FUNDAÇÃO GETULIO VARGAS
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INTERNATIONALIZATION OF PROFESSIONAL SERVICE FIRMS:
THE CASE OF A BRAZILIAN ENGINEERING CONSULTANCY COMPANY

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Thesis submitted to the *Escola de Administração de Empresas de São Paulo*, *Fundação Getulio Vargas*, in order to attain the Master's in Business Administration Degree

Area of knowledge:
Internationalization strategy

Advisor: Fabio Luiz Mariotto, PhD

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To my husband, Jun

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ABSTRACT

Internationalization is an increasingly important subject for many companies and their managers. It is nearly impossible to remain unaware of globalization and its consequences; even if a company decides to remain in its original market, it must acknowledge the possibility of competition based abroad. Today, small and medium-sized enterprises (SMEs), as well as large ones, are engaging in international activities. Professional service companies, such as engineering consultants, are no exception. A few factors contribute to the interest in studying the engineering consultancy sector. First, there is its importance to society, especially in developing countries, which are often plagued by infrastructure deficiencies. Second, analogies can be made between this specific sector and other consulting businesses, such as those established by lawyers, accountants, and management experts. Finally, there is the fact that the most valuable asset of these companies is knowledge, which is increasingly important to most companies and tends to become a key performance driver. The purpose of the research undertaken here was to explore the internationalization process of Brazilian engineering consulting companies, identifying the main obstacles, constraints, and sources of competitive disadvantage faced by these companies in their internationalization processes. Efforts were also made to identify possible sources of competitive advantage that could compensate for these constraints. To achieve this goal, a case study, focusing on a company with a dozen international projects, was carried out. This allowed for interesting insights; it is hoped that the information obtained and the resulting managerial recommendations will contribute to future internationalization initiatives of small and medium-sized professional service companies.

Keywords: internationalization, small and medium-sized companies (SMEs), professional service firms, liability of foreignness

RESUMO

A importância do tema da internacionalização é crescente, tanto para empresas quanto para seus administradores. É praticamente impossível permanecer alheio à globalização e às suas conseqüências; mesmo que uma empresa opte por permanecer em seu mercado local, pode ser necessário considerar os efeitos de concorrentes baseados no exterior. Hoje, além de grandes corporações, pequenas e medias empresas também tem se internacionalizado. Empresas prestadoras de serviços profissionais, como consultoria de engenharia, não são exceção, e alguns fatores contribuem para o interesse em estudar este setor específico. Em primeiro lugar, deve-se considerar a sua importância para a sociedade, especialmente os países em desenvolvimento, os quais frequentemente sofrem com a carência de investimentos em infra-estrutura. Além disso, existe também a possibilidade de estabelecer analogias entre este e outros serviços de consultoria, como os de advogados, contadores e administradores. Finalmente, contribui para o interesse o fato de que o ativo principal destas empresas é o conhecimento, o qual tem se tornado cada vez mais um aspecto chave para o desempenho e lucratividade das empresas. O objetivo deste estudo é explorar o processo de internacionalização de empresas brasileiras de consultoria de engenharia, identificando os maiores obstáculos, dificuldades e fontes de desvantagem enfrentados por estas empresas na sua internacionalização. Paralelamente, foram realizados esforços para identificar vantagens competitivas que pudessem compensar estas dificuldades. A fim de atingir este objetivo, foi realizado um estudo de caso, focado em uma companhia com uma dúzia de projetos internacionais. Este procedimento permitiu constatações interessantes; espera-se que as informações obtidas e as recomendações decorrentes possam contribuir para iniciativas futuras de internacionalização de pequenas e médias empresas de serviços profissionais.

Palavras-chave: internacionalização, pequena e media empresa (PME), empresas de serviços profissionais, desvantagem por ser estrangeira

Figures

Tables

Contents

1 Introduction

1.1 Research Purpose

The purpose of this research is to explore the internationalization process of Brazilian engineering consulting companies, identifying the main obstacles, constraints, and liabilities of foreignness that such companies face in their internationalization process. This information should provide significant insight into the process and offer managerial recommendations that will ease the internationalization efforts of other professional service companies.

To achieve the main purpose of this research, there are some secondary goals that must also be accomplished.

One secondary goal is to describe the state of the art of previous research on obstacles faced by companies in their internationalization processes and, more importantly, corresponding recommendations for management practice in this field. This will require a comprehensive review of the literature, especially given the fact that some existing recommendations were based on broader scenarios and did not focus specifically on knowledge-based companies.

Another secondary goal will be carrying out a field study to identify the presence of factors identified in previous research and other possible factors that companies perceive as contributing to a competitive disadvantage due to being foreign. These studies should also focus on identifying solutions currently used by engineering consulting companies to overcome such disadvantages and increase their international presence.

Finally, a third secondary goal will be to suggest a set of managerial recommendations to increase the efficiency of internationalization efforts by small and medium-sized knowledge-based companies.

1.2 Main Reasons for Studying the Subject

Internationalization is an increasingly important subject for companies and their managers. One may argue that this phenomenon started in 1989 with the end of communism in the

Soviet Union, which erased the major division between capitalist and communist worlds. Others may argue that it started with the creation of the European Union, which began with Schumann's initiatives shortly after World War II and became an indisputable reality more recently. Regardless of the specific date chosen, it is nearly impossible today to remain unaware of globalization and its consequences.

This background explains the growing importance of internationalization. Even companies that have decided to remain in their original countries face more competition from enterprises based abroad. Total services imports and exports are constantly increasing, both in Brazil and throughout the world, as indicated in Figure 1.1 below.

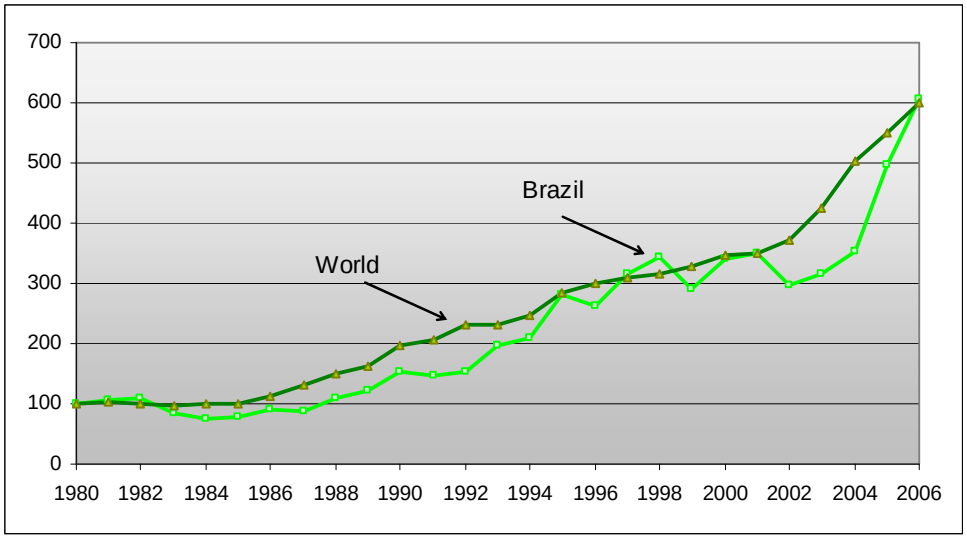

Figure 1.1 Growth of total services imports and exports (index: 1980 = 100)

Source: Author, based on data from the United Nations Conference on Trade and Development (UNCTAD).

For a few decades, the internationalization phenomenon was confined to large companies, which often became huge multinationals. Today, this reality is changing, as an increasing number of small and medium-sized enterprises (SMEs) venture into foreign markets. One of the results of this new reality is the proliferation of publications on the internationalization of SMEs; some examples are Coviello, Ghauri et al. 1998; Lu and Beamish 2001; Etemad and Wright 2003; Etemad 2004; Hollenstein 2005; and Lu and Beamish 2006.

The internationalization of Brazilian companies is also on the rise, as pointed out by the popular press (Rocha, 2007) and authors such as Almeida (2007). Professional service firms in general, and engineering consulting companies in particular, are no exception.

At the same time, there is a relevant change in the industrial scenario. As Kaplan and Norton (1997) mentioned, the era of the industrial revolution, when companies were measured by their physical assets, has given way to another age, one in which intangibles are increasingly relevant to success. There has also been a shift from selling goods and products to offering services.

Despite this important change, several internationalization authors have focused on the internationalization of manufacturing companies, with their relevant physical assets. The Uppsala model, first presented by Johanson and Vahlne (1977), for instance, according to which companies seek investments opportunities depending on the psychological distance from foreign countries, is one such theory. Only later articles, such as one published by Vandermerwe and Chadwick (1989) and another by Edvardsson, Edvinsson and Nyström (1993), helped reverse this situation. The internationalization of services became relevant as well, not only in practice but also among scholars.

However, the internationalization of consulting companies in general, and engineering consulting companies in particular, remains relatively neglected. In fact, research in this area has been quite limited, and managerial implications have also been neglected. Even authors who considered this specific aspect, such as Coviello and Martin (1999), limited themselves to mentioning the rather obvious importance of networks.

This gap in the literature is one compelling reason for studying this specific segment of the business community. It is also interesting to consider the importance of engineering consulting services, especially in developing countries. Infrastructure investments are obviously mandatory in such locations, as recently pointed out by the World Bank (2007), and engineering consultancy services are a prerequisite to making those investments. Without such investments, developing countries and their citizens will continually be plagued by undesirable living conditions. Given this background, the major role played by construction and engineering consulting companies becomes clear; this is particularly true for Brazil, as the popular press points out:

> Infrastructure has long been Brazil's Achilles' heel and a major impediment to growth. Persistent shortage of investment has been reflected in a worsening of an already deficient transport infrastructure, in particular. In spite of isolated progress in railways and some private port terminals, transport logistics still account for a large share of the infamous Custo Brazil (the increased operational costs associated with doing business with Brazil compared to other countries). In the

> context of a deteriorated network for domestic shipping and the underdevelopment of Brazil's abundant waterways, companies depend mostly on costly road haulage. (Economist, 2007)

Moreover, one should mention the possibility of generalizing results obtained for engineering consulting services to other types of consulting. As Coviello and Martin (1999) argued, despite certain specifics, the nature of consulting services is relatively similar. Engineering companies sell knowledge and carry out engineering design based on local regulations. Law firms also sell knowledge, taking into account the relevant legal statutes and other requirements, which can be considered another type of local regulations. Accountants work in similar ways. Although laws and construction standards are not equivalent, both represent local information that must be taken into account by those who sell knowledge-based products. In all these cases, there is a relatively low asset specificity, as pointed out by Sharma and Johanson (1987) when focusing on engineering consultants. This situation usually lowers risk and implies a greater potential for taking advantage of knowledge acquired abroad.

Similarly, one can generalize information regarding this particular type of medium-sized enterprise to other SMEs. These companies often present significant differences when compared with large-size organizations, and as a result their internationalization processes tend to be markedly different (Lu and Beamish 2006) as are the difficulties they face during such processes.

Finally, another important reason for studying this subject is that several small and medium-sized companies need more information to be able to internationalize. Because it can be difficult for these companies to carry out field analysis and study the subject by themselves, it is essential that they have a framework for, or at least some guidance in, their internationalization process. Information on the main obstacles they may encounter and recommendations for dealing with them will certainly be useful for the managers of such companies.

1.3 Organization and Text Structure

In addition to this introduction (section 1), the present text comprises five other sections, as well as five appendices.

Section 2 summarizes some of the main concepts involved in this research. It begins with a description of engineering consulting services, mentioning the relation between the type of activity involved and internationalization possibilities. Some remarks on the nature of

consulting services, with their high credence properties, are included, especially as they relate to the sources of competitive advantages these companies can have.

Internationalization itself is a key concept in this research. As is later detailed, there is still no universal agreement among scholars about what exactly characterizes internationalization. A working definition, focused specifically on engineering consultancy services, is proposed.

The section closes with comments on the classification of companies according to size. Such remarks were deemed necessary because most of research findings may apply only to small and medium-sized companies. However, since the classification itself was not one of the main issues of this research, appendix 1 presents more detail on the subject.

Section 3 covers the literature review on internationalization. The section begins with comments on two major internationalization approaches, which for clarity purposes can be classified as economic and behavioral. Although they come from different schools of thought, these two views are somewhat complementary.

One important aspect discussed in this section is the prevailing view that companies engaging in international operations face some disadvantages when compared with competitors originally based in their target countries; such disadvantages are termed “liabilities of foreignness.” To survive abroad, these companies must therefore have offsetting competitive advantages. Hence, the literature review also focuses on liabilities of foreignness and competitive advantages. It should be noted, however, that liabilities and the corresponding managerial recommendations are the main focus of this work; the competitive advantages are a vast subject, and therefore only a brief overview of them is given in this dissertation.

Two other subsections in section 3 summarize the literature on internationalization of Brazilian companies and that of engineering consultancy companies.

Section 4 focuses on the research method. The literature on the specific subject is quite limited, which contributed to the choice of exploratory research. Because the internationalization of engineering consultancy companies is a contemporary subject over which no investigator can exert any form of control, case study was deemed appropriate. The choice was further confirmed by the opportunity to present a revelatory case.

Section 5 presents the case studied. It begins with the case structure, followed by a description of the company, whose name was changed for ethical reasons. The origins of the company’s

international activities are described, then the main liabilities of foreignness are identified. For each one of them, there is a brief description, examples illustrating how they manifested for the company, and managerial recommendations for other professional service companies planning to engage in international operations. There are also some comments on possible sources of competitive advantage that, for the specific company under study, may have offset these liabilities of foreignness.

Section 5 also comprises a case discussion in light of the literature review. In fact, there is a subsection that parallels the literature review, first relating the case to the main internationalization theoretical approaches and then discussing the aspects related to the liabilities of foreignness and competitive advantages. There are also comparisons with the literature specifically focused on the internationalization of engineering consultancy companies and managerial recommendations.

Finally, the conclusions (section 6) summarize the entire work, emphasizing the main findings. Avenues for future research are also mentioned. In addition to detail on the classification of companies according to their size, the appendices present the main research instruments.

2 Main Concepts Involved

Professional services present some aspects that are markedly different from those of other industries and even other types of services. Therefore, a broad description of such services is initially presented, focusing more specifically on engineering consultancy.

Naturally, the internationalization concept itself is extremely relevant to this research, and therefore it is also presented. Additionally, because the idea is to generalize findings so that they can be used by other small and medium-sized enterprises (SMEs), it is important to clearly present the SME concept.

2.1 Engineering Consultancy

2.1.1 Main Types of Activities and Their Relation to Internationalization

Broadly speaking, engineering consultancy encompasses three main types of activities: engineering design, construction supervision, and construction management.

Engineering design consists of elaborating studies and reports, as well as preparing the plants and drawings necessary for a constructing company to actually build whatever type of construction is being considered. Although this service requires a lot of local information—for the design of a highway, one must have knowledge of topographical and geological conditions, for instance—this work does not necessarily have to be carried out on site. It is only important that the basic information required be available to the designer.

Construction supervision concerns the verification of the construction works, with several on-site inspections. A company in charge of supervision will often carry out activities such as measuring the thickness of different pavement layers and checking tests results. Normally, for major infrastructure projects, the government awards construction to one company and supervision to another, as a way to avoid, or at least to minimize, conflicts of interest and assure that quality standards will be met.

Finally, construction management is also related to the civil works but takes a broader perspective. The construction manager is often concerned with aspects such as the financial results and the overall quality of the construction contract. Although his presence on the work site is not as critical as that of the engineer in charge of supervision, this type of work certainly requires a closer proximity with the construction site than does the design.

Many Brazilian governmental agencies issue requests for proposals in order to hire consultants to carry out engineering design, construction supervision, and construction management. Such requests often describe these activities with detail; these descriptions are consistent with the general concepts presented.

It should be noted that when analyzing internationalization strategies, the distinction between these types of service is extremely important. For one thing, engineering design is the only activity that can be exported, as it does not require on-site presence. Conversely, construction supervision and management often demand foreign direct investment, as local presence is a must.

Another relevant aspect is that these three types of service are normally required for all kinds of construction, although sometimes the same company is responsible for more than one of these activities. Projects that range from building houses to building bridges or railways all require the types of activities described above. However, the focus here is specifically on major infrastructure projects, such as the implementation of highways and frontage roads. These works are a lot more specialized and do not require many adaptations to local conditions. As a result, in this case companies are more likely to be able to leverage their specialized knowledge through international projects.

Engineering consultancy also presents some relevant particularities, ones concerning the nature of assets involved, time frames, and alliances between companies.

The main asset of companies working in this field is knowledge. Part of this knowledge is location specific, but a lot of technical aspects are either the same or substantially similar across many different countries, as previously noted. In this sense, knowledge is less location specific, and therefore the main asset involved presents a high degree of transferability as described by Hu (1995).

Another aspect is related to the time frames involved. Engineering projects normally have a prespecified duration; after the projects' completion, the companies involved in both the consultancy and the construction have no remaining work at the project site. In terms of internationalization, this implies that the internationalization itself may often be temporary. Normally, when companies develop international activities, they plan to maintain their positions abroad for a long time, as a going concern; operations tend to be terminated only as a result of failure. In the engineering case, however, this is not true. A company may be successful in one project and still leave the country where this project was carried out.

Finally, it is important to clarify the relationship between construction and consulting companies. For major infrastructure projects, government agencies are normally the contracting party. Sometimes, they award design to one company, construction to another, supervision to a third one, and management to a fourth one. Another possibility is for the government to award construction and design to the same company and the remaining activities to either one or two other parties. This is actually a very common combination. However, many construction companies do not have engineering departments capable of carrying out highly specialized design; therefore, contractors often hire consulting companies and assign the engineering design to them. A consequence of this arrangement is that when large construction companies expand abroad, they may ask consulting companies to follow them and engage in international operations.

2.1.2 The Nature of Engineering Consultancy Services

In addition to describing the main activities of engineering consultancy, it is also important to make a few observations on the nature of these services. Such remarks are relevant to the extent that this nature affects possible sources of competitive advantage, which in turn may compensate for obstacles in the internationalization process.

According to Nelson (1970), goods have both search properties and experience properties. Although the search properties—such as color, price, and size—can be easily verified before purchase, experience properties, such as taste and adequacy for intended use, can only be verified after purchase. Darby and Karni (1973) proposed a third set of attributes: credence properties, which often cannot be verified not even after purchase. This is frequently the case with specialized services, such as some medical procedures and car repairs.

Although Nelson initially focused on goods, the concepts proposed by him and by Darby and Karni can also be applied to services, as was verified by Parasuraman, Zeithaml, and Berry (1985). In the study that originated the three authors' seminal paper on service quality, focus groups mentioned these same types of properties when describing the quality of services. Moreover:

> In general, offerings high in search properties are easiest to evaluate, those high in experience properties are more difficult to evaluate and those high in credence properties are the hardest to evaluate. Most services contain few search properties and are higher in experience and credence properties, making their quality more difficult to evaluate than the quality of goods. (Zeithaml, 1981 apud Parasuraman, Zeithaml, and Berry, 1985)

Engineering consultancy is a service with a very high content of credence properties. Indeed, the quality of engineering design cannot be easily inferred by analyzing plants and drawings, and even after construction, there is no way a client can be assured that the engineering solution adopted was the best one possible.

Parasuraman, Zeithaml, and Berry also identified ten dimensions along which service quality could be evaluated. These dimensions are summarized in Table 2.1 below.

Table 2.1 Determinants of service quality

Dimension	Definition	Contributing Factors
Reliability	Consistency of performance and dependability. This means that the firm performs the service right the first time. It also means that the firm honors its promises.	▪ billing accurately ▪ keeping records correctly ▪ performing the service at the designated time
Responsiveness	Willingness or readiness of employees to provide service. This involves timeliness of service.	▪ mailing a transaction slip immediately ▪ calling the customer back quickly ▪ giving prompt service (e.g., setting up appointments quickly)
Competence	Possession of the required skills and knowledge to perform the service	▪ knowledge and skill of the contact personnel ▪ knowledge and skill of operational support personnel ▪ research capability of the organization (e.g., securities brokerage firm)
Access	Approachability and ease of contact	▪ the service is easily accessible by telephone (lines are not busy, and they don't put callers on hold) ▪ waiting time to receive service (e.g., at a bank) is not extensive ▪ hours of operation are convenient ▪ location of service facility is convenient

continued

Dimension	Definition	Contributing Factors
Courtesy	Politeness, respect, consideration, and friendliness of contact personnel (e.g., receptionists, telephone operators)	▪ consideration for the consumer's property (e.g., no muddy shoes on the carpet) ▪ clean and neat appearance of public contact personnel
Communication	Keeping customers informed in language they can understand and listening lo them. This may mean that the company has to adjust its language for different consumers—increasing the level of sophistication with a well-educated customer and speaking simply and plainly with a novice.	▪ explaining the service itself ▪ explaining how much the service will cost ▪ explaining the trade-offs between service and cost ▪ assuring the consumer that a problem will be handled
Credibility	Trustworthiness, believability, honesty. This involves having the customer's best interests at heart	▪ company name ▪ company reputation ▪ personal characteristics of the contact personnel ▪ the degree of hard sell involved in interactions with the customer
Security	Freedom from danger, risk, and doubt	▪ physical safety (Will I gel mugged at the automatic teller machine?) ▪ financial security (Does the company know where my stock certificate is?) ▪ confidentiality (Are my dealings with the company private?)
Understanding/ Knowing the Customer	Involves making the effort to understand the customer's needs	▪ learning the customer's specific requirements ▪ providing individualized attention ▪ recognizing regular customers
Tangibles	Physical evidence of the service	▪ physical facilities ▪ appearance of personnel ▪ tools or equipment used lo provide the service ▪ physical representations of the service (e.g., a plastic credit card or a bank statement) ▪ other customers in the service facility

Source: Adapted from Parasuraman, Zeithaml, and Berry, 1985.

Actually, it should be noted that Parasuraman, Zeithaml, and Berry (1988) later proposed a model with five dimensions along which service quality is evaluated by customers: tangibles, reliability, responsiveness, assurance, and empathy. This model, named SERVQUAL, and refined by these authors in 1991, is supposed to encompass all the quality dimensions previously identified, eliminating overlaps and assuring validity. However, the model is not necessarily adequate for one specific service, as pointed out by the authors themselves:

> while SERVQUAL can be used in its present form to assess and compare service quality across a wide variety of firms or units within a firm, appropriate adaptation of the instrument may be desirable when only a single service is investigated. Specifically, items under each of the five

> dimensions can be suitably reworded and/or augmented to make them more germane to the context in which the instrument is to be used. (Parasuraman, Zeithaml, and Berry, 1988)

For engineering services, although the ten dimensions previously mentioned do not necessarily reflect the design quality, such dimensions are certainly far more observable. More in-depth research would be needed to evaluate the relative importance of each dimension and possibly eliminate overlaps, which is not the focus of the present study. Nevertheless, given the high credence properties of these services, competence and credibility are possibly key aspects, and as such they might influence the selection process followed by contractors when hiring engineering consultants.

2.2 The Internationalization Concept

Naturally, internationalization itself is another main concept involved in the research. However, despite the large number of papers dealing with various aspects of internationalization—the *Journal of International Business Studies*, for instance, started in 1970 and has published hundreds of articles on the subject—there still is no prevailing definition of internationalization. Welch and Luostarinen (1988) wrote one of the very few studies concerning this question.

One may consider internationalization the result of the mere presence of foreign competitors operating in the same domestic market of the company under study, as suggested by Melsohn (2006). Supporters of this view argue that the presence of foreign competitors forces national companies to review their quality standards and perhaps even adapt their products or services. Intuitively, there may be some truth to this reasoning. However, this phenomenon is probably dependent on specific market characteristics. If there are several competitors and the foreign player has a limited presence or limited capacity to replace local competitors, this factor may be less relevant. However, if an entrant is able to gain significant market share at the expense of the incumbents, and not just as a consequence of growing demand, then the need to adapt tends to be a lot more significant.

Another possible approach would be to consider the exporting activity as a threshold for defining internationalization. This view is consistent with the articles published by Etemad and Wright (2003) and Kundu and Katz (2003), for instance. In this case, the reasoning would be that exporting requires some adaptations of the products and services provided. Again, however, this may not always be true. A company might have studied a foreign market and

decided to adapt its products due to local considerations, and it may even have qualified personnel occasionally selling abroad. Another possibility would be for the company to simply decide to export through a clearinghouse without changing any production aspect.

Finally, a third approach is the one that only considers internationalization as a foreign direct investment. According to this vision, if a company exports but does not establish a physical presence abroad, it cannot be called international. Although Hymer (1960) was not specifically concerned with the definition of internationalization, his approach is consistent with this third view; this is also true when we consider Buckley and Casson (1976) as well as Ricupero and Barreto (2007). Note that there is not much debate about whether a company legally established abroad is international; rather, the question is whether there is any other investment level that could already characterize international activity.

Coviello and Martin (1999) wrote a paper presenting the internationalization process of engineering companies. They implicitly considered as international companies those with foreign direct investment. This approach may have been appropriate at that time. However, today technology allows for different operational systems. For instance, companies may develop engineering design for highways in Paraguay even if they remain based in Brazil. Therefore, exporting activities may characterize some degree of internationalization.

As a consequence, in this study, companies will be considered internationalized if they have exporting activities. This option is not only consistent with other authors but also seems highly appropriate to knowledge-based companies providing customized services, such as engineering consulting companies. Indeed, in this particular case, the product consists essentially of engineering design, guidance for design implementation, or construction supervision or management. Regardless of the specific product, there is always one main feature to it: the product is customized and especially elaborated for a certain project. Local standards must always be met, even if production takes place in the country where the company is based, instead of where the project is to be implemented.

In fact, when we consider consulting engineering companies, there are basically three main variables: (1) where production takes place; (2) where the project is to be implemented; and (3) the client’s nationality. This allows for eight possible combinations, presented in Table 2.2 below, summarizing the operational definitions that will be considered for the purposes of this study.

Table 2.2 Internationalization levels

Production Location	Project Location	Client's Nationality	An International Experience?
Home country	Home country	Same as engineering company's	No
Home country	Home country	Different than engineering company's	Yes (Level A)
Home country	Abroad	Same as engineering company's	Yes (Level B1)
Home country	Abroad	Different than engineering company's	Yes (Level B2)
Abroad	Home country	Same as engineering company's	Yes (Level C1)
Abroad	Home country	Different than engineering company's	Yes (Level C2)
Abroad	Abroad	Same as engineering company's	Yes (Level D1)
Abroad	Abroad	Different than engineering company's	Yes (Level D2)

Source: Author

When we analyze this table, there is not much question about the extremes: on the one end, companies carrying out services in Brazil, for instance, for Brazilian projects and for Brazilian clients certainly are not engaged in an international experience; on the other end, companies carrying out services abroad, regarding projects abroad and for foreign clients are definitely internationalized. The problem, however, lies within the other possible combinations, which constitute a gray area.

For the purposes of this research, four internationalization levels were identified; three of them have subdivisions. These levels do not necessarily form a sequence, and companies may be well satisfied with established operations at any specific level:

- Level A only involves carrying out services in one's own country for foreign clients. In this case, internationalization is actually quite limited and probably confined to translation of final reports and presentations.
- Level B occurs when a consulting company carries out engineering consulting services in its own country, for a project to be implemented abroad. Usually, project location dictates guidelines and technical specifications to be followed; this is the reason why the experience is considered international. Client's nationality tends to be less relevant under these circumstances. Nevertheless, it is probably easier to communicate with someone of your own nationality; therefore, a slight differentiation was established. Level B1 refers to the situations in which company and client have the same nationality; level B2 occurs refers to those in which their nationalities are different.

- Level C involves carrying out services abroad, but for projects in one's own country. The fact that services are developed in a foreign country requires some adaptation from human and other resources. However, because the project will be implemented in the home country, the regulations and design criteria to be followed are those of the home country, which are probably already familiar to the engineering company. Again, client's nationality tends to be less relevant and was not considered a criterion for differentiation between major level classifications. Still, this difference was acknowledged by establishing two sublevels: C1 (client with the same nationality) and C2 (client with different nationality).
- Finally, level D involves carrying out services abroad, for projects abroad. Therefore, not only organizational adaptation is required, but also adaptation in terms of regulations and criteria to be followed. Once again, client's nationality is generally less significant and does not justify establishing two completely separate levels; therefore, this difference was once again acknowledged by creating two sublevels: D1 (client with the same nationality) and D2 (client with different nationality).

It is important to emphasize that none of these levels is intrinsically more appropriate; companies may find any of them more adequate than others to their specific situation.

Note also that the internationalization definition proposed for this study is based on operational aspects. Even the client's nationality was only considered because of its effects on products to be presented. From a legal standpoint, there may be additional considerations to take into account; for instance, a Brazilian multinational may contract through a foreign subsidiary for tax reasons. However, this was not the primary concern of this research; in this example, the client would still be considered Brazilian.

2.3 Classification of Companies According to Size

As previously mentioned, the concept of small and medium-sized enterprise (SME) is relevant for this research, particularly because results may be used by other SMEs. Moreover, there is a possibility that some liabilities of foreignness may exist for SMEs that are relatively irrelevant to larger companies, especially as their internationalization processes tend to be quite different, as pointed out by Lu and Beamish (2006).

Companies have often been categorized in terms of size, determined by their total number of employees, their total annual income, and other criteria (U.S. Small Business Administration,

2006; Commission of the European Communities 2003). Nevertheless, to date there is no universally adopted definition of SME.

For the purposes of this study, the definition presented by the European Commission (Commission of the European Communities, 2003) will be considered as a main guideline, given its extensive use and applicability. Essentially, according to this regulation:

- The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding € 50 million, and/or an annual balance sheet total not exceeding € 43 million;
- Within the SME category, a small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or balance sheet total does not exceed € 10 million.
- Within the SME category, a micro enterprise is defined as an enterprise which employs fewer than 10 persons and whose annual turnover and/or balance sheet total does not exceed € 2 million.

This system is not entirely free of criticism, and the present study will also take this aspect into account. More specifically, the arbitrariness of both the headcount and turnover criteria were stressed by Hauser (2005), according to whom SMEs necessarily fall into three categories:

- Enterprises in which the manager is also the owner or a member of the owner's family and decides short and long-term issues in the interest of his enterprise (type 1).
- Small or medium-sized enterprises in which the manager decides the short-term strategic decisions and prepares the long-term decisions, which he puts to the board of owners. If the board of owners consists of private investors, they decide in their interest, which usually is the maximization of their profit and thus the profit of the enterprise (type 2).
- Enterprises belonging to enterprise groups. In this case, strategic issues are decided in the interest of the group and in the headquarters of the group. Thus it is possible that profits are not maximized within that enterprise but elsewhere, for example, by setting internal prices deviating from market prices (type 3).

According to Hauser, there are major differences between these three categories. Principal agent conflicts are virtually nonexistent in type 1 enterprises, and therefore size does not play

a major role. Types 2 and 3, however, may be faced with principal agent problems; the larger companies are, the greater the opportunity for this conflict to appear. Additionally, type 3 enterprises tend to have easier access to resources from parent companies, regardless of their size.

In conclusion, a type 1 enterprise with 300 employees, for instance, may virtually operate as a SME, while a type 2 enterprise with 150 employees may operate similarly to larger companies that do not fall within the SME category. Therefore, according to Hauser, type of ownership should also be taken into account when classifying companies.

Although to this date the Commission of the European Communities has not officially taken this difference into account, type of ownership will also be considered in the present research. Appendix 1 presents the issue of classification of companies according to size in more detail.

3 Literature Review

This section summarizes the literature review relevant to this study and is divided into three main subsections:

- internationalization theories
- internationalization of Brazilian companies
- internationalization of engineering consultancy companies.

The first subsection presents an overview of two main internationalization approaches, which focus on economic and behavioral aspects, respectively. The main supporters of each approach are briefly mentioned.

This same subsection also presents some studies on liability of foreignness and competitive advantage. The main reason to discuss these two key concepts is the prevailing view first proposed by Hymer (1960), according to which companies face disadvantages due to being foreign when they engage in operations abroad; such disadvantages must be compensated by competitive advantages, otherwise international operations would not be possible over the long run. It is important to emphasize, however, that the focus here is on internationalization and the related obstacles. Because competitive advantage is a very broad subject covered elsewhere, it will only be briefly mentioned.

The second subsection presents the literature on the internationalization of Brazilian companies. These studies are somewhat limited and often focus on manufacturing companies.

Finally, this section ends with a review of the literature on the internationalization of engineering consultancy companies. Again, the literature is not very extensive. Nevertheless, it is interesting to note that authors were often concerned with either theoretical aspects or implications for practitioners.

3.1 Internationalization Theories

3.1.1 Two Main Internationalization Approaches

Internationalization is a relatively recent subject; most of the research about it has been conducted since 1960 (Mariotto, 2007). Nonetheless, many authors propose somewhat different approaches; some of them may be considered complementary (Coviello and Martin, 1999).

Many of these approaches are based on economic theory and implicitly assume that the decision to internationalize is a deliberate strategy, resulting from rational analysis, while others focus on current practices and take a more behavioral approach (Melsohn, 2006). Table 3.1 summarizes some of these theories, which are also briefly described below. It should be emphasized that these theories are grouped only to ease their description and emphasize their similarities.

Those concerned with internationalization often cite Hymer's work as a milestone (Zaheer, 1995; Luo and Mezias, 2002; Petersen and Pedersen, 2002; Zaheer, 2002; Mariotto, 2007; Cazurra, Maloney and Manrakhan, 2007).

In 1960, Hymer first proposed an internationalization approach radically different from prevailing views at the time, which studied foreign investments as essentially related to different interest rates in different countries. Hymer (1960) suggested instead that the need for control was one of the main aspects to be considered. Another key aspect of Hymer's contribution was the concept of disadvantage due to being foreign, often referred to as "liability of foreignness." This particular idea is described in greater detail in the next section.

Buckley and Casson (1976) also had a relevant contribution with their publication: *The Future of the Multinational Enterprise*. Essentially, the authors built on Coase's seminal paper (Coase, 1937), which presented transaction costs as a key factor in explaining the existence and the boundaries of the firm. Buckley and Casson applied Coase's argument to the internationalization context.

Initially, these authors identified a strong correlation between degree of multinationality and innovation and level of technology, both across industries and between firms in the same industry. As they later summarized (Buckley and Casson, 2003), they asked themselves what could possibly explain such high correlation:

Table 3.1 Summary of prevailing internationalization theories

Theory	Category	Year	Main Authors	Keywords	Summary
Foreign Direct Investment (FDI)	Economic Approach	1960	Hymer	Control	Foreign direct investment is related to the need for control; interest rates in different countries are not the deciding factor, as previous theories indicated.
Transactional Perspective or Internalization		1976	Buckley and Casson	Transaction costs	Decisions on size and location depend on the comparative advantages of internally producing items that could also be purchased from the market. Company structure and location are such that transaction costs can be minimized.
Ecletic (OLI)		1976; 2001	Dunning	Ownership, location and internalizing advantages	The internationalization decision depends on the analysis of the advantages regarding three basic factors: ownership (O), location (L), and internalization (I).
Resource-Based View (RBV)		1959; 1995	Penrose; Barney	Company's resources	RBV concerns not only internationalization but also strategy as a broader subject. It basically states that performance depends on company's assets and competences or internal resources, which play an important role in the internationalization process
Uppsala	Behavioral Approach	1977	Johanson and Vahlne	Stages	Internationalization does not result from a deliberate strategy to attain optimal resource allocation; rather, it takes place as a series of incremental adjustments in response to company and environmental conditions. There are different internationalization stages and a trial and error approach.
Network Perspective		1990; 2003; 2006	Johanson and Vahlne	Networks, relationships	A firm's behavior and internationalization depend on the context, particularly on commercial and personal relationships.

Source: Author, based on Penrose (1959), Hymer (1960), Buckley and Casson (2003), Dunning (2001), Barney (1995), Johanson and Vahlne (1977; 1990; 2003; 2006), Mariotto (2007) and Melsohn (2006)

> If multinationals were as good at innovation as the statistical evidence suggested, why did they not specialize in it completely, and simply license their technologies and products to other firms? After all, a firm that is good at inventing things is not necessarily good at exploiting them through production as well. Firms with extensive overseas knowledge could purchase the licenses from the innovative firms. Under this scenario, there would be no correlation between technology intensity and multinationality, so how was the observed correlation to be explained? (Buckley and Casson, 2003)

They answered their question by resorting to Coase's contribution:

> transaction costs prevented the market for technology from working, and internalization was the solution—just so long as the cost of internalization was less than the cost of using the market. Technology was simply an intangible intermediate global public good with an imperfect market. It was the internalization of this market that created the link between innovation and international production, and so explained the correlation described above. (Buckley and Casson, 2003)

At about the same time, Dunning first publicized his eclectic paradigm, which was later considered by Johanson and Vahlne (1990) as the prevailing internationalization theory and is still taught today at the Graduate School of Business of the University of Chicago, for instance.

In the mid-1950s, Dunning had compared American and British manufacturers to find that American plants in the United Kingdom were not as productive as their parent companies but were still considerably more productive than their British counterparts. This led Dunning to hypothesize that companies could possess some type of ownership advantages, which in this particular case could be partially transferred to their British facilities. However, location aspects also had to be significant, otherwise the American plants in the UK would be as productive as their parent companies. Therefore both ownership (O) and location (L) had to be important aspects of international operations (Dunning 2001).

Dunning (2001) admits that he was also influenced by Buckley and Casson's ideas on internalization. Indeed, internalization became the third key component of Dunning's eclectic paradigm, according to which internationalization depends on three major set of advantages: ownership (O), location (L), and internalization (I). Production would be established where this set of OLI advantages could be enjoyed (the eclectic paradigm is often referred to through the acronym, OLI).

It should be noted that the theories described so far implicitly consider the internationalization decision as a rational one. Johanson and Vahlne (1990), for instance, have criticized this aspect of the eclectic paradigm; they stressed its underlying assumption that the decision makers are rational and well informed.

The behavioral approach proposed by these authors addresses this concern. It should be emphasized that Johanson and Vahlne are also relevant internationalization authors, often cited by other scholars (Coviello and Martin, 1999; Luo and Mezias, 2002; Petersen and Pedersen, 2002; Melsohn 2006; Mariotto, 2007; Cazurra, Maloney and Manrakhan, 2007). They first proposed the stage internationalization model, depicted in Figure 3.1, when trying to explain the internationalization process of a few Swedish companies.

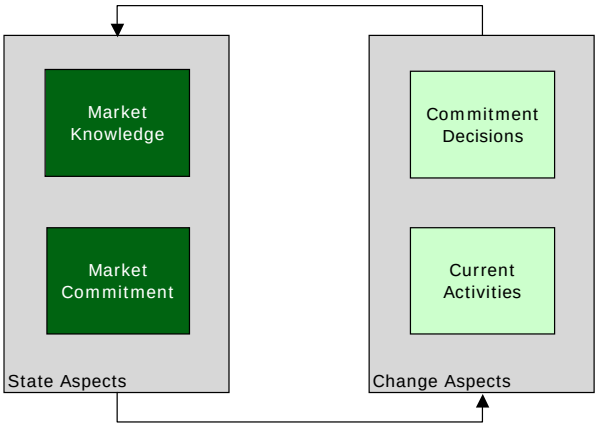

Figure 3.1 The basic mechanism of internationalization—state and change aspects

Source: Johanson and Vahlne (1977)

In the first version of their model, Johanson and Vahlne (1977) concentrated on a focal firm, which would have a certain degree of market knowledge and market commitment, constituting a state aspect. Over time, the company would increase both its knowledge and commitment, thus affecting perceived risks and opportunities. As a result, there would be reflexes in terms of current activities and commitment decisions, which in turn would affect market knowledge and commitment.

According to this view, the internationalization process would therefore be incremental in nature, with companies internationalizing in sequential stages—initially with irregular exports activities, then through sales agents, later establishing a sales subsidiary and finally a

production subsidiary. This reasoning led to this approach's being referred to as the "stage model."

Although the initial focus of this model was only a few Swedish manufacturers, over the years several studies empirically confirmed the model's applicability (Johanson and Vahlne, 1990). Nevertheless, there were some critics—one of them resulting from Johanson's own work on technical consultants, which is briefly described at the end of this session—and years after presenting this first version of their model, Johanson and Vahlne (1990) attempted to address some of the criticisms. They proposed some adjustments, namely emphasizing that a single company need not to be the focal point of the model; rather, a company as part of a network could be considered.

Recently, the authors presented yet another paper, focusing on a different aspect of their model (Johanson and Vahlne 2006). Almost thirty years after their initial contribution, they felt most of their public had only given attention to the risk reduction aspect of their theory; moreover, experience had been seen as an independent variable while market commitment would be the dependent one. The opposite effect would have been neglected.

This time, Johanson and Vahlne (2006) emphasized that not only experience could affect commitment, but the opposite could also happen, particularly as increased commitment would favor both the perception and creation of new opportunities:

> [Relationship partners] build knowledge about each other. It seems almost impossible to avoid the conclusion that opportunities are likely to develop as a consequence of the privileged knowledge the partners create through interaction with each other. There they see and develop business opportunities which others cannot see and develop. . . . This development process is, we posit, of the same nature as the process of the internationalization process model and of relationship development. It is basically a matter of interrelated processes of knowledge development about and commitment to an opportunity idea. It may be unilateral when the firm learns about the other firm's needs, technology, market and networks, thereby creating an opportunity. (Johanson and Vahlne, 2006).

Finally, even though he does not present an internationalization theory, it is worth mentioning Bonaccorsi (1992), who was concerned with the relationship between company size and export intensity. This paper reflects the fact that, as previously mentioned, internationalization as considered in this study is not restricted to larger companies today, and it might be

markedly different for smaller ones; this is further confirmed by Lu and Beamish (2006) in their paper on partnering strategies by SMEs.

3.1.2 Liability of Foreignness

As previously mentioned, Hymer's contribution was also key in establishing the concept of liability of foreignness. According to him, foreign companies would face a disadvantage when compared with local companies, essentially due to (1) their lack of local knowledge; (2) discrimination by governments, consumers, and suppliers; and (3) risk exposure to currency movements. Hymer first stated that:

> National firms have the general advantage of better information about their country: its economy, its language, its law and its politics. To a foreigner, the cost of acquiring this information may be considerable. But note that this is a fixed cost; once incurred by establishing a foreign operation, it need not be incurred again.
>
> Of a more permanent nature is the barrier to international operations arising from discrimination by government, by consumers and by suppliers. It is not the general treatment that is important: this affects the domestic firms as well as the foreign firms, but it does not give one firm an advantage over another. What is important is the fact that in given countries, foreigners and nationals may receive different treatment. . . .
>
> Of great importance as a barrier is the exchange rate risk. A change in exchange rate affects nationals and foreigners quite differently. (Hymer, 1960)

Even though Hymer introduced this concept in 1960, the primary challenge to examine disadvantages remains; the literature has not adequately developed the concept or construct of liability of foreignness (LOF) (Luo and Mezias, 2002). One such initiative was Zaheer's study of the financial services industry.

Zaheer (1995) synthesized that

> [liability of foreignness] has been broadly defined as all additional costs a firm operating in a market overseas incurs that a local firm would not incur. In general, the liability of foreignness can arise from at least four, not necessarily independent, sources: (1) costs directly associated with spatial distance, such as the costs of travel, transportation, and coordination over distance and across time zones; (2) firm-specific costs based on a particular company's unfamiliarity with and lack of roots in a local environment; (3) costs resulting from the host country environment, such as the lack of legitimacy of foreign firms and economic nationalism; (4) costs from the home country environment, such as the restrictions on high-technology sales to certain countries imposed on U.S.-owned MNEs. The relative importance of these costs and the choices firms can make to deal

> with them will vary by industry, firm, host country, and home country. Whatever its source, the liability of foreignness implies that foreign firms will have lower profitability than local firms, all else being equal, and perhaps even a lower probability of survival. (Zaheer, 1995).

The author chose to compare Western-based and Japanese banks that had trading rooms in both New York and Tokyo. Because the services offered by these companies were essentially commoditized and their profitability highly dependent on information, Zaheer considered lower profitability as an indication of fewer connections to local networks and therefore as a surrogate measure for liability of foreignness. Findings supported the existence of such liability and indicated that a firm's administrative heritage is a resource that can provide an offsetting competitive advantage to its multinational subunits. The findings also highlighted the difficulty firms face in copying organizational practices from other firms.

Later, Zaheer built on the idea that the liability of foreignness varies over time (Zaheer and Mosakowski 1997). One could argue that although Zaheer criticizes Hymer's work for focusing on a static comparison between local and foreign firms, Hymer was certainly aware of the notion that the disadvantage of being foreign could vary over time. Indeed, this is clear if one considers Hymer's statement that some costs of acquiring local information are fixed and need not be incurred repeatedly over time. Hymer may not have addressed the time issue directly, but he did imply it when he mentioned that at least part of the higher costs of doing business abroad were not consistently higher over time.

Regardless of this particular controversy, Zaheer and Mosakowski certainly made a contribution by unswervingly focusing the notion that LOF varies over time. To do that, the authors again focused on trading rooms; in this case, they hypothesized that LOF would be translated into higher exit rates for foreign companies when compared to local ones. Based on a longitudinal study of a population of 2667 market-making trading rooms located in forty-seven countries worldwide, over a twenty-year period, they not only verified higher exit rate for foreigners but also noted that the rate differences reduced over time. In their study, after seventeen years foreign companies reached similar exit rates to those of locals.

In this particular study, the authors considered exit rate as a surrogate measure for the liability of foreignness. Therefore, their findings indicate that LOF diminishes over time, and for this particular sector of the financial services industry, it becomes virtually nonexistent after seventeen years of international operations in the same country.

Petersen and Pedersen (2002) did not establish a measure for the liability of foreignness, but they did propose a conceptual model based on Hymer's ideas, which is illustrated in Figure 3.2.

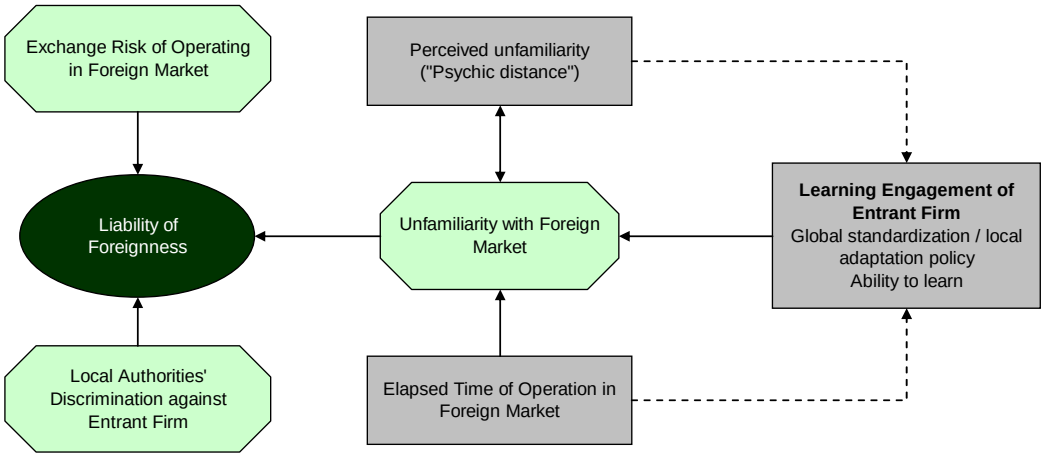

Figure 3.2 Conceptual model of liability of foreignness

Source: Petersen and Pedersen (2002)

These authors focused on the mitigation of unfamiliarity with foreign markets, as this aspect could be affected by management practices. Indeed, Petersen and Pedersen argued that

> An entrant firm's liability of foreignness is composed of different barriers of a more or less permanent nature, and to varying degrees, these barriers are susceptible to management control. Thus, foreign exchange risks and discrimination by local governments and consumers are of more permanent nature and can, only to a limited extent, be influenced by managers of entrant firms. Where the management of the entrant firm can make a significant difference is in relation to the unfamiliarity with the local business environment. (Petersen and Pedersen, 2002)

The authors also emphasized that the fact that management can influence the level of familiarity—and therefore the liability of foreignness—does not necessarily mean that all companies exert equal efforts to do so. Their empirical study, based on data on 494 international firms from Sweden, Denmark, and New Zealand, confirms their idea that learning engagements differ across companies:

> a large group of firms seems to master a rapid reduction of liability of foreignness, possibly by engagement in learning prior to market entry. In contrast, a minor group of firms seems to resist involvement in learning processes and perceives a high unfamiliarity with the local business environment even after a relatively long period of operations in the foreign country. Apparently, the adoption of standardized international business routines and unwillingness to adapt products and marketing practices to local markets are associated with a low learning engagement of the entrant firm. (Petersen and Pedersen, 2002)

Furthermore, their study suggests that for a majority of firms, managers perceive the liability of foreignness and the associated costs of doing business abroad to decline over a period of time (Petersen and Pedersen, 2002), further supporting Zaheer and Mosakowski's findings.

Very recently, Cazurra, Maloney, and Manrakhan (2007) presented a framework for studying the difficulties of internationalization and addressing its causes. These authors argue that difficulties of internationalization can essentially be divided along two dimensions: relationship to advantage and specificity. Along the first dimension, there are three major categories: loss of an advantage, creation of a disadvantage, and lack of complementary resources. Each of these aspects may apply to a specific firm or may be common to a set of firms; that is how the specificity dimension is manifested. Table 3.2 summarizes the framework presented by these authors, as well as recommendations for dealing with each type of difficulty.

It is interesting to notice that these authors do not consider liability of foreignness as simply the competitive disadvantage due to being foreign; rather, they identify liability of foreignness as a condition particular to a firm that arises specifically from a lack of complementary resources required to operate in the institutional environment of the new country. This particular vision is different from the broader prevailing notion considered by other authors, who define liability of foreignness as the disadvantage from being foreign, such as Zaheer (1995) and Luo and Mezias (2002).

Table 3.2 Causes of difficulties in internationalization and their solutions

Causes		Difficulties	Solutions	
Relationship to Advantage	**Specificity**	**Type**	**Reduced When:**	**To Solve It:**
Loss of an advantage	Specific to a firm	*Inability to transfer advantage:* a resource that was the source of advantage in existing operations loses its advantageous characteristic when transferred to the new country.	Competitors in the new country are not up to par, or do not exist, particularly in the introduction stage of an innovation.	Develop advantageous resources locally, allowing the subsidiary to create its own strategy and advantage.
	Common to a set of firms	*Inability to create value:* a set of firms in an industry do not obtain value from the transferred resources that were the source of advantage in existing operations because the firms' products are not useful in the new country.	Not reduced	Avoid entering the new country, or exit it if already entered.
Creation of a disadvantage	Specific to a firm	*Disadvantage of transfer:* a resource becomes disadvantageous when transferred to the new country.	Firm internationalizes through trade or reduces the value-added activities undertaken abroad.	Evaluate the appropriateness of the resources to the new host country; modify the resource transferred if it creates a disadvantage.
	Common to a set of firms	*Government-based disadvantage of foreignness:* a set of firms from the same home country are discriminated against by the host government because it dislikes their country of origin.	Political relation between the home- and host-country governments are good.	Obtain support from government: directly by negotiating or lobbying the government; indirectly by linking with prominent local actors who obtain support.
		Consumer-based disadvantage of foreignness: a set of firms from the same country are discriminated against by consumers because they dislike the firms' country of origin.	A firm or its products lack association with the discriminated country of origin.	Avoid connection between firm and country of origin: directly by hiding country of origin, indirectly by using country of origin that is different from true one.

continues

continued

Causes		Difficulties	Solutions	
Relationship to Advantage	**Specificity**	**Type**	**Reduced When:**	**To Solve It:**
Lack of complementary resources	Specific to a firm	*Liability of expansion:* the firm lacks complementary resources needed to operate at the larger scale required by the expansion in the new country.	Firm already developed resources to manage the additional scale and complexity before expanding in the new country because it is a large, diversified, or multinational firm.	Develop management and information systems in existing operations; alter the organizational structure.
		Liability of newness: the firm lacks complementary resources required lo compete in the industry of the new country.	Firm operates in a global industry with similar competitors and customers across different countries.	Invest to develop the complementary resource needed to compete in the industry of the new country; purchase the resource; access the resource of a local firm through an acquisition or alliance.
		Liability of foreignness: the firm lacks complementary resources required lo operate in the institutional environment of the new country.	Firm has operations in countries with institutional environment similar to that of the new country.	Invest to develop the complementary resource needed to operate in the new institutional environment; purchase the resource; access the resource of a local firm through an alliance.
	Common to a set of firms	*Liability of infrastructure:* a set of firms do not obtain value from transferred resources because customers in the new country lack complementary assets to use the firms' products.	Products are simple to use or stand alone.	Provide customers with the complementary tangible or intangible asset necessary to use the product.

Source: Cazurra, Maloney and Manrakhan, 2007

3.1.3 Competitive Advantage

As previously mentioned, competitive advantage is a broad subject with a vast literature. It is not the main focus of the present study, and more comprehensive treatment can be found elsewhere (refer to Vasconcelos and Cyrino 2000 and Vasconcelos and Brito 2004, for summaries of the literature review). Nevertheless, to the extent that this key concept is often mentioned as compensating liabilities of foreignness, a broad overview was deemed appropriate.

Textbooks often refer to competitive advantage (e.g., Besanko et al. 2004; Hitt, Ireland, and Hoskisson 2005; Saloner, Shepard and Podolny, 2001). Besanko et al. (2004) summarize the concept by stating:

> When a firm (or a business unit within a multibusiness firm) earns a higher rate of economic profit than the average rate of economic profit of other firms competing within the same market, the firm has a competitive advantage in that market. (Besanko et al, 2004)

It should be noted, however, that this is not a direct definition but rather a statement that, provided there is a sensible market definition, higher economic profitability can be considered as *evidence* of competitive advantage.

In their paper on competitive advantage, Vasconcelos and Cyrino (2000) summarized the main approaches that explain competitive advantage. Broadly speaking, they either focus on external or internal aspects, and they consider either static or changing conditions, as illustrated by Figure 3.3 below.

	Industry structure Static: equilibrium and structure	Market processes Dynamic: change and uncertainty
Competitive advantage is explained by external factors (market, industry's structure)	1. Industry Analysis Industrial organization: S-C-P model Positioning analysis (Porter)	3. Market Processes Austrian School (Hayek, Schumpeter)
Competitive advantage is explained by internal aspects, which are firm specific	2. Resources and Competences Resource-based view	4. Dynamic Capabilities Theory of Dynamic Capabilities

Figure 3.3 Schools of thought on competitive advantage

Source: Vasconcelos and Cyrino (2000)

The authors also compare these different schools of thought along a few dimensions, as presented in Table 3.3.

Table 3.3 Theories on competitive advantage contrasted

Dimension	Industrial Organization	Resources	Market Processes	Dynamic Capabilities
Unit of analysis	Industry	Bundle of resources and specific competences	Market dynamics; creation and destruction cycles; innovation, imitation, and selection	Processes and organizational routines; low resources and specific competences
Firm concept	Technical production function Set of complementary activities	Stable bundle of resources, competences and capabilities	Entrepreneurial: production of innovation, knowledge creation	Evolutionary set of resources, competences, and capabilities
Nature of competitive advantage	Sustainable, based on exploring semi-monopoly situations	Sustainable, based on stable resources Ricardo rents	Transitory and cyclic, based on entrepreneurial rents	Sustainable, based on evolving resources Entrepreneurial and Ricardo rents
Source of competitive advantage	Attractiveness and firm positioning in the industry	Exclusive access to unique resources that are hard to imitate	Innovation and "destructive creation"	Routines and organizational processes capable of regenerating the base resources of the firm

Source: Vasconcelos and Cyrino, 2000

Although the theories on market processes and dynamic capabilities certainly appear to be more appropriate to turbulent and hypercompetitive environments, only the two first theories will be considered for the purposes of this dissertation, particularly since these characteristics do not seem specially relevant in engineering consultancy.

Industry aspects can contribute to a company's ability to achieve higher economic profitability, indicating the existence of a competitive advantage. Porter's five forces model, presented in his *Competitive Strategy* (Porter, 1980), offers a framework to explain why some industries can be more attractive than others. Essentially, the forces to be considered are: the power of suppliers, the power of buyers, the threat of substitutes, the threat of entry (which naturally depends on the existence of barriers to entry), and the internal rivalry.

Brandenburger and Nalebuff (1996) offer a somewhat different perspective. According to them, other players should only be viewed only as competitors in the division of profits;

rather, they should also be seen as potential “complementors,” that is, players who make your offerings more valuable instead of less.

Despite the broad use of Porter’s model, there is some debate about it, as indicated by Brandenburg and Nalebuff’s remarks (1996). This, however, is not the focal point of the present work. Moreover, this dissertation focuses on one industry specifically, so comparisons across industries are not essential at this point. This is not to say that the concept of competitive advantage rooted at positioning choices in terms of industry is irrelevant.

Indeed, industry analysis is certainly important, but different studies indicate that it is not enough to explain profitability differences; Porter himself developed one such study with McGahan (McGahan and Porter, 1997) and concluded that for a sample of U.S.-based corporations, industry accounted for approximately 19 percent of profitability, while business specific effects represented 32 percent. More recently, Brito (2005) analyzed a sample of 13,221 companies from forty-seven countries listed in Compustat Global; through several statistical analyses of data from 1994 to 2002, the author concluded that industry could only explain 7 percent of total performance variation, while company’s aspects accounted for 44 percent.

These studies can be considered as supporting evidence for Barney’s statement that

> sustained competitive advantage cannot be created simply by evaluating environmental opportunities and then conducting business only in high-opportunity, low-threat environments. Rather, creating sustained competitive advantage depends on the unique resources and capabilities that a firm brings to competition in its environment. (Barney, 1995)

To evaluate the company’s resources and assess their importance in terms of competitive advantage, Barney proposed a framework later summarized in the anagram VRIO. Resources and capabilities can only be a source of competitive advantage if:

- they are valuable (V), that is, the resources add value by enabling the company to exploit opportunities and or neutralize threats.
- they are rare (R), which means that not many competitors have access to the same resource—otherwise, it can only be a source of competitive parity.
- they are hard to imitate (I), which is said to happen whenever competitors face a cost disadvantage when imitating or substituting the resource. This can also happen if there is path dependency, which means that the resource can only be obtained by following the

same history, or if the resource results from several small decisions that cannot be easily replicated, or even if the resource stems from socially complex interactions and no recipe can be simply copied.

- the company is organized (O) to explore the resource, allowing it to realize its full competitive advantage.

It should be noted that although Barney's framework has a different focus when compared with Porter's propositions—the former focusing on the company's internal aspects while the later focuses on external considerations—the two approaches are not conflicting but rather complementary. Indeed, as Barney emphasizes:

> By answering the question of value, managers link the analysis of internal resources and capabilities with the analysis of environmental opportunities and threats. Firm resources are not valuable in a vacuum, but rather are valuable only when they exploit opportunities and/or neutralize threats. The models developed by Porter and his associates can be used to isolate potential opportunities and threats that the resources a firm controls can exploit or neutralize. (Barney, 1995)

These are the two main avenues often cited on competitive advantage (Besanko et al, 2004; Hitt, Ireland and Hoskisson, 2005; Saloner, Shepard and Podolny, 2001). However, despite being far less crucial, Hu's contribution is also worth mentioning, particularly as it relates advantages to the internationalization of companies.

Hu (1995) wrote on the international transferability of the firm's advantages. The author initially presents his working definition of "advantages" as:

> The firm's advantages and disadvantages are defined as its strengths and weaknesses either *relative* to the competition in a specific competitive arena or *relative* to an alternative to the firm (from the viewpoint of the other party) in a particular context. (Hu, 1995)

The keyword in this definition is "relative." As the author stresses, relativity has a very important consequence: the advantages that a firm has in its home country can be quite different from those it can have in its foreign operations, essentially because

- the advantages that matter in the foreign country may be other ones, due to the different context.
- competitors in the foreign country may be different; as a result, superiority in domestic operations does not necessarily mean superiority abroad.

- there are general factors that, while not specific to any company, can give all companies from the same home base some sort of advantage when compared with players based in other countries.

Another key aspect is the transferability of the advantage. In fact, Hu summarizes the importance of this aspect referring to Hymer's proposition:

> It would be erroneous for a firm embarking on international expansion to think in terms of creating the required advantages in the target country from scratch. The foreign firm incurs all the disadvantages of being foreign, in other words, it must also confront all the advantages that native players enjoy from being in their home territory and environment (Hymer, 1960). It therefore needs to possess or develop some more-than-compensating advantages in order to operate successfully in the target country. Since it has no advantage when it comes to "advantage creation" in the target country (if it were to rely only on local resources, which indigenous players can utilize more effectively), it can only gain advantage if it is able to transfer some advantages (or their ingredients) from outside the target country that are not available to indigenous players. This puts advantages and their transfer firmly at the center of the analysis of the firm's international operations. (Hu, 1995)

According to Hu, there are essentially two reasons that can render transfer impossible: the advantage (or an important component of it) may be immobile or it may lose value in the target country. His comments on these nontransferability issues are summarized in Table 3.4.

Table 3.4 Reasons for the nontransferability of firm's advantages

Source of Nontransferability	Main Reasons	Description
Advantage is not mobile internationally	Geographical specificity	Happens whenever a key component of the advantage cannot be transferred to another location. Examples are a local distribution network, a superior workforce, close relations with customers, or suppliers that are not abroad themselves.
	Tacit nature of knowledge	Tacit knowledge cannot be easily codified, which in turn renders it difficult and costly to transfer.
Advantage loses value in the target country	Lack of fit with the new environment	The advantage can be irrelevant in the target country or can be easily neutralized by local competitors. Whether the advantage retains its value depends on the fit between conditions in the target country and the nature of the advantage.

Source: Author, based on Hu, 1995.

In conclusion, Hu also emphasizes that transfer is neither automatic nor easy, particularly as it may require adaptations and investments.

3.2 Internationalization of Brazilian Companies

The internationalization of Brazilian companies has been studied for a few decades now; apparently it was first systematically studied by Coppead-UFRJ during the 1970s (Mariotto, 2007). These researchers focused on exporting activities by manufacturing companies until the beginning of the 1990s, when subjects such as strategic alliances, joint ventures, franchises, and the opening of branch offices also became significant. Some relevant authors are Christensen, Rocha, and Gertner (1987), Machado da Silva et al. (2001), and Rocha (2002).

More recently, since the late 1990s and especially in the beginning of the twenty-first century, the research on the internationalization of Brazilian companies has grown considerably. Several topics have been studied, ranging from the establishment of branch offices to Brazilian multinationals with plants abroad (Mariotto 2007). Nevertheless, the specific topic of Brazilian SMEs, as well as that of Brazilian professional service companies, has remained relatively neglected.

Melsohn (2006) was an exception to this observation. The author selected 226 small and medium-sized companies with some international activity and carried out a survey focusing on critical internationalization issues, such as strategic decision making, main problems found, and current practices. The analysis of information provided by fifty-two respondents allowed the author to conclude that this sample revealed the importance of networks in the internationalization process; moreover, it showed the absence of a single theory capable of fully explaining the process, as well as a paradigmatic shift toward a more proactive internationalization approach.

This study certainly contributed to an understanding of Brazilian internationalization efforts, but it did not focus on a specific segment, that is, the sample comprised manufacturing, services and retail companies. Additionally, there may have been some biases, due to the fact that companies were selected based on newspaper articles—which may have contributed to the selection of more proactive companies, for instance—and due to absence of response by many companies, which tends to be usual when doing surveys.

Finally, another initiative must be mentioned: professors from the University of Sao Paulo recently created Ginebra – Gestao para a Internacionalizacao de Empresas Brasileiras, a study group that plans to gather, consolidate and present information that should help Brazilian companies in their internationalization processes. It should be noted, however, that this group focuses on companies with activities abroad (either foreign direct investment, joint ventures or acquisitions), and consider the competences required for this internationalization level essentially different from those for required to have exporting activities.

3.3 Internationalization of Engineering Consulting Companies

The literature on the internationalization of engineering companies is relatively limited. Sharma and Johanson (1987) studied this topic, as did Coviello and Martin (1999) and Koch (2004). With the exception of their papers, the literature on the subject is primarily found in specialized publications, such as *Leadership and Management in Engineering* and the *Journal of Management in Engineering*, rather than scientific magazines. These specialized publications offer a more practical approach and often neglect theory; Schirmer (1996), Ramcharran (1998) and Bradley (2005) are examples of such articles.

The first to describe the stage internationalization process, often referred to as the Uppsala model, were Johanson and Vahlne (1977). Jan Johanson as well as Deo Sharma were professors at the Department of Business Administration of the University of Uppsala, Sweden. It is therefore interesting to note that in 1987 Johanson already saw a limitation of his incremental internationalization theory.

Sharma and Johanson (1987) pointed out that the main reason for internationalization to be incremental was to reduce risk. However, the risk exposure of technical consultancy (TC) firms going abroad is markedly different from that of manufacturing companies, especially since TC firms are knowledge based and require much smaller investments in physical assets:

> Technical consultancy is a professional skill intensive industry, in which professional and skilled labor produce the output and correspond to the "technical core" of manufacturing firms. However, professional consultants are not a fixed asset. They are versatile in nature. The skill possessed by a technical consultant can with slight modifications be utilized in a number of ways and in a number of different countries. Thereby, the market specificity of these resources is relatively low. A professional technical consultant can be moved from one market to the other at short notice, with minor adjustments and at a relatively small cost. (Sharma and Johanson, 1987)

This difference led Sharma and Johanson to the following conclusion:

> The assumption of interplay between resource commitments and experiential learning leading to internationalization does not hold true for TC firms. Internationalization of TC firms, more than in manufacturing firms, seems to be exclusively a matter of increasing international orientation and experience. The resource commitments are of minor significance. (Sharma and Johanson, 1987)

They also concluded that for these companies, the internationalization strategy should focus on identifying and fostering networks to be used as bridges into new markets.

Coviello and Martin (1999) later identified three basic internationalization theories: (1) foreign direct investment (FDI), including transaction cost analysis; (2) the Uppsala model; and (3) the network perspective. These authors suggested that these theories should be considered complementary rather than alternative; they proposed a holistic approach, integrating the three basic concepts, and identified elements of each theory in the internationalization of technical consultancy firms.

These authors were also concerned with managerial implications. However, they only came to the broad conclusion that it is worthwhile to invest in developing and nurturing networks to detect more opportunities and therefore ease the internationalization process.

Hitt et al. (2006) recently published a paper on the importance of resources in the internationalization of professional service firms. They did not focus on engineering companies, but their conclusions may be somewhat applicable. They specifically studied law consultants and considered basically two resources: human capital and relational capital derived from relations with corporate clients and foreign governments. The results show that human and relational capital had a positive effect on internationalization; corporate client relational capital was only positive when combined with strong human capital. In this particular case, however, previous research considerably simplified measurement of variables. Quality of human capital, for instance, was measured considering the ranking of law schools attended by senior executives. In Brazil, engineering school rankings are certainly not as well established and therefore cannot be easily and reliably applied.

Schirmer (1996) is one of the authors who present a rather practical approach. He dedicated the final section of his paper to summarizing recommendations he came up during his career as president of an American engineering consultancy company. His first recommendation was for companies to study their target markets in advance; he also stressed that governmental support was worthwhile, as well as resorting to the Federation Internationale des Ingenieurs

Conseils (FIDIC). Moreover, he emphasized the importance of seeking early legal and tax advice and establishing clear contracts with agents. Finally, his most strong recommendation was for companies to think in the long term when planning an international expansion, and to consider that the company's presence abroad would remain over the long haul. Although some of his recommendations are certainly still valid today, even for Brazilian companies, some may not be applicable, as illustrated in the following sections.

Another author concerned with engineering consultancy is Ramcharran (1998). Basically, he presented statistical information on the growth of international activities among both American contractors and American engineering designers. The author did mention some obstacles faced by consultancy companies, such as differing standards and complexities of operating under different cultural settings, but he did not focus on company initiatives that could mitigate these effects. Furthermore, it should be noted that he confined his analysis to foreign direct investment, as for him:

> Construction and designing services are essentially demander-located, and thus have to be produced abroad. (Ramcharran 1998)

This premise certainly still holds for construction, but today technological advances allow for far more flexibility in terms of where design is carried out, as illustrated in later sections.

Along the same lines, Bradley (2005) also focuses specifically on American engineering consultancy companies facing local competition abroad. According to him, American-based companies can only survive in developing countries if they change their mindset and invest more locally rather than simply having American expatriates being highly paid to take all managerial roles and leave locals with considerably lower payment levels and larger workload, resulting in a serious cost disadvantage. The author also lists alternatives that could potentially generate cost savings, such as the choice of less expensive office installations. Implicitly, he focuses on companies that seek to establish international activities over the long term, which in turn often requires foreign direct investments.

4 Research Method

There is a considerable amount of literature regarding internationalization and international experiences by different companies. However, when it comes to consulting companies, the literature is far more limited. It is virtually nonexistent when we specifically consider small and medium-sized Brazilian consulting companies.[1]

This background favors exploratory research, since at the present time the internationalization of such companies must still be characterized. The corresponding research questions are therefore: “How does the internationalization of engineering consultancy companies happen?” and “How do these companies cope with their liability of foreignness?.”

Moreover, the internationalization of engineering consultancy companies is a contemporary phenomenon over which an investigator cannot have any control.

The form of the research questions, the focus on a contemporary event, and the lack of control over the events all contribute to the choice of case study as the research method, following the recommendations of Yin (2003) and Eisenhardt (1989).

Furthermore, as manager of an engineering consultancy company and someone who has worked in the same organization for almost ten years, I have had the opportunity to obtain in-depth information possibly not available to outside investigators. This unique perspective may help render the case revelatory.

The company chosen for this study has worked on twelve international projects, and it has used at least four different internationalization strategies (exports and foreign direct investment, both with and without a local partner). Each project was considered an embedded unit of analysis pertaining to a larger context that is the entire organization itself.

[1] Refer to section 3 for the literature review.

Once the research method was selected, the quality of the case study became one of the major concerns during the research. As a consequence, specific measures were taken to attain construct validity, external validity, and reliability. Internal validity, which is also a criterion to judge the quality of the research design, was not specifically addressed, as the present research does not seek to establish nor verify any causal relationship.

The reliability issue was tackled through the use of a research protocol. According to Yin (2003), the protocol is a major way of increasing the reliability of the case study research and is intended to guide the investigator in carrying out the data collection. Appendix 2 presents the research protocol.

Initially, different sources were consulted to gather general information and therefore characterize the company:

- documentation--articles of incorporation, balance sheets and financial statements, as well as opinions by tax consultants

- archival records--list of contracts, list of employees and reports regarding revenue analysis.

The complete list of the information obtained is presented in appendix 3. These data made it possible to categorize the company as well as verification of its SME status.

In a second stage, data collection focused on identifying possible liabilities of foreignness (main construct) and the strategies for coping with these disadvantages. To assure the validity of the information obtained, different sources of information were used. In addition, different types of informants were interviewed, namely top managers who are also the company's owners, project managers and other professionals in supporting roles.

Two of the company's main executive officers, who are also partners and own 50 percent of the company's shares, were interviewed on their perspectives on internationalization. The interviews were divided in two sections. Section 1 essentially asked them to elaborate on their experiences. While the corresponding questionnaire contained some alternatives, the idea was only that these alternatives could ease the interpretation of answers. They were not shown to respondents, who were encouraged to talk freely. After respondents answered these questions, they were handed section 2 to fill out. This was done only after the open-ended questions had

been answered to avoid guiding interviewees in their responses and allow them to elaborate more freely. The complete questionnaire is presented in appendix 4.

These interviews provided some information on difficulties carrying out international projects; moreover, they also hinted at the company's future internationalization plans.

In addition to these sources of general information, information was also obtained for each international project. Therefore, for each embedded unit of analysis, the following available sources were also verified:

- Documents: Both the technical proposals regarding each service and legal documents were analyzed, including contract, joint venture agreements, and certificates[JSS1]

- Archival records: The company has a quality management system that complies with ISO 9000 guidelines; the corresponding documents were verified. These registers also comprise critical analysis before and after sale, as well as a specific form regarding project planning.

- Interviews: Open-ended questionnaires were presented to the project managers of the international projects. In four instances, notes were taken during the interviews. In two other cases, interviewees preferred to write down their answers. In all cases, interviewees later reviewed the case notes and suggested the corresponding adjustments. These professionals were asked about how the services began and how the company was awarded, as well as about any possible liabilities of foreignness. Whenever the interviewees mentioned such liabilities, they were also asked about mechanisms (if any) adopted by the company to mitigate their adverse effects, as well as about any company advantages that could potentially compensate for such obstacles. They were also asked whether any lessons were learned in the process, and what they were.

- Interviews with other professionals: Engineers directly involved in the projects as well as other professionals with supporting roles, namely those in charge of accounting and documentation, were also interviewed. Although these professionals could not have a vision as comprehensive as that of the project managers, their statements also helped to identify some practical obstacles that could potentially

affect the company's competitive position abroad. Again, to assure the quality of the study, the key informants reviewed the corresponding reports.

It should be noted that both project managers and professionals in supporting roles easily identified difficulties they faced in their projects. However, not all such difficulties were necessarily liabilities of foreignness, especially to the extent that in some cases even local companies would face the same types of obstacles. In other words, it was verified that some of the observations could not be directly translated into actual measures of the construct under study. As a consequence, after the initial interviews, informants were also asked whether they believed local competing companies would face the same problems.

As information was gathered, a case study database was created, allowing for future references and with clear indication of the information sources. Appendix 5 presents the structure adopted for registering the information regarding each case. This structure was an important instrument in coping with external validity, as it allowed using a replication logic to the various projects, which consisted of the different units of analysis.

5 Case Study

5.1 Case Structure

The case study is divided into five other subsections:

- company overview
- brief description of the company's international activities
- sources of liability of foreignness
- potential sources of competitive advantage
- case discussion in light of the literature review.

Subsection 1 initially presents some general information on the engineering consultancy company studied, hereafter referred to as "Engineercon" (the company's name was altered for ethical reasons). Data such as total revenues, annual balance sheet totals, and headcount confirm that the firm is medium sized according to European Union standards (Commission of the European Communities 2003). Comments on the company's structure confirm that it would be classified as a type 1 enterprise, according to criteria proposed by Hauser (2005) and introduced in section 2 of this dissertation.

Next, there is a brief description of the internationalization process and how the company was awarded its first international projects. For ethical reasons, the names of other companies involved were also disguised. They are presented either as "Client X," when they were Engineercon's clients (contractors, governmental agencies, or other companies), or "Consultant ψ," when they were consultants and joint venture partners.

The third subsection describes the main liabilities of foreignness faced by Engineercon. Because the company had a dozen international projects and because similar difficulties were faced on many different occasions, organizing the description by project would have made the

text somewhat repetitive. to avoid that problem, the description is organized according to liability of foreignness; as a result, for each liability more than one project may be mentioned, and some cases were mentioned repeatedly under new circumstances. For each major obstacle encountered by the company, the difficulties faced are described—including examples—followed by some recommendations for SMEs seeking to establish international activities.

Although this is not the main focus of the present study, the next subsection presents some comments on possible competitive advantages possessed by the company, which may have compensated for the liabilities of foreignness.

Finally, the last subsection presents the case discussion in light of the literature review and managerial recommendations previously made by other authors.

5.2 Company Overview

Four engineers founded Engineercon in 1991. The company is privately held by these four partners, who have equal participations.

The company does engineering design as well as construction management and construction supervision, both for final clients such as governmental agencies and as a subcontractor to construction companies (refer to section 2.1 for a brief description of engineering consultancy). However, engineering design remains by far the most important segment for the company, and it currently accounts for over 70 percent of the company's revenues. In terms of international activities, the company has essentially focused on this area of expertise.

In 2007, the company had total revenues of nearly €12.5 million, and international projects accounted for approximately 24 percent of this amount. Figure 5.1 shows the company's revenues over the past three years; they are consistently below the €50 million threshold that distinguishes a medium-sized company from a large company according to the European Commission.

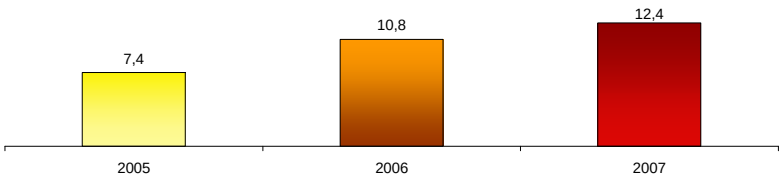

Figure 5.1 Company's revenues in Euros (in millions), 2005–2007

Source: Author, based on information from case study.

During 2005–2007, these revenues stemmed from projects in Brazil and two to three different Latin American countries, as illustrated by Figure 5.2.

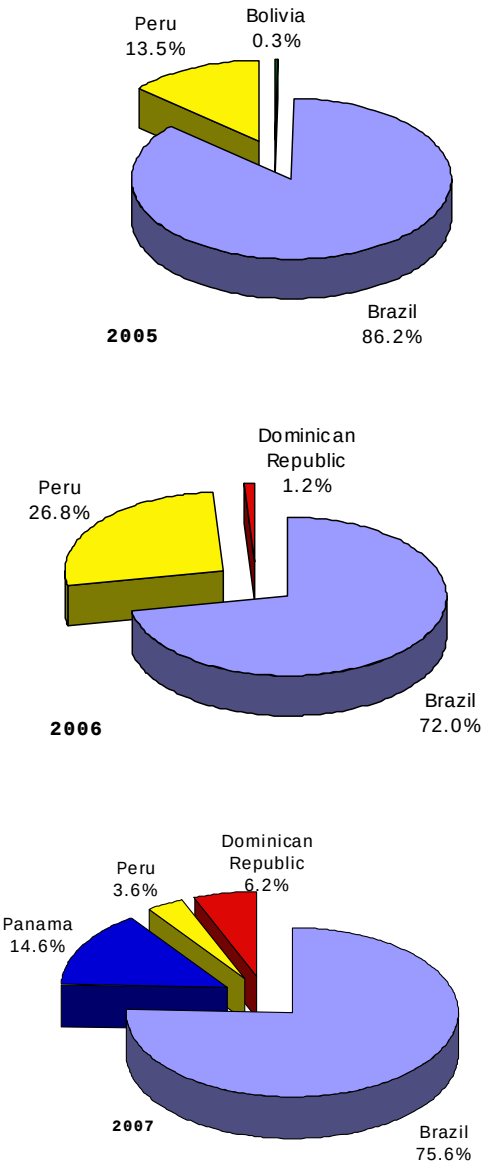

Figure 5.2 Revenues by country as percentages, 2005–2007

Source: Author, based on information from case study.

During this same three years period, the annual balance sheet totals were always below the €43 million threshold set by the European Commission, as illustrated by Figure 5.3.

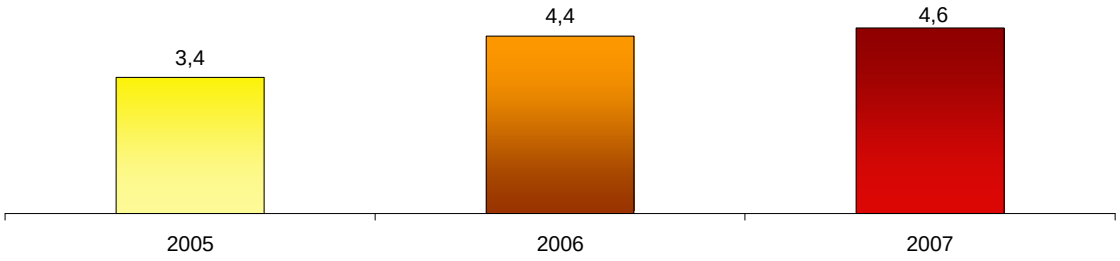

Figure 5.3 Annual balance sheet totals in Euros (in millions), 2005–2007

Source: Author, based on information from case study.

Finally, Figure 5.4 presents the number of employees over the same three-year period. Although the actual numbers varied during the course of each year—the headcounts below are actually average estimates by the chief financial officer—they all remained well below the 250 threshold that distinguishes medium-sized companies from large ones.

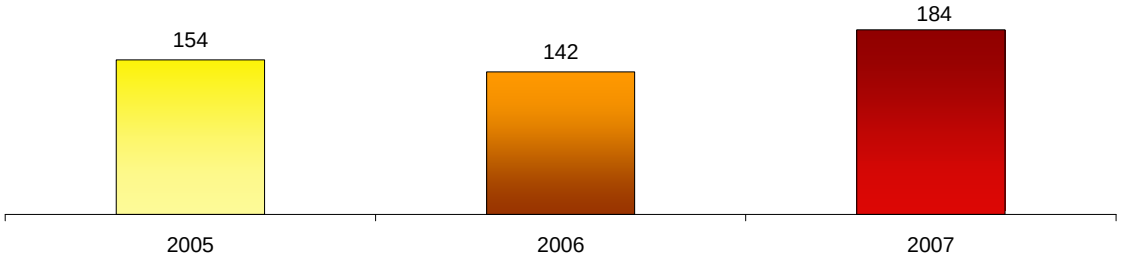

Figure 5.4 Annual headcount, 2005–2007

Source: Author, based on information from case study.

Both the total revenues and total balance sheet, as well as the headcounts, lead to classifying the company as a medium-sized one, according to the criteria established by the European Union (Commission of the European Communities 2003). The type of ownership would further confirm this category, if one considered the arguments presented by Hauser (2005).

In Brazil, and specifically in the engineering consultancy sector, Engineercon is regarded as a medium-sized company. It is reasonably well known in its field. Every year, it is ranked among the top fifty engineering consultancy companies based on its annual revenues. The 2007 ranking, based on 2006 total revenues, lists Engineercon among the thirty largest engineering consulting companies.[2]

[2] This ranking is published by *Revista O Empreiteiro*, a popular trade magazine focused on the construction sector. It should be noted, however, that ranking is based on information provided by the companies themselves. Accompanying documents are always required, which means the information is reliable. However, because most

The company is organized into three major functional areas: finance, engineering and marketing. Most of the employees work in engineering; the other areas only play a supporting role. The organizational chart illustrates this division.

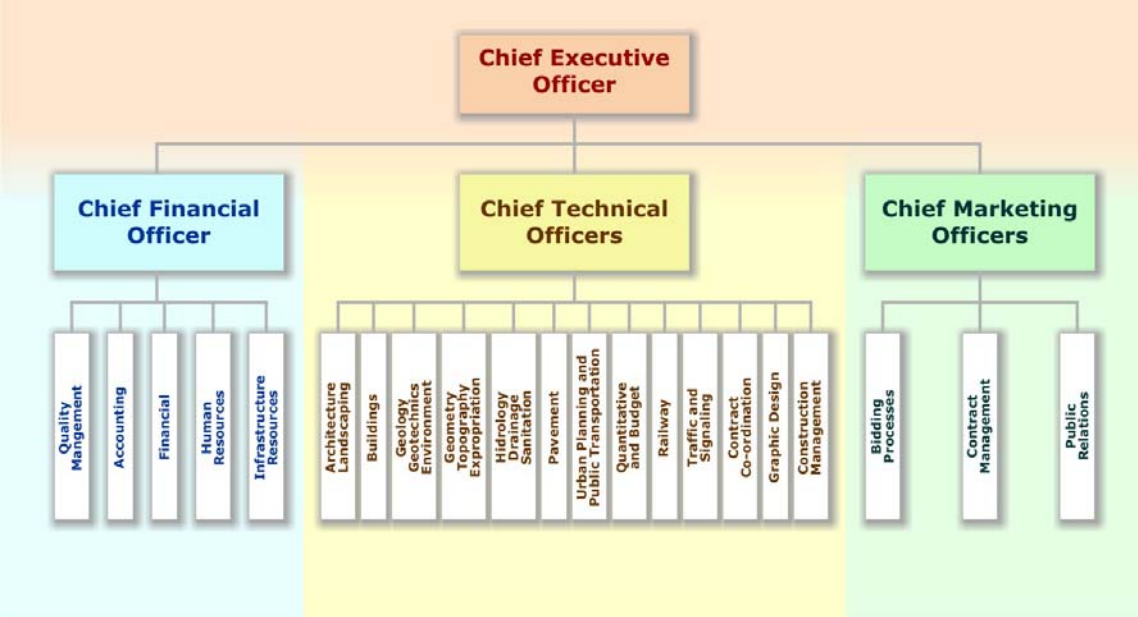

Figure 5.5 Organizational chart

Source: Company's documents.

Most engineers, architects, and interns (approximately 98 percent of them) work in the technical department. Most of the international projects are carried out under the supervision of one of the chief technical officers.

5.3 The Origins of International Activities

Engineercon's first international activity essentially consisted of technical support to a Canadian company (hereafter referred to as "Client A"). These services started in 1997 and were provided until 2000, when Client A did not have a local presence in Brazil and needed assistance to search for business opportunities and establish a local network. One of Engineercon's partners had family and friends in Canada, and they introduced him to a Client A manager.

The services provided included helping Client A to participate in biddings in Brazil and a bidding in Portugal—this latter one essentially because of the language—assisting executives

consulting companies are privately held, they are not obliged to disclose this information so only those that find it in their best interest to be listed actually send the data.

in their trips to make acquaintances in Brazil and providing support for this client to participate in local fairs.

With the exception of the bid in Portugal, all services were carried out in Brazil. For Engineercon, this was "business as usual." The only differences were the fact that everything had to be written in either English, Spanish, or French and that payments were denominated in dollars. However, other than allocating an engineer who spoke all these languages to the project, there was not much concern with the international nature of the services. They would thus be classified as internationalization level A, previously established (refer to section 2.2).

At the same time, the company pursued other international business opportunities without much success. In 1998, for instance, when a Brazilian partner that wanted to expand its presence abroad ("Consultant α") invited the company to submit a proposal to the Venezuelan government, a task force formed by professionals of both companies worked on the proposal for almost a month. However, the government canceled the bidding, awarding the contract to no one.

Later in 1999, a Venezuelan professional was enrolled in Engineercon. Despite his efforts to create a Spanish catalog for the company, little was accomplished. Still, the company participated in yet another bidding process in Venezuela, again in association with Consultant α.

In 2000, Engineercon had two international opportunities. One was again a local service to be provided to a foreign company (internationalization level A); this time, it was a Mexican manufacturer that needed assistance in locating a plant in Brazil ("Client B"). Again, the only major effort required of Engineercon was to have someone speaking both Spanish and English, so the same engineer was assigned to this work. And once more, services were carried out in Brazil and paid in dollars.

Later that same year, another opportunity to work abroad presented itself. This time, Engineercon stepped up to the challenge and successfully carried out a project in Bolivia, as a subcontractor to a Brazilian construction company ("Client C"), achieving internationalization level B1. In this case, most services were carried out in Brazil and sent abroad to a local consulting partner that reviewed and consolidated drawings and reports. Nevertheless, despite this local assistance, some difficulties were faced, especially regarding language differences.

In 2001, after a lengthy evaluation process, the consortium formed by Engineercon and a Consultant α won the bid presented in Venezuela in 1999. As a result, Engineercon opened a branch office in Caracas—local presence was one of the requirements of the contracting agency. Therefore, in this case, the entry mode was a joint foreign direct investment, and the internationalization level was D2.

After that, the company was again invited to do engineering design for the same Brazilian construction company (Client C), this time for a project in Peru and without the assistance of a local partner. As before, most services were developed in Brazil and sent abroad, without any foreign direct investment (FDI), characterizing internationalization level B1. At that time, the company was unfamiliar with tax aspects regarding exports; nevertheless, one can say that the entry mode was basically exporting services.

At almost the same time, in 2005, the company was awarded another contract in Peru, again as a result of a joint effort in association with the same Brazilian partner (Consultant α). Once again Engineercon ended up opening a branch office abroad, only to close it a few days later due to tax considerations. However, this time the work was to be carried out by a consortium of three companies: Engineercon, Consultant α, and "Consultant β," a Peruvian company. This was another instance of internationalization level D2.

Over the following years, Engineercon was invited to do engineering design abroad on a number of different occasions. These invitations resulted in the current pattern of revenues, with work abroad accounting for roughly one fourth of total operational income. Most of the international operations refer to projects to be implemented abroad, developed in Brazil, for Brazilian clients (internationalization level B2, according to the definition previously presented); this internationalization approach has certainly helped mitigate some of the difficulties in having international projects, as it is described in the next section. Nevertheless, the company is also involved in services abroad, developed abroad, for a client with a nationality other than the company's (internationalization level D2).

Although today most of the projects abroad seem to have had positive outcomes, they were all challenging at the time they were developed. Broadly speaking, in all these cases various factors were sources of competitive disadvantage to the company, that is, liability of foreignness.

5.4 Sources of Liability of Foreignness

Based on interviews with project managers and other professionals, as well as several company documents listed in section 4 (such as contracts and ISO files), it was possible to identify a few sources of competitive disadvantage that the company had to deal with to develop its projects abroad. These sources are described below. In each case, the way each factor contributed to the liability of foreignness is illustrated by at least one of the company's projects. In addition, the mechanisms chosen by the company to cope with each problem are highlighted.

5.4.1 Language

Language is one of the most obvious sources of liability of foreignness. Nevertheless, the implications of the language barrier may not be duly recognized.

One of Engineercon's first international experiences illustrates this situation, as the company underestimated the efforts required to overcome this particular obstacle. A few factors contributed to that; first and foremost was the fact that Portuguese, the language spoken in Brazil, and Spanish, the language spoken where the project was to be implemented, are relatively similar languages.

Second, there was a factor related to how the company got this job in the first place. The year was 2000, and a large Brazilian construction company (Client C) was interested in participating in the bidding process for the implementation and concession of a highway in Bolivia. It had already selected three companies to do all the engineering studies. One French specialist ("Consultant χ") would do the economic analysis; a local Bolivian company ("Consultant δ") would help gather and consider local information; and a Brazilian consulting firm ("Consultant ε") would also carry out the engineering design.

The Brazilian company (Consultant ε) had previously participated in many projects to be implemented by Client C. In a market in which service quality is not always easily measured, as previously mentioned in section 2.1.2, reputation and trust play a very significant role; through its previous work, Consultant ε had already earned the trust of the contracting party, something that the local Bolivian company still had not. However, this particular project was very large; more than 500 kilometers of highway would have to be designed. Consultant ε lacked the human resources to carry out the job without some assistance, both as a result of

time constraints and the fact that the company specialized in another type of project rather highways.

That was the main reason that one of Consultant ε's executive officers contacted Engineercon. He had previously worked with Engineercon's executive officers, and he knew that they had started their own consulting company almost a decade before. This engineer was the one that invited Engineercon to participate in the project; as one of the professionals interviewed pointed out, Engineercon's main advantage essentially resulted from its executives' networking.

The invitation was certainly interesting, but it came on very short notice. Engineercon was expected to send someone to a meeting in Bolivia within just a few days. As a consequence, there was virtually no time to look for an engineer who spoke Spanish; and since it was the company's first contact with the potential client and partners, Engineercon's executive officers considered it more important to send a highly qualified professional with extensive company knowledge than someone whose only advantage would be speaking the local language. In this sense, circumstances contributed to the initial ignoring of the language barrier. The fact that the client was Brazilian also contributed to this decision.

However, language did prove to be an obstacle. Although the client was indeed Brazilian, plans and reports had to be presented in Spanish. This proved to be harder than initially imagined, especially because translations had to be carried out by someone with a technical background. At the time, the company had two employees who spoke Spanish, but the number of translations to be done was overwhelming, so the company was forced to look for another engineer to be dedicated full time to translations. Selecting and hiring this professional also proved to be time consuming and increased response times—which, as mentioned in section 2.1.2, are one of the dimensions along which service quality can be evaluated.

The fact that language obstacle was not more troublesome was only thanks to the involvement of Consultant δ, the local Bolivian company. Consultant δ's engineers reviewed and edited most of the products; the fact that the local project manager, who was also one of the owners of the firm, had lived in Brazil for many years was also extremely beneficial. Even the assistance of the driver who accompanied field inspections turned out to be critical; his understanding of Portuguese made the inspections by a Brazilian engineer considerably easier.

Furthermore, the government agency that had to approve the engineering design was Consultant δ's largest and most important client. As a result, it was in the company's best interest to present high quality design; this certainly worked as an incentive for Consultant δ to properly review all the work the Brazilian companies were doing.

In conclusion, in this particular job, language was an issue, but not as much as it could have been. On the one hand, the assistance of the local partner considerably eased the work; on the other hand, only those more directly involved realized the actual extent of this obstacle. That was probably one of the reasons why over the next few years, Engineercon was not concerned with hiring Spanish-speaking employees nor with offering incentives for its professionals to study the language. Another contributing factor might have been the fact that the international experience was temporary, and the company did not necessarily think it would have more projects in Spanish-speaking countries.

A few years later, another opportunity arose in a Spanish-speaking country—again, the engineering design of a highway for the same Brazilian company, which this time needed technical assistance to participate in a bidding process in Peru. One more, the invitation to work came on very short notice; again, Engineercon did not have anyone who was qualified to technically discuss the project and speak Spanish. This time, without the assistance of a local partner, the language issue proved more cumbersome. That was probably the reason why after this project the company approved the hiring of a Spanish teacher and offering its engineers Spanish classes, making sure that most of the professionals involved in the international activities had at least some knowledge of the language. Additionally, the company hired many engineers who lived in Sao Paulo but were originally from Spanish-speaking countries, such as Peru, Argentina, and Chile. It was only after these measures were taken that the language barrier became less relevant.

To summarize this aspect, language differences should not be neglected, even if there are similarities between languages under consideration. If a company intends to have international experience, it should hire professionals who already speak the language of the target country. Provided that the language is not extremely difficult—such as Arabic or Chinese for people who only speak Portuguese—the company can give incentives for its professionals to learn the language, especially if the language is Spanish. This second approach may also have positive effects if employees see the incentives as an investment in

their general knowledge and an indication of the company's recognition of their capacity to learn and importance to the company. The investment can turn out to be a motivational tool.

Whenever possible, the company should avoid resorting to translators as its main solution for dealing with language barriers. It should use this approach mostly as a short-term solution, unless it plans to limit itself to smaller projects that do not present significant time constraints. Such projects, however, are less likely to come along. More importantly, local aspects tend to be relevant; knowledge of these aspects normally requires getting information that is only readily available in the local language, as will be discussed elsewhere in this text.[3] In terms of language barriers, this need to use local information means that if translators are used, it would be necessary for them not only to work on final reports but also to work on data collection, which might prove even less favorable, as even the selection of what will be translated may depend on the translators' judgment. In addition, the need for these initial translations would further reduce time available for the actual engineering design. If translations cannot be avoided, the company should at the very least be aware of the time and costs implications of this solution.

5.4.2 Technical Standards and Practices

In its international projects, the company also had to deal with differences both in terms of technical standards and practices.

When the company developed its first project in Bolivia, it became familiar with the way in which Bolivian companies prepared their drawings and reports. In Brazil, drawings are extremely important, but reports tend to present the least amount of information possible. It is not always easy for someone who did not participate in the design to understand exactly how the participants came up with the engineering solution adopted.

This is quite different in Bolivia and some other Latin American countries, such as Peru. Reports there are often lengthy; instead of focusing on final answers, they clearly show the criteria and calculations that led to the adopted solution. One of the engineers interviewed said these reports even resemble teaching notes; this certainly facilitates verifications by clients or any third party.

[3] Refer to sections 5.4.4 and 5.4.5 in this chapter.

Naturally, the work itself required to design any solution is the same; obviously, the fact that in Brazil reports tend to be less detailed does not mean that the same calculations are not needed. Detailed presentations are not necessarily more costly or time consuming, since even internal verifications become easier. However, getting used to presenting all these steps takes learning; even more than that, it takes a change in mindset.

Equally important is the lack of knowledge of local technical standards, as it also requires a lot of effort to change. Laws, for instance, are obviously local, and it would be hard to ignore differences between countries. When it comes to engineering, however, one tends to have the impression that concepts are more objective and therefore less subject to local variations—as is the case with mathematics, for instance. This is generally true, but there are some notable exceptions.

In the company's first project abroad, the local partner kept making sure that Engineercon was following adequate standards. Indeed, the Bolivian company even lent Engineercon a copy of the manuals that had to be taken into consideration. While this certainly eased this first international experience, it also contributed to Engineercon's lack of awareness that it had to worry about the adequacy of one technical standard or another.

When the company carried out its first project without any local partner, it developed most of the engineering design considering essentially Brazilian standards—it should be noted that the time constraints were extreme and the time pressure contributed to starting the design right away. Most of the Brazilian standards were correctly applied, but because there are no earthquakes in Brazil (because of the country's location on tectonic plates), Brazilian standards ignore the possibility of seismic activity. In Peru, however, this is a concrete possibility, and as such it must be taken into account in the engineering design. This problem was only noticed when the approving agency required some clarifications. As a result, the company had to invest time and resources to adapt the design; this type of change is often costlier that simply considering the proper standard from the very start.

The lesson learned is an important one: whenever beginning any project in a foreign country, one must first verify whether any different standards apply. This activity is normally unnecessary in the home country, as engineers are already familiar with local standards, but it requires an additional investment in foreign countries, which may result in a competitive disadvantage simply due to the fact that the company is foreign, that is, it is a liability of

foreignness. Today, whenever starting a project abroad, Engineercon presents a report setting the technical criteria to be used, discusses these criteria with the client, and the two agree on the criteria.

Any company interested in developing engineering work abroad should be aware that technical criteria are not universal. Whenever starting a project in any foreign country, companies must be careful and first verify if different technical standards apply. Its engineers will have to invest time and dedication to become familiar with such standards. Alternatively, if there is one specific part of the design that requires the use of unfamiliar standards, the company may consider looking for local consultants who can contribute this specific part of the design.

5.4.3 Bureaucracy

Sometimes the client may have some specific requirement, and the effort to meet it can be costly or time consuming. Local regulations and bureaucracy can also have the same effect. Opening a branch office or having engineers registered with the local professional board are instances of this situation, and although local companies may face the same issues, they tend to have comparatively less trouble doing so.

When the consortium formed by Engineercon and Consultant α won a bid to do some consulting work in Venezuela, it had to open a local branch office. The job was to develop a transit information system, which would allow for better operational control and ease planning efforts by the local transportation authority. The type of service required a great deal of local knowledge, so carrying out some work in Venezuela was something the company considered important. Actually opening a branch office there, however, was a different thing; far more bureaucracy had to be dealt with in both Brazil and Venezuela.

It took almost two months to find a proper office, alter the company's articles of incorporation, and open a branch in Caracas. There were additional costs and difficulties in opening bank accounts, establishing some governance procedures, hiring local people for more administrative roles, and completing other tasks. Even after all these arrangements, some complications remained: to finish the company's financial statements, for instance, the Brazilian accountant had to resort to assistance, as he was not familiar with consolidating data from offices abroad.

On another occasion, local regulations required other measures. One of the company's contracts abroad is the technical supervision of both design and construction of a bus terminal in central Lima, Peru. The client is a local government agency ("Client D"). As previously pointed out, this service is being carried out by a consortium formed by three companies: Engineercon, Consultant α, and Consultant β (the Peruvian company). It was agreed between the companies that Consultant β would provide administrative personnel and both Engineercon and Consultant α would assign the engineers and technical experts.

The design supervision, which essentially consisted of verifying drawings and design criteria, was carried out in Brazil. However, this was a relatively small part of the contract, and the remainder—that is, construction supervision—had to be done on site. For that, because Engineercon was contributing with the direct participation of its engineers, it had to make sure that its employees were approved by the agency that regulates the engineering profession in Peru. A lot of bureaucracy was involved; many documents had to first be officially translated, then presented at the Peruvian consulate in Sao Paulo, and then sent to Lima. All of that took time and demanded payment. The assigned engineers also had to go to personal interviews with Peruvian authorities before being granting authorization to work in the country.

Naturally, Peruvian engineers, too, have to be registered by this same agency to work as engineers, just as in Brazil. The difference, however, is that while registering in one's own country is relatively simple and normally handled by the professionals themselves, the registration abroad was more complex and had to be arranged by the company. Local competitors would not have to go through the same process, which can give them a cost and especially a response time advantage.

Clearly, these two demands—establishing a local branch office and registering engineers—had to be dealt with. Whenever working abroad, companies may be obliged to deal with local regulations and requirements of this nature; it is almost inevitable. Because this source of liability of foreignness probably cannot be eliminated, companies planning to work abroad should be aware of this type of requirement. And although it is probably difficult to evaluate precisely the associated costs in advance, a company must have some kind of estimate to avoid overestimating the company's interest in any particular project.

5.4.4 Logistics

Logistics may pose an additional problem for engineering consultancy companies. In some cases, this cannot be characterized as a liability of foreignness, to the extent that even local companies face the same problems; this is what often happens when a company does the engineering design for the implementation of a new highway. Because the highway does not exist yet, transportation to gather local information is extremely complicated; the fact that a foreign company is involved does not have any additional impact.

However, there are circumstances under which foreign companies do face additional difficulties that would not exist for local companies. One example is a project Engineercon is presently involved in: the company is basically doing the engineering design for major urbanization works along the seashore in Panama.

The fact that the project is to be implemented in an urban area creates quite a few challenges. Some of them have to do with operational aspects during construction; for instance, traffic has to be detoured. For new highways, this is normally not a concern; but it is in urban centers, where there is much more traffic coming from many different streets. The existing infrastructure creates other challenges as well. Utility lines, for instance, may have to be relocated; as designer, Engineercon must identify these needs and adequately account for them in the design. Although there is always a chance interferences such as utility lines may create additional work of this kind in a highway project, this is certainly much more likely to happen in urban areas.

These challenges increase the need for in-depth local knowledge. As a result, even if as a general rule the engineering design does not require much local presence, as described in section 2.1, in this particular case it may be worthwhile to have someone closer to the field. Therefore, work based in a different country becomes harder.

Still, it should be mentioned that new technology certainly has reduced the severity of this obstacle. In 2000, when Engineercon did its first work abroad, the Internet already existed in Brazil, but its use and speed were not adequate for sending files as large as those of all the technical drawings and reports. As a result, many CDs and Zip disks were recorded and sent abroad to a Bolivian local partner. The CDs posed a limit on file size, which caused project organization to be highly inefficient and complicated. The use of these comparatively small storage devices was possible only because the company was merely doing preliminary

engineering design, and it did not have to clarify many construction details. According to one of the engineers interviewed, had the company been hired to do detailed engineering design, it would not have been able to use this operational mechanism, especially as response times required would be very short.

This is quite different from the present situation, or even from the situation in 2006. In that year, the company started the final engineering design for the implementation of a highway in Peru. Apart from a few field inspections, work was essentially carried out at the company's headquarters in Sao Paulo. This time, the use of Internet was a lot more extensive; the company that hired Engineercon already had a Web-based document management system, and Engineercon adapted to it. Although such adaptation required some investment—not only in learning how to operate the new system but also in providing adequate infrastructure—it was certainly worthwhile, and it allowed the company to better answer its client's requests, thanks to considerably faster upload and download of very large drawing files.

In conclusion, thanks to advances in technology, companies that plan to work on engineering projects to be implemented abroad today have the option of carrying out most of their services in their headquarters. This operational arrangement can be very interesting, since it may allow for both learning economies and economies of scope, as well as for leveraging the existing company structure. This option, however, requires investments in both adequate infrastructure and knowledge of specific information management systems developed for engineering applications, particularly as other systems often do not present an interface that is adequate to the simultaneous upload of several complementary files.

In addition, the company should be aware that some specific projects may require considerable local presence; under these circumstances, relying on the headquarters may prove to be as adequate as previously imagined. In these cases, it might be preferable to establish a local office—at least a relatively small one—and leave more complex problems to be solved in the company's headquarters. In any case, it is important to evaluate costs accordingly.

5.4.5 Human Resources

Engineering consultancy is a service heavily dependent on the qualification of human resources. Experience, technical expertise, commitment, and reliability are all key aspects that have to be combined to assure quality levels as well as contract profitability. As a result, lack

of knowledge about local human resources may turn out to be a significant source of liability of foreignness.

In some cases, this aspect can be critical, especially for projects that only take a few months to complete. Under these circumstances, there is not much time to identify local professionals and offer them training so that they become familiar with the company's operations and standards. In any case, such training represents a firm-specific investment—one that professionals may not be willing to make if they are only to be engaged by that firm for a couple months. From the company's perspective, it also may not be worthwhile to invest in someone who may leave after such a short period.

One of the projects that Engineercon worked on was the engineering design for the implementation of a service road, which would be used to transport both supplies and personnel to the construction site of a dam in a remote location in the central Dominican Republic. The initial time frame was six months, which included field inspections, the actual engineering design, and technical assistance during construction. This period was later extended to nine months due to delays during construction. Nevertheless, when the company initially allocated its engineers to the project, it had to consider the six-month time frame, which is a relatively short period to engage a local engineer who would be later laid off.

As a consequence, the company chose to concentrate the design activities in its headquarters, in Sao Paulo. This system compensated for the lack of knowledge about local human resources. In addition, assigning professionals who already worked for the company eliminated the need for training and teaching the company's practices.

It should be noted that this option may not always be available. For the construction supervision service in Lima, the nature of the service rendered local presence mandatory.[4] Selection a local professional to work for the company proved to be extremely difficult, especially as the company did not even have a local office. As a result, the project manager decided to look for engineers in Sao Paulo, asking them if they were willing to move to Lima and work there for approximately one year.

Finding someone in Sao Paulo also proved to be very challenging, despite the extensive network of both Engineercon as a whole and the project manager. No one who worked for the company was available, particularly because the service required full-time involvement and

[4] Refer to section 2.1 for comments on the need for local presence.

exclusivity. Here is another advantage of concentrating services in one location: it is a lot easier to shuffle assignments and engineers when everyone is in a single place; when someone must be transferred, a commitment has to be made and much flexibility is lost.

That was not the only problem with this situation. Many engineers who had previously worked for the company or who had personal relationships with the project manager raised the same objection: they were concerned that after being transferred away for an entire year and losing many of their Brazilian contacts or networks. Because they would not be available to other potential employers in Brazil, they worried about having trouble finding jobs there later on. Although one may question the reasonableness of this argument, the fact that so many professionals presented the same concerns certainly underscores how difficult it is to find people willing to be transferred to other Latin American countries.

The company eventually found someone who was highly qualified and willing to go to Peru to work as the local project manager. Technically, it was a very good solution to the problem. However, there also is the more obvious consequence of expatriating someone: the cost implications. It is often a lot more expensive to have someone leave his country to work abroad than it is to have someone working in his own country; the employer normally has to offer not only a higher salary but also some fringe benefits and items such as housing, local transportation, and plane tickets. This particular case was no exception, and the solution considerably eroded contract profitability.

There was a third contract for Engineercon under which local human resources turned out to be critical. In this case, the company was developing the detailed engineering design for the implementation of a highway in Peru. Most services were done in Sao Paulo, but the company had to rely on local consultants introduced by the client. One particular consultant was highly regarded by many engineers in Peru.

When the time came to present the design solutions to the local authority in charge of project approval, some controversies over a few specific alternatives arose. The Brazilian engineer responsible for the design disagreed with the local authority and argued that weight should be given to the fact he had extensive experience in the field. That argument proved completely useless up until the moment that the local consultant intervened. According to the project manager, who was present at this meeting, the local consultant turned to the client and said something like “Hey, listen, if we add up the extension of all the highways we designed, at

what number do we arrive? I don't mean you or me personally, but we as Peruvians. Well, these guys worked on many more highways than we have. Maybe we can learn something from them." After that, the discussion became a lot easier as did getting the project approved. The project manager had the clear impression that this had been a turning point, one that would not have been reached had a Brazilian engineer made the same argument—on the contrary, had one done so, his words would have sounded extremely arrogant to the Peruvians and further complicated project approval. This is not to downplay the role of reputation; naturally, the local consultant was heard not only because of his nationality but also because he was highly regarded in Peru. A foreign company probably will have more difficulty even identifying professionals of this caliber.

To summarize, when it comes to human resources, internationalization often presents a few trade-offs. On the one hand, concentrating efforts in the company's headquarters presents some advantages: it is probably easier to use existing resources or even hire new professionals; costs also tend to be lower. On the other hand, logistics may be further complicated, and a lot of local knowledge—both technical and in terms of relationships and networks—will be lost. As a consequence, there is no general rule that can be applied across the board. In each case, the company must assess which aspects are more relevant. A long-term urban project probably favors investing in an office abroad and hiring locals; conversely, the exporting mode might be more appropriate for short-term projects that do not require as much local information.

5.4.6 Exchange Rate Risk

Although all international projects developed by the company are to be implemented abroad—internationalization levels B2 and D2 previously defined—in some cases the contracts were actually in reais (R$), which is the Brazilian currency. Whenever services were carried out in Brazil and the contract was denominated in reais, the exchange rate risk was negligible, as it was limited to expenses incurred abroad during field trips.

In other cases, however, exchange rate risk was relevant. In a project in Peru, this factor alone rendered the contract unprofitable. The contract was denominated in dollars. When services were awarded to the consortium formed by Engineercon, Consultant α, and Consultant β, the exchange rate was approximately 2.65. During the contract, the dollar severely depreciated; today, the exchange rate is approximately 1.75, and the services haven't been completed yet.

Although the company was naturally exposed to exchange rate risk and could not prevent exchange rate movements, some may argue that it could have tried to hedge its exposure.

Generally speaking, exchange rate movements create transaction, operating, and translation exposures (Shapiro, 2006). Transaction exposures are those related to particular transactions; they are generated whenever a company receives a cash flow in a foreign currency at a certain future date, because the future exchange rate is obviously unknown. Translation exposures are those related to how the exchange rate can affect a multinational's balance sheet.

In this particular instance, the major concern should have been operating exposure, also referred to as economic exposure, which is the effect of exchange rates on the expected value of the company's future cash flows. Engineercon's expenses were denominated mostly in reais, and some of them in nuevos soles (local currency), while payments were in dollars. Dollar depreciation relative to these other currencies could therefore erode profitability; this ended up being the case.

Another important effect can be contracts not even being awarded as a result of unfavorable exchange rates. This happened quite recently, when Engineercon was invited to submit an offer for the preliminary design of a railway in Argentina. The real was appreciated; the exchange rate was approximately 1.7 pesos Argentinos = 1 R$. The client was again the same Brazilian contractor (Client C), which this time planned to present an offer for the railway construction. Because the client also asked for offers from local consultants who were not subject to the exchange rate, Engineercon's price turned out to extremely uncompetitive. Although the client had a strong preference for its Brazilian supplier, the price difference was too great to be compensated for. In addition, as the client was still in its investment phase and would have no return at all if it were not awarded the corresponding contract, it had an extra incentive to reduce costs as much as possible.

Any company that plans to have international activities should pay attention to exchange rates and their possible consequences. Although sometimes exchange rates can prevent businesses from happening—as it did in the Argentina case—this is certainly not the worst possible scenario. Problems may be far greater if there are sizeable and unfavorable exchange rate movements and there is a high company's exposure.

To minimize this risk, companies should try to manage their exposure. The most obvious alternative is simply creating offsetting cash flows in the same currency, that is, to incur costs

in the same currency as revenues. This is what Engineercon did in those cases in which most activities were carried out in Brazil and the contracts were denominated in reais. Still, even when this alternative exists, there may be some residual exposure. Whenever there is any kind of exposure, it is advisable to try to first estimate its size.

A second step could be to diversify input and output markets or make sure there is the flexibility to shift markets and sources. However, both options seem more appropriate and even feasible for large multinationals than they do for small and medium-sized enterprises. In this case, the alternative may be to use actual hedging instruments, such as forwards, money market hedges, and currency options. It should be noted, however, that all instruments have their associated costs. Therefore, after exposure netting, the company must evaluate whether the costs of hedging are reasonable in face of the total exposure or whether these costs outweigh the benefits. The decision not to hedge may be the best solution. In any case, the most important aspect is that the decision be consciously made.

5.4.7 Country Risk

Every country presents its own risks, which may be more or less relevant to any specific investment. However, a country's residents often have a far clearer perspective on this issue; a foreign company may not be able to have as much knowledge of local risks. In addition, there are some specific risks that may be much higher for foreign companies, such as expropriation (Shapiro, 2006).

Country risk encompasses both political and economic risks. Selective intervention by the government (such as restrictions on cross-border transfers, investment restrictions, etc), expropriation, default, war, terrorism are all factors that contribute to political risk.

As previously mentioned, Engineercon worked on a project in Venezuela that consisted of the design and implementation of a transportation information system in the city of Maracaibo. This happened in 2002. The client was a local government agency ("Client E"), and the project was partially funded by the Inter-American Development Bank (IDB).

This project actually was the result of a lot of personal effort by a Brazilian transportation expert who had her own company (Consultant α). However, her firm was too small to participate in the bidding process by itself—it would not present the required financial soundness and resources. That was the reason she contacted Engineercon's officers, whom

she knew from previous works together. The officers analyzed the opportunity and decided to go ahead after verifying that IDB would be the actual responsible for funding. The source of funding was one of the company's concern, and the IDB involvement was the main reason why country risk—and more specifically, contract default probability—was considered acceptable.

There was no problem with the contract itself, but in April of 2002, there was an attempt to overthrow President Hugo Chavez. The consultants who were in Venezuela said everything was fine as they "had already gone to the supermarket and the gas station, so they had supplies to last for a while." In the end, there were some riots for a couple of days, but there was no actual harm suffered by Engineercon's personnel or facilities there. Still, this event greatly increased the feeling of insecurity toward investment in the country.

For small and medium-sized companies planning to start international operations, country risk may be a factor to consider. Some specific factors help to lower this risk, or at least the expropriation threat: the fact that the main asset involved is knowledge renders expropriation a lot less interesting, as well as the fact that investments in physical assets are quite limited. Nonetheless, given that foreign companies are not as familiar with the country and potentially the client, it might be of more interest for a company to focus on participating in projects with funding from multilateral agencies, especially if the client is a local government. Country risk surveys are also a source of information, even though they are probably less useful as protection than the involvement of a multilateral agency, particularly since their predictive power is quite limited.

5.4.8 Taxes

The tax differences between countries and between operating as a local or a foreign company render multinational tax planning extremely important.

In its first major project abroad, Engineercon submitted an offer without considering tax aspects. The prices were established in dollars and presented to the client. There was no inquiry about any tax benefits that there could exist, and no tax credits were taken under consideration. Invoices were simply issued in dollars; the client would wire the payments to a bank, and the money was converted to reais based on the prevailing exchange rate.

The reason why little attention was given to this aspect was probably the fact that up until then, the only international experiences the company had consisted of local assistance to

foreign clients. Because most of these services were carried out in Brazil, the company probably did not realize that this was a different type of service. The sheer size of the project could have justified more careful research and consideration of international tax aspects, but at first the service seemed to be just another instance of business as usual. As a result, the project was probably not as profitable as it could have been.

When Engineercon later worked on the detailed engineering design of a highway in Peru, it was certainly more aware that the service was actually international—probably as a result of its previous experiences. Therefore, this time the company asked a lawyer to present an opinion on the international tax treatment. Based on this opinion, there were many discussions with the client as to what the proper tax arrangement should be, which probably contributed to the contract profitability. Despite this initiative, the company ended up overlooking a Peruvian tax regulation that would have allowed it to gain even higher net earnings, but the fact remained that the company was now far more aware of tax implications.

Today, whenever the company presents an offer for engineering design abroad, it clearly excludes local taxes and requires that their amount be added during contract negotiations, if that turns out to be the case. And if local taxes are indeed paid, the company later uses the corresponding tax credit. Another alternative is characterizing the services as exports, which implicates some tax exemptions—namely the Brazilian taxes PIS and COFINS.

Presenting prices without local taxes and explicitly stating that these should be added seems to be the most efficient approach for SMEs, particularly as the taxes to be paid depend on the contract's legal structure, which in turn may vary according to the client's legal structure. Attention should also be given to the tax credits that might be earned, otherwise the company is missing an opportunity to increase its profitability.

Nevertheless, it should be noted that in some cases this approach may not be feasible. If the client requires the opening of a branch office, for instance, it is very likely that additional taxes will be incurred, both when receiving payment and whenever repatriating profits. Alternatively, if the company presents an offer to a government agency abroad, chances are that there will not be much flexibility in negotiation, especially if the price is one of the selection criteria. Under these circumstances, it pays to invest a bit more before submitting a bid and clearly defining which type of legal structure the company will have abroad, if any.

As one of Engineercon's partners mentioned, the tax issue may turn out to be the defining aspect; tax considerations may render a contract not worth having.

5.4.9 The Relationship with the Client

Lack of knowledge about the client and the procedures it normally uses may create another source of competitive disadvantage. In addition, whenever cultural differences may make relationships more difficult, there can be a liability of foreignness.

In most of Engineercon's international projects, the client was actually Brazilian. This considerably eased communications and the establishment of working relationships, but even in these cases, there was a need to relate to professionals from other countries who were hired to work on the actual construction. Two people who were interviewed mentioned that in other Latin American countries they found much more formality even in daily conversations; they reported having some trouble adjusting to that.

In another case—the Central Station project in Peru—considerable investments were necessary because the company did not have any previous knowledge about the client. As a result, the consortium in charge of the project had to dedicate a great deal of time and resources to familiarizing itself with the client as well as the client's operational procedures. Moreover, there were several occasions when bureaucratic steps had to be taken simply because the company had trouble identifying someone from the client who could explain more clearly the documentation required.

Despite the previous remarks, it should be noted that to a certain extent, lack of knowledge about the client may not be exactly a source of liability of foreignness, as this disadvantage would be present even if a company were carrying out a new project for a new client in its home country. Furthermore, as this type of knowledge tends to be highly specific, it does not seem advisable to invest a lot in gaining such knowledge before actually being awarded specific contracts. Instead, companies planning international activities should focus on learning general aspects of the target country's culture, which will probably be useful in other projects and sometimes even in other countries.

5.4.10 The Need for Corporate Governance

At first glance, it may seem odd to list the need for corporate governance as a liability of foreignness, as theoretically all companies benefit from this, regardless of where they operate.

Indeed, even if a company only has domestic projects, it still should establish mechanisms that favor both transparency and corporate governance.

However, this aspect can create an additional obstacle for the internationalization of professional service companies. In Brazil, many of these companies are relatively small, as it can be inferred by considering the information presented on Engineercon and the fact that it ranks among the thirty largest firms. Quite often, the founders, who are also the main and frequently only shareholders, manage these companies. If we consider the classification proposed by Hauser (2005),[5] these are type 1 companies and as such they have virtually no principal-agent conflicts. Therefore, although corporate governance remains important, there is a possibility that the corresponding mechanisms have received less direct consideration; they can almost be taken for granted.

At least in Engineercon's case, this may have happened. The company's experience in Venezuela was one such instance. Since in that case the company did not have the alternative of simply using the exiting structure in Brazil, it had to rely on someone as a local manager. The person chosen was actually the one who had initially identified this opportunity and who was already in Venezuela as the project manager of the Brazilian partner company. Although there was never any concrete evidence of mismanagement, today it remains a perception that the contract could have presented better financial results. The lack of adequate corporate governance might have contributed to that—the partner and local manager was practically never supervised and had too much room to make decisions that could potentially engender financial benefits for herself.

Small and medium-sized companies that decide to have international projects must take this specific aspect into full consideration, as it could even lead to profitable contracts turning into unprofitable ones. If the company has the alternative of using its existing structure, the concern is certainly lessened. However, if it is necessary to establish a local presence abroad, as opposed to a brief presence focusing on data collection, the firm must establish mechanisms to assure that the local project manager will actually work in the company's best interest. This may be particularly difficult if the company essentially relies on the fact that its principal is also its agent, and the company does not have clear structured procedures even in its home country.

[5] Refer to section 2.3.

5.5 Possible Sources of Competitive Advantage

The previous subsection shed some light on possible liabilities of foreignness. This list may not be exhaustive; different difficulties arise in different projects, and it would probably be unrealistic to imagine that Engineercon's twelve international projects included all possible types of competitive disadvantages from being foreign. Nevertheless, these experiences definitely contribute to a better understanding of possible obstacles.

It is clear that with all these and possibly even other sources of liability of foreignness, a foreign company can only compete with locals if it offers some advantages, as first suggested by Hymer (1960).[6] Competitive advantage is a vast subject and is not the main focus of the present study. Nevertheless, as previously mentioned, in addition to presenting alternatives for copiing with the difficulties detected, efforts were also made to identify offsetting competitive advantages.

Over the course of the interviews, it was became evident that project managers were far more aware of the difficulties the company faced than advantages it might have to compensate for them. In many cases, when respondents were asked about competitive advantages, they had no immediate answer; they only elaborated on the subject after it was argued that if the company only had disadvantages, it would probably not have been awarded the project in the first place—notion all of them agreed with, once confronted with it. One possible explanation would be the fact that the advantages were simply taken for granted, while the difficulties posed challenges that had be dealt with constantly and therefore remained far more vivid for these professionals.

Possible sources of competitive advantage were essentially technical expertise, nationality, networking—which can be particularly important when service quality is not easily measured and reputation plays a significant role, as described in section 2.1.2and learning.

In terms of technical expertise, Brazil may not be a developed country, but it does offer a great deal of technical knowledge when compared with that offered by other developing nations. In addition, it is often more complicated to find European or American experts willing to work on projects in countries in Latin America than it is to have someone from Brazil. The model often used by Engineercon, concentrating its works in its Sao Paulo

[6] Refer to section 3.1.3.

headquarters, allows for leveraging the existing company structure with significant scope and learning economies.

Another specific advantage may stem from one apparent source of disadvantage: nationality, which can also be used to one's benefit. Over the past few years, especially through BNDES, the Brazilian National Bank for Economic and Social Development, Brazil has offered loans to several projects in other Latin American countries. This scenario favored, and still favors, the involvement of Brazilian companies, which should take advantage of this aspect. In Engineercon's case, its nationality was initially the one advantage the company had, and probably the most significant factor in the company's participation in one of its first international experiences. From then on, the network that Engineercon gained access to and later nurtured contributed even more. Now, the company is often invited by the same Brazilian construction company to work in various different projects, and the fact that the client often reallocates its project managers help to further extend Engineercon's network. As a result, the company was asked to present offers for projects in countries as diverse as Ecuador, Sudan, Libya, Angola, and Argentina. In some of these cases, the company had to decline participation simply because it could not mobilize all the human resources necessary for projects going on at the same time—not even by concentrating most services in Brazil.

It is probably worthwhile for every company to periodically try to reassess its sources of competitive advantage, to make sure that those sources receive adequate investments to be maintained and to be aware of potential changes that require changes in those advantages. Just as importantly, any company seeking to work on international projects should be aware of potential liabilities of foreignness such as those mentioned above; moreover, such companies should always try to learn from the experiences of others as well as from their own.

For Engineercon, the first international experience with a branch office was important, especially as it showed that the company could carry out services abroad, and the client was pleased. However, in this particular case, the company, technically speaking, only played a secondary role; its main responsibilities were of administrative nature. Indeed, it was agreed that the Brazilian partner company would be in charge of the most relevant part of the work. Therefore, the learning opportunity was not entirely used.

In other international projects, the company came up with the internationalization model that it has used more often, which involves local data gathering, developing most of the

engineering design in the company's headquarters in Sao Paulo, and later providing technical assistance during construction through a few professionals assigned to the construction sites. Whenever possible, services are characterized as exports—which requires that contracts be denominated in dollars and the client is a company legally established abroad—and allows for tax savings in Brazil.

Top management is now quite familiar with this operational procedure and takes it into account whenever negotiating a new contract. However, it seems that some other liabilities of foreignness, although clearly known to project managers, remain relatively unknown to at least some members of top management. These liabilities deal with technical aspects of projects, such as the need to familiarize oneself with local regulations and technical methodology as well as have extremely fast response times, which normally cannot be achieved by using translators alone.

In recently elaborating a proposal, top managers considered a project in Brazil as a proper price reference, somewhat neglecting the fact that although Brazilian technical specifications and design guidelines are all well known to Brazilian engineers, but gaining the same knowledge in other countries requires both time and money investments. When the language issue was raised, a top manager replied that a translator could be easily absorbed into the overall cost structure, as the project was rather large. Again, this disregarded the need for fast response times and the operational complications of having all documents translated. However, The final proposal was not inadequate because a project manager who had been involved in other projects abroad convinced top management of the existence of these additional difficulties.

To some extent, top management was responsible for the elaboration of an adequate proposal, as they requested the presence of that project manager. However, had this project manager been absent, the proposal would probably have disregarded much of what the company had previously learned at sizable expenses. It is one thing to knowingly take operational risks; it is a very different thing to inadvertently and unnecessarily jeopardize profitability. Internationalization may be in the company's best interest but only to the extent that it allows for superior returns. Like growth, internationalization is not beneficial in itself and should not be contemplated for its own sake. This further confirms the importance of learning from previous experiences.

5.6 Case discussion in Light of the Literature Review

This subsection parallels the literature review. It starts with broad comments, related to internationalization theories as a whole. Next, comments regarding liabilities of foreignness are presented, including learning engagements, followed by a brief discussion on offsetting competitive advantages and their transferability. Finally, although the literature on internationalization of engineering consultancy companies is limited, some remarks on the articles mentioned can be made.

5.6.1 Internationalization Theories

The discussion of broad internationalization aspects requires recapping the two main approaches to internationalization: economic and behavioral (Melsohn, 2006), summarized by Table 3.1 previously presented.

Theories based on the economic approach would consider internationalization as a result of careful and deliberate analysis, stemming from the need of control (as suggested by Hymer, 1960), internalization (as suggested by Buckley and Casson, 1976), or balancing ownership, location and internalization advantages (as suggested by Dunning, 2001). Companies would basically decide to expand their activities to other countries whenever they evaluated that this would be the best alternative to increase their profits, as opposed to simply licensing or relying on markets. This can happen as a consequence of economies of market imperfections, scale and scope, as a consequence of cost savings stemming by the use of cheaper inputs, and so on.

The behavioral approach, by contrast, considers internationalization not so much as a consequence of deliberate analysis but more as a result of risk reduction and perceived opportunities (Johanson and Vahlne, 1977), such as those that can arise from networking Johanson and Vahlne (1990, 2003, 2006).

At first glance, these two perspectives might seem conflicting, but as Coviello and Martin (1999) pointed out, they are really rather complementary. Even if opportunities arise from networking and initially involve less deliberate planning, over the long run they will only survive if economics justify the internationalization.

In Engineercon's specific case, some aspects of the internationalization process clearly relate to arguments pertaining to the behavioral approach.

According to one of the company's owners, both language and culture proximities were more important than physical proximity, supporting the psychological distance model proposed by Johanson and Vahlne (1977). However, internationalization was only temporary, as mentioned by Sharma and Johanson (1987), and did not follow exactly sequential stages aimed risk reduction, as initially proposed by the Uppsala school (Johanson and Vahlne, 1977). Incremental adjustments took place in response to the company and its environmental conditions, as advocated by proponents of the stage model, but many of these adjustments happened in different international projects, as the company gained experience.

Previous working and personal relationships were considered to be even more important than aspects such as language and culture when selecting target countries, thus favoring the network approach. This is further confirmed if one considers the origins of the company's international activities.

The very first international experience, which was the technical support to a Canadian company planning to have activities in Brazil, resulted from a personal contact of one of the company's partners. The first opportunity working for Client C abroad was a consequence of personal working relationships between Engineercon's executive officers and another Brazilian consultant; the following opportunities came up after establishing good working relationships with managers of Client C. Likewise, even in those cases in which Engineercon chose to engage in foreign direct investment, opportunities occurred after a Brazilian colleague invited the company to form a joint venture and submit proposals together.

The importance of networks is further confirmed if one takes into account the fact that most of the company's international projects are for a single client (Client C). This can be considered evidence for Johanson and Vahlne's argument on the creation of opportunities, which was cited in section 3 and is also presented here:

> [Relationship partners] build knowledge about each other. It seems almost impossible to avoid the conclusion ***that opportunities are likely to develop as a consequence of the privileged knowledge the partners create through interaction with each other. There they see and develop business opportunities which others cannot see and develop.*** (Johanson and Vahlne, 2006; emphasis added)

Indeed, after establishing a working relationship with Client C, Engineercon was invited by this client to present proposals on several occasions, as previously discussed.

Naturally, this is not to say that the company completely disregarded economic aspects. Obviously, it only engaged in international activities when it had the prospect of obtaining profits; in this sense, there was an economic component. Nevertheless, internationalization did not result directly from a deliberate strategy to attain optimal resource allocation.

As previously mentioned, over the long run companies only survive as international organizations if this structure makes economic sense, even if international activities first arose from networking. The "long run," however, is a key factor. For engineering consultancy companies, internationalization is often related to specific contracts, and as such it is often temporary.

At first glance, such temporary internationalization may not seem rational, particularly as knowledge of different markets is required. However, there is a relatively high degree of transferability of this knowledge, in the sense that the experience gained with a project in one country facilitates projects in other countries—this specific aspect is further detailed in the discussion of the company's competitive advantage. Finally, new technological advances and cheaper communications ease exports, and as a consequence opening branch offices is not always necessary, as it was some years ago.

To summarize, the case illustrates this new scenario, in which the economics are somewhat secondary when establishing international operations. The case also illustrates a number of foreignness liabilities, as well as offsetting potential competitive advantages, such as network, reputation, and surrogate efficiency measures, such as fast response time. These aspects are further detailed in the following subsections.

5.6.2 Liabilities of Foreignness

Most of the literature presents a broader perspective; potential liabilities of foreignness might even be mentioned, but the focus tends to be more comprehensive. For instance, the argument that companies must have competitive advantages to offset these liabilities—rather than listing and specifically discussing such sources (Hymer 1960 is one such example). Indeed, the existing literature is often less concerned with describing the details of such disadvantages and giving managerial recommendations.

One notable exception is Zaheer's work on financial service institutions (Zaheer 1995). As previously mentioned,[7] the author investigated profitability differences between Western-based and Japanese foreign exchange trading rooms. While this work certainly offered one possible measure for the liability of foreignness—in this case, profitability—unfortunately this measure cannot be transferred to engineering consultancy companies. One of the main reasons is the fact that, unlike in the case studied by Zaheer, the product involved is not a commodity. Moreover, profitability is heavily dependent on other factors, which are not necessarily related to internationalization. The fact that the work is essentially customized further complicates the use of profitability comparisons as a surrogate measure for liability of foreignness.

In another study, Zaheer used exit rates as a surrogate measure of liability of foreignness (Zaheer and Mosakowski 1997). Again, however, the use of the proposed measure is not adequate for engineering consultancy companies, particularly since exit may be a natural consequence of project conclusion, not an indication of failure. Indeed, information on some of Engineercon's projects indicates that despite their profitability, the company did not seek to establish a continuous presence in the corresponding countries.

The learning engagement was also a key factor in reducing the company's liability of foreignness; this is consistent with Zaheer and Mosakowski's (1997) statement that LOF decreases over time and also with Petersen and Pederson's (2002) argument that managers can influence the LOF as a result of their learning engagement.

Finally, it is also interesting to consider the framework presented by Cazurra, Maloney, and Manrakhan (2007), summarized in section 3.1. As previously mentioned, these authors suggest that difficulties in internationalization be classified along two dimensions: relationship to advantage and specificity. The resulting categories would correspond to different solutions to reduce the specific difficulty under consideration.

The framework seems very promising, as it indicates strategies and avenues to be adopted by managers to minimize the negative impacts associated with foreignness. Moreover, the two dimensions appear to be applicable regardless of which industry is under consideration. However, in the specific case of small and medium-sized companies, the direct use of the framework can be misleading, particularly if the difficulty is common to a set of firms.

[7] Refer to section 3.1.2.

Indeed, in most cases in which the difficulty is common to other companies, the solutions recommended are broad and possibly out of reach for smaller companies. When a company lacks a complementary resource and this is common to other firms, for instance, the recommendation would be to provide customers with the complementary assets needed to use the product. Larger companies might be able to do so, but for smaller companies there may be unfeasible and renders entry in this specific country virtually impossible. It could be easier to adapt the company's offerings to this new scenario; the solution would be more inward, than outward, looking, and it would require changes inside the company instead of the changing of market conditions.

There could also be some debate on the classification along the specificity dimension. Again, particularly for small and medium-sized companies, it seems clear that some difficulties, even though common to a set of firms, should probably be tackled as if they were specific to the company, given the company's limited ability to influence markets or governments. The language barrier is one such example. One might say that the difficulty arises because the company lacks the complementary resource required—in this case, staff fluent in Spanish. This problem is common to many small Brazilian companies seeking to establish international operations. Large companies may also face this difficulty, but the need of knowledge of other languages is probably far more limited, especially if they plan to engage in foreign direct investment and hire far more local professionals. In any case, it would not make sense to suggest providing foreign clients with knowledge of Portuguese; the recommendation would rather be investing to develop the complementary resource required, as Engineercon did, which is the proposed solution when the lack of complementary resource is only specific to a firm.

To summarize, when applying Cazurra, Maloney, and Manrakhan's framework to small and medium-sized enterprises, caution is advisable. The specificity dimension should be evaluated not so much in terms of whether the difficulty is exclusive to the company but in terms of whether the solution can be created inside the company or requires the mobilizing of other actors.

In Engineercon's specific case, the use of this framework focusing on firm-specific difficulties results in most of the obstacles mentioned being characterized as liabilities of foreignness, according to the narrower concept adopted by these authors (refer to section 3.1 for the broader definition). Certainly, the lack of knowledge of Spanish, the lack of familiarity

with technical standards, the difficulties with bureaucracy, logistics, and human resources, the difficulties in establishing a working relationship with the client, and the need for additional governance mechanisms can all be characterized as lack of complementary resources. Of those, possibly only the human resources issue can be described as a liability of expansion. The other problems identified are related to country risk, exchange rate, and taxes. In these cases, internationalization actually created a disadvantage common to a set of firms. However, the solution suggested—managing these difficulties by establishing relations with important actors—does not seem feasible; rather the company should probably focus on measuring and coping with such difficulties.

5.6.3 Competitive Advantages

As previously mentioned, the company's sources of competitive advantage could be essentially technical expertise, nationality, networking—which can be particularly important when service quality is not easily measured and reputation plays a significant role—and learning.

In discussing these sources of competitive advantage, Porter's positional analysis was deemed inadequate, particularly since it is far more interesting when analyzing the industry as whole and even making comparisons across industries, and the focus here is on a given industry. The discussion in terms of Barney's (1995) VRIO model seemed more fruitful.

The main aspects mentioned are arguably valuable (refer to section 5.5 for a discussion of why they are so). Not all of them, however, are rare, costly to imitate and easily explored by he organization.

This is clearly the case of nationality. Valuable as it may be, particularly given the loans provided by Brazilian agencies, this is not a rare attribute, especially as the engineering consultancy market in Brazil comprises more than a few hundred companies. Although technical expertise may possibly be less pervasive, the same argument can be made. These two aspects quite possibly only place the company at a more favorable position when there are no other Brazilian competitors—which happened to be the case in all projects in which Engineercon was directly hired by a foreign governmental agency.

The rareness of networking and learning capabilities is much clearer. Naturally, other companies can also develop and nurture these two factors, but this requires far more effort

than exploring the Brazilian nationality or acquiring technical expertise. In this sense, both aspects can be considered key sources of competitive advantage.

It is interesting to notice that normally networking would not survive the transferability test, considering Hu's framework.[8] In other words, at first sight networking can be considered an advantage that is not mobile internationally, and when it pertains to a specific network, it can lose value in another country. However, if one focuses exclusively on the prevailing internationalization model for the company—that is, international projects for major Brazilian contractors—it becomes clear that this is actually a way of creating and exploring transferability.

5.6.4 Internationalization of Engineering Consultancy Companies

Finally, a few remarks can be made when considering papers specifically focused on engineering consultancy companies and their international operations.

First of all, the case studied supported a key finding mentioned by Sharma and Johanson (1987), which is markedly different for professional service companies. Essentially, for these firms the main asset (knowledge) is not as location specific as it is for a manufacturer or other types of service providers that have to deal with more local adaptations. Technical consultancy companies can transfer their experience from one country to another at far lower costs, which renders temporary internationalization not only possible but also economically reasonable. Engineercon followed this strategy in a number of international projects; indeed, engineers engaged in one international project often became engaged in others, sometimes taking different roles and gaining more responsibility as project managers.

Comments can also be made considering the paper by Coviello and Martin (1999). In addition to presenting internationalization through a holistic approach, encompassing aspects of FDI theory (including transaction theory), as well as internationalization stages and networks, these authors highlight their concern with managerial recommendations. However, they limit themselves to stressing the importance of networks and therefore of establishing and nurturing personal as well as professional relationships. The case studied confirmed the importance of networking, supporting the adequacy of the main managerial recommendation by these authors, but it also shed some light on other recommendations.

[8] Refer to section 3.3.

In terms of literature more focused on managerial recommendations, Schirmer (1996) should also be mentioned; his article published in the *Journal of Management in Engineering* gives some recommendations. Some of them are highly pertinent, such as the one to seek early legal and tax advice. Indeed, one of Engineercon's owners singled out knowledge of legal and tax aspects as the one factor that can be decisive in internationalization experiences. Other recommendations, however, seem less adequate when considering the internationalization of Brazilian engineering consultancy companies nowadays.

For instance, Schirmer emphasizes that it is highly rewarding to seek governmental assistance and that government agencies are very active in trade missions. In Brazil, it seems that this approach might be of interest to contractors, but not so much to consulting companies. These would probably benefit more from forming alliances with construction companies and working as subcontractors to them. Engineercon even participated in a trade mission in Libya when invited by Client C, but no directly related business opportunity arose.

Another recommendation is to focus on the long term and to establish clearly written agreements with local agents. A decade ago, the Internet was not as pervasive as it is today, and communications were far more costly. Under these conditions, foreign direct investment was probably more adequate; exports were probably costlier and sometimes even impossible. Temporary internationalization probably did not make as much sense, as internationalization often required opening branch offices abroad and therefore making specific investments, which could not be transferred to other countries.

Ramcharran (1998), by contrast, builds on the idea that construction and engineering consultancy are demander located and as such require local presence. Although this is certainly true for the actual construction, Engineercon's case does not support this notion when consultancy is considered. Indeed, as previously pointed out, many of the company's international projects were essentially developed at its headquarters in Sao Paulo and then sent to construction sites via Internet-based applications. This inconsistency may be rooted at the fact that at the time when Ramcharran wrote his comments, such applications were possibly far less developed and as a consequence were not taken into account.

Finally, although not explicitly stated, Bradley's recommendations (Bradley 2005) are essentially focused on companies seeking to establish themselves abroad through foreign direct investments. The case showed that today it is possible to engage international

operations with far less local presence, which renders most of Bradley's recommendations—such as saving on office infrastructure or hiring mostly local engineers—ineffective.

In conclusion, the case study not only confirmed the importance of some recommendations previously made but also allowed some new insights more in line with present technological advances. Because the literature on the subject is relatively limited and dates from almost a decade ago, some results oppose generally accepted ideas, such as the need for local presence, and overall findings can be considered significant. Moreover, the study showed that the recently proposed framework for studying the difficulties of internationalization is not easily applied to the specific case of small and medium-sized enterprises.

6 Conclusions

Internationalization is certainly a growing phenomenon. Over the years, both total imports and exports have grown considerably, as illustrated by data from the United Nations Conference on Trade and Development (UNCTAD) presented in section 1. Moreover, today even small and medium-sized companies have international activities. However, the literature on these companies and their internationalization efforts is still quite limited; it is even more so if we focus on Brazilian professional service firms, such as engineering consulting companies.

This literature gap was one of the main reasons for focusing on this particular segment. Moreover, the fact that SMEs tend to have very limited resources contributed to the interest in providing managerial recommendations to ease the internationalization effort by such companies. Therefore, the primary purpose of this research was to explore the internationalization process of Brazilian engineering consulting companies, identifying the main obstacles, constraints, and sources of liabilities of foreignness faced by such companies in their internationalization processes. The main reasons for studying the subject were presented in greater detail in section 1, as well as the structure of this dissertation.

Before actually describing the case study, some concepts and working definitions had to be adopted. They referred essentially to the main types of activities involved in engineering consultancy, the nature of these services, the working definition of international activities, and the classification of companies according to size. All these aspects were covered in section 2.

The literature review was presented in section 3, not only comprising the main internationalization theories—both the economic and behavioral perspectives—but also focusing on the concept of liability of foreignness. This section also presented some broad comments on competitive advantage, mainly because ever since Hymer (1960) suggested this notion, it has often been assumed that it compensates liabilities of foreignness.

As summarized in section 4, exploratory research was deemed appropriate, particularly as the internationalization of professional service companies has been relatively neglected and as a consequence not much theory has been developed. Furthermore, there was the possibility of dealing with a revelatory case, which contributed to the choice of the case study method, following the recommendations of Yin (2003).

Extensive data gathering, including document analysis, direct observation, and interviews, allowed the creation of a comprehensive case data base, which in turn contributed to the validity, quality, and reliability of the study of Engineercon, a medium-sized company with a dozen international projects.

The company's internationalization process, described in section 5, illustrates some of the aspects highlighted by advocates of the behavioral approach. According to one of the company's owners, both language and culture proximities were more important than physical proximity, supporting the psychological distance model proposed by Johanson and Vahlne (1977). However, internationalization was only temporary, as mentioned by Sharma and Johanson (1987) and did not follow exactly sequential stages, as initially proposed by the Uppsala school.

Previous working and personal relationships were considered even more important than aspects such as language and culture when target countries were selected, favoring the network approach proposed by Johanson and Vahlne (1990, 2003, 2006). This is further confirmed if one considers the origins of the company's international activities.

Naturally, the company only engaged in international projects when it had prospects of profitable projects; in this sense, there was deliberate analysis as well as an economic factor. Nevertheless, the decision to internationalize was not based on minimizing transaction costs and attaining optimum resource allocation, as proposed by Buckley and Casson (1976), nor on combining ownership, location, and internalization advantages, as suggested by Dunning (2001). These aspects seem consistent with internationalization for the long term, but they are not necessarily present in temporary internationalization. Indeed, such considerations were absent in Engineercon's internationalization.

In addition to this broad perspective, the case studied also allowed for specific insights, namely the identification of some sources of liability of foreignness. To sum up, these disadvantages stemmed essentially from the factors listed below.

- The language barrier proved to be considerable even when projects were to be presented in Spanish, which is relatively similar to Portuguese.
- Even though engineering is an application of hard science and thus often seen as objective and accurate, different countries may have different methodologies and technical specifications.
- Different countries normally have different levels of bureaucracy; the fact that the foreign company is not used to local practices may make dealing with it extremely difficult and time consuming.
- Logistics may increase costs and response times. Nevertheless, it should be mentioned that technology nowadays allows for significant reductions of such increases.
- Lack of knowledge about local human resources coupled with the fact that internationalization is often temporary may make it difficult to establish branch offices operated by local people abroad. However, using the home country's personnel presents a trade-off, as expatriating is normally more costly, unless the company can simply concentrate its production in its home country.
- Companies with international operations may be subject to both exchange rate and country risks.
- Tax issues may turn a contract unprofitable, depending on the operational structure chosen. As a consequence, this aspect must be taken into account, even in the early stages, when presenting a proposal or negotiating a new contract.
- Establishing good working relationships with clients abroad may require some additional efforts, especially if there are considerable cultural differences.
- Whenever a branch office must be established abroad, it is also necessary to establish corporate governance mechanisms. For small and medium-sized professional service firms, this may require some specific investments, especially if agency costs are virtually absent in the home country and as a result there are no clearly established and tested operating mechanisms to assure corporate governance.

To overcome these barriers, the company studied adopted, for most of its international projects, a specific internationalization approach, based on exports to subcontracting Brazilian companies. Although this specific approach may not be suitable for every engineering

consultancy SME, it certainly allowed some insights about alternatives to reduce competitive disadvantages of foreign companies. These alternatives are summarized below.

- To address the language barrier, depending on the language of the target country, a company may be interested in offering classes to its personnel. This is especially true if the language is Spanish, which can be learned relatively easily by Portuguese speakers. In addition, hiring engineers who speak the language in question as their first language can also be of interest to the company. Using translators should be seen as a last resort, however; if this is the company's option, it is important that the company at least remains aware of the severe effects this may have on time frames and response times, which will probably increase substantially.
- Lack of knowledge about technical standards must be addressed by becoming familiar with many more standards. However, the possibility remains that different standards may apply, and the company must be aware of this fact and take it under consideration whenever presenting a new offer.
- If the company focuses on Brazilian clients, without opening local branch offices, it can reduce considerably the need to deal with local bureaucracy. For the time being, this can be a very interesting alternative, particularly considering the growing internationalization of Brazilian construction companies. If, however, the company decides to also work for government or even private clients based abroad, it will probably have to deal with this aspect. The association with a local partner may ease this process.
- To some extent, the logistics issue can be dealt with by making sure that the company's technological infrastructure is adequate. The use of collaborative information management systems further eases communications with clients abroad. Nevertheless, it remains hard to eliminate logistics difficulties. They are probably smaller whenever a local branch office is established, but one must ponder the other effects this measure will have, such as increased need to deal with bureaucracy and tax aspects.
- Lack of local knowledge of human resources can be compensated for by using professionals based in Brazil or by expanding networks abroad.
- Exchange rate risks are probably impossible to avoid, so operating exposure must be managed. It should first be assessed, considering the netting procedures, and then the existing instruments to reduce it can be evaluated. Country risks cannot be eliminated by

any specific approach, but to some extent they can be reduced or kept at acceptable levels by using the involvement of multilateral financing agencies as a surrogate measure.

- If the company decides to concentrate production in Brazil, prices can be presented as if services were billed as exports and only Brazilian taxes applied. The company's proposals should clearly state that; whenever the situation requires a different procedure, prices must be adjusted accordingly. If the company decides to operate through a branch office, it should be extremely careful in assessing the related taxes, taking into account not only its daily operations but also the future remittance of profits to Brazil.
- Establishing good working relationships with clients can be easier if the company decides to focus on Brazilian clients, who in turn can also help in acquiring knowledge about the local government agency in charge of design approval. Naturally, nationality is not enough to ensure that working relations will be good, but it certainly reduces the possibility of conflicts resulting from cultural differences. If the client does not have the same nationality as the company, efforts should be made to avoid major cultural conflicts.
- The use of headquarters for most services eliminates the need to create a specific corporate governance mechanism. If this is not the alternative chosen, the company must be aware of the need to establish such a mechanism.

Basing operations in Brazil has some clear advantages, notably that it leverages the existing structure in the home country and allows for economies of scope and a learning curve. Moreover, this approach seems quite adequate for temporary contracts, as it allows for quick resource allocation.

It should be noted, however, that there are also some disadvantages. Although one the one hand, the use of the existing structure is an advantage, on the other, the existing structure limits internationalization. If opportunities arise in countries where the local language is other than the one already studied, for instance, no one in the existing structure can be qualified. Another disadvantage is that this approach is inadequate for establishing a long-term presence. As a result, the international experience in any given country may end up being lost.

Overall, this case study presented some interesting results, as it allowed for the identification of some of the main obstacles faced in the internationalization process of an engineering consultancy company. The study also allowed some remarks and suggestions that should help the internationalization process of other companies to be made.

Although the main focus of the research was on reducing the liabilities of foreignness, the case study is consistent with Hymer's suggestion that companies face a competitive disadvantage in their international operations and such disadvantages must be offset by advantages (Hymer 1960). In this particular case, applying the VRIO framework proposed by Barney (1995), networking was identified as a key component of the company's success in its international operations.

Moreover, if the managers and partners interviewed are correct when stating that previous international experiences contribute to the success of new experiences, the idea that LOF can decrease over time, as proposed by Zaheer and Mosakowski (1997) as well as Petersen and Pedersen (2002), is also supported by the case study.

Furthermore, it was possible to verify that the framework proposed by Cazurra, Maloney and Manrakhan (2007) is certainly useful but might require some adaptations when applied to small and medium-sized companies, as they tend to have a far more limited capacity to influence the scenario under which they operate. Under these circumstances, the distinction along the specificity dimension seems far less relevant, and companies should probably consider solutions focused on internal aspects.

Future studies could explore the internationalization of other professional service companies, as well as verify the applicability of the framework proposed by Cazurra, Maloney, and Manrakhan (2007) under specific circumstances. Even if the framework remains adequate, it can be further detailed, prescribing more specific recommendations. It would be very useful if these findings could be summarized and facilitate the internationalization of other SMEs that plan to engage in international operations.

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Appendix 1: Classification of Companies According to Size

The focus of this dissertation was the internationalization of a medium-sized professional service company and its liabilities of foreignness. For this reason, the main section only presented the size classification adopted for the specific purposes of this study. However, since to this date there is no universally adopted definition of SME, this appendix summarizes some considerations regarding size classification.

As previously mentioned, companies have often been categorized in terms of size, depending on their total number of employees, their total annual income, and other criteria (U.S. Small Business Administration, 2007; Commission of the European Communities 2003).

In the United States, the Small Business Act states that a small business concern is "one that is independently owned and operated and which is not dominant in its field of operation." The Small Business Administration (SBA) is responsible for establishing size categories to classify companies. The SBA recommends the use of either one of two variables: total annual income and number of employees. These numbers, however, are not directly applied regardless of business nature.

Indeed, the SBA emphasizes that the definition of small business varies from industry to industry, as a consequence of industry differences. Heavy construction companies, for instance, usually have higher turnover than did service companies with the same number of employees; therefore, a lower turnover threshold should be established for considering the later a large-sized company.

This is the basic rationale behind the SBA criteria for defining small sized enterprises. The agency developed a thorough analysis and established over 1,500 detailed business categories that range from rice farming to natural gas distribution and roofing contractors, effective as of July 31st, 2006 (SBA, 2006). The University of Strathclyde, in the Untied Kingdom (2007), summarizes the most common standards established by SBA as:

- 500 employees for most manufacturing and mining industries
- 100 employees for wholesale trade industries

- $6 million of annual receipts for most retail and services industries
- $28.5 million of annual receipts for most general and heavy construction industries
- $12 million of receipts for all special trade contractors
- $ 0.75 million of receipts for most agricultural business

The university also mentions that approximately a quarter of industries has a size standard different from the above, and in such cases one should refer to the full table of size standards published by the SBA. Engineering consulting companies in particular, as well as architectural consulting companies, are considered small if their annual income is less than $4.5 million.

The European Union tried a more conventional approach, without all the classifications the SBA created. In 1992, the Commission of the European Communities proposed limiting the proliferation of definitions of SMEs in use at the community level, eliminating discrepancies between classifications used by the various member states. As a result, Commission Recommendation 96/280/EC of April 3, 1996, first defined small and medium-sized enterprises in the European Community. This was certainly an important initiative, but later it became clear that applying this recommendation required some clarifications. On May 6, 2003, the Commission Recommendation 2003/361/EC (Commission of the European Communities 2003) replaced the first recommendation, and it went into force on January 1, 2005. Article 2 currently states:

- The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding € 50 million, and/or an annual balance sheet total not exceeding € 43 million;
- Within the SME category, a small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or balance sheet total does not exceed € 10 million.
- Within the SME category, a micro enterprise is defined as an enterprise which employs fewer than 10 persons and whose annual turnover and/or balance sheet total does not exceed € 2 million.

It should be mentioned that the use of balance sheet total was incorporated to mitigate the effect of differences across industries. The recommendation states:

> The criterion of staff members ("the staff headcount criterion") remains undoubtedly one of the most important and must be observed as the main criterion; introducing a financial criterion is nonetheless a necessary adjunct in order to grasp the real scale and performance of an enterprise and its position compared to its competitors. However, it would not be desirable to use turnover as the sole financial criterion, in particular because enterprises in the trade and distribution sector have by their nature higher turnover figures than those in the manufacturing sector. Thus, the turnover criterion should be combined with that of the balance sheet total, a criterion which reflects the overall wealth of a business, with the possibility of either of these two criteria being exceeded. (Commission of the European Communities, 2003).

It is also important to note that the recommendation clearly establishes guidelines for the headcount, stating that those under training should not be considered in the total number. Moreover, the recommendation establishes the fact that no enterprise changes category based solely on its performance of the previous year. Therefore, if an enterprise classified as a SME reaches a headcount of more than 250 in one particular year, it will only lose its SME status if this change repeats itself the following year.

One important aspect is related to the existence of affiliated or linked companies. In this case, if the relationship between enterprises is not duly taken into account, there may be some distortions. Two sister companies may be classified as SMEs, for instance, even if in reality they only operate together and together they configure a large business. To avoid such problems, the recommendation establishes criteria for identifying companies that should not be considered independent, and it sets the corresponding adjustments. However, this issue is extremely complex, and following the guidelines does not always seem practical.

This problem was addressed by Hauser (2005), who presented a paper on the qualitative definition of SME rather than the purely quantitative. Hauser stressed the arbitrariness of both the headcount and turnover criteria, particularly if legal entities were not independent and the relationship between them was overlooked, as often happens with German statistics on SMEs. According to Hauser:

> The main problem of such politics [the EU definition of SME] is not only that legal units are counted as enterprises but also that enterprises are treated equal even if they have completely different types of ownership and arising from that are of completely different character. (Hauser ,2005)

In his argument, Hauser presented three categories under which SMEs necessarily fall:

- Enterprises in which the manager is also the owner or a member of the owner ‘sfamily and decides short- and long-term issues in the interest of his enterprise (type 1).
- Small or medium-sized enterprises in which the manager decides the short-term strategic decisions and prepares the long-term decisions, which he puts to the board of owners. If the board of owners consists of private investors, they decide in their interest, which usually is the maximization of their profit and thus the profit of the enterprise (type 2).
- Enterprises belonging to enterprise groups. In this case, strategic issues are decided in the interest of the group and in the headquarters of the group. Thus it is possible that profits are not maximized within that enterprise but elsewhere, e.g., by setting internal prices deviating from market prices (type 3).

According to Hauser, there are major differences between these three categories. Principal-agent conflicts are virtually nonexistent in type 1 enterprises, and therefore size does not play a major role. Types 2 and 3, however, may be faced with principal agent problems; the larger companies are, the greater the opportunity for this conflict to appear. Additionally, type 3 enterprises tend to have easier access to resources from parent companies, regardless of their size.

In conclusion, a type 1 enterprise with 300 employees, for instance, may virtually operate as a SME, while a type 2 enterprise with 150 employees may operate in a manner similar to that of larger companies that do not fall within the SME category. Therefore, according to Hauser, type of ownership should also be taken into account when classifying companies. However, to date the Commission of the European Communities has not officially taken this difference into account.

In Brazil, different agencies use different definitions of SMEs. The basic common factor among definitions is that they are based on number of employees and total annual income. More qualitative data, as suggested by Hauser, are not considered. Table A.1 summarizes some of the most used classifications.

In this particular study, the definition presented by the European Commission was considered as a primary guideline, given its extensive use and applicability. Nonetheless, it is important to note that the *concept* of smallness was the main focus, following the approach adopted by Etemad and Wright (2001). The American system was found to be somewhat restrictive, in that comparisons would be more difficult. The Brazilian alternatives were also discarded due

to their relatively limited use and lack of uniformity. Therefore, during the field study, data was gathered accordingly, assuring that the company studied could indeed be classified as a medium-sized enterprise.

Table A.1 Definitions of SMEs in Brazil

Agency	Size categories											
	Manufacture				Retail				Services			
	Micro	Small	Medium	Large	Micro	Small	Medium	Large	Micro	Small	Medium	Large
Classification according to number of employees												
SEBRAE	up to 19	20 to 99	100 to 499	Over 499	up to 9	10 to 49	50 to 99	Over 99	up to 9	10 to 49	50 to 99	Over 99
FUNCEX	up to 19	20 to 99	100 to 499	Over 499	-	-	-	-	-	-	-	-
Classification according to annual turnover (R$)												
BNDES	up to 1.2 million	1.2 to 10.5 million	10.5 to 60 million	Over 60 million	up to 1.2 million	1.2 to 10.5 million	10.5 to 60 million	Over 60 million	up to 1.2 million	1.2 to 10.5 million	10.5 to 60 million	Over 60 million
BANCO DO BRASIL	up to 5 million		5 to 100 million	Over 100 million	up to 5 million		5 to 100 million	Over 100 million	up to 5 million		5 to 100 million	Over 100 million
SIMPLES	120,000	1,200,000			120,000	1,200,000			120,000	1,200,000		

Source: Câmara Brasileira da Indústria da Construção, 2003.

Appendix 2: Research Protocol

Executive Summary of the Research Design

Case study questions	How does the internationalization of Brazilian engineering consultancy companies take place? What are the main sources of competitive disadvantages? How do these companies cope with and try to mitigate such disadvantages? 1. The literature on the internationalization of Brazilian professional service companies is limited, which favors exploratory research. 2. The internationalization phenomenon is contemporary, and investigators cannot control the set of events involved. 3. As the person in charge of contract management in a professional service company, and having worked there for over nine years, I have a great opportunity to obtain information that would probably not be available to outside observers. This unique perspective might contribute to render that case revelatory. 4. Both the question nature and all the aspects mentioned above favor the choice of case study research.
Propositions	Being a foreign company creates some competitive disadvantages. Some mechanisms might mitigate such disadvantages, and other factors may compensate them.
Unit of analysis	This is a single-case study with embedded units of analysis: the units are the international projects of the specific engineering consultancy company, and the context is the organization as a whole.
Logic linking the data to the propositions and criteria for interpreting the findings	The data might indicate the perception of each interviewee of the main sources of competitive disadvantage due to foreignness and how the company copes with such disadvantages.

Measures to Assure the Quality of the Research Design

Construct validity	1. Use of multiple sources of evidence 2. Review of case reports by key informants
Internal validity	This research is exploratory, and it does not intend to establish any causal relationship. Therefore, internal validity is not a concern.
External validity	Although the research focuses on a single case, the replication logic was used for each unit of analysis. Each unit, however, allowed for some different but also some confirming insights. Possibly, they allowed to identify many sources of liability of foreignness faced by the specific type of company studied, but not all such sources.
Reliability	1. Elaboration of a research protocol 2. Creation of a case study database

Data Collection Plan

Information	Sources
General information on the company	1. Documentation: articles of incorporation and financial statements for years 2005, 2006, and 2007 2. Archival records: contract list, list of employees, revenue analysis for years 2005, 2006, and 2007
General aspects of international activities (questions 12 and 14 to 16)*	1. Direct observation 2. Archival records: contract list 3. Documentation: changes of the articles of incorporation
List of international projects to be studied (embedded units of analysis)	Established based on the entire list of company's contracts.
Top management perspective (questions 13 and 17 to 29)*	Interviews 1. Chief Marketing Officer 2. Chief Technical Officer

* Questionnaire presented in appendix 4.

Embedded Units of Analysis	
Information	**Sources**
Documents	1. Request for proposal and terms of reference 2. Technical proposal 3. Joint venture documentation 4. Contract (including contract revisions and conclusion notices) 5. Technical certificates issued by clients
Archival records	1. R05: Pre-sale critical analysis 2. R05: Post-sale critical analysis 3. R30: Service planning
Project manager perspectives	Interview with 5 project managers who were in charge of 12 different projects
Perspective of other professionals	1. Interview with two engineers involved in proposals for international projects 2. Interview with professionals assigned to contracts abroad 3. Interviews with two professionals with supporting roles (accounting and documents)

Appendix 3: General Information on the Company

CNPJ:	Date:	
Name:		
Address:		
City:	State:	Zip Code:
Phone:	Fax:	Website:
Respondent:		
Position:	e-mail:	
Home country:	Year of incorporation:	

Company overview

1. *Main activities*
   - ☐ Studies and engineering design
   - ☐ Construction supervision
   - ☐ Construction management
   - ☐ Others:_____
2. *Average headcount for the last three years, excluding interns*
3. *Total revenues for the last three years*
4. *Balance sheet totals for the last three years*
5. *Revenue breakdown by country for the last three years*
6. *International activities (which of the main activities correspond to international projects)*
   - ☐ Studies and engineering design
   - ☐ Construction supervision
   - ☐ Construction management
   - ☐ Others:_____
7. *Company's internationalization level*
   - ☐ Services carried out in Brazil, regarding Brazilian projects for Brazilian companies (domestic activity)
   - ☐ Services carried out in Brazil, regarding Brazilian projects for foreign companies (Internationalization level A)
   - ☐ Services carried out in Brazil, regarding projects abroad for Brazilian companies (Internationalization level B1)
   - ☐ Services carried out in Brazil, regarding projects abroad for foreign companies (Internationalization level B2)

- ☐ Services carried out abroad, regarding projects in Brazil for Brazilian companies (Internationalization level C1)
- ☐ Services carried out abroad, regarding projects in Brazil for foreign companies (Internationalization level C2)
- ☐ Services carried out abroad, regarding projects abroad for Brazilian companies (Internationalization level D1)
- ☐ Services carried out abroad, regarding projects abroad for foreign companies (Internationalization level D2)

Appendix 4: Questions to Top Management

Section 1: Open-ended questions (alternatives were only seen by interviewer)

8. *Which operational mechanisms does the company currently use?*

- ☐ Services carried out in home country, focusing home market
- ☐ Service exports
- ☐ Office abroad located at client's facilities
- ☐ Branch office or subsidiary abroad
- ☐ Joint venture with local foreign company
- ☐ Acquisition of foreign company abroad
- ☐ Others: _____

9. *Does the company intend to adopt any other mechanism (alternatives do not exclude each other)?*

- ☐ Services carried out in home country, focusing home market
- ☐ Service exports
- ☐ Office abroad located at client's facilities
- ☐ Branch office or subsidiary abroad
- ☐ Joint venture with local foreign company
- ☐ Acquisition of foreign company abroad
- ☐ Others: _____

10. *How did the company's first international experience happen? Are there any experiences that you consider more important? How did they happen?*

11. *For services developed abroad, did the company establish a continuous presence abroad, that is, has the company kept facilities abroad even after project completion?*

- ☐ Yes
- ☐ No

12. *Still regarding services developed abroad, was there any plan to establish a continuous presence?*

- ☐ Yes
- ☐ No

13. *Do you believe that international projects were a consequence of:*

- ☐ A deliberately planned process, with different alternatives being pursued until an adequate opportunity was found (deliberate strategy)
- ☐ An unforeseen opportunity, that was not previously expected (emerging strategy)

14. *The company's international activities resulted from international activities of a client?*

- ☐ Yes
- ☐ No

15. *What measures were taken in order to overcome the major difficulties?*

- ☐ Support from specific consultants (advise on taxes, for instance)
- ☐ Use of local personnel, with specific technical background
- ☐ Incentives for employers to study other languages
- ☐ Others. Specify: _____

16. *Do you believe that the first international experience contributes to future international experiences?*

17. *Which routines does the company use to allow for the experience from one international project to be transferred to another?*

- ☐ (1) There is no routine with this purpose, because experience from one project cannot be transferred to another one.
- ☐ (2) There is no formally established routine, but employees exchange information.
- ☐ (3) The company promotes seminars and presentations in company's workshops.
- ☐ (4) The company favors the creation of internal networks for experience exchange
- ☐ (5) Others. Specify: _____

Which alternatives are considered more efficient?

Section 2: Questions to be filled out by interviewee

18. *On the scale below, indicate how important is each factor when selecting target countries for international projects*

Factor	(1) Irrelevant	(2) Not very important	(3) Important	(4) Very important	(5) Decisive
Close language and culture	☐	☐	☐	☐	☐
Proximity of language and culture	☐	☐	☐	☐	☐
Physical proximity	☐	☐	☐	☐	☐
Preexisting personal relationship	☐	☐	☐	☐	☐
Preexisting commercial relationship	☐	☐	☐	☐	☐
Market opportunity	☐	☐	☐	☐	☐
Others. Specify:	☐	☐	☐	☐	☐

19. *On the scale below, indicate the contribution of each factor in carrying out international projects*

Factor	(1) Irrelevant	(2) Not very important	(3) Important	(4) Very important	(5) Decisive
Culture, vision or international experience of chief executive officers	☐	☐	☐	☐	☐
Access to new markets and growth potential	☐	☐	☐	☐	☐
Increased domestic competition or lowering demand in domestic market	☐	☐	☐	☐	☐
Interest in diversifying clients and reducing exposures to reduce risks	☐	☐	☐	☐	☐
Answering a client request	☐	☐	☐	☐	☐
Contact of foreign companies seeking new business opportunities	☐	☐	☐	☐	☐
Incentives from governmental agencies or sector associations	☐	☐	☐	☐	☐
Easier communications thanks to technological advances	☐	☐	☐	☐	☐
Others. Specify:	☐	☐	☐	☐	☐

20. *On the scale below, considering the company's experience with international projects, indicate the importance of each factor*

Factor	(1) Irrelevant	(2) Not very important	(3) Important	(4) Very important	(5) Decisive
Knowledge of legal and tax aspects	☐	☐	☐	☐	☐
Meeting technical standards required abroad	☐	☐	☐	☐	☐
Finding customers and establishing a commercial relationship	☐	☐	☐	☐	☐
Different culture and language in foreign country	☐	☐	☐	☐	☐
Top management's lack of knowledge of international markets, practices, and politics	☐	☐	☐	☐	☐
Communication intra-structure between company's offices	☐	☐	☐	☐	☐
Need to develop and establish organizational structure abroad	☐	☐	☐	☐	☐
Need to hire professionals in Brazil with international experience and knowledge of international market	☐	☐	☐	☐	☐
Finding human resources abroad	☐	☐	☐	☐	☐
Others. Specify:	☐	☐	☐	☐	☐

21. *On the scale below, how important is having a first international experience to later engage in other international experiences?*

	(1) Irrelevant	(2) Little important	(3) Important	(4) Very important	(5) Fundamental
Contribution of first international experience to future international experiences	☐	☐	☐	☐	☐

Appendix 5: Template for Each International Project (Each Unit of Analysis)

Case number	
Contract object	
Contract Number	
Client	
Company to which contract was awarded (for joint ventures, indicate leader company as well as percentage of each participant)	
Contract signed on	
Total contract amount and currency	
Time frame (months)	
Project started on	
Project completed on	
Country	
Project Manager	
Interview with Project Manager	
How did this project come up?	
Relevant aspects of the proposal	
Operational mechanism to carry out services (where production took place, how plants were sent to client, etc.)	
Disadvantages or obstacles due to being foreign (liability of foreignness)	
Measures to minimize disadvantages or overcome obstacles	
Company's sources of competitive advantage related to this project	

Lessons learned	
Interview with Other Professionals Involved	
Name of interviewee, project position and interview date	
Operational mechanism to carry out services	
Disadvantages or obstacles due to being foreign (liability of foreignness)	
Measures to minimize disadvantages or overcome obstacles	
Company's sources of competitive advantage related to this project	
Lessons learned	

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