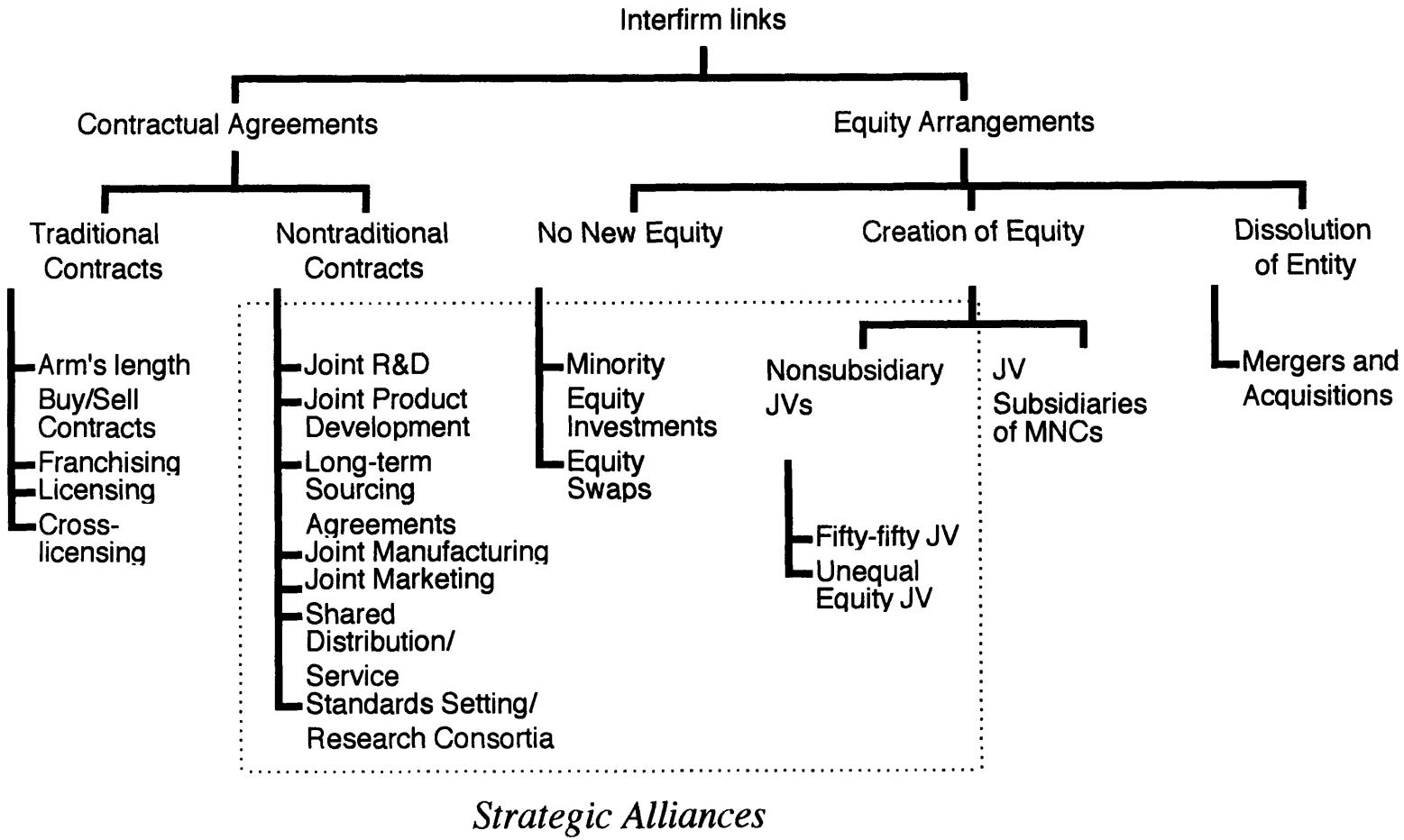
- The two or more firms that unite to pursue a set of agreed upon goals remain independent subsequent to the formation of the alliance.
- The partner firms share the benefits of the alliance and control over the performance of assigned tasks --perhaps the most distinctive characteristic of alliances and the one that makes them so difficult to manage.
- The partner firms contribute on a continuing basis in one or more key strategic areas, e.g., technology, products, and so forth.

2.1.2. Classification.

According to the characteristics presented above, some type of cooperation between firms should be considered as alliances, and other should not. The same authors quoted before give a good division of the different types of cooperation that are found in the business world. This classification is presented as Figure 2.1. It is indicated in this same figure which types of cooperation they consider Strategic Alliances. This thesis will be consistent hereafter with this categorization.

As can be seen in the figure, Strategic Alliances include some types of both contractual and equity arrangements. From the continuous spectrum of type of relationship, Strategic Alliances exclude the two extremes. On one side, they exclude the relationship that two firms have by using any sort of typical contract. On the other side, they eliminate all types of mergers and acquisitions, that could be non-cooperative in the sense that a equity is dissolved or fused together with that of another firm, instead of created and/or conserved. Also the subsidiaries of the multinationals are not included, even if there is collaboration of other firms.

Figure 2.1
Range of Interfirm Links.



Source: Yoshino, Michael, and Rangan, Srinivasa, Strategic Alliances. An Entrepreneurial Approach to Globalization, Harvard Business Review Press, Boston MA, 1995.

2.2. Joint Ventures as One Type of Strategic Alliance.

Joint Ventures are just one type of alliance; maybe the most common one, but just one type. Other common forms of cooperation are: equity arrangements, long term supply of components, marketing/distribution arrangements, technology agreements, research consortia, and manufacturing/assembly arrangements. This section will discuss the main issues related to them: what they are, different classifications that can be made, the most important issues to consider, how to know if a Joint Venture has been successful, and what is different when forming and operating this sort of alliance in Less Developed Countries.

2.2.1. Definition.

In order to study the economic implication of international Joint Ventures, it is necessary to define as clearly as possible what the term means. Even though there are many definitions, a complete one is presented by Colaiacovo, Avaro, de Sa Ribeiro, and Veliz (1992):

> "A business, corporation or association, between two or more firms, individuals or organizations, where at least one of them is an active entity that wants to broaden its activities, in order to manage a new and permanent business. In general, all the participants have an equal equity share, and no member holds absolute control" [1]..

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[1] Free translation from Colaiacovo, Avaro, de Sa Ribeiro, and Veliz (1992).

The same authors propose these five essential characteristics of a Joint Venture:

1. It is an agreement between two or more parties with common long-term economic goals. In just a few cases --as in Joint Ventures for construction projects or for the supply of a few specific services-- these agreements are temporary.
2. The members jointly provide assets --such as money, plant and equipment, natural resources, machinery, technology and intellectual rights, management, and marketing expertise-- for the achievement of the established goals. In consequence, there are contributions from each member and some common interests.
3. These assets are intended to obtain a mutual profit, but the partners jointly also face the possible losses.
4. The achievement of the common goals is done through entities that are separated from the parent ones.
5. The partners usually share the profit/losses in proportion to their own contributions of equity, being the legal responsibility limited by their capital contribution.

2.2.2. Types of Joint Ventures.

Joint Ventures can be classified according to different criteria. Legal, organizational, type of activity, ownership, and managerial style are some of the factors that traditionally have been used to classify them. This section briefly presents these classifications, with the exception of the one based on

managerial style, where a more extensive treatment is given due to its importance.

From a legal and organizational point of view[2], the Joint Ventures can be:

1. Equity Joint Ventures. They can be defined as those Joint Ventures that include a risky investment, are permanent in time (i.e. do not have a defined end), and imply the creation of a new company/entity.
2. Contractual or Non-Equity Joint Ventures. Here the firms that form the Joint Venture share the benefits and risks of the cooperation, but a new enterprise is not formed. Each company remains independent, and they are legally responsible for the actions that the Joint Venture does. This type of Joint Venture is usually created for a specific project in which the participating firms have a common, short-term interest.

From the type of agreement that forms the Joint Venture, they can be:

1. For manufacturing projects.
2. For extracting purposes.
3. For construction activities.
4. For commercial projects.
5. For research and development.
6. For financial activities.
7. For the delivery of services.

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[2] Idem.

Regarding the ownership --note that dominance and ownership does not mean the same and are not necessarily related, as will be discussed later on--, Joint Ventures can be:

1. Majority/minority. Joint Venture where one of the parents has a majority position in the participation of the firm/project.
2. 50-50 ventures. This is the general term used to mean that all partners have equal participation in the venture (e.g. 50-50, 33-33-33, and so forth).

Finally, depending on the role of the partners in the management of the Joint Venture, they can be classified as follows[3]:

1. Dominant Parent Joint Ventures. The entity/project is controlled by one partner, who has an active role, while the other(s) have a passive role. The important point in this type of agreement is that the dominant partner manages it in the same way as a wholly-owned subsidiary. The dominant parent selects all the functional managers for the enterprise. The board of directors, although containing executives from each partner, plays largely a ceremonial role, as the dominant parent executives make all the venture's operating and strategic decisions.
2. Shared Management ventures. In this type of Joint Venture, all parents play a meaningful managerial role, and frequently all contribute to staff the alliance. Hopefully this is done in this way because all firms will bring meaningful knowledge and skills to the venture. The board of directors,

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[3] This classification was mainly developed by Killing (1983).

also consisting of executives from each partner, has a real decision-making function.

3. Independent ventures. In this type of Joint Venture, neither parent plays a strong role, and the operational decisions of the company/project are taken as a new, independent company. Managers of the Joint Venture receive little direction from either parent regarding day-to-day operations.

The work of Peter Killing regarding this last classification of Joint Ventures is widely known and quoted. Above is presented just the classification he made, but not the rest of the study --specifically his assessment of when each type of agreement is more successful-- since we do not totally agree with Killing's way to categorize what is success. The criterion for failure of a venture that he used is measured as being either its demise through liquidation or its undergoing a major reorganization due to poor performance. He omits other important ways of Joint Venture failure other than economical. Other factors leading to failure include: do not learn from the partner; do not achieve the specific organizational and operational objectives of the Joint Venture; do not obtain the desired synergies, etc. By trying to obtain measurable data, the conclusions in his study are reached with a narrow perspective.

2.2.3. Motivations for Joint Venturing.

Taking into account the contributions of Killing, the reasons for creating a Joint Venture can be divide into three groups:

a) the prohibition or discouragement of sole-venture entry by the local government (mainly in developing countries).

b) A partner's needs for other partner's skills.

c) A partner's needs for other partner's attributes or assets. Assets include those items such as capital, trademarks, and patents, while attributes include elements such as nationality, source or use of particular products.

Kathryn Harrigan, in an article in the "Management Review" magazine, in its February 1987 edition, presents a detailed list of motivations for Joint Venture formation. This list is presented below as Table 2.1.

Even though it is not immediate and is not a common motive for collaboration, learning should be the most important incentive for joint venturing. Hamel, Doz, and Prahalad, in a famous Harvard Business Review article[4], strongly state the importance of learning from partners in every alliance. Moreover, the entire article is dedicate to the learning aspect. They criticize Western companies that enter into collaborative agreements with Asian partners just to avoid investments: the problem is not the desire to share investment risk, but to not have ambition beyond avoidance. "When the commitment to learning is so one-sided, collaboration invariably leads to competitive compromise".

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[4] Hamel, Doz, and Prahalad (1989).

Table 2.1
Motivations for Joint Venture Formation

1. Internal uses
   - a) Share a cost and risk (reduce uncertainty)
   - b) Obtain resources where there is no market
   - c) Obtain financing to supplement firm's debt capacity
   - d) Share outputs of large, underutilized plants
     - i) Avoid wasteful duplication of facilities
     - ii) Utilize byproducts, processes
     - iii) Share brands, distribution channels, widen product lines, and so forth
   - e) Intelligence: Obtain a window on new technologies and customers
     - i) Improve information exchange
     - ii) Improve technological and personnel interactions
   - f) Create innovative managerial practices
     - i) Strive for superior management systems
     - ii) Improve communications among small business units
   - g) Retain entrepreneurial employees
2. Competitive uses: Strengthen current strategic positions
   - a) Influence industry structure's evolution
     - i) Pioneer development of new industries
     - ii) Reduce competitive volatility
     - iii) Rationalize mature industries
   - b) Preempt competitors ("first-mover advantages)
     - i) Gain rapid access to better customers
     - ii) Expand capacity, or vertical integration
     - iii) Acquire advantageous terms, resources
     - iv) Form coalition with best partners
   - c) Respond defensively to the blurring of industries boundaries and globalization
     - i) Ease political tensions (overcome trade barriers)
     - ii) Gain access to global networks
   - d) Create more effective competitors
     - i) Develop hybrids possessing owners' strengths
     - ii) Have fewer, more efficient firms
     - iii) Buffer dissimilar partners
3. Strategic uses: Augment strategic position
   - a) Create and exploit synergies
   - b) Perform technology or skill transfer
   - c) Diversify
     - i) Rationalize (or divest) investment
     - ii) Leverage owners' skills for new uses

Source: Harrigan, Kathryn, "Managing Joint Ventures" Part I, Management Review, February 1987.

2.2.4. Critical Issues in Joint Ventures.

Designing and managing a Joint Venture is not an easy task. The reason for this is simple: there is more than one parent. The most important implication of having several "bosses" is that the decision-making process may be complicated and time-consuming.

Frequent problem areas of Joint Ventures include[5]: profit reporting, dividend policy, capital expansion, the pricing of the inputs sourced by either parent, and executive compensation. If these issues are not settled by the partners during the design of the Joint Venture, they will almost unquestionably appear later on.

There are several factors that have great impact in the success of a Joint Venture. The most important for us are the selection of the partner, the staffing of the venture and the issues of control.

Choosing a Partner.

Several authors agree that the selection of a partner is one of the most important considerations in setting up a Joint Venture. Root (1987) affirms that the search/evaluation of a partner is similar to that for acquiring a foreign company. He defines three stages:

1. Drawing up a Joint Venture profile that specifies the desired features of a candidate. To do this the management should define what they want the

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[5] Root (1987).

Joint Venture to accomplish over the strategic planning period and how it will fit into their company's overall international business strategy.

2. Identifying/screening candidates.
3. Negotiating the Joint Venture agreement.

These three steps are helpful because they make it clear that in order to pick a good partner, it is necessary first to know what are the desired characteristic of the possible candidates. Even though it seems as logical and basic, many mistakes are made just because the companies never thought through in the first place what they wanted and what type of company would best fulfill their needs.

Regarding the second step, one of the most important aspects when choosing a partner for a Joint Venture is the compatibility of the different business cultures and corporate values. Like in a marriage, it does not mean that they have to be similar, rather that they are able to work well together.

The problem of choosing a partner is that most of the desired characteristics desired in the other firm --such as honesty, respect and mutual trust-- normally are evident only when there is a conflict.

A sound recommendation in order to identify a good partner for an important project is to start, if possible, with smaller projects before engaging in larger ones, or begin cooperation in less strategically important areas for both companies.

Specifically regarding shared management Joint Ventures, Killing (1981) has the following hypotheses about the selection of the partner:

1. The more similar the culture (both the culture of the country were the company is based and the corporate culture of the particular firm in question) of firms forming the venture, the easier it will be to manage.
2. The more similar in size are the parents, the easier the venture will be to manage. A significant mismatch between a venture's parents can create a lot of problems for the venture.

Staffing the Joint Venture.

Staffing is clearly an important part of the design of a Joint Venture. The possibilities in this decision is to have employees from one of the parents, from both of them, or to hire new personnel. Even though it seems as a trivial decision that will be settled depending on the capabilities that each partner is bringing to the venture, it is not an easy decision because many implications of control and learning are involved. The best thing for a partner would be to have many of his employees working in the venture, so more control and learning takes place. But a negotiation process has to take place to reach an agreement satisfactory for all parties involved.
Regarding international alliances, Killing (1982) points out that the management of international Joint Ventures may be especially difficult. Managers of this type of Joint Ventures, if drawn from both parents, may not only have communication problems because of language barriers; they may also have different attitudes toward time, the importance of job performance, material wealth, and the desirability of change. But, in most cases, they have

to be drawn from all partners in order to achieve the specific goals of each one independently and of the Joint Venture in particular.

Controlling the Joint Venture.

Root (1987) asserts that the importance of control ultimately depends on its strategy. "Control for the sake of control is hardly a satisfactory policy. Instead, managers (of the international company) should decide how much control is needed to accomplish their objectives in the target country. A follow-on question is how they should obtain the desired control".

There are several ways to exercise control over the Joint Venture but, because they are not mutually exclusive, the overall agreement should be taken into account to decide what is better for each case. Some specific mechanisms to exercise control are:

1. Retaining majority ownership.
2. Holding a critical element (e.g. technical assistance) for the success of the Joint Venture.
3. Maintaining certain rights (for example, the selection of key executives for the management of the Joint Venture).
4. Having a management contract.
5. Issuing voting and non-voting stock shares, and acquiring majority of the voting shares.
6. Holding veto rights over key decisions in the Joint Venture.

This list of different ways to exercise control should be kept in mind in order to avoid myopic perspectives --i.e. insist in having majority ownership-- that

can forego exceptional opportunities for the company. In addition, many multinationals doing business abroad might prefer to have a minority position in international Joint Ventures due to local tax advantages and financial reporting. Also, it may be good for them not to appear to the local government as the dominant partner if it has an hostile or unfriendly attitude toward foreign investments.

Killing, in his book "Strategies for Joint Venture Success" quoted above, groups the different means to exercise control other than majority ownership. He distinguish three techniques to control Joint Ventures:

a) Formal Agreements: There are a variety of legal documents which always appear with the creation of a Joint Venture. These are constantly closely connected to the issue of control. The articles of incorporation, by-laws and shareholder's agreements, delimit such things as the scope of the venture, the composition of the board and the executive committee, the type of decisions that have to be decided by them, and the percentage of votes needed for each kind of approval. Very often there is some kind of protection to the minority shareholder on certain issues.

   In addition to these basic agreements, there is frequently a series of agreements between the Joint Venture and the foreign partner. These could cover the supply of component parts, the marketing of the products in third countries, and product design and production process technology. These agreements, by defining royalty rights and transfer prices, confer in a more subtle way some degree of control to the foreign partner. In a

similar fashion, some agreements with the local partner --e.g. a management contract-- could give him some source of control over the Joint Venture.

b) Staffing: Even though the agreements for staffing the Joint Venture are not as formal as those discussed above, they can be a significant source of control. Specifically, the partner that has some of its personnel in the venture will have better and more complete information --which offers the prospect for more control-- just because employees in both sides will know each other better. Similarly, the employees provided by the parent company will tend to act in ways more acceptable for him, since their values and attitudes would have probably be shaped by the parent company, and will continue to guide them even in the Joint Venture.

c) Influence techniques: These include different ways to influence the decision making process of the Joint Venture. Some companies do this by specifying the kind of information and amount of detail to be provided for the projects evaluated by the venture. Others do so using "strategy reviews" or progress reports.

In general, there are two types of techniques used to exercise control. 'Positive control' includes those techniques in which a parent leads or encourage a venture in a certain direction. The staffing and influence techniques just discussed are of this sort. 'Negative control' is the ability of a parent to stop the venture from doing something. They are normally described in the Formal Agreements. Positive control is an ongoing process of influence,

whereas negative control is more an exercise of raw power, that should not be necessary to use if positive control mechanisms are in place and being used properly. Killing concludes that parent firms with no previous Joint Venture experience are likely to concentrate much too heavily on the negative aspects of control. He asserts that it takes time and experience to learn more of the subtle techniques which make up positive control. This is the reason why inexperienced firms may be more likely to avoid minority ownership positions.

2.2.5. Conditions and Measures of Success.

What recipe can be given in order to enhance the chances of success of a Joint Venture? The CEO of Corning Glass, Dr. James R. Houghton[6]:, recently offered the following four success criteria for the use of corporate alliances:

- Compatible strategy and culture.
- Comparable contribution.
- Compatible strengths.
- No conflict of interest.

Even though they are not defined with sophistication, they include the most important conditions to have in mind when entering into a strategic alliance. Other ingredients --according to Steele (1990)-- are strong commitment, specification of partner contribution, definition of effective mechanisms for

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[6] Quoted by Lorange and Roos (1993).

resolving disputes, do not second-guess partners, and distribute revenues in advance.

How can we know if a Joint Venture has been successful? The most important indication of success is, in the opinion of this author, how much the company has learn from its partner: this is the only sustainable thing that can make them better. In this regard, Hamel, Doz and Prahalad, in the article mentioned above, state that "Alliances seem to run most smoothly when one partner is intent on learning and the other is intent of avoidance --in essence, when one partner is willing to grow dependent on the other. But running smoothly is not the point; the point is for a company to emerge from an alliance more competitive than when it entered it." This does not mean that alliances would not run smoothly if both partners are willing to learn. They will do so if their competitive goals diverge and both see the mutual dependence as necessary for their success.

2.2.6. Joint Ventures in Less Developed Countries.

There are several differences in joint venturing with a company in a Developed Country and in a Less Developed Country. The most important ways in which they differ were studied by Paul Beamish (1988), and the summary of his conclusions is presented in Table 2.2.

It is interesting to note from this table that the motivation to form a Joint Venture is radically different depending on the country where it will operate. Also, as expected, he found that Joint Ventures in Less Developed Countries are more unstable, thus they are less frequent.

Table 2.2
Summary of Differences of Joint Venture Characteristics

	Developed Country	Developing Country
Major reason for creating venture	Skill required (64%)	Government suasion (57%)
Instability rate	30%	45%
MNE managerial assessment of dissatisfaction with performance	37%	61%
Frequency of association with government partners	Low	Moderate
Most common level of ownership for MNE	Equal	Minority
Ownership-control relationship	Direct (dominant control with majority ownership; shared control with equal ownership)	Difficult to discern because most MNEs have a minority ownership position.
Control-performance relationship in successful Joint Ventures	Dominant control	Shared or split control
Number of autonomously managed ventures	Small (16%)	Negligible (0%)

Source: Beamish, Paul, Multinational Joint Ventures in Developing Countries, Routledge, London, 1988.

Chapter 3. Application of the Management Theory to the Construction Industry.

3.1 Specific Characteristics of the Construction Industry.

Before starting any elaboration, a clear understanding of the industry that is going to be studied is needed. There are many characteristics that differentiate construction from other industries[1]. While most of these individual attributes could be found in other businesses, the specific mix of them makes construction a unique sector in the economy of every country.

The characteristics can be grouped into those related to the product, to the companies, to the construction process, to the overall economic conditions of the region, and to the clients.

Regarding the product, the most important properties are:

- *Immobility.* The final outcome of the construction process are facilities that are immobile (except some extraordinary cases that are not representative of the industry). The main implication of this characteristic is that, because most of the components are heavy and difficult to move (i.e. high transportation costs), a good deal of the physical production has to be done in the place where the final product will be located. In the case of international projects, the consequence is that is not possible to export

[1] Some of these characteristics can be found in Sugimoto (1991).

the goods and that the "manufacturing" has to be made in the foreign country. International firms doing these projects face a situation similar to that of a manufacturing company making a foreign direct investment.

- *Customization.* Due to the nature of the business, each project is done on a one-by-one basis: the product is designed and produced in order to satisfy the needs of each individual client.
- *Experience Goods.* The client does not know for sure if he/she will be completely satisfied until the project is completed. Even though many improvements take place during the design and construction stages, customer satisfaction is directly tied to the use of the product. The most important implication of this attribute is that it makes reputation and past experience of the firms involved in the process something of foremost importance.
- *Complexity.* The final product frequently requires a great deal of engineering, with many empirical assumptions and with room for human error.
- *Expensive.* Even though the final investment depends on several factors of the project --like size, complexity, location, etc.--, construction is always costly. In addition to the direct costs of construction, often the inclusion of real estate properties makes construction projects even more expensive.
- *High risks if the product fails.* Since failures in the design and construction stages of projects implies significant costs and damages to the user and owner of the facilities --specially personal security-related risks--,

the quality of the companies that will build the project is extremely important in order to assure the quality of the final product (e.g. anti-seismic design and construction, etc.).

- *No frequent repurchase.* Do to the intrinsic properties of the business and the characteristics mentioned above, most of the clients do not frequently use the service of construction companies more than once. The exception are governments which are constantly building and improving their infrastructure.

Regarding the construction companies, the most important characteristics are:

- *Service vs. Manufacturing Companies.* Even though the final outputs of the industry are physical goods, the wide array of activities involved in the design and construction of a facility leads to companies that only provide services (e.g. architectural design, landscaping, general contractors that subcontract all the work, etc.), companies that mostly are engaged with the manufacture of products (general contractors that directly do the work, subcontractors, etc.), and companies that perform both types of work. Even though this variety of players and the fact that a good deal of the inputs are physical goods (especially materials and equipment), and the outcome is a tangible product, the construction industry has been traditionally categorized as a service industry. This assessment is not supported by scientific arguments and can be misleading. It is better to think about it as a distinctive industry that involve aspects of service and manufacturing industries.

- *The organizational' structure is project-based.* Design and construction companies are project-based in the sense that they have a permanent organization that works on temporary projects.
- *Difficult to forecast volume of projects.* Because projects are not permanent, everlasting ventures, the planning and forecasting activities --beyond the duration of the projects-- in the construction industry are extremely difficult. This inability to foresee the future have important consequences, specially in the financial, investment and organizational planning. This is a highly cyclical industry.
- *Low margins due to use of bids to award contracts.* The use of bids as one of the most common methods to choose among different firms makes the construction industry very competitive. In addition, when the price of competitor's offers are not disclosed, owners have additional information that give them more bargaining power when it needs to negotiate the price with the individual contractors. These asymmetry of information leads to even lower profit margins.
- *Moral hazards are great.* Once the contract is signed, the constructor may have many incentives to delay or to cheat, as the client is somehow tied to the contractor.

Concerning the design and production processes, the most important properties are:

- *Price is agreed before construction starts.* Different to most consumer goods and even to many capital goods, facilities are not manufactured,

priced and then sold. In construction the price --that usually is a fixed price, a price per unit, or a percentage of total costs, with many conditions regarding time and maximum price-- is settled before the manufacturing starts.

- *Numerous activities involved.* To built a facility involves countless number of activities, which makes the planning, scheduling, and control process critical and difficult.
- *Abundant use of subcontractors.* The need of specialization that the industry demands makes it impossible for a single firm to perform all the activities necessary to design and erect a facility. The consequence of this is a industry highly fragmented --with many companies that perform specific tasks-- and the increase of importance of the role of the general contractor as coordinator of all these players.

In regards of the economic situation of the region, the most important characteristics are:

- *The facilities themselves can have a impact in the economy.* Due to the size and importance of the outputs of the industry, the construction of the facilities and the facilities themselves can have an important influence in the economy. This is especially true for large, public construction projects, like dams, nuclear plants, major highways, airports, etc.
- *The profitability of the industry is highly correlated to the macroeconomic situation of the economy.* As in all of the capital goods industries, the demand --and, consequently, the profitability-- depends on the overall

economic situation of the country/region. This issue is of greater importance because governments --both central and local-- are big clients of the industry, as the majority of the largest construction projects are publicly owned.

Finally, some characteristics are directly related to the owner of the facility. They are:

- *Owner usually does not understand/care about the process, just the product.* Clients usually do not understand the construction process, and are concerned mostly with the quality of the facility and its fit to their particular needs. The lack of knowledge of the owner --combined with a customized product, mentioned above-- provides opportunity for different approaches in the manufacturing stage, which can create a relative advantage for the construction companies on a project-by-project basis.

3.2. Value Chain of a General Contractor.

The well-known Value Chain is a strategic tool developed by Michael Porter[1]. It is helpful to understand and focus on the creation of value for the customer. In this regard, value is defined as the difference between the reservation price of the buyer (that is, what he or she is willing to pay for a product or service), and its actual price. Accordingly to Porter's theory, the firm should examine its Value Chain to see if every activity that the company is performing is somehow creating value for the customer, either by lowering buyer cost or by raising buyer performance.

The Value Chain framework was conceived originally for manufacturing firms. Consequently, there are many difficulties when trying to adapt it to an industry that includes service and manufacturing activities, as is the case of construction. These difficulties are specially important when the framework is applied to general contractors, who typically carry out some manufacturing activities directly (construction of foundations, concrete, masonry, carpentry, etc.), but in addition are responsible for the management of the project, by coordinating specialty contractors and subcontractors.

To overcome these difficulties, two adjustments to Porter's framework are needed:

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[1] Porter, Michael, Competitive Strategy: Techniques for Analyzing Industries and Competitors, The Free Press, New York NY, 1985.

1. Instead of analyzing the Value Chain of the company, it makes more sense to analyze the activities on a project basis, as projects are unique and are the drivers of value creation in the industry.
2. The sequential order of primary activities needs to be moved to reflect the reality of the industry (i.e. the marketing efforts take place before the projects start, etc.)

This section presents the Value Chain of a typical project handled by a general contractor. It assumes that design and specifications are given --which would not be the case in Design/Built, Turnkey and Built-Operate-Transfer types of contracts-- and that the project is awarded with a bidding-type contest.

The general contractor's Value Chain is part of a larger Value System, which will include other pre-construction and post-construction activities. (Sugimoto (1991) presents a Value Chain of this sort). Even though some contractors may offer more or less services than the ones considered in the analysis --specialization has pushed companies to concentrate even in only one activity--, the proposed Value Chain tries to represent a project of a typical general contractor that does business internationally, which is the target of our study.

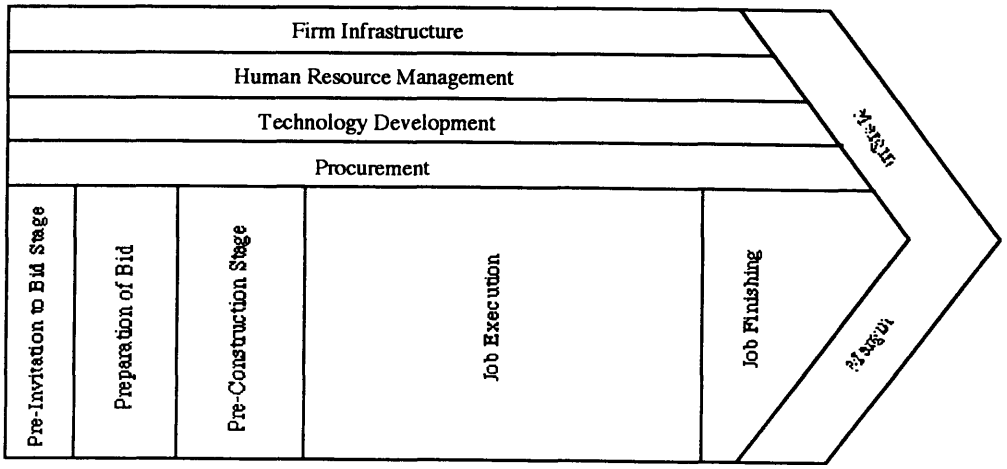
The most important limitation of using a project Value Chain --instead of a company Value Chain-- is that it does not shows the linkages that exist between the activities of one project and those of the other projects that the same contractor is building. This shortfall will be overcome by explicitly considering these linkages. These considerations will be presented in the

analysis of the marketing efforts --presented as "pre-invitation to bid stage" in the primary activities-- and in all the support activities, which are not project specific. Finally, these linkages among projects are not that important when using the Value Chain to analyze the benefits and costs of a construction Joint Venture, as they are formed on a project basis.

3.2.1. Primary Activities.

With these adjustments and limitations in mind, the primary activities done by a general contractor of a construction project can be clustered in 5 groups, each one including several activities. Figure 3.1 below shows graphically the complete Project Value Chain.

Figure 3.1
Value Chain of a Construction Project



The primary groups and the activities that they include are:

1. *Pre-invitation to Bid stage.* This stage groups all the marketing and promotional efforts that general contractors have to do in order to increase

the awareness of the company and get invitations to bid on different projects.

This aspect of business development includes both intangible and tangible activities. Among the former are reputation, word-of-mouth, etc. Also, there are tangible activities such as: different ways of advertisement that increase public knowledge of the firm (brochures of the company, ads in specialized publications, etc.); effort to locate prospective clients; contacts with architectural firms and developers; promotional presentations; submittal of prequalification documents to potential clients; and so forth. The type of effort in this phase normally depends on the type of client. For public projects, typically the governmental agencies advertise their bids because it is required by law. Marketing in this case is limited to checking local and national newspapers, industry publications, and trade journals in order to identify potential projects. For private projects, more formal marketing efforts are required.

As stated in a Harvard Business School case[2], being part of the business community is probably one of the key marketing efforts. This is especially true for private projects, and includes making contacts with local planning boards, construction organizations, architects, and business leaders.

2. *Preparation to Bid.* After analyzing the attractiveness of the project, the contractor decides if it wants to participate and bid for the project. This

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[2] Cespedes, Frank V., Turner Construction Company, Harvard Business School Case, 9-585-031

analysis includes a consideration of several factors, including: expected future demand, potential opportunity costs (by committing resources to a project, the firm might lose opportunities to participate later in other projects with higher margins), size and complexity of the project, reliability of the owner, number of participants in the contest, availability of a partner if needed (if a Joint Venture is going to be used), etc.

Assuming that the decision is to bid, the preparation-to-bid phase includes all the activities that have to be performed in order to submit an offer for the bid. For this phase, the firm needs to obtain a set of contract documents composed of specifications, drawings, general conditions and an owner/contractor agreement.

Based on these documents, this phase includes the following activities:

- Construction planning and time scheduling. After defining the site logistics and overall construction approach, the contractor considers all the activities of the project, taking into account their order (precedence between them and other possible constraints), the resources that they consume and/or use, and their expected duration. With this information the contractor schedules the project and estimates its total duration. Different scheduling techniques --Critical Path Method, PERT, etc.-- are used to optimize the overall time of the project, and to provide different scenarios, using a probabilistic --instead of deterministic-- estimate of the duration of the activities.

- Estimation of costs. The calculation of the expected costs of the project is done by converting all the information obtained in the previous activity. This includes: direct costs (material, labor, equipment, subcontractors), and indirect costs (site camp and operations, administration of the project, quality controls, etc.), overhead, contingency provision and taxes. Also, the contractor fee (usually presented as percentage of costs) is included in the cost's estimation. An historical cost data base is usually maintained to guarantee recent and accurate information. To calculate the costs, the estimators need to: interpret the bid documents, do take-off of the quantities, understand the construction processes that will occur and how they will be sequenced.
- Cash flow projection. Based on the time schedule and estimated costs, the contractor presents to the owner a forecast of the cash flow disbursements of the project.
- Obtaining of offer bond. Also called bid bond, an offer bond is a promissory note, required by most bid contests, that assures the owner that the bidder is willing to sign a contract to perform the job for the price offered and under the conditions given in the bidding documents. Normally, the offer bond is usually a percentage of the offer presented by each participant in the bid.
- Procurement of documents required by the client. Even when a prequalification process was conducted, the owner usually requires

additional information from the contractors when the offers are presented. Usually, the kind of information required by the bid documents are: financial statements of the firm (authenticated by its auditors), solvencies of different sorts, etc.

- Assessment of short-term financial needs based on cash flow projections (in case the project is won). Even though there is an advance payment, and costs are normally reimbursed to the contractor on a monthly basis during construction, there is almost always a need from the contractor to finance in the short term the cash needs of the project. The right time to do this assessment is when the bid is being prepared is in order to consider these financial costs and to evaluate if the company is capable of obtaining these funds.

3. *Pre-construction stage.* If the project is won and awarded to the company, the following pre-construction activities have to take place:

    - Development of site logistics plan. Based on the preliminary plan made during the preparation of the bid, this activity includes all the operational decisions on how the project is actually going to be performed. The selection of construction methods is of critical importance since important savings can be realized with the most appropriate ones. The use of innovative methods can have a great impact on those projects where the contractor actually performs a large portion of the construction.

- Submission of required bonds and insurance policies. The offer bond is replaced by other bonds (completion, contract performance, liability, performance, etc.) that are submitted according to the bid documents. The same applies to the required insurance policies.
- Selection, requisition of offers, discussion of agreements, and award of important subcontractors. This process could be based on the offers presented by the subs when the offer was being prepared, or a re-bid is executed to try to obtain more favorable prices (even though this process, which is called "bid shopping", is not considered to be highly ethical). This activity is more important in those projects with a large proportion of subcontracted work.
- Purchase of major materials. Important materials --because of their volume, price, critical performance, scarcity, early use, or long-lead time, or other reason-- are negotiated and bought in this stage, in order to assure their availability and to lock-in bid prices.
- Obtaining of permits and government approvals. Even though the project's approval is the responsibility of the owner, some times there exists several permits and approvals that the contractor has to obtain. These vary in each city, state, and country. Among them are: contractor's permits to build, municipality's approval of contingencies plans regarding the effects of the project on local traffic, approval of safety plan by local authorities, etc.

- Hiring of labor. In this stage, the management team that is going to be in charge of the project is formed, and the field engineers are appointed and/or hired. Also, the local labor market is surveyed and contacts with trade unions are made to assure the required manpower.
- Rental of equipment (if necessary). A more exhaustive evaluation of the equipment needs is made and, depending on the availability of resources inside the company, the decision of renting are made.
- Proposing value engineering options. During this and the following stage, the contractor can analyze materials, processes, and products, in order to determinate if a different selection can be made --at a lower overall cost-- without altering the requirements for performance, reliability, and maintainability. The saving occasioned by these proposals --if accepted by the owner-- are normally split between the contractor and the client.

4. *Job Execution.* In this phase the project management team is established at the job site as a semi-autonomous organization that will manage the project's labor, materials, equipment, subcontractors, time, and money. The degree of decentralization of this team depends on the managerial culture of the general contractor.

   The physical erection of the facility includes many project management activities, such as the following:

- Purchasing of materials and inventory control. Includes the procurement of all materials not pre-purchased in the pre-construction stage, and the inventory management on the project site.
- Equipment Management. This activity refers to the all the decisions regarding the use of construction equipment: when a piece of equipment is needed, scheduling of maintenance, transportation logistics, optimization of time the equipment is on the project, relationships with rental agents (in the case it is rented), etc.
- Handling of shop drawings. The shop drawings, prepared by the subcontractors or by the contractor itself, need to be approved by the Engineering firm that designed the project. The management of this process --from their elaboration to the final approval-- is coordinated and a responsibility of the general contractor.
- Supervision and coordination of subcontractors. The management of subcontractors includes: supervision and approval of their work, coordination of site and time among the different subs, monitoring of financial and staff conditions to assure on time completion, etc.
- Construction at job site. It comprises all the work directly performed by the general contractor. It could include --depending on the type of project-- some of the following: earthwork, construction of foundations, molding and pouring of concrete, construction of masonry elements, placing of asphalt, etc. The

greater the amount of construction done by the contractor, the higher control over the work it has, but also the higher the risk it bears.

- Project Control (costs, schedule, and resource control). This activity is concerned with the monitoring of cost, time and resources, as a tool to make the managerial decisions necessary to finish the project at the lowest overall cost.
- Management of Project Meetings. The direction of the project meetings, scheduled usually on a weekly basis, is frequently a function of the general contractor. In these meetings --attended by the owner, the architect/engineer, and the general contractor-- the project is reviewed, progress is monitored, change orders requests and problematic issues are discussed, and all the people in the project are coordinated.
- Preparation and collection of invoices. The contractor is responsible for documenting and presenting monthly invoices to the owner, depending on the construction completed since the last payment.
- Management of change orders. Many projects require changes during construction. The contractor needs to negotiate the compensation --both costs and time-- for these changes, and accommodate them as smoothly as possible in the project.
- Financing of the project (if required). As mentioned in the preparation-to-bid stage, it is possible that the contractor needs short

term financing to accommodate for the differences in cash inflows and outflows. In this stage, if this additional working capital cannot be provided from other projects, a loan form a bank needs to be obtained.

- Quality Control. The activities necessary to control and assure the quality of the construction are performed by the contractor in this phase of the project.
- Safety issues. Even if safety is not solely a responsibility of the general contractor, it has to assure that the required safety measures are put in place.
- Management of relationships with stakeholders (owner, local and regional governments, unions, community, etc.) Finally, the contractor needs to take care of its relations with the owner of the project and with the major constituencies that are somehow related to it, to assure its completion on time and on budget.

5. *Job Finishing.* The final stage of the project includes all the activities that are required by the owner to successfully finish the project. Most of these activities are small, are usually summarized in what is called the "punch list", and lead to the final payment to the contractor (i.e. receive the retention after submitting the required bonds).

3.2.2. Support Activities and Margin.

The support activities of a project Value Chain are the same proposed by Porter for a company Value Chain. As stated before, in the case of a project-based Value Chain, support activities are mainly concerned with the way the corporate office manages the portfolio of projects and the assistance that it gives to each one. They include aspect that benefit all projects at the same time.

The four generic categories and the activities that they include are:

1. *Firm Infrastructure:* This category includes activities such as: general management (excluding the people that directly manage the individual projects), planning, finance, accounting, legal, etc. It usually supports the entire chain and not individual activities, and is called "overhead" for costing purposes.

   Depending on the size, degree of diversification, and organizational structure of the construction company, the firm infrastructure may be self-contained or divided between a business unit and the parent corporation.
2. *Human Resource Management*: Consists of activities involved in the recruiting, hiring, training, development, and compensation of all types of personnel at the corporate level. The management of personnel required at the project level is already considered in the primary activities.
3. *Technology Development*: This group of activities refers to the support needed to improve the construction products and processes on a company-wide basis.

Frequently, in the construction industry, this aspect does not involve direct development of new technology by the contractor, but rather the selection and purchase of the most appropriate technology (i.e. equipment, know-how, etc.) available in the market. The general contractors rely on educational institutions and firms outside the industry to develop new technologies. The rationale for this phenomenon is that usually the contractor has neither the resources nor the incentives to be innovative.

Regarding information technology, the focus have been on project control system, specially scheduling and cost control. The use of software packages for these applications have increased considerably in the last five years.

4. *Procurement*: Activities included in this category are concerned with the function of purchasing inputs used in the firm's Value Chain, but not the purchased inputs themselves. In other words, this category deals with "how" these inputs are obtained, not "what" is obtained. These inputs are used in the different primary, project specific activities.

   Examples of these activities are: procedures for dealing with vendors, qualification rules, ongoing monitoring of supplier and subcontractors performance (on a company wide basis), etc.

   Even though the cost of the purchasing activities themselves is very low in a construction company, they have a large impact on the firm's overall costs and differentiation.

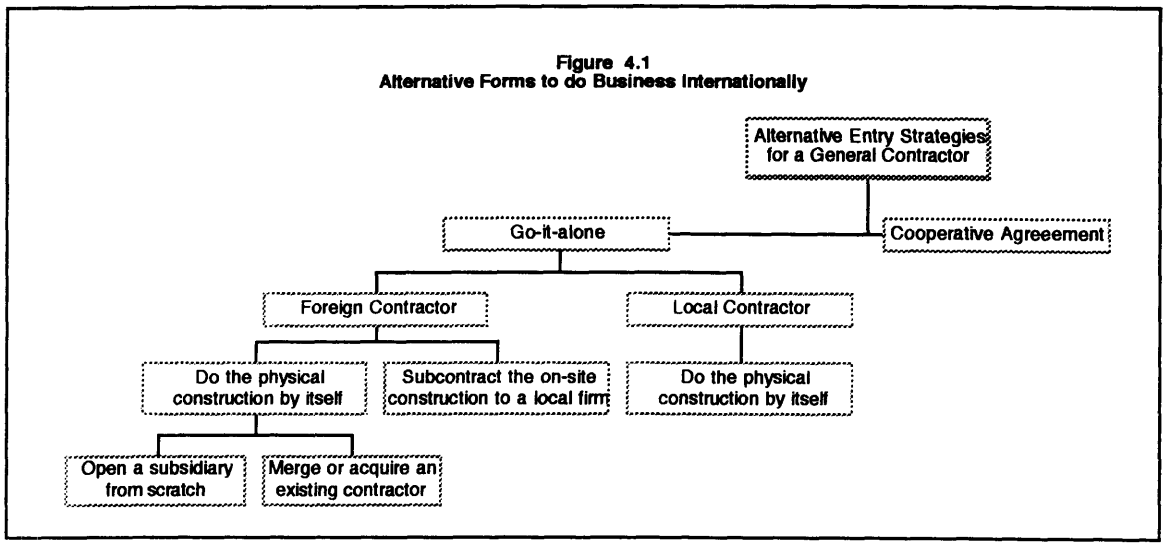
Finally, the last component of the Value Chain is the Margin. It can be defined as the difference between the collective cost of performing the activities and the value gained with them. The margin, for a general contractor, is the sum of the profits of all the projects it is involved in.

Chapter 4. Analyzing Construction Joint Ventures using the Value Chain.

4.1. Alternatives Forms to Do Business Internationally.

4.1.1. General Contractor's Entry Strategies for International Markets.

A general contractor, both foreign and local, large and small, has just a few alternatives for doing business at the project level. These alternatives are shown graphically in Figure 4.1.



From the figure it can be seen that, in the most simplistic sense, a general contractor only has two choices:

1. Go-it-alone, i.e. bear alone all the responsibility of building the project.

It is important to note that being responsible for a project does not necessarily means that the firm has to do the on-site construction by itself. Rather, on-site construction can be done in several ways, each with its own related inherent risks of fulfilling the contractual obligations to the owner.

Regarding the on-site construction, if the firm is a foreign contractor, it can:

a) Do the physical construction by itself, which implies having an office in the host country/region. If the contractor does not have a permanent subsidiary where the project is located, it has two options:
   i) Open a subsidiary from scratch. This branch could be on a permanent or temporary basis.
   ii) Merge or acquire an existing contractor that has operations in that country/region.
b) Subcontract the on-site construction to a local contractor. In this case, the foreign contractor remains as prime contractor and the local company is involved as subcontractor.

If the firm is a local contractor, it would do most of the physical construction with its own resources, hiring subcontractors in those areas were it did not have the expertise or resources to do it.

2. Use a cooperative agreement, i.e. enter into a partnership with one or more construction companies and share the responsibility for successfully finishing the project. This implies sharing profits and loses, rewards and

risks with a partner. For a foreign contractor, the partner will normally be a local contractor that can help with the on-site construction of the project. This alternative, the contractual Joint Venture --which is the type of partnership most commonly used in the construction industry-- is the object of study of this thesis. However, other non project-specific alliances that may make sense in the construction industry are briefly discussed in Chapter 5.

The following paragraphs present a brief discussion of these different alternatives, in order to understand what each one entails and requires, and to know how to decide which one is the best alternative for a particular project.

Doing the project alone, the traditional and more common way to operate for the general contractor, allows the constructor to have freedom to finish the project in the way it thinks is most appropriate. But, by having entire control and absolute authority for the project --limited only by the contractual agreement signed with the owner--, it is fully responsible for fulfilling the project's requirements regarding time, quality and cost.

The risks that these conditions impose will determine if the contractor is able to and wants to engage in the project on its own. In general, this will depend on the size and complexity of the project, the resources of the general contractor, and the requirements of the owner.

If the contractor decides to do so, the next thing to consider is whether or not it has operations in the country/region where the project is going to be built.

If it has an office in that location, there is no major obstacle to participate in the project. If not, the contractor needs to find a way to be present or represented in order to be able to undertake the project.

As stated at the beginning of this section, this necessity can be satisfied by opening a branch, acquiring a contractor that already is present in the area, or subcontracting a local contractor.

Opening a permanent office is a major decision that has several long-term strategic, economic, and operational implications. It is advisable that a decision like this should not be based on a particular project, unless it is extremely large and important. In addition, top management has the possibility of the opening a temporary branch, but the time and economic requirements --which are almost identical to those for establishing a permanent one-- most of the time does not justify this possibility.

Mergers and Acquisitions is another alternative. This choice has --besides the long-term implications mentioned above for opening a permanent branch-- additional issues to be considered, such as the compatibility of the culture of the acquirer with that of the target company, the situation of the other projects that the acquired contractor already has, etc.

Some benefits of a merger are: faster entry, acquisition of the contractor's local knowledge and experience, opportunity to profit from unexploited assets, possible synergies between the firms, etc. However, it is often difficult to find good acquisition candidates at realistic price levels.

However, the use of mergers and acquisitions as an international expansion strategy is becoming popular in the construction industry all over the world. Some recent examples that can be mentioned are[1]: the Sweden's contractor Skanska bought most of the Finnish contractor Haka Oy to enter the Russian market, as well as buying three U. S. contractors; the Canadian engineer and contractor SNC-Lavalin Inc. signed in 1994 an agreement to buy 50% of the shares of Chilean industrial and mining contractor ByR Ingeniería y Construcción; the German contractor Bilfinger + Berger Bau acquired Australian contractor A. W. Baulderstone Holdings Pty. Ltd. to complement its Hong Kong and Bangkok operations; and the French contractor Bouygues, one of the top ten international contractors, recently took control of South African contractor Basil Read --with has annual revenues of around $100 million-- to enter that market.

Subcontracting the on-site construction to a local contractor, the third alternative for a contractor that does not have operations in the project's location, has less long-term implications for the firm, but involves a lower degree of control over the operations. Subcontracting can be an attractive alternative in those cases where the prime contractor does not have any special expertise that is required for the on-site construction of the project. However, in most cases, this expertise is the reason why the international firm got the job in the first place.

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[1] "International Contracts Rise on the Crest of an Asian Wave", ENR Magazine, August 29, 1994.

Instead of doing business alone, the contractor has the choice to *do the project in Joint Venture with a local partner.* The on-going operations of the partner will eliminate the international contractor's need of an office in the country / region where the project is going to take place. As stated before, Joint Ventures are the most common type of partnerships used for the construction of a project. The advantages and disadvantages of the use of Joint Ventures are discussed later in this chapter.

4.1.2. Cost/Benefit Framework for Analyzing Cooperative Relationships.

Each project requires that the general contractor performs a complete, independent analysis of numerous business and legal factors before deciding which is the most appropriate business form to participate in.

Although it is impossible to generalize as to the proper course to follow in each case, it is feasible --and recommended-- to have a framework that would facilitate the decision-making in this regard.

Specifically, a framework is needed on the first level of decision: to help to decide whether to go alone or with a partner. If the result is go-it-alone, the different methods of how it can be implemented should be analyzed subsequently using other tools, as this decision would have important long-term implications on the competitiveness of the firm (except for the subcontracting option).

Contractor and Lorange, in their book "Cooperative Strategies in International Business"[2], present an interesting cost/benefit framework that is especially suitable in this regard. It would need just a few small changes to make it fit the needs of the general contractor.

The authors begin with a general axiomatic statement. A cooperative mode --i.e. a Joint Venture in this case-- will have certain incremental benefits as well as certain incremental costs over a fully owned operation. On one hand, a cooperative venture may have the effect of increasing the project's revenues and/or reducing costs over what could have been earned by a fully owned subsidiary; on the other hand, certain drawbacks of the use of a cooperative venture might decrease revenues and/or increase costs over the level of a fully owned operation.

Two issues need to be pointed out. First, notice that the adjective "incremental" was used, so the framework will require a comparative analysis between going independently or with someone else, focusing on the additional costs and benefits of the former alternative.

The second point to be noticed is that, even though the model developed by Contractor and Lorange talks about increased --on the positive side-- and decreased revenues --on the negative side--, the proceeds of a general contractor at the project level are normally fixed and can hardly by changed by the use of a partner. The rationale for this assertion is that in most cases

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[2] Contractor, Farok, and Lorange, Peter, Cooperative Strategies in International Business, Lexington Books, Lexington MA, 1988.

contracts are awarded using competitive bids, where the lowest bid get the contract, which in turn implies that all benefits and drawbacks from using a co-venturer comes from the cost side, not from the revenue side. These costs' increases and reductions are presented in the next section of this thesis as advantages and disadvantages for each of the two hypothetical contractors (the local and the foreign).

Having mentioned those two issues, it is necessary to recognize that in addition to the higher or lower costs of joint venturing compared with a fully owned subsidiary alternative, there are often important risk reduction aspects attached to the use of a partner. Some of the risks reduced by the use of a Joint Venture --which are discussed together with the costs and benefits in the next section-- are:

1. Lower capital investment at stake.
    a) Partial investment.
    b) Excess capacity utilization.
    c) Economies of scale.
    d) Economies of rationalization and quasi integration.
2. Faster entry and/or certification.
3. For large, risky projects.
    a) Limit risk per venture.
    b) Diversify risk over several projects.
4. Lower political risk.
5. Lower exchange rate risk.

The framework of Contractor and Lorange suggests that the costs and risks should be calculated for both the fully-owned-subsidiary alternative and for the cooperative option, and then compared to see which is more profitable for the firm. As a general rule, the cooperative mode is preferred if the net incremental profit over the fully-owned alternative exceeds the profit share to the other partner, that is:

Reduced costs of using a Joint Venture	-	Incremental costs of using a Joint Venture	>	Share of other partner's profit

Thus, a firm would prefer a cooperative association over the go-it-alone option when the net incremental benefit of a cooperative mode is not only greater then zero, but in fact is greater than the profit share of the other partner(s) --or if risk is reduced by the act of cooperating. In other words, the incremental net benefit has to not only be positive, but moreover, be large enough to cover the other partner's share of the profits, leaving some further incremental gain for the company considering the alternatives (this same goal can also be achieved if risks are reduced significantly).

In some cases, actual cash flow calculations can be made for the comparison, trying to economically quantify the pros and cons of using or not using a partner. In any case, the framework provides a useful strategic planning exercise, which helps to clarify the decision on which alternative to use, and also helps to negotiate arrangements with prospective partners.

The thesis now turns to a discussion of these costs and benefits of using a co-venturer, which have been mentioned throughout this section. Porter's Firm

Value Chain --modified into a Project Value Chain-- will be used to present them in order to: facilitate their understanding; underscore the firm's need to focus on value creation; and visualize the linkages that may exist between the different activities of a project and between the different projects themselves. After these pros and cons are identified, they can be quantified and used within Contractor and Lorange's framework to make the decision of "go-it-alone" or "have a partner".

4.2. Advantages and Disadvantages of the use of Joint Venture for the International and Local Contractors.

The use of Joint Venture in a project, instead of the other alternatives presented above, has pros and cons for both the international, larger contractor and for the local partner. The main purpose of this thesis is to analyze these advantages and disadvantages, using as framework the Value Chain developed by Michael Porter as modified in Chapter 3 to what is called the Project Value Chain, to reflect the specific characteristics of the construction industry.

In the following section the most important advantages and disadvantages are presented for each category of primary and support activities, for each of the two co-venturers. Each pro and con considered is accompanied by a short explanation of why it benefits or hurts the partner and, when possible, an example is presented to better illustrate it. These examples are drawn from two sources: from existing literature on construction Joint Ventures, and from two past Joint Ventures between J. A. Jones --a large, international U. S. general contractor-- and Siman Constructora --a rather small, local Salvadoran contractor--, which the author of this thesis had access to. Additional information of the J. A. Jones - Siman Joint Ventures is presented in Appendix A.

Finally, the terms and assumptions used in this section are drawn from the introductory section "Setting the stage" that defines the problem in a way that a thoughtful analysis can be made.

4.2.1. Pre-Invitation to Bid Stage.

This phase includes all the marketing and promotional efforts that the contractors do in order to get projects to work on. Even though most of the activities of this stage are general (i.e. apply to all the possible projects that the company could perform), others are project specific, such as the promotional presentations and other prequalification efforts in order to be invited to bid on a particular project.

Some pros and cons for each partner in this stage are presented below.

Advantages for the Foreign Partner.

1. *Strengthens the relationship with existing clients.* By working in more countries, the Joint Venture enhances the relationship that the foreign contractor has with the multinational companies it works with, just by being able to provide the construction services on a global basis.

   The benefits of this follow-the-customer strategy are especially important when the home clients of the foreign contractor are expanding internationally, as they will probably prefer to work with the construction company that they know from home. But in order to be the sole

contractor for these multinationals - and get repeat business-- the constructor needs the global presence that the Joint Venture can provide. U. S. Contractors benefited from this advantage when they followed the U.S. oil companies to Europe and Latin America. Also, this advantage was important in the J. A. Jones - Siman Joint Venture to build the new American Embassy in San Salvador (see Appendix A for more details). In this case, J. A. Jones had a good working relationship with the U. S. Department of State, for which it has built several embassies around the world. By using this sort of strategic alliance, Jones is able to reach a greater number of countries, enhancing the relationship with its client.

2. *Obtains information regarding future bids.* Through former local partners, the foreign company has access to valuable information regarding future projects in their respective country/region. This network creates a wider database of international projects that increase the opportunity to bid and participate in new projects.

   This example can be illustrated by the Joint Venture between the contractors J. A. Jones and Siman to repair the spillway of the 15 of September Hydroelectric Power Plant, in El Salvador. In this project, the company that was invited and prequalified was Siman --a former partner of Jones, as explained in Appendix A--, but they felt that the project was too risky for them alone, so they invited their former partner to bid jointly.

Furthermore, these two partners exchange information regarding important regional projects on a regular basis.

3. *Facilitates the prequalification process.* Most public construction projects require the prospective participants to "prequalify" for the job: they have to prove that they have the technical and managerial expertise, and the financial resources to perform the project successfully. This prequalification process is much easier and less costly for a foreign contractor if it has the help of a local partner.

Disadvantages for the Foreign Partner.

1. *May damage reputation.* The wrong selection of a local partner could severely damage the reputation of the international contractor, both locally and internationally. This is extremely important as reputation is of paramount importance in the construction industry.

   There are many examples regarding this risk, but because of confidentiality reasons the name of the contractors involved can not be mentioned.

Advantages for the Local Partner.

1. *Increases opportunity to participate in large, important projects.* The Joint Venture could be the only chance for the local company --particularly if it is small and with little experience-- to bid on projects of some importance. The lack of experience, size, and/or resources could be easily compensated by its partner.

2. *Reduces competition.* The local firm could prefer a collaborative rather than a competitive situation from a new, not-established foreign company when it is certain that it is planning to bid for a project. More importantly than keeping the competitor out of a specific project, the Joint Venture avoids --or, at least, delays-- the possibility that the foreign contractor will open a subsidiary in the country, thereby reducing competition on a permanent basis.
3. *Improves reputation locally.* An alliance to jointly bid with a prestigious firm increases the reputation of the local contractor, at least in the local market.
4. *Increases opportunity to obtain business abroad.* Through the international exposure and the relationship built by teaming up with a renown contractor, the local company can have the opportunity to expand internationally, entering into new markets.

   This opportunity could be very attractive for expansions into neighbor countries with similar culture -so the transition will be easy-- and where the international contractor has not had previous alliances --so both can go together, as the foreign partner does not have any ties with any former partner.

Disadvantages for the Local Partner.

1. *May damage reputation.* Even though to a lesser degree than for the international contractor, the inappropriate selection of a partner could damage the image of the company.

4.2.2. Preparation of Bid.

Assuming that both contractors have decided to submit bids for the project, and that they will do so together using a Joint Venture, they now need to prepare their offer. This process is of paramount importance for the success of the enterprise, as all the costs should be carefully estimated, and the opportunities and risks conscientiously considered, in order to bid effectively. In this stage, reliable information is everything, and includes data with a wide range of certitude: from facts, which are items that can be defined and measured with reasonable accuracy (e.g. labor and material costs, overhead, etc.), to intangibles, which are items that cannot be measured or easily quantified and about which inferences must be drawn from past experience (rationality of the behavior of competitors, attitude of government and other constituencies, etc.).

In this initial phase of the project a Memorandum of Understanding is prepared with respect to the Joint Venture,. This early agreement lays out an outline, i.e. the basic framework of the way the partners will do business together.

The analysis of this stage, conveyed through the costs and benefits that the Joint Venture implies for each co-venturer, is presented below.

Advantages for the Foreign Partner.

1. *Gives access to local knowledge.* In preparing a construction bid, the knowledge of local construction practices and the information of historical costs that a local contractor has are of paramount importance. This includes: construction equipment rental, repair, and fuel, oil, and lubrication costs; latest wage rates for construction tradesmen and professional workers, as well as clerical, housekeeping, guards, and equipment operators; pricing information on locally obtainable services and materials that will be used in the project, etc.

   Also meaningful are data about productivity of local construction workers (i.e. operational efficiencies rates), taxes, and local accounting practices. All this information is especially important in Less Developed Countries, where public sources of this type of data are especially scarce.

   As is obvious, this body of local knowledge is vital for the success of the bid. It is difficult to obtain and --more importantly-- to get it right if the source of information does not share the benefits and losses originated from it. The local company, if bidding jointly, has the proper financial incentives to provide accurate information in the preparation of the bid.

2. *Facilitates entry to markets.* A Joint Venture eases the initial entry to a country, especially for medium and small size contractors lacking international experience. Furthermore, in some cases, it could be the only viable method to do it. The entry is expected to be smoother because the resident partner in the host country presumably knows the prospective

clients, as well as the laws and customs of its country as they relate to the desired construction market.

One example mentioned by Garb (1988) where an alliance with a local contractor was needed was the case of the Joint Venture of Austin Company (based in Cleveland) with Kawasaki Heavy Industries Ltd. (Based in Tokyo), to compete for work on Japan's estimated $8 billion Kansai Airport. With the attitude of the Japanese government with respect to non-Japanese firms being allowed to bid on public sector projects, the American company alone would have been unable to bid for this work.

This advantage is particularly important in Japan, Korea, and the People's Republic of China --the three part of the booming Pacific Rim, with exceptional opportunities for international construction projects--, where the only manner of penetration for a Western contractor is to join with a native partner due to the profound cultural differences, and their negative attitude towards foreign contractors.

3. *Meets governmental regulations.* Even though most of the time Joint Ventures are voluntarily formed by the partners, sometimes the client makes the decision for them. That is why, in some cases, the Joint Venture may be the only alternative to satisfy expected or existing governmental requirements for local ownership/participation when bidding for public projects. Even though this type of requirement is

becoming more scare as countries open their economies, it still exist in several Less Developed Countries and planned economies.

Some examples -mentioned by Garb (1988)-- of countries that have or had this legal requirement are: China and Yugoslavia which demand that a unit of a national construction corporation be a partner in any construction contract in which a foreign firm desires to participate. Also, all bidders involved in the construction of Saudi Arabia's Riyadh University in the early 1980's were under a Saudi mandate to form a binational Joint Venture.

4. *Becomes eligible to obtain government subsidies.* Some countries do not mandate a Joint Venture with a local company for a public contract, but try to obtain the same objectives --technology and know-how transfer-- by giving subsidies to the contractors from abroad that do so.

   For example, Pakistan and India will help a construction Joint Venture provided it includes one of their national companies as true partner[1]. This kind of subsidy is becoming less and less frequent as economies become more market-driven.

5. *Reduces risk of political intervention.* Entering into a Joint Venture reduces the possibility of an intervention of the government in the operations of a foreign company, just because it is foreign. Even though it

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[1] "Joint Ventures Win Big Contracts", ENR Magazine, April 30, 1981

is not as important as in other industries because construction has normally short horizons, the risk of political intervention still persist.

6. *Decreases business risks.* The Joint Venture is a method to share the risks of failure of a construction project. Specifically, there are two reasons why the overall risk of the project are reduced by using this type of strategic alliance:

   a) *Size.* The scale of many present construction projects is so large that can not be carried out by one firm alone.

   b) *New environment.* The risk of entering into a new business, when the company is not acquainted with the business and political environment, is reduced when a knowledgeable partner is invited to the venture.

   By sharing the risk of a specific project with another contractor, the magnitude of the risk is reduced by the participation (in percentage terms) that each contractor has in the endeavor. The experience of Bechtel in the Middle East --as presented by Garb (1988)-- is a good example of the benefits of a Joint Venture in this regard (notwithstanding it was not an agreement between two contractors, which is the object of study of this thesis). Several years ago, Bechtel Power Corporation participated in a bid for a large power plant project in a Middle Eastern country, which included bids received from two subcontractors, one for the turbines and one for the boilers. The bid was unsuccessful, ranking fifth amongst seven tenderers. A few years later, Bechtel was given the opportunity to

resubmit its bid. The parties quickly recognized that a more competitive price could be achieved if the bid was submitted by a consortium comprised of Bechtel and the two former subcontractors. Since risks, such as performance guarantees and liquidated damage for schedule delays, could be shared under such an arrangement, the two former subcontractors were able to lower their risk contingencies and submitted more competitive prices. Even though the subsequent negotiations to formalize the Joint Venture did not reach any agreement, and the bid was submitted by Bechtel as sole contractor, this experience clearly showed that if the risks were shared all participants of the Joint Venture would have benefited.

7. *Limits investment and size of resources required.* By having a partner, the contractor reduces the investment made and the resources committed for a particular project. In most cases, it is not that the contractor cannot manage the project alone, but that the concentration of resources that it would imply may adversely impact the contractor's ability to compete for future work.

Disadvantages for the Foreign Partner.

1. *Restricts possible alliances with other contractors.* By joint venturing with one company, the international contractor reduces or even eliminates the possibility to work with other local companies in the same region and/or type of construction. This is true not because of legal or economic

constraints, but because the trust of the other contractors has been diminished just by the fact that it has worked with the competition.

2. *Prolongs estimation process.* Due to the existence of a learning curve in all the pre-construction processes and job planning, the estimation and preparation of bid documents move slower among participants that have not worked together in the past.

   However, this disadvantage is minimized when the co-venturers have worked together in the past. This time improvement was considerably, according to the management of Siman Constructora, between the two Joint Ventures that they have had with J. A. Jones Construction Company.

3. *Exists risk of overlooking Joint Venture formation issues.* Generally, during this stage, the primary concern of bidders on international work is preparing the tender. They feel that, until the award is made, advance preparation and expenses should be kept to a minimum. This lack of attention to the form of Joint Venture that could be used --that should lead to a Memorandum of Understanding before the offer is presented-- could severely damage the relationship in the case the project is awarded.

Advantages for the Local Partner.

1. *Secures specific expertise.* Depending on the size and complexity of the project, the Joint Venture could be the only way a local contractor can offer a qualification that it does not have. The skills provided by the recognized experience of a foreign firm enables the smaller contractor to tackle a broader market.

An example is the Rehabilitation of the Spillway for the 15 of September Hydroelectric Power Plant, in El Salvador. In this project, Siman Constructora --the local partner-- had no experience with microsilica concrete. So they use the alliance with J. A. Jones to secure this expertise.

2. *Facilitates the obtainment of offer bond.* With the support of the partner's assets, it is much easier for the local contractor to procure the offer bond. In many cases, due to the amount of the bid, a local contractor can not obtain this bond without being backed by an international contractor.
3. *Enables better risk measurement.* The broader experience of the international contractor benefits the local partner by enabling it to better estimate the contingency provision necessary for the project. This issue is especially important if the local contractor does not have relevant experience in the type of project that is being bid. The high degree of predictability provided by past experience reduces the overall risk exposed by the bidder and increases the probability of winning the bid, by providing a better estimate of the expected cost of the project.

Disadvantages for the Local Partner.

1. *Increases bid expenses.* Normally the preparation of a bid with a foreign partner is much more expensive for both firms, as several international trips, phone calls, etc. have to be made. This additional burden is more significant for the smaller contractors, as they generally have lower overhead (as percentage or revenues).

2. *Decreases autonomy.* By joint venturing, the local partner loses some autonomy in the definition of the financial policy of the project. This includes aspects such as dividend policy, retention money, depreciation methods, elaboration of financial reports, and capital structure.
3. *Has the risk of overlooking Joint Venture formation issues.* As for the international co-venturer, the tendency in this stage to neglect the discussion regarding the way they will work together in the future, could be a large risk that can harm their relationship in the case the project is awarded to the Joint Venture.

4.2.3. Pre-Construction Stage.

If the Joint Venture wins the bid and the project is awarded, the next phase includes all the arrangements that have to be made to get ready to start the on-site construction. As most of this phase consists of the planning of the project, the better it is performed the smoother the construction of the project will be.

Regarding the evolution of the alliance, in this stage a Joint Venture Agreement needs to be signed. It replaces the Memorandum of Understanding mentioned in the previous stage, and is the contract that will define the relationship between the co-venturers. At least, this Agreement should include the following topics: method of organization and decision-making, system of management controls, protection of technology, financial

plan, internal financial reporting system, provisions for resolution of disputes and termination, and exit strategy.

The most important advantages and disadvantages that the Joint Venture can pose to each partner are presented below.

Advantages for the Foreign Partner.

1. *Procures local materials at lower prices.* By having a local partner, the Joint Venture can buy cheaper major materials from the local market. The local contractor helps in two ways: with its knowledge of the local suppliers (who makes what, quality standards, price range, reliability, etc.), and with the market power that it has due to the higher quantity of materials that it buys (it can obtain better volume discounts, etc.).
2. *Obtains better deals with subcontractors.* As with the pre-purchase of major local materials, the foreign contractor benefits from the Joint Venture through better arrangements with local subcontractors. The advise of the local partner in this respect, regarding reliability, price, quality, etc. of the subs is valuable, especially in projects in unfamiliar countries.
3. *Facilitates the hiring of labor and rental of equipment.* The relationship that the local partner has with the professional associations, unions and local companies eases the hiring of labor and the procurement of rented equipment. Also, if the local contractor is the one that employs the direct labor (including craftsmen, common labor, drivers, guards, warehousemen, and other personnel employed on the site), the co-

venturer from abroad can avoid dealing with construction unions, which could be troublesome for a foreign company in a Less Developed Country. As an example, a foreigner is at disadvantage in recruiting good construction personnel in Japan; therefore, a local partner is essential in this regard.

In this regard, one of the main motivations of J. A. Jones Construction Company to form an alliance with Siman Constructora for the new American Embassy in San Salvador was precisely to avoid any direct relationship with Salvadoran unions, which were extremely politicized by the pro-Communist guerrilla. Thus their strategy was to agree with its local partner that all direct labor was going to be employed on a Project payroll established by Siman, and then the Joint Venture was going to reimburse all the incurred costs.

4. *Makes it easier to obtain permits and government approvals.* Again, the experience and network of the local contractor benefits the Joint Venture by facilitating the procurement of governmental permits and approvals. This is especially important to those foreign contractors that have not worked previously in the country of the project, as they would be required to obtain a contractor license, a Tax Identification Number, etc.
5. *Simplifies the move into an unknown country.* The local contractor can be a valuable asset when the foreign contractor moves into the host country. Some examples of aid that it can provide are: assistance in obtaining permits, work visas, and licenses; guidance to find and rent

houses for expatriates; help to speed the bureaucracy in the local customs to allow entry of equipment, materials, etc.; procurement of general information about lifestyle in the country, personal taxes, etc.

Disadvantages for the Foreign Partner.

1. *May exist differences in the Joint Venture formation.* In the Pre-Construction stage, where the Joint Venture Agreement has to be prepared, some difficulties could arise when trying to agree on the way the relationship will be managed. Even if all the important issues were settled before presenting the bid, certainly there exist many details that have to be decided in this stage of the project. Examples of areas where differences commonly arise are: formation of the executive committee that will oversee the project, veto rights of the smaller partner, sharing of decision-making, different "management style", etc.

Advantages for the Local Partner.

1. *Permits access to cheaper foreign products.* It could be an easier and cheaper way to purchase long-lead materials, parts, pieces, and equipment that are made abroad. The foreign partner may obtain better offers due to its larger size and international presence. Also, if the partner's home-country is a member of a trade block (i.e. NAFTA, European Union, etc.), it could obtain better deals on those products from its region due to the lower tariffs that they pay.

2. *Secures better financing terms for new equipment.* The local partner could obtain favorable financing terms when acquiring new construction equipment abroad, as it can buy it for the Joint Venture and agree with its partner to buy it back at the end of the project (i.e. keep the equipment as part of the profits of the project).

   Siman Constructora, in both Joint Ventures with J. A. Jones, benefited from this advantage. In these cases, Siman did not only benefited from the better agreements that its larger counterpart was able to obtain, but also took advantage of the fact that imports for both projects (i.e. construction equipment in this case) were exempted from all import tariffs for the length of the construction. Thus Siman was able to buy new equipment for the projects through the Joint Venture and delay the payment of import tariffs until the projects were completed.

3. *Facilitates the procurement of the other construction bonds.* As with the offer bond, the size and reputation of the foreign partner makes it much easier to purchase the other bonds that are normally required by the contract. Some of these bonds are: completion bond, guarantee bond, performance bond, etc.

Disadvantages for the Local Partner.

1. *May exist differences in the Joint Venture formation.* As stated above for the foreign contractor, discrepancies could arise when the actual Joint Venture Agreement is being negotiated.

4.2.4. Job Execution.

The most lengthy and intense part of the project is the actual construction stage. Here, all the people that have something to do with the physical erection of the facility come into play. For the general contractor --i.e. the Joint Venture in this case-- the most important activities are related to the management of the other parties, even though most of the time it also does some on-site construction. Pros and cons that a Joint Venture creates in this stage are as follow.

Advantages for the Foreign Partner.

1. *Improves relationship with local constituencies.* The Joint Venture can improve the relationship of the multinational company with the local government and private community. These contacts could be of paramount importance to speed bureaucratic processes, commonly found in Less Developed Countries.
2. *Reduces required investment.* The Joint Venture with a local partner avoids the creation of excess installed capacity. This not only reduces operating costs, but also improves the cash flow of the foreign partner. As an example, many of the small tools (hammers, shovels, wheelbarrows, picks, etc.) and utensils (molds, posts, etc.) that are used in

construction do not have to be bought by the foreign partner, eliminating the need for this investment.

3. *Enhances 'lobbying' ability.* The partner from abroad can take advantage of the lobbying capacity and network of friends that the local partner has developed in the local and central government, professional associations, and local unions. These influences may be important in settlement of any claims that may arise.
4. *Obtains access to less expensive local materials .* As in the Pre-Construction stage, there exists cost savings in the purchase of raw materials, parts, pieces and components, as a result of a joint procurement policy. This advantage is significant when the local company is large, so the Joint Venture project can reap the discounts and benefits of the high purchase volume of the local company. In addition to better terms, the foreign contractor's need to establish a purchasing department could be avoided if the project can use the services of the local partner's purchasing department. This was clearly the case in the Joint Ventures between J. A. Jones and Siman Constructora.
5. *Guarantees access to inexpensive and skillful labor.* The ongoing operations of the local partner can provide low-cost labor, especially native managers and engineers. This means that the foreign partner can reduce the number of personnel sent overseas, paying lower wages and saving transportation costs. In other words, what the Joint Venture is doing is

allowing a reduction of cost by exploiting the comparative advantages of each country.

Also, the use of local professionals assures that the technical knowledge regarding local construction practices and conditions is present. An example of this is the practice in equatorial countries on how to proceed when the process of pouring concrete is interrupted due to an unexpected, strong tropical storm.

6. *Increases asset utilization.* By entering into Joint Ventures, the foreign contractor finds a way to use any excess equipment capacity that it may have, improving the return on assets of the company by optimizing the use of its resources.
7. *Acquires knowledge of local financing.* The local contractor can be a valuable source of information on how to deal with local commercial banks, commonly the only source of financing in third-world countries.
8. *Secures access to critical resources where there is no other way to obtain them.* Joint venturing could be the best way to assure the availability of any critical resource. For construction projects in Less Developed Countries, this issue could be especially important when there are local construction conglomerates that control some important raw materials. A Joint Venture with the construction company of the conglomerate would guarantee the access to the resource.
9. *Gets tax benefits in the host country.* In some cases, the multinational corporation has a lower tax rate in the host country due to the use of the

Joint Venture (instead of doing business alone). The rationale for this incentive is the desire of the government of Less Developed Countries to encourage local participation, in order to foster learning and reduce foreign currency expatriation.

An example cited by Stokes (1980), under the Foreign Capital Investment Code of Saudi Arabia, if there is at least twenty-five percent Saudi capital in a company, the company is exempt from income taxes and corporate taxes for five years from the date production is started. Other incentives include certain exemptions from custom duties. If there is sixty percent Saudi ownership, the construction contractor may be exempt from the ten percent retention requirement by Saudi law.

In other cases, even though the tax rate is the same as if entering alone, there is less scrutiny by the local government if the foreign contractor enters into a Joint Venture. At least, this is the case for U. S. Companies doing business in Japan.

10. *May obtain benefits due to U. S. tax considerations (if it is an American firm).* Garb (1988) points out that, for U. S. tax purposes, it is a major consideration as to whether the Joint Venture is considered a partnership or a corporation. The following four factors are generally considered in making this determination:

    a) Continuity of life.

    b) Centralization of management.

    c) Limited liability.

d) Free transferability of interests.

If the proposed Joint Venture has two of fewer of these factors, it is treated as a partnership for U. S. tax purposes, and therefore will have the following potential advantages:

- Earnings are not doubly taxed by the United States, as are corporate earnings.
- Partners can elect individually to deduct foreign taxes or to credit them.
- Each partner may deduct current losses, whereas deduction of corporate losses is often deferred until liquidation.
- Problems caused by dividend income are avoidable.
- Problems with tax-credit limitations caused by tax structures when there is a local participant in the Joint Venture are avoided. In Saudi Arabia, for example, only the foreign participant's share of the profits are taxed, not the Saudi partner's share. If a Saudi entity, treated for U.S. tax purposes as a corporation, were owned 50/50 by an American and a Saudi citizen, when calculating the U. S. foreign tax credit the American shareholder would be treated as having paid only one-half of the taxes of which it bore the entire economic burden. On the other hand, a Joint Venture treated as a partnership could make a special allocation of the taxes to the U. S. partner as necessary to reflect the actual burden of the tax.

If the Joint Venture is considered a corporation for U. S. tax purposes, there are the following potential advantages:

- Deferral of U. S. taxes on foreign construction earnings until actually repatriated to the United States. As a business objective, deferral only makes sense if the cumulative effective tax rates in the country of incorporation and country of construction are substantially less than the applicable U. S. rates.
- Greater flexibility than partnerships in choice of accounting methods and tax years.
- Greater ability to segregate activities, for example, engineering work done in the United States as being done by the U. S. parent, while on-site construction work as being done by an overseas subsidiary.

Disadvantages for the Foreign Partner.

1. *Conflicts of interest may arise.* Conflicts of interest arise between the partners of any Joint Venture when the interests of one partner are different from those of the Joint Venture.

   An example could be the local partner's claim to use its equipment in the joint ventured project. This could be a disadvantage for the foreign partner if the equipment does not fit exactly the needs of the project, or if it is old and unproductive.

2. *May limit the number of expatriates allowed to work in host country.* Local laws may limit the number of expatriates --both managers and technical personnel-- that work in local companies. However, the Joint

Venture could be classified as a local firm because of the presence of the local partner.

3. *Requires time-consuming settlement of discrepancies.* In any Joint Venture, there exist disagreements between the parties, which require valuable management time to be solved. This disadvantage could be significantly reduced if the Joint Venture Agreement is clear and comprehensive.

4. *May have difficult working relationships because of cultural differences.* As is frequent in international Joint Ventures of all types --not only in the construction industry--, the "softer" issues (such as cultural differences, style incompatibilities, language difficulties, differences in values and norms, and dissimilar business practices) can make the working relationships tenuous, and even lead to important disagreements. Although this difficulty can be reduced by carefully drafting the Joint Venture agreement, it can never be eliminated.

   An example of this issue is provided again by Garb (1988) and the Bechtel Corporation. In the Joint Venture with Kumagai, the Bechtel management personnel who worked with Kumagai found that the biggest difference between them was that in Japan, contractors --not owners-- were responsible for quality control. As a result, Japanese firms like their partner tend to be more meticulous in this regard, adding to the costs. Another illustrative example is again provided by the Joint Ventures between J. A. Jones and Siman. In these cases, the difference in how

business is done in each partner's country arose the second time that the contractors worked together. In the first Joint Venture, where the owner of the project was the U. S. Government, absolutely everything went smoothly. However, in the second Joint Venture, where the owner was the local government, several problems occurred due to differences with the owner. Particularly, the owner did not want to recognize some additional costs that were incurred by the Joint Venture because of an error in the project specifications. Even though the request was obviously fair, the owner insisted in its desire to not admit these additional expenses. Here is where the differences in business culture arose. The American partner wanted to sue the government and force them to pay. The local party opposed this procedure, arguing that in El Salvador nobody can sue the government, and that these kinds of disputes are never settled in court. Also, its important to note what each party had in jeopardy: the local partner had much more to lose, as most of its projects are with this client (the Salvadoran government), and by upsetting its relationship with the government the company may be left out of future important bids. Even though later an agreement was made with the government, there were some difficult days for the Joint Venture. It is obvious and interesting to note from this last example how the relationship can be affected by who the client is, and by how familiar both co-venturers are with working with the client.

5. *May be exposed to unfair liabilities.* In the case of joint liability, it is more likely that the client will look for the partner with the deeper pocket in the event of any unfavorable event. This would be unfair for the larger contractor, as both partners should share liabilities in accordance to their participation in the venture (i.e. the same proportion as their participation in the benefits).

   However, there are different methods that the international contractor can use to minimize this exposure:

   a) Use of a subsidiary corporation of lesser net worth as the participant firm in the Joint Venture.

      The limitation of this solution is that it may not be accepted by the client, arguing that the firm that should sign the contract is the same firm that won the bid. Using this smaller subsidiary in the bid might not have been possible in the first place, as it may not have the necessary requisites to prequalify to bid for the project.

   b) Spread the risks through subcontractors for most of the services, by requiring from them some indemnification provisions.

      There are two problems with this solution: first, it reduces the overall profitability of the project, as the subs will charge extra for this requirement; and second, even if the contractor has successfully transferred all the legal liabilities to the subcontractors, the Joint Venture is still ultimately responsible to the client.

c) Utilize --if it exists in the host country-- a legal form that limits the legal responsibilities of the parent companies in the Joint Venture (e.g. a sort of Limited Partnership, etc.), or incorporate the Joint Venture as a new company for legal purposes. Again, the main constrain to this solution is to obtain the client's authorization to do so.

6. *Creates financial difficulties if the local partner is not able to meet cash requirements.* Because of the smaller size of the local partner, its financial ability probably will be weaker. The situation when the local co-venturer is unable to fully meet the required cash infusions in a timely manner should have been spelled out and planned for in the Joint Venture Agreement, or else the international contractor may be in a difficult position (especially if the construction of the project can not be stopped). The foreign partner must be clever enough to recognize that, whereas a liquid financial position may look excellent from the outset, the local contractor may have other projects on hand that must use these financial resources and thus make them unavailable to the Joint Venture when needed.

   To minimize the probability of the occurrence of this drawback, it is recommended that the international contractor first make a thorough and thoughtful investigation of the partner before entering into business together; and then, agree to grant in advance to the Joint Venture bonds, letter of credit, or cash in an amount necessary to fund the expected cash requirements of the job.

In both Joint Ventures between J. A. Jones Construction Company and Siman Constructora, the Joint Venture Agreements had a clause that required the local partner --which in both cases had a minority interest-- to provide a bank guarantee or bank bond to guarantee Siman's payment of its share of any losses sustained by the Joint Venture.

Advantages for the Local Partner.

1. *Gains access to less expensive financial resources.* The Joint Venture could be a way for the local contractor to obtain cheaper financial resources for the project. These cheaper resources are not because of a shift of risk to its larger partner, but because its partner has better access to international financial markets.
2. *Reduces operating costs.* The local partner could cut operating costs, by making a more efficient use of its resources: installations (office, warehouses, etc.), corporate personnel, and equipment. The reason for this is that normally the local partner is the first choice when any of these assets are needed by the joint ventured project.

   An example of this advantage could be an agreement that the local company will share with the joint venture project some services such as accounting, general administration, top management, etc., and rent some local contractor's infrastructure such as space at the headquarters, central warehouse, etc.
3. *Allows the opportunity to learn innovative business practices.* By entering into a Joint Venture, the local partner gains access to modern

construction management techniques (e.g. computerized cost control, improved software for scheduling, innovative contract strategies, etc.), which may have passed unknown otherwise.

Siman, from its two Joint Ventures with J. A. Jones, clearly benefited in this regard. Specifically, it learned what were and how to use the most recent state-of-the-art estimating and scheduling software.

4. *Gives opportunities for technology transfers.* The local contractor could take advantage of the innovative materials and equipment used by its foreign partner, as well as the non-proprietary technical know-how, to enhance the technology used by the firm.
5. *Facilitates fund raising.* For the local contractor, the alliance with a multinational company could facilitate obtaining permanent funds, both locally and internationally. These funds could come in different forms: better financing terms by the suppliers; grant of loans by the commercial banks; placement of debt and equity investments to regional and international organizations; etc.
6. *Optimizes use of assets/equipment.* As for the foreign contractor, the Joint Venture increases asset utilization, optimizing the use of its resources.
7. *Maximizes use of by-products.* A Joint Venture can be an excellent way for the local partner to use products derived from other projects.

   This is common in projects that involve earth moving, as the material removed from one place can be used on other projects.

Disadvantages for the Local Partner.

1. *Requires the use of costly expatriates.* By being in a Joint Venture, the project will necessarily have some foreign personnel that are more expensive that local personnel. This additional costs would not be incurred if the project were done entirely by the local firm.
2. *Requires time-consuming settlement of differences.* Like for the foreign partner, an inferior Joint Venture Agreement could lead to costly and unpleasant differences between the parties.
3. *May have difficult working relationships.* As for the international contractor, a working relationship with a foreigner is always more difficult than working with fellow countrymen.

4.2.5. Job Finishing.

Finally, the last stage of a project is what is being called Job Finishing. This group of activities includes all those things that have to be done by the contractor in order to complete the project, and receive final payment. Even though the boundary that divides this stage from the previous one (i.e. Job Execution) is a fine line, it exists and can be identified as the situation when all major construction activities are finished and what remains are small details (e.g. painting of small areas, final electricity tests, etc.). This phase starts when the site office is closed and most of the employees are

moved to other projects and finishes when the final payment is received from the owner.

The Joint Venture causes the following advantages and disadvantages to its members in this last stage.

Advantages for the Foreign Partner.

1. *Reduces obstacles regarding repatriation of capital and profits.* When the multinational firm enters a Joint Venture with a local company, it usually receives less pressure from the government regarding the repatriation of capital and profits of the project. The reasons for this are twofold: the size of the repatriated profits is smaller (as the local contractor also receives some of the proceeds of the profits), and the favorable attitude of the government towards the project since it has benefited the country (i.e. learning and transfer of technology occurs).
2. *Increases number of invitations to bid* . By having finished a project in a country/region --and, hopefully, finished with good results--, the international contractor is known by prospective clients that could invite him to future private or public projects. This reputation is especially valuable for the international contractor in growing countries where it has not previously worked.
3. *Gets help in 'punch list'*. When a construction project is turned over to its owner, frequently there remain some small, last-minute details that need to be done. This is what is called a "punch list" in the construction jargon.

If the contractor from abroad does not have a local partner, it would be costly for him to perform these small --but some times lengthy-- tasks. In the Joint Ventures mentioned above, Siman was a great help to J. A. Jones by remaining in charge of many small details, allowing its partner's personnel to leave before the final acceptance of the contract work by the owner.

Disadvantages for the Foreign Partner.

1. *May cause negative effects as a consequence of a failure.* If there were problems in the project, and it is not completed as expected, the image of the foreign party can be severely damaged in the host country. This could have repercussions on future projects, especially in that country.

Advantages for the Local Partner.

1. *Facilitates the procurement of final construction bonds.* As with the other bonds, the presence of the foreign partner eases the purchase of the "Maintenance", "Release of retained percentage" and/or other required bonds that are requested by the contract.

Disadvantages for the Local Partner.

1. *May cause negative effects as a consequence of a failure.* In the case of a local contractor, the negative consequences of a failure in its reputation are larger than for the international contractor. Its image can be severely

damaged and, because all its experience and presence is local, all its future business is negatively affected.

4.2.6. Firm Infrastructure.

In addition to the effects in the primary activities mentioned so far, the Joint Venture also has important consequences in the support activities of both firms. This section will focus on these support activities, which are considered in the Project Value Chain as the linkage at the corporate level of all the projects that the contractor is undertaking. Thus, all the benefits and drawbacks considered would not be related to a particular project, but to the company as a whole.

The firm infrastructure --usually called overhead for costing purposes-- includes all the functional activities provided by the parent firm that give direction and control to all the projects undertaken by the contractor.

This category has the following pros and cons for each of the partners:

Advantages for the Foreign Partner.

1. *Helps to diversify overall risk of the company*. In accordance with the portfolio theory, a contractor would rather have a small participation in a large number of projects instead of a large share in only a few, all other things being constant. This reduces the overall risk of the firm, and is

particularly important for projects overseas where many risks cannot otherwise be hedged.

2. *Allows for faster entries into new external markets.* By relying on information, personnel and equipment of foreign partners, the international contractor can accelerate the entry into a country and consequently participate in a larger number of international projects.
3. *Preempts competitors.* A multinational contractor can benefit from First-Mover advantages by forming Joint Ventures with the best local partners. These Joint Ventures, if successful, can lead to valuable on-going alliances that can dissuade other foreign contractors from entering into these countries.
4. *Benefits from several accounting advantages.* Although not exclusive to Joint Ventures, there exist some advantages of being present in several countries at the same time (despite the fact that construction projects are not permanent operations). Some gains at the corporate level of being international are: ability to reduce taxes, by recognizing profits in those countries that have lower corporate tax rates; delay payment of taxes, by deferring the recognition of profits, and by accelerating the depreciation methods in those countries where it is allowed, etc.

Disadvantages for the Foreign Partner.

1. *Needs increased coordination.* The coordination with a partner through a Joint Venture requires more time and effort --especially at the beginning

of the project-- compared to the other strategies to enter markets, particularly when compared to direct investment and subcontracting.

2. *Losses control.* By forming a Joint Venture in a foreign country, the multinational firm loses part of the control of its operations. This disadvantage can be minimized by defining clear rules of decision making in the initial stages of the project.
3. *May have to deal with litigation in a foreign country.* From a legal point of view, having a partner could imply additional burden if the Joint Venture Agreement provides that discrepancies between the partners will be settle using the local legal system. The unfamiliarity with the foreign laws as well as the additional expenses that a litigation in a foreign country causes, are additional disadvantages for the foreign partner.

Advantages for the Local Partner.

1. *Enhances reputation.* A few successful Joint Ventures increase the reputation of the local firm with respect to future clients, suppliers, banks and other financial institutions, local investors and capital markets, international banks and organizations, future employees and the general public.
2. *Preempts local competitors.* As with the multinational firm, the local contractor can build valuable relationships with foreign contractors that will preclude competitors from working with them.

Disadvantages for the Local Partner.

1. *Needs increased coordination.* As stated above, Joint Ventures require greater coordination. This is an important cost that also has to be paid by the local partner in order to benefit from all the other advantages of a Joint Venture.
2. *Has the risk of the foreign contractor becoming 'local'.* By giving important knowledge, contacts and relationships, the local contractor is giving to its partner valuable assets that allows him to participate in the future on its own in the local market. This is especially true as these intangibles often are the most important incentives that moved the foreign partner to enter into Joint Venture agreement in the first place. In other words, through the Joint Venture, the foreign partner may acquire capabilities and skills to participate in local bids by itself in the future, threatening the future viability of the local partner.
3. *Creates a problematic situation with nationalist governments.* Having foreign firms as partners may cause problems to a local contractor if the government is extremely nationalist.
4. *Increases overhead.* Local contractors frequently have a competitive advantage over international contractors due to their lower overheads. By entering into Joint Ventures, this overhead is increased --due to the increased international coordination that exists-- and their cost advantage is somehow diminished.

4.2.7. Human Resources Management.

This second support category relates to all those activities that the firm does at the corporate level to hire, train, develop and compensate its personnel. The use of a Joint Ventures provides the following pros and cons regarding the corporate management of personnel:

Advantages for the Foreign Partner.

1. *Its personnel gains international exposure.* The opportunity to gain international exposure and working abroad with partners of different cultures and experiences, could be very attractive for potential employees, enlarging the pool of applicants and increasing the possibility of attracting skillful and talented workers.

   In addition, the use of Joint Ventures enhances the training and professional development of the existing personnel of the company.

Disadvantages for the Foreign Partner.

1. *Discrepancies may arise on salary and other benefits.* By using employees from both firms in the Joint Venture, there could be disagreements regarding the salary and benefits of the personnel provided by each partner.

This is a meaningful issue when the differences in wages among the contractors are large, due to differences in the living costs of the respective countries or any other reason.

Advantages for the Local Partner.

1. *Fosters managerial learning.* The learning that a small local contractor achieves by entering into Joint Ventures is the most important benefit of this form of alliance for the local partner. The modern, more effective managerial techniques --in areas such as planning, control, organization and general management-- that the firm learns through job experience and/or training programs could leverage the overall profitability of the company.

   However, this learning, in order to remain through time, needs to be incorporated into the day-to-day management of the company --through operational procedures, techniques, etc.-- after making the required changes to make them suitable to the local construction conditions and to the philosophy and culture of the firm.

2. *Gets inexpensive technical training.* If the main contribution of the foreign partner is technical expertise, the native contractor will benefit from it with an intensive training program for its personnel (both, local engineers and trade workers).

3. *Helps for continuous employment of its personnel.* A common goal of many construction companies is to try to always have work for its personnel. The achievement of this objective is especially difficult for

general contractors because of the cyclical and uncertain nature of construction business. The use of Joint Ventures --which usually require numerous employees from the local partner-- reduces the number of workers laid off when projects are completed, which implies lower recruiting, hiring, and training expenses.

4. *Increases attractiveness of the firm to potential employees.* Finally, the local contractor benefits from the Human Resources perspective by the fact that the international exposure is often viewed as a plus by prospective employees. Thus, by entering into the Joint Venture, the local partner increase the quality and quantity of job applications.

Disadvantages for the Local Partner.

1. *Discrepancies may arise on salary and other benefits.* As mentioned for the foreign contractor, there could be disagreements between the partners regarding the economic compensations of the personnel provided by each co-venturer.
2. *Makes some existing employees useless for the project.* Because the Joint Venture sometimes imposes additional requirements on the employees --the most common condition is being bilingual in those cases where it is necessary-- the local firm may be obligated to hire additional workers and leave existing employees underutilized.

4.2.8. Technology Development.

This category encompasses the corporate efforts aimed to improve the productivity of the different construction processes (i.e. reducing their schedules and costs), and/or to create value to the owner by providing additional features in the facility built. The use of a Joint Venture has the following positive and negative consequences in this regard.

Advantages for the Foreign Partner.

1. *Speeds "localization" of technologies.* A good local contractor could be a valuable source of information regarding which construction technologies can and which can not be applied in the host country, and which need some type of adaptation to make them more suitable to local construction conditions (as differences could exist in weather conditions, seismic factors, etc.).

Disadvantages for the Foreign Partner.

1. *Allows risk of technology transfer.* In the case that the international contractor has developed its own technology --which is, as stated in the previous chapter, unusual in the construction industry--, an alliance could put it in jeopardy. This could be avoided if the developed technology is

patented[2]. Specifically, the contractor can incorporate into the patent license the termination of the partner's right to use the patents when the Joint Venture finishes.

However, regarding unpatented technology, the situation is different. First of all, the local partner should be committed in the Joint Venture Agreement to keep secret the know-how transmitted, and not to use the know-how at any time after the project is concluded without approval of the partner who owns it.

2. *Creates possibility of teaching future competitor.* In the case that the local co-venturer is sufficiently large to become a competitor in the future, the information concerning what market-available technology the foreign partner uses (e.g. items it has bought from suppliers, as equipment, software, etc.), and the learning the local partner may acquire should not be ignored. This information and learning can be used against the foreign partner, threatening its future competitiveness.

Advantages for the Local Partner.

1. *Procures information about technological innovations.* The chance to work side-by-side with a large international contractor is a great opportunity for the smaller firm to discover new, innovative construction technologies that can be acquired later in the market.

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[2] Issue mentioned by Garb (1988).

The local contractor's need for technological improvement could find in a real project an excellent way to diagnose technological problems and to solve them. However, as Nagi (1981) points out, there are three categories of factors that influence the ability of the local contractor to receive and utilize these innovations:

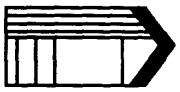
a) Internal conditions of the local contractor, such as technical capability, managerial capability, and long-term policy of technology improvement.
b) External factors, including the type of technology transferred, the firm who supplies the technology, and the local environment and government's policy regarding technology transfer.
c) Process of consultation, which refers to the type of organization used in the Joint Venture (i.e., if it is shared management or not), the allocation of responsibilities among the co-venturers, etc.

4.2.9. Procurement.

This last category of support activities refers to the corporate function of purchasing inputs used by the firm, but not the purchased inputs themselves. This group of activities is primarily important in the construction industry at the project level. Thus, most of them were considered before. However, there is one benefit at the corporate level that the use of a Joint Venture has for the local contractor, and it is:

Advantages for the Local Partner.

1. *Allows benchmarking of procurement procedures.* By working together with a multinational firm, the local contractor is benefited through the opportunity to benchmark all its purchasing operations: procedures for dealing with suppliers, management of relationship and monitoring of suppliers and subcontractors, etc. However, the differences in business culture and practice between the two countries of origin of the co-venturers limit the degree of innovation in this regard.



4.2.10. Margin.

The last component of the Value Chain is the Margin. Unlike the previous categories, the margin does not consist of any activities. It is the profit or loss that remains after all revenues are collected and the activities (i.e. costs) are finished.

As a general rule, the size of the margin when a Joint Venture is used depends on how operating costs are affected, how large are the costs of coordination, to what extent the different efficiencies improve due to the presence of a partner, and how much the different risks are reduced.

The consequences in the margin derived by the use of a Joint Venture are:

Disadvantages for the Foreign Partner

1. *Has exposure to currency risks.* By doing business abroad, the multinational firm is exposed to foreign exchange rate fluctuations. In general, the profit margin can be negatively affected by high inflation rates, sharp movements of the exchange rates, and difficulties in bringing back the investment and profits of the project because of expatriation of foreign capital's regulations.

4.3 Local Government's Considerations Regarding Construction Joint Ventures.

Governments can and do influence the mode that international firms use to enter their countries. It is common that the authorities of Less Developed Countries promote those entry mechanisms that are favorable to them. The scope of this governmental influence could be broad --including all types of business activities and firm sizes-- or could be industry specific and, in some cases, even project specific.

The implementation and rationale for this influence are varied. This section explores the most common means used by governments to influence international participation in local construction projects, and the motives they have to do so.

Ways to Exercise Influence.

Governmental influence can be exercised through several different ways:

- *Laws.* The government may use its legal system to force a specific entry mode. For example, all foreign firms may be required to associate with a local partner to do business in the country. In other cases, governments do not enforce an association, but indirectly promotes it by limiting the number of foreigners that can work in a local firm and/or subsidiary.
- *Tax incentives.* Different taxes and tariffs are also used by local authorities to promote a particular form of doing business. By having lower rates when their favorite type of entry mode is used, governments are changing

the payoffs of the different alternatives and indirectly affecting the decision of the international firm.

- *Project specifications.* For public construction projects, governments stipulate in the contract and specifications those requirements that the contractor has to fulfill, which can include nationality and form of association. The advantage of this method to exercise influence over the previous ones is that it allows the government to limit the restrictions and/or incentives to the construction industry, and even to specific projects or type of projects.

Rationale for Promoting Construction Joint Ventures.

There are several reasons why a government may want to influence or enforce the use of Joint Venture for construction projects. In particular, the association of international contractors with local companies may have the following benefits for the local government and the country it represents:

1. *Training of Local Trade Workers.* The innovative construction techniques and methods that international contractors would use if they are involved in the project would necessarily be taught to the trade workers that are going to use them. This practical learning enhances the capabilities of the trade workers and benefits the entire local industry. This transfer of skills at the worker level is usually one of the most important priorities of the government when promoting the presence of international contractors, as it does not only benefit the particular interests

of the local firm that serves as partner (as the benefits outlined previously in this chapter) but all trade workers, who usually are not permanent employees of the contractor (i.e. they are normally hired just for the project).

2. *Technology Transfer.* The transfer of new technologies --discussed before at the company level-- not only benefits the local contractor that is partner of the foreign firm, but also the entire local construction industry: new technologies rise the quality standards of the industry and are quickly spread to other contractors due to the highly degree of competition that exist in the construction industry.
3. *Managerial and Technical Know-How Transfer.* Foreign contractors generally rely on their own personnel for management because administrative capabilities of Less Developed Countries' firms are often underdeveloped. However, the use of a Joint Venture assures the presence of local personnel in the direction of the project, all of whom benefit from the managerial, organizational, and technical expertise of the foreign partner. This training of native professionals will improve the long term development of the local economy. This advantage would not exist if the project is awarded directly to the international contractor as prime contractor and the local firm is subcontracted only for the on-site construction, as most of the managerial and technical decisions will be taken by each company separately, with minimal interaction of the firms' executives and, thus, with little learning by local managers.

4. *Employment of Local Professionals.* The promotion of local participation in construction projects indirectly induces the employment of professional natives (both managers and engineers), which can be a consideration of paramount importance for governments that have high unemployment rates.
5. *Reduces expatriation of profits.* The presence of a local partner implies that part of the profits of the project will stay in the local economy, reducing both the size of the earnings that are taken out of the country and the future requirements for foreign currency. This advantage could be important for the government when the country faces a negative commercial balance of payments.

Chapter 5. Long Term Strategic Alliances in the Construction Industry.

The use of short term ventures in the construction industry --as the Joint Ventures between General Contractors studied in this thesis-- has been popular in the industry for several decades. However, long term, permanent alliances have not been common in construction. Even though they are not the focus of study of this thesis, a brief consideration is worthwhile. The purpose of this last chapter is to concisely discuss the advantages that partnerships of this sort could have in the global competitive environment of the construction industry at the end of the century. Even though they can occur between the different players in the Value System, the focus will be on long term alliances between general contractors, because they are the topic of this thesis.

Alliances are not a recent invention. Construction projects themselves --which have been around in one way or another since man is on earth-- can be seen as alliances between the sponsor, designer(s), constructor(s), and subcontractors. The involvement of different parties to achieve a common goal provides the opportunity to cooperate in order to create value. Value in construction can be created in three ways: improving the quality of the facility, shortening the time required to deliver it, and/or reducing the cost of building it.

However, projects have a limited duration. Thus, the cooperation that evolves between the different entities during the life of the project finishes when it comes to an end (i.e. it is project specific). Also, cooperation is especially difficult to obtain, because the number of parties involved is large and they enter and exit a project at different life cycle stages. These are indeed the reasons why in construction most of the alliances that exist are short term (i.e. project specific Joint Ventures): the parties are compensated independently around projects with limited duration. Nevertheless, these issues do not necessarily preclude other forms of long term alliances, even though they certainly do not facilitate them.

As stated chapter 2, a company could engage in a long term alliance with a firm that produces similar products or that provides similar services (horizontal alliances), or with a complementary firm that is located somewhere else in the value chain (vertical alliances).

In recent years, *vertical alliances* in the construction industry have received some degree of attention. In particular, those related to partnerships between architectural and engineering firms, and general contractors. This increased awareness may be due to the use of new organizational forms and delivery methods (such as Design-Built, Turnkey, Build-Operate-Transfer, etc.) for the construction of large, important projects. These new methods favor a more collaborative relationship between the different parties involved in the project. Moreover, due to the incentives that they provide, the different constituencies are required to work as a team for their own benefit. Because

these innovative methods have a self-selection approach --the members of the team choose their partners at the beginning of the project--, the existence of some sort of permanent alliance facilitates this selection. Previous knowledge of the partner --and, more than knowledge, the experience of have efficiently worked together before-- is of paramount importance. Thus a permanent alliance with partners that are located in different parts of the value system makes this selection much easier. Also, mutual understanding and trust, as well as capabilities and compatibility of business cultures can be assessed better when there is no pressure to meet a specific deadline for starting a project.

On the other hand, long term *horizontal alliances* (i.e. alliances between firms that are engaged in the same type of operations) have not been common in the industry. There is almost no literature in this regard, and there is little evidence that they exist in practice. However, several benefits can be seen from this sort of long term alliance. Specifically, it can improve asset utilization and can enhance the marketing capabilities of the firms. These two benefits can be better explained with an example. Image two regional general contractors that are located in different geographical areas (i.e. are not direct competitors). Both target several market segments in their respective areas, some which are common to the other contractor, and others which are not. Also, both are engaged in road construction, and both have an

asphalt plant[1]. A long term alliance could be agreed between these two contractors, so each one will make available its asphalt plant to the other --at a special rent price-- in case it is not using or intending to use it. So, if one of the contractors is invited to bid for the construction of a road while it is using its asphalt plant in another project, it could ask its partner if its plant is idle; if it is, the contractor can bid counting on it. Without a partner that can make its plant available, this contractor would not be able to bid for the project. It would be uneconomical to buy an asphalt plant just for the project, as they are very expensive. Furthermore, asphalt plants are generally not available in the rental market.

In this example, the two benefits mentioned above are seen: the partners improve asset utilization (their asphalt plants would be idle less time) and the marketing capabilities of the firms are enhanced (the contractors can bid in some projects that they were unable to participate due to unavailability of their own equipment).

This same example could be applied to building contractors that make their cranes available to their partners. In general, it could be applied to any construction segment where expensive, specialized assets can be shared between companies that do not compete directly with each other.

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[1] An asphalt paving plant is an expensive equipment used for road paving, Webster's Contractors Dictionary defines it as a plant, usually mobile, designed to heat and mix crushed aggregate with heated asphalt to a specific mix and consistency in preparation for its transport to the area being paved.

Project-specific Joint Ventures, as those studied throughout this thesis, could be an excellent source of partners for these long term, permanent strategic alliances. By working together on a short basis, contractors are able to meet each other and to get to know the other partner's business culture, without being exposed to additional risks. In other words, as it was recommended to start with small projects to get to know the other partner before engaging in large Joint Ventures, contractors can also use project specific Joint Ventures to choose their permanent partners.

This concept of two-firm long term alliance could be expanded to a network of firms, i.e. the case where more than two firms that, without being direct competitors, share resources/assets to improve their competitive positions and reduce costs. The recent improvements in information technology and communications would facilitate the implementation of an initiative of this type.

Even though there is no evidence of the existence of these horizontal long term alliances, they make sense on paper and may be a worthwhile strategic move to try.

Chapter 6. Conclusions.

This thesis developed a framework that helps to evaluate the participation of general contractors in international Joint Ventures. After reviewing the literature regarding strategic alliances and joint ventures, the most important advantages and disadvantages for each co-venturer were described and, when possible, exemplified. Based on the cost/benefit analysis presented in chapter 4, each of these issues can be weighted in order to assess the incremental benefits and costs obtained as a result of using a Joint Venture instead of an independent participation. To facilitate this evaluation, Tables 6.1 and 6.2 summarize the pros and cons studied. Depending on the result of this evaluation, a go/no-go decision can be made.

However, models are not perfect. Many intangible benefits can not be accurately measured, and others can not even be mentioned as they are unique to a project. This is to say that strategic decision-making can not be reduced to a science: it is also an art. As described by McMillan (1992), science is organized knowledge, designed to be efficiently communicated. Thus, the science of strategic decisions can be learned from a book. However, the art of strategic decisions, like any other art, is best learned through experience. Frameworks as the one developed in this thesis help us to think systematically about the issues involved; however, they hardly are comprehensive.

Several lessons can be drawn from this research. The fundamental and most important are summarized below:

1. The Value Chain concept can be used --allowing some changes-- in the Construction Industry. This concept facilitates the identification of those areas where costs can be reduced and/or value can be created.
2. International construction Joint Ventures can be very valuable for those projects where both parties benefit enough from the presence of each other, i.e. the incremental benefits of cooperation are greater than the incremental costs for both partners.
3. A good understanding of the advantages and disadvantages of the other partner can be valuable to understand its motivation for joint venturing and to negotiate an agreement acceptable to both parties.
4. Finally, untapped opportunities appear to exist in the use of long term construction Joint Ventures. They only need creative thinking and some contractors willing to expend the time and efforts required to implement them.

Table 6.1
Foreign Contractor's Evaluation of a Joint Venture

Stage	Pro Con	Advantage/Disadvantage	Weight %	Impor-tance	Value
Pre-Invitation to Bid Stage.	Pro	Strengthens the relationship with existing clients.			
	Pro	Obtains information regarding future bids.			
	Pro	Facilitates the prequalification process.			
	Con	May damage reputation.			
Preparation of Bid.	Pro	Gives access to local knowledge.			
	Pro	Facilitates entry to markets.			
	Pro	Meets governmental regulations.			
	Pro	Becomes eligible to obtain government subsidies.			
	Pro	Reduces risk of political intervention.			
	Pro	Decreases business risks due to size.			
	Pro	Decreases business risks due to new environment.			
	Pro	Limits investment and size of resources required.			
	Con	Restricts possible alliances with other contractors.			
	Con	Prolongs estimation process.			
	Con	Exists risk of overlooking Joint Venture formation issues.			
Pre-Construc-tion Stage.	Pro	Procures local materials at lower prices.			
	Pro	Obtains better deals with subcontractors.			
	Pro	Facilitates the hiring of labor and rental of equipment.			
	Pro	Makes it easier to obtain permits and government approvals.			
	Pro	Simplifies the move into an unknown country.			

Stage	Pro Con	Advantage/Disadvantage	Weight %	Impor-tance	Value
... Pre-Construc-tion Stage.	Con	May exist differences in the Joint Venture formation.			
Job Execution.	Pro	Improves relationship with local constituencies.			
	Pro	Reduces required investment.			
	Pro	Enhances 'lobbying' ability.			
	Pro	Obtains access to less expensive local materials.			
	Pro	Guarantees access to inexpensive and skillful labor.			
	Pro	Increases asset utilization.			
	Pro	Acquires knowledge of local financing.			
	Pro	Secures access to critical resources where there is no other way to obtain them.			
	Pro	Gets tax benefits in the host country.			
	Pro	May obtain benefits due to U.S. tax considerations (if it is an American firm).			
	Con	Conflicts of interest may arise.			
	Con	May limit the number of expatriates allowed to work in host country.			
	Con	Requires time-consuming settlement of discrepancies.			
	Con	May have difficult working relationships because of cultural differences.			
	Con	May be exposed to unfair liabilities.			
	Con	Creates financial difficulties if the local partner is not able to meet cash requirements.			
Job Finishing.	Pro	Reduces obstacles regarding repatriation of capital and profits.			

Stage	Pro Con	Advantage/Disadvantage	Weight %	Impor-tance	Value
... Job Finishing.	Pro	Increases number of invitations to bid			
	Pro	Gets help in 'punch list'.			
	Con	May cause negative effects as a consequence of a failure.			
Firm Infrastruc-ture.	Pro	Helps to diversify overall risk of the company.			
	Pro	Allows for faster entries into new external markets.			
	Pro	Preempts competitors.			
	Pro	Benefits from several accounting advantages.			
	Con	Needs increased coordination.			
	Con	Losses control.			
	Con	May have to deal with litigation in a foreign country.			
Human Resources Manage-ment.	Pro	Its personnel gains international exposure.			
	Con	Discrepancies may arise on salary and other benefits.			
Technology Develop-ment.	Pro	Speeds "localization" of technologies.			
	Con	Allows risk of technology transfer.			
	Con	Creates possibility of teaching future competitor.			
Margin.	Con	Has exposure to currency risks.			
			Total		

Table 6.2
Local Contractor's Evaluation of a Joint Venture

Stage	Pro Con	Advantage/Disadvantage	Weight %	Impor-tance	Value
Pre-Invitation to Bid Stage.	Pro	Increases opportunity to participate in large, important projects.			
	Pro	Reduces competition.			
	Pro	Improves reputation locally.			
	Pro	Increases opportunity to obtain business abroad.			
	Con	May damage reputation.			
Preparation of Bid.	Pro	Secures specific expertise.			
	Pro	Facilitates the obtainment of offer bond.			
	Pro	Enables better risk measurement.			
	Con	Increases bid expenses.			
	Con	Decreases autonomy.			
	Con	Has the risk of overlooking Joint Venture formation issues.			
Pre-Construc-tion Stage.	Pro	Permits access to cheaper foreign products.			
	Pro	Secures better financing terms for new equipment.			
	Pro	Facilitates the procurement of the other construction bonds.			
	Con	May exist differences in the Joint Venture formation.			
Job Execution.	Pro	Gains access to less expensive financial resources.			
	Pro	Reduces operating costs.			
	Pro	Allows the opportunity to learn innovative business practices.			
	Pro	Gives opportunities for technology transfers.			
	Pro	Facilitates fund raising.			
	Pro	Optimizes use of assets/equipment.			

Stage	Pro Con	Advantage/Disadvantage	Weight %	Impor-tance	Value
... Job Execution.	Pro	Maximizes use of by-products.			
	Con	Requires the use of costly expatriates.			
	Con	Requires time-consuming settlement of differences.			
	Con	May have difficult working relationships.			
Job Finishing.	Pro	Facilitates the procurement of final construction bonds.			
	Con	May cause negative effects as a consequence of a failure.			
Firm Infrastruc-ture.	Pro	Enhances reputation.			
	Pro	Preempts local competitors.			
	Con	Needs increased coordination.			
	Con	Has the risk of the foreign contractor becoming 'local'.			
	Con	Creates a problematic situation with nationalist governments.			
	Con	Increases overhead.			
Human Resources Manage-ment.	Pro	Fosters managerial learning.			
	Pro	Gets inexpensive technical training.			
	Pro	Helps for continuous employment of its personnel.			
	Pro	Increases attractiveness of the firm to potential employees.			
	Con	Discrepancies may arise on salary and other benefits.			
	Con	Makes some existing employees useless for the project.			
Technology Develop-ment.	Pro	Procures information about technological innovations.			
Procure-ment.	Pro	Allows benchmarking of procurement procedures.			
			Total		

Appendix A

J. A. Jones - Siman Joint Ventures

The companies

J. A Jones Construction Company, an U. S. corporation with headquarters in Charlotte, North Carolina, is a general contractor engaged in international construction activities.

The Jones Group consists of 11 construction-related companies operating worldwide. It is owned by Philipp Holzmann AG, a large construction conglomerate with headquarters in Frankfurt/Main in Germany. In addition to J. A. Jones, Holzmann also includes other three construction companies: Lockwood Greene, Nord France SA, and Tilbury Doublas Plc.

Founded in 1890, J. A. Jones has built important building, dams, highways, wastewater treatment plants, power plants, factories, offices, hotels, hospitals and landmarks. It has commercial offices in Atlanta, Charlotte, Los Angeles, New York, Tampa and Washington DC As a result of unfortunate previous experience when going alone, it is a company policy that, when possible, Jones will bid for international projects through Joint Ventures with a local partner.

The following tables summarize some recent financial and market information about the Jones Group and Philipp Holzmann AG.

Table A.1
Philipp Holzmann AG's Financial and Market Data

	1993	1994
Financial Data	(Contracts)	(Revenues)
Total	$12, 572.7 million	$11, 716.1 million
International	$3, 684.2 million	$2, 310.6 million
Markets	(% of contracts)	(% of revenues)
Building	18 %	18 %
Manufacturing	18 %	18 %
Power	6 %	4 %
Water	18 %	18 %
Sewer/waste	5 %	4 %
Industrial/Petroleum	18 %	22 %
Transportation	12 %	14 %
Hazardous Waste	5 %	4 %
Number of countries where had work	55	60

Source: ENR Magazine "The Top International Contractors", August 29, 1994, and "The Top 225 International Contractors", August 28, 1995.

Table A.2
Rank of Philipp Holzmann AG by market compared to other Top International Contractors

	1993 (Ranked by new contracts)	1994 (Ranked by construction revenues)
Building	2°	>10°
Manufacturing	3°	2°
Power	10°	>10°
Water	1°	1°
Industrial/Petroleum	>10°	>10°
Transportation	7°	>10°
Hazardous waste	3°	1°
Sewer/waste	2°	4°

Source: ENR Magazine "The Top International Contractors", August 29, 1994, and "The Top 225 International Contractors", August 28, 1995.

Table A.3
Jones Group's Financial and Market Data

	1993
Financial Data	Revenues
Total revenues	$1, 062.0 million
International revenues	$65.0 million
New Contracts	$1, 283.0 million
Markets	(% of revenues)
General Building	44 %
Manufacturing	1 %
Power	17 %
Water/ Sewer/Waste	6 %
Industrial/Petroleum	9 %
Transportation	22 %
Hazardous Waste	2 %
CM at risk (% of revenue)	13 %
Number of countries where had work	13

Source: ENR Magazine "The Top 400 Contractors", May 22, 1994.

Table A.4
Rank of J. A. Jones by market compared to other Top U. S. Contractors

	1993 (Ranked by revenues)
General Building	20°
Power	11°
Industrial/Petroleum	>10°
Transportation	9°
Hazardous waste	>10°

Source: ENR Magazine "The Top 400 Contractors", May 22, 1994.

Note: In all the tables, the financial figures include prime construction contracts, shares of joint ventures, subcontracts, design-construction contracts and construction management contracts where the firm is exposed to financial liabilities and risks similar to those of a general contractor. CM contracts are based on the constructed value of projects. Figures also include value of installed equipment where a firm has a prime responsibility for specifying and procuring the equipment within the scope of the construction contracts.

Siman S. A. de C. V., Empresa Constructora, a Salvadoran corporation, with its main office in San Salvador, El Salvador, is a general contractor with a strong presence in the Salvadoran construction industry and some limited international experience.

Founded in 1961 by Roberto Simán, it has a broad work experience, which includes commercial, educational, health-related, public and industrial buildings; major earth-moving and development of urban areas; construction of highways, rural roads, and urban streets; public heavy construction (such as civil works for public utilities related to the provision of such services as potable water, sewerage, telecommunications, electricity, etc.); and demolition and structural reparations.

Some major projects built by Siman Constructora are:

- Galerias Escalón, one of largest shopping centers in Central America.
- Headquarters of several large Salvadoran companies: Construmarket, La Centroamericana, Papelera Hispanoamérica, Almacenes Simán, etc.
- The new U. S. Embassy Compound in San Salvador, in a Construction Participation Agreement with J. A. Jones Construction Company.
- Reinforced concrete structure of the stage's building of Estadio Cuscatlán, a soccer stadium with capacity for 40,000 persons.
- Terminal building and parking of the Ilopango International Airport, El Salvador.
- Asphalt repavement of the roadways and platforms of the Comalapa International Airport, El Salvador.

- San Salvador - Apopa and Autopista Norte highways, in El Salvador.
- Civil work of the Geothermal plant in Ahuachapán, El Salvador including the concrete channel that conduct the dregs to the ocean.
- Civil work of the Thermoelectric plant in Bonao, Dominican Republic.
- Structural reparation of more than 20 buildings in San Salvador, damaged by the 1986's earthquake.

The annual revenues of Siman Constructora in the past five years have been around $20 million (the exact figures are not available as the company is privately held). On average, 65% of the revenues come from public projects. With the exception of a highway that is being built in Nicaragua with a local partner, all the projects built by Siman Constructora in this same period were located in El Salvador, with an average of 6 projects at the same time.

First Siman- Jones Joint Venture:

The new U. S. Embassy Compound in San Salvador

The contract consisted of the construction and furnishing of a new American Embassy compound encompassing approximately 203,000 gross square feet of construction comprised of Chancery Building, an Agency for International Development Office Building, a Cafeteria Building, a Motor Pool Building, General Services Facilities Building, a Marine Residence Building, an Ambassador's Residence, and Existing Office Building Vault, along with associated Site Work and a Perimeter Wall.

The contract was a lump sum of more than US$ 55 million, to be completed in two years. The owner of the project was the U. S. Department of State, and the date of receipt of the Initial Notice to Proceed was April, 6, 1989.

The contractors for this project used an agreement for joint participation, which implies that no partnership or other form of business organization is created, and that the parties remain independent corporations during the entire project.

Jones had a 75% interest in the project, which implies participation in any profits and their respective share in any losses and liabilities that may result from the performance of the contract. Siman had the other 25% of the participation in the project.

The management of this Joint Venture was through a Joint Participation Committee, where each partner had a voice equal to its percentage of participation. Even though the decision making was aimed to be made by mutual agreement, if this could not be reached a majority vote was stipulated to be used, agreeing that both parties will comply and continue to perform according to such majority decision. However, the party that cast the negative vote had the right to request and proceed with arbitration of such decision. This arbitration, if needed because of the previous difference or for any misinterpretation of the Joint Participation Agreement, was stipulated to be subject to and conducted in accordance with the rules of procedure of the International Chamber of Commerce.

Also, Jones was designated the Managing Party for the project and, as such, had primary responsibility and authority for the conduct and performance of the on-site work. However, it was subjected to the overall supervision of the Joint Participation Committee.

The project finished on time and under budget, with actual profits higher than anticipated.

Second Siman - Jones Joint Venture:

Rehabilitation of the Spillway for the 15 of September Hydroelectric Power Plant, in El Salvador.

The project consisted of the rehabilitation of the spillway of one of the hydroelectric power plants on the Lempa River. The work consisted of building a cofferdam in order to dewater the spillway basin area, place a microsilica concrete floor for the basin, and then remove the cofferdam.

The owner of the project was Comisión Ejecutiva Hidroeléctrica del Río Lempa (CEL), an autonomous entity of the Salvadoran government. The bid were submitted on April 15, 1994, and the order to start was issued on June, 1994. The contract was a unit price, initially estimated around US$ 13 million. It was going to be built in 9 months.

In general, the design of the Joint Venture was very similar to the one used for the American Embassy compound that is described above. However, there were some differences. The parties' respective shares --both for profits and loses-- in the Joint Venture were: Jones 70%, Siman 30%. As for the

new American Embassy compound, J. A. Jones undertook the overall duties of sponsor and coordinator of the project. They appointed a Project Manager, who was responsible for the execution of the whole project, the satisfactory completion of the contract, and represented the Joint Venture with the Employer, the Consulting Engineer, and third parties. All the other personnel for the project --with the exception of an accountant and two technicians-- were provided by Siman Constructora or hired directly for the project.

The project was -as in the previous Joint Venture-- overseen by a Policy Committee, were each partner was represented according to its percentage of participation.

The principal office of the Joint Venture was located at the project site, and it was intended to qualify as a partnership under U. S. tax law.

The final price of the project was between 5-10% lower than expected, due to some miscalculations of quantities in the initial estimate provided by the owner for the preparation of the bids. This caused fixed costs not to be covered as expected, reducing the profits of the project. However, the project was profitable, and neither party had to incur any type of losses.

The relationship of the Joint Venture with the owner during the construction stage was somewhat affected by discrepancies in the interpretation of the contractual documents. However, the differences were settle through direct negotiations, without needing to have arbitration or other legal involvement.

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