UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Entry Mode Strategy for Entering a Foreign Market with a New Product

A case study of a small Swedish firm and their access to the State of California

Carl-Filip Clausson and Daniel Johansson

Graduate School
Master of Science in Innovation and Industrial Management
Master Degree Project No. 2011:53
Supervisor: Rick Middel

Table of Contents

List of figures

List of tables

Authors' acknowledgements

We, the authors, would like to show our appreciation for the aid and assistance we have received from our supervisor Rick Middel.

We would also like to thank all of our respondents for their participation in the interviews.

Finally, we would like to thank Alpha, the case company, for giving us the opportunity to conduct our research on their behalf.

Carl-Filip Clausson Daniel Johansson

Göteborg, Sweden, 2011-05-31.

Abstract

In today's pattern of the globalization process, international business is not limited to only large corporations. Small- and medium-sized enterprises, SMEs, are also more frequently targeting foreign markets in order to expand their respective businesses and to increase sales and profits. Targeting a new market with a new product is not without its difficulties, however, and comes with its own set of challenges and difficulties, even more so for SMEs due to its limited resources. A small business situated in Gothenburg, Sweden, is currently faced with this exact problem, i.e. how to enter a new market and commercialize a new product. Drawing upon various market research frameworks, this paper seeks to investigate and analyze the Californian glazing market in order to propose a suitable entry mode strategy for this company's product. This paper also presents a market research framework for the SME that can be used to evaluate future markets, and given the findings, provide implications for the choice of entry strategy for these markets.

Definitions

Alpha and AlphaConnect

The case company in this thesis has requested to remain anonymous in order not to disclose any sensitive information and is referred to as *"Alpha"* for the remainder of this paper. Its patented point-fixed glazing system product is referred to as *"AlphaConnect"*.

Point-fixed glazing system

A point-fixed glazing system is what the product for this thesis is known as. The system is used to place glass into the facade of a building's construction, and was probably first used by Pilkington in the early 1980s (GlassonWeb, 2011). Metal attachments are connected to drilled holes in the panes of glass, which are then attached to a load-bearing structure and the panes of glass are sealed up with silicone mastic (ASE, 2011). In this thesis, synonyms such as point connect, point loaded, dot-point glazing, spider, and bolted systems are used for this kind of system. The product is sold business-to-business and engineered specifically to each construction project through several steps of approval. It therefore differs greatly from how commodity goods are sold and approved of as these perhaps only have to pass through one or two quality measure before being sold.

Curtain-wall system

Curtain-wall systems are only applied as a facade treatment to a building and require a separate structural assembly on the inner side or that building to take the load. The system can either be stick built or unitized. The stick built curtain-wall system is the oldest system, which is hung on the buildings structure from floor to floor and assembled from different components making it look like a grid of sticks (Quirouette & Arch, 2011). The unitized curtain-wall system will have the same components as the stick built one, but is instead installed as a panel system (Quirouette & Arch, 2011).

Structural glazing system

Compared to the curtain-wall system, the structural glazing system takes the load of the building elements and does therefore not need an additional structure to support the building. The verticals are omitted to create a capless vertical joint system by being sealed on the outside with silicone sealant, all to create a smoother exterior appearance (Quirouette & Arch, 2011). The product therefore enables walls, floors and ceilings to be both transparent and load bearing.

Commercialization strategy

Teece (2010) has developed a framework with implications on the innovator's business model that captures the concept of a commercialization strategy: *"At one end of the scale stands the integrated business model, in which an innovating firm bundles innovation and product together, and assumes the responsibility for the entire value chain from A to Z including design, manufacturing, and distribution. The other extreme case is the outsourced (pure licensing) business approach. In between there are hybrid approaches involving a mixture of the two approaches, e.g. outsource manufacturing; provide company owned sales and support. Hybrid approaches are the most common, but they also require strong selection and orchestration skills on the part of management."* (Teece, 2010, p. 184).

Entry strategy

Root (1998) defines an entry strategy as a comprehensive plan that sets objectives, goals, resources, and policies that will guide a company's international business operations over a future period. Furthermore, an entry strategy requires decision on (1) the choice of a target product/market, (2) the objectives and

goals in the target market, (3) the choice of an entry mode (exports, contractual agreements, or equity investments) to penetrate the target country, (4) the marketing plan to penetrate the target market, and (5) the control system to monitor performance in the target market.

Entry mode

According to Root (1998), an international market entry mode is an arrangement that enables the entry of a firm's products, technology, human skills, management, or other resources into a foreign country. The author distinguishes between three broad classes of entry modes, with each class having several sub-choices of modes. The classes are (1) export entry modes, (2) contractual entry modes, and (3) investment entry modes (Root, 1998).

Currency rate used

The current exchange rate used in this thesis for the U.S. dollar is 0.16 to 1 SEK (Bloomberg, 2011a).

Translation between square-foot and square-meter

1 square-foot translates to 0.0929 square-meters.

1 Introduction

In today's pattern of the globalization process, international business is not limited to only large corporations. Small- and medium-sized enterprises, SMEs, are also more frequently targeting foreign markets in order to expand their respective businesses and to increase sales and profits. This is especially the case for SMEs with small domestic markets, where exporting becomes the quickest way to reach an optimal size and to gain economies of scale (Root, 1998). Targeting a new market with a new product is not without its difficulties, however, and comes with its own set of challenges and difficulties, even more so for SMEs due to its limited resources (Gans & Stern, 2002). Root (1998) further argues that a company that has more than sufficient resources in e.g. management, capital, production and marketing skills, is also offered with a greater number of possible entry strategies and has it easier to commit more extensively to the foreign target market. In contrast, companies having limited resources can mainly choose entry modes that have a limited resource commitment. Hence, the size of the firm frequently becomes the critical factor in the choice of entry strategy (Root, 1998).

According to Gans and Stern (2002), the past two decades have witnessed an increase in the number of small entrepreneurial start-ups with new technologies and innovations. Because of these firms' youth and small size, start-up innovators oftentimes have little experience and knowledge of the markets where their products are most suitable (Gans & Stern, 2002). For innovating SMEs, a key management challenge is how to turn a promising new technology or product into a source of revenue for its shareholders. Consequently, the problem is usually not the actual invention of a new technology or product, but rather to understand its market and how to commercialize it (Gans & Stern, 2002).

Before entering a foreign market, organizations need to understand what the market demands are, what the market regulations are, who the competitors are, and so on in the host country (Pan & Tse, 2000). Finding this out is what Hodgson and Uyterhoeven (1962) refers to as an opportunity analysis, which helps firms to recognize: (1) the limits which they must operate within abroad, (2) the means of competition in a foreign country, and (3) the critical elements of the foreign industry. Wood and Robertson (2000) have developed a framework that evaluates a given export market for organizations on parameters such as if it has the necessary demand, if it is open, if it will remain open, if it is favorable to entry, if it has long-term potential, and if it has the cultural fit. Whatever the commercialization strategy, the selection of international markets requires information, and assessing this information for the different markets is also what to a large extent determines the success for organizations in the international arena (Andersen & Strandskov, 1998, cited in Wood & Robertson, 2000).

Alpha, a small business situated in Gothenburg, Sweden, is currently faced with this exact problem, i.e. how to enter a new market and commercialize a new product/innovation. Founded in 2005, Alpha offers structural glazing systems for insulated glass facades and glass roofs that are unique and patented (Alpha's brochure). Alpha currently supplies its markets with four products, one of them specifically being of interest for this thesis: AlphaConnect, a patented point-fixed structural glazing system that has been awarded with the highest applied standards in earthquake and typhoon safeness (Alpha's brochure). This award has recently sparked an interest for the company to target the Californian market. The State of California suffers daily from over 100 recorded earthquakes (Field & Milner, 2008), and it is the evaluation of this market that has become the primary focus of this particular thesis. Alpha has the product in place, but the issues of understanding the market and designing an effective entry- and commercialization strategy remains. Given the high failure rate of most new product introductions

(Roberts & Berry, 1984), the careful design of a competitive and effective commercialization strategy must therefore not be neglected.

1.1 Commercialization and entry strategies

When a firm, such as Alpha, wants to target an international market with a new product/innovation, it falls within two interrelated research fields, commercialization strategies and entry strategies. Although quite similar, and sometimes even overlapping, there are subtle distinctions between entry strategies and commercialization strategies.

When reviewing the literature there appears to be no universal definition of what a commercialization strategy actually is. Teece (2010) has developed a framework with implications on the innovator's business model that captures the concept of a commercialization strategy: *"At one end of the scale stands the integrated business model, in which an innovating firm bundles innovation and product together, and assumes the responsibility for the entire value chain from A to Z including design, manufacturing, and distribution. The other extreme case is the outsourced (pure licensing) business approach. In between there are hybrid approaches involving a mixture of the two approaches, e.g. outsource manufacturing; provide company owned sales and support. Hybrid approaches are the most common, but they also require strong selection and orchestration skills on the part of management."* (Teece, 2010, p. 184).

Stemming from the research field of international marketing, an entry strategy is defined by Root (1998) as *"a comprehensive plan [...]"*, which *"set forth the objectives, goals, resources, and policies that will guide a company's international business operations over a future period long enough to achieve sustainable growth in world markets."* (Root, 1998, p. 3). Furthermore, *"[...] entry strategies requires decision on (1) the choice of a target product/market, (2) the objectives and goals in the target market, (3) the choice of an entry mode (exports, contractual agreements, or equity investments) to penetrate the target country, (4) the marketing plan to penetrate the target market, and (5) the control system to monitor performance in the target market."* (Root, 1998, p. 3).

What sets the two strategies apart are mainly two aspects. While both strategies are concerned with how a firm should take its product to the market, e.g. integration and competition or licensing and cooperation, or something in between, entry strategies concern international markets only, whereas commercialization strategies include both. Second, a commercialization strategy always involves an innovation, while an entry strategy can be for an existing product as well. Although the main focus of this paper is to address entry mode strategies, it is important to distinguish between these concepts as theories on commercialization strategies are included in the theoretical framework of this paper.

1.2 Problem

Alpha has a new product/innovation, AlphaConnect, within structural glazing that is suitable for the Californian market due to its durability and properties to withstand earthquakes, a frequently reoccurring phenomenon in the State of California. In order to make informed decisions and to successfully enter the Californian market with AlphaConnect, a thorough analysis of the Californian glazing market needs to be performed. While designing a complete entry strategy, as defined by Root (1998), goes beyond the scope and resource constraints of this thesis, recommendations and a design of an entry mode strategy will be performed. This research ought to be of high interest for Alpha as it provides the firm with (1) information about this new market, (2) suggestions for an effective and competitive entry mode strategy,

and (3) a framework that can be used to evaluate additional future markets. This research can also be interesting for firms facing similar problems when evaluating a specific foreign market in order to determine a suitable entry mode strategy.

1.3 Research questions

Given the above reasoning, the research question that will be addressed in this thesis is as follows:

What would be a suitable entry mode strategy for Alpha and their product AlphaConnect in order to enter the Californian glazing market?

1.4 Purpose

The purpose of this report is to conduct a market analysis of the Californian glazing market in order to propose a suitable and competitive entry mode strategy for Alpha and its new product, AlphaConnect. Furthermore, this paper also seeks to provide a comprehensive framework that can be used by Alpha or a similar firm for the evaluation of a given foreign market in order to design a competitive entry mode strategy for that same market.

1.5 Disposition of Thesis

In the following second chapter, a literature review within the fields of market analysis, entry strategies, and commercialization strategies is presented. It also includes the theoretical framework used for the collection and analysis of empirical data. The third chapter provides a description of the methodology employed throughout this thesis. In the fourth chapter a presentation of empirical findings is carried out, which is followed by an analysis of said data in chapter five. Major findings and suggestions for future research are presented in the conclusion, which is the sixth and final chapter of this paper.

2 Frame of reference

In this part of the paper, a literature review of market analysis, commercialization strategies and entry strategies is presented. It also contains the specific theoretical framework used for the collection and analysis of the empirical data.

The theoretical framework employed in this thesis is derived from three research fields: market analysis, commercialization strategies, and entry strategies.

2.1 Literature review

2.1.1 Market analysis

The field of market analysis contains a rather vast body of research. Cavusgil (1985) states that market research is as important in the foreign market as it is for the home market, and it is a tool that can both reduce uncertainty and pinpoint solutions. Terpstra and Sarathy (2000) explains that the geographical distance of foreign markets, together with their cultural, economic, political, and legal differences, may create barriers to entry that can become impenetrable without adequate market intelligence. The mistakes associated with international market selection comes through the inadequate evaluation of markets, and the cost of these mistakes are almost always greater than the costs linked with a systematic assessment that would instead have prevented the occurrence of these (Rahman, 2003). Rahman (2003) further points out that it is the selection of the right markets to enter that is critical for businesses' future success, and even more so for SMEs with their limited resources.

Perhaps the most important task of a market analysis is the identification of attractive foreign markets, the evaluation of sales potential in each of these markets for the company's product, and how it should finally be distributed – performed through the identification, selection, motivation, and evaluation of foreign distributors and agents (Cavusgil, 1985). Rahman (2006) showed that successful Australian international businesses measured the fit with a foreign market through the evaluation of mainly four structural compatibility indicators: business structure, distribution system, legal system, and business culture compatibility.

2.1.2 Commercialization strategies

Commercialization strategies of new products and innovations have been the focal subject for many researchers (Teece, 1986; 1988; Gans & Stern, 2002). In an attempt to explain the distribution of profits from innovation, Teece (1986; 1988; 2010) presented a comprehensive framework arguing that the innovator's profit depends on three factors; the appropriability regimes of the market in which the innovator operates, the access to complementary assets, and in which phase of the dominant design paradigm that the innovation occurs, be it the paradigmatic or the pre-paradigmatic phase. Consequently, a firm seeking to commercialize an innovation must consider these factors when selecting a suitable strategy.

The appropriability regime, or the intellectual property regime (Teece, 2010), refers to the environmental factors that govern the innovator's ability to capture the profits of an innovation. The dimensions of the regime concern the nature of the technology and the effectiveness of legal barriers against imitations in place. These legal barriers exist in the form of intellectual property right laws and include trade secrets, copyright, trademark and patent (Teece, 1986). Drawing upon the framework developed by Abernathy

and Utherback (1978), Teece (1986; 1988) argue that there are normally two stages of a given technology, the pre-paradigmatic and the paradigmatic phase. The pre-paradigmatic phase is characterized by numerous product innovations in order to establish the dominant design. Once the dominant design is accepted in the market place, product innovations decrease whereas process innovations increase. According to Teece (1986; 1988), complementary assets refer to those assets that are needed to commercialize the innovation in the market place. Complementary assets include for instance specialized manufacturing, marketing, distribution, and after-sales support.

Teece (1986; 1988; 2010) argue that complementary assets, appropriability regimes and the dominant design phase have implications for the choice of commercialization strategy. At one extreme, the innovator can completely integrate all steps in the supply channel in order to attain all needed complementary assets. At the other, the innovator would simply license its technology to a firm already possessing the needed assets. If for instance appropriability regimes are weak and competitors does not control complementary assets needed to commercialize the innovation, an integrative strategy might be preferable. If however, the regimes are high and complementary assets are controlled by other firms in the market, a licensing strategy ought to be preferable (Teece, 1986; 1988).

Drawing upon the research conducted by Teece (1986), Gans and Stern (2002) developed a similar framework of different commercialization strategies for small entrepreneurial start-up firms. The authors argue that the commercialization environment force technology entrepreneurs to choose between cooperative or competitive strategies. When intellectual property protection is strong and important specialized complementary assets are held by incumbent firms, start-up firms are more successful if they pursue cooperative options with incumbent firms rather than competing directly in product markets. In contrast, when weak intellectual property for innovation exists alongside low barriers to entry, competitive commercialization strategies are more likely (Gans & Stern, 2002). The framework recognizes two major factors which affect the commercialization environment, excludability environment, i.e. to what extent can successful technological innovation by the start-up prevent effective development by an incumbent with knowledge of the innovation, and complementary assets environment, i.e. to what extent does the incumbent's complementary assets contribute to the value proposition of the new technology.

2.1.3 Entry strategies

According to Buckley and Casson (1998) and Sarkar and Cavusgil (1996), the earliest literature on foreign market entry concerned only the choice between exporting and FDI. The cost-based view that ruled previously suggested that the company must possess a compensating advantage in order to overcome the costs of adapting to the foreign market. This led to technological and marketing skills being identified as the key elements in a successful foreign market entry (Roberts & Berry, 1984; Buckley & Casson, 1998). Buckley and Casson (1976, cited in Buckley & Casson, 1998) further argues that the entry strategy decision involved two interdependent decisions: location and mode of control. For instance, exporting is located domestically and administratively controlled, foreign licensing is located abroad and controlled through a contractual agreement, and FDI is located abroad but administratively controlled.

The stage model of entry theory was the next step within this research field. One of the more famous models from this development is named the Uppsala model, where a company's pattern of entry into foreign markets was based on a sequential pattern of moving to markets that had a short cultural distance

in relation to the domestic market (Johanson & Vahlne, 1976; Buckley & Casson, 1998). Buckley and Casson (1998) further list the theories and authors that came to construct the framework for entry mode decisions seen today, which were studies that e.g. evaluated mergers and acquisitions versus Greenfield ventures (Stopford & Wells, 1972), joint ventures versus wholly owned subsidiaries (Contractor & Lorange, 1988; Beamish & Killing, 1997), cultural factors (Hofstede, 1980), and the market structure affecting the choice of entry strategy (Knickerbocker, 1973).

Madhok (1997) divides previous literature for the entry mode research topic into the internalization perspective and the organizational capabilities perspective. In previous years, the research on this topic was most centered on the internalization perspective which is closely related to transaction cost theory (Madhok, 1997). This perspective is oriented towards minimizing the transaction cost of the organization when going abroad with its business in order to decide on the most efficient entry mode. Transaction costs are costs associated with a market transaction, such as negotiating, monitoring, and enforcing a contract (Ekeledo & Sivakumar, 2003). What followed this perspective in the 90s was the development of the organizational capabilities perspective, instead claiming that firms compete primarily on the basis of capabilities (Madhok, 1997). From this perspective, it also has it that the firm is affected by its past experiences and therefore takes actions based on what it has experienced previously from operating internationally: putting organizational capabilities as both a source of competitive advantage and as a constraint. The main difference between the two perspectives is that the internalization perspective is focused on exploitation, whereas the organizational capabilities perspective also includes the enhancement and development of capabilities (Madhok, 1997).

In order to overcome the shortcomings of the internalization theory, Dunning further developed the theory into what was to become the eclectic theory for FDI. The eclectic theory has three key components: ownership advantage, location advantage, and internalization advantage (Ekeledo & Sivakumar, 2003). The ownership advantage refers to the competitive or monopolistic advantage that helps a foreign company overcome the disadvantage of competing with location firms, e.g. patents or brand names (Dunning, 1980). The location advantage refers to the market potential and country risks which make it profitable to conduct business in the foreign market, e.g. low production costs or low transfer costs (Dunning, 1980). The internalization advantage refers to the contractual risks that make the ownership control over a FDI more beneficial than licensing a local foreign firm to offer the product in that market (Ekeledo & Sivakumar, 2003). However, the eclectic theory does not include a prediction or guidance to the choice of entry mode. The theoretical framework does neither include home country factors and boundary variables such as e.g. transportation costs and currency exchange rates (Ekeledo & Sivakumar, 2003). Additionally, both the internalization approach and eclectic theory have been criticized for ignoring an organization's internal factors, factors that according to Ekeledo and Sivakumar (2003) are considered the main drivers of a firm's strategic behavior.

Ekeledo and Sivakumar (2003) add the resource-based theory to be another approach for describing the choice of entry taken by a firm. This theory is similar to the previous organizational capabilities perspective as it is a theory that argues that the competitive advantages of a firm exist in the resources it has: assets and capabilities. This approach to entry mode selection also incorporates the core of strategic management: that the firm competes well in a setting that has a fit with the firm's resources and external opportunities. The resource-based theory differs from the transaction cost approach in that it assumes sole ownership to be the default entry mode until proven otherwise, while the transaction cost approach views

shared-control modes such as contractual agreements as the default mode of entry (Ekeledo & Sivakumar, 2003).

Compared to the first theories presented for foreign market entry, the selection of entry mode criteria have today developed into an extensive framework that includes some of the following factors: location costs, financial variables, cultural factors, market structure, competitive structure, and adaptation costs (Buckley & Casson, 1998). As Sarkar and Cavusgil (1996) states it, the research for entry mode selection remains very fragmented though and includes factors with seemingly unrelated considerations. This is largely due to the response of the dynamic reconfiguration of international business, new insights from channel management, global strategy, alliances, and the political economy, which have all infused new perspectives into the entry mode research (Sarkar & Cavusgil, 1996).

2.2 Entry mode evaluation framework

The framework employed for this case study is mainly based on Root's (1998) framework for entry strategies. It also incorporates theory from Hofstede (1984), Teece (1986), Agarwal and Ramaswami (1992), Pan and Tse (2000), Wood and Robertson (2000), and Sebenius (2002). The model emphasizes the external and internal factors described by Root (1998) as explanatory variables influencing the choice of entry mode strategy (Figure 1). Variables are also included from the frameworks of Cavusgil (1985), Teece (1986; 2010), Young, Hamill, Wheeler and Davies (1989), Sarkar and Cavusgil (1996), Madhok (1997), and Wood and Robertson (2000). Tied to the framework on the right hand side are also the indicators presented by Root (1998) which can have an effect on the entry mode decision. This is put in place to offer the reader a quicker overview of what implications the different factors may have on the choice of entry mode. The available entry modes are listed as Ex, Li, BEx, Eq, and Sc. Ex stands for indirect or direct exporting, Li for licensing, BEx for branch or subsidiary exporting, Eq for equity investment or production, and Sc is for service contracts. What these different entry modes entail is explained further down in Section 2.2.2.

As the selection of a suitable entry mode can have very significant and far-reaching consequences on both to the performance and survival of the firm, it also becomes crucial to have an as extensive framework as possible, that is rooted in sound theories (Ekeledo & Sivakumar, 2003). This of course becomes of even greater concern should the company be small and limited in resource (Rahman, 2003), which is Alpha's situation. Smaller firms are not expected to have sufficient resources and knowledge to enter several foreign markets and their strategy is therefore expected to be a selective one that concentrates the organization's efforts to foreign markets that offer higher sales potential (Agarwal & Ramaswami, 1992).

Relying solely on a commercialization framework, such as Teece's (1986) and Gans and Stern's (2002), for this analysis would have had its disadvantages for the following reasons. First, it considers quite few explanatory variables in determining the commercialization strategy. Although appropriability regimes, complementary assets and the dominant design paradigm are important variables to evaluate in the market analysis for this thesis, the framework fails to account for other important factors determining the choice of entry mode strategy such as: market demand, competitive situation, legal aspects, culture etc. Second, the framework does not consider entry mode strategies and its implications on commercialization strategy as either cooperative or competitive is a bit simplified. Similarly, the frameworks from Root (1998) and Wood and Robertson (2000), although comprehensive, lack certain variables that are of particular interest for this thesis. These variables concern the dominant design and the approprability regimes of the market.

As AlphaConnect is a patented product, it is of interest to also evaluate the Californian market in terms of the easiness to protect a given patent. Therefore by complementing the framework of Root (1998) with variables from Wood and Robertson and Teece (1986; 2010), and all of the other sources mentioned above for that reason, will provide a more detailed framework that captures certain characteristics of the market that would have been missed, had the frameworks been used in isolation. The framework developed for this thesis also includes variables that have been specifically requested by Alpha (Appendix 1). For instance, the decision and purchasing process of point connect systems in California is of particular interest to the company, which is information that is not captured by the original frameworks.

2.2.1 External and internal factors

The choice of entry strategy is according to Root (1998) the net result of several, often conflicting, forces. In his model presented in Figure 1, Root (1998) explains that these forces are both internal and external. The external factors are explained to be both the target and home country's market, environmental, and production factors. These factors are those that often cannot be affected by management decisions, and are therefore instead regarded as parameters to the entry strategy decision. One single external factor does not often have the decisive power on an entry mode for companies in general, but a factor might instead encourage or discourage a particular entry strategy for a specific company. Also, when it comes to the decision for a specific product or target country, as in this case, the external factors instead become the most influential factors deciding on the company's entry strategy. Changes in these external factors might also force the company to revise its chosen entry mode, and it is therefore recommended to continually monitor the external factors in the foreign target market.

Internal factors are company product factors and resource/commitment factors specific to the firm, and it is these internal factors that decide how a company will respond to external factors when choosing an entry mode strategy.

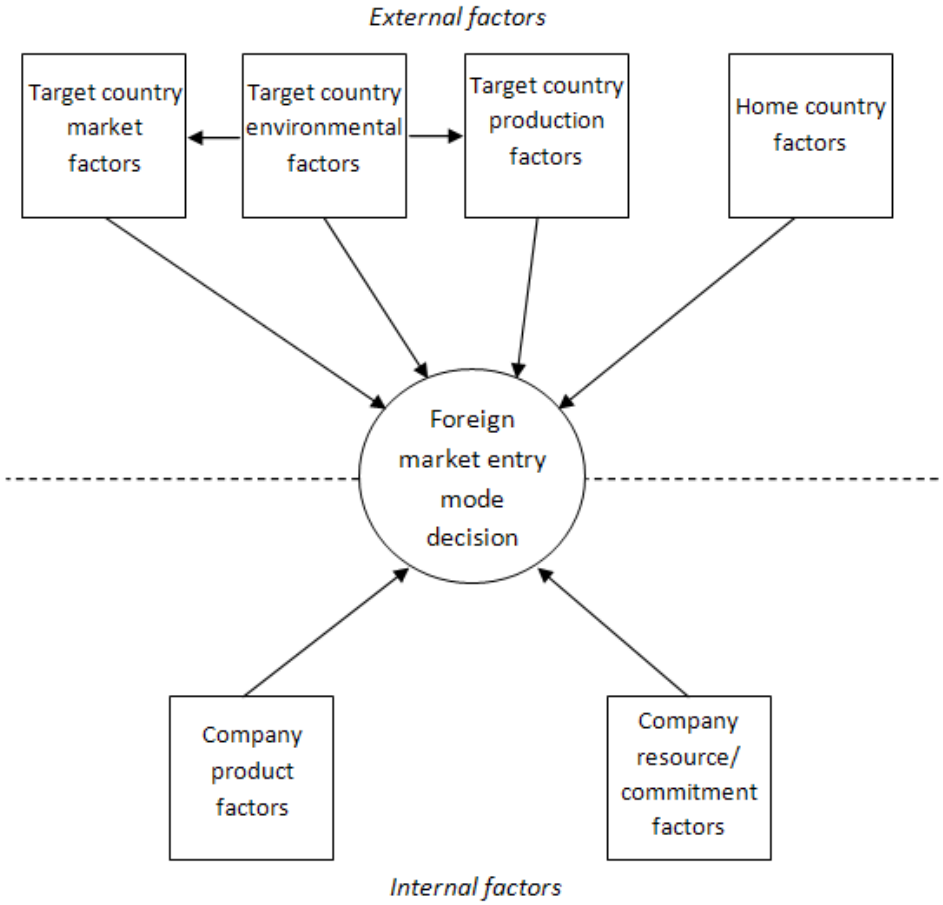

Figure 1: Factors affecting the entry mode decision (Root, 1998).

External factors are according to Root (1998) e.g. the market size and growth prospects, the competitive structure, and the marketing infrastructure. For the market size, small markets favor entry strategies that have low breakeven sales volumes – indirect exporting, licensing and some contractual agreements, whereas large markets favors strategies with high breakeven sales volumes – equity investment in local production (Root, 1998; Sarkar & Cavusgil, 1996). In markets that have high sales potential, equity entry modes are expected to give greater long-term profitability to a firm than non-equity modes. This greater profitability is achieved through economies of scale that yields a lower marginal cost of production (Agarwal & Ramaswami, 1992). Wood and Robertson (2000) also affirm that the internal and external competition needs to be considered – which is equivalent to the competitive structure referred to by Root (1998). An atomistic market with many non-dominant competitors is more favorable for export entry than an oligopolistic or monopolistic market, which often requires equity investment in production to be able to compete more directly against these more dominant firms. There are markets though that is considered too strong for both these entry modes, where instead an entry through licensing or contractual agreements may be the only valid option. The last variable given by Root (1998) under the target country's market factors is the marketing infrastructure, for which the lack of good local agents or distributors may only be solved through an entry mode that includes the installment of a foreign branch or subsidiary. Wood and Robertson (2000) refer this to as the foreign target market's adaptation costs.

External factors: Target country market factors	Indication	*Ex*	*Li*	*BEx*	*Eq*	*Sc*
Market size, growth prospects, and market information Future trends and growth rate of the foreign insulation glazing market in which the product or service will be sold • Size of market and future growth pattern? • To what extent are isolation glass used in the market? • Is the usage a trend that is going up? • How is the product used? For what building types?	*Low sales potential*	X	X			
	High sales potential			X	X	
Competitive structure • Major competitors? • Types and number of competitive products in the foreign market? • Competitors' market share, coverage, and growth rate in the foreign market?	*Atomistic competition*	X		X		
	Oligopolistic competition				X	
Marketing infrastructure • Degree of test marketing and promotion needed to assure adequate sales of the product in the foreign market? • How does the sales channel for reaching the final customer look like? • Who are the decision-makers in the industry for choosing and purchasing the product, and who can influence these decisions? • How is the product distributed? • Who are Alpha's ideal customers? • What are the payment conditions for customers?	*Poor marketing infrastructure*			X		
	Good marketing infrastructure	X				

Table 1: External decision variables for the target country market factors.

Target country production factors are variables that may affect foreign production in any way, such as the quality and cost of raw materials, production, labor, as well as the cost of the economic infrastructure that include e.g. transportation and communication (Root, 1998). A low cost for these variables would encourage some form of local production and discourage exporting, whereas a high cost would encourage the opposite (Root, 1998). This is also confirmed by Wood and Robertson (2000), encouraging the firm to also evaluate the distribution and communication infrastructure of the foreign market which Root (1998) mentions. The evaluation of the strengths of the foreign production possibilities can also be seen to e.g. the production technology that is in place, the foreign country's wealth of natural resources, the diversity of products produced versus those imported, and the availability of linking products to the exporting company's own product (Wood & Robertson, 2000).

External factors: Target country production factors	Indication	*Ex*	*Li*	*BEx*	*Eq*	*Sc*
Production Conditions, costs, and quality for local manufacture • Parts and technical service support needed and available for the product in the foreign country? • The degree of use of modern, efficient methods in the creation of products and services in the foreign country? • Availability of intermediaries? • Availability of linking products? • How are competing systems produced for the foreign market? Are they imported or sourced locally?	*Low production cost*				X	
Economic infrastructure • Costs and efficiency of communications to the foreign country from Sweden (e-mail, telex, telephone, post office, other mail, telegraph)? • Costs and efficiency of transportation within the foreign country (roads, highways, railroads, trucking, etc.)? • Costs and efficiency of transportation to the foreign country from current production sites (airlines, shipping lines, etc.)?	*High production cost*	X		X		

Table 2: External decision variables for the target country production factors.

The target country environmental factors cover variables describing the political, economical, geographical, and sociocultural character of the foreign country (Root, 1998). Root (1998) explains that for the political factor, regulations and government policies presents perhaps the more important variables to look at. The regulative variable represents the legal framework of the foreign target market which may prevent or restrain business activities, and also put pressure on imports into the country (Wood & Robertson, 2000).

Tariffs, taxes, non-tariff barriers, and other legal requirements that may affect the business, such as e.g. intellectual property right protection, are some of these elements that need to be considered by the exporting company. For example, restrictive import policies such as tariffs and quotas would discourage an export entry mode, and a restrictive foreign investment policy puts off equity investment as an entry strategy (Agarwal & Ramaswami, 1992; Root, 1998). Countries obviously also have the ability to attract foreign investments, by e.g. offering low corporate taxes and even tax holidays. Wood and Robertson (2000) evaluates the political environmental in terms of political stability and how internal policies, attitudes, and actions of the foreign target market translates to the private sector of the economy. The political environment includes risk variables such as the political instability and the threat of expropriation of the company's business (Sarkar & Cavusgil, 1996). Should the political risk be high for the foreign country, it would favors entry modes with limited commitment of resources, whereas a low political risk makes it more possible for an entry strategy through equity investment. Wood and Robertson (2000) further argue that the diplomatic relations between the exporting country and foreign target market and how this affects the trade should be reviewed.

External factors: Target country environmental factors	Indication	*Ex*	*Li*	*BEx*	*Eq*	*Sc*
Policies • Political stability and continuity? • Government involvement in business? • Extent of restrictions on free and open trade with the foreign country due to political frictions? • Degree of normal diplomatic relations between Sweden and the foreign country?	*Low political risk*			X	X	
Regulations • Product standards imposed by the foreign country (local safety and environmental regulations, e.g. building codes, earthquake certificates and testing procedures)? • What are the possible size measures for the windows? • How high can facades legally be built? Are they built in several levels or just on the ground level?	*High political risk*	X	X			X
• How many bolts are used and how tight do the bolts have to be mounted? • Investment and taxation laws? **Appropriability regimes** • Patent, copyright, and trademark protection in the foreign country.	*Restrictive investment policies*	X	X	X		X
Industry protection • Is there any industry protection in place affecting the product? • Is it possible to avoid tariffs and taxation by having the final product labeled a local foreign product? If so, how high is the component-percentage demanded for the final product to be labeled a local foreign product?	*Liberal investment policies*				X	
Trade barriers Tariffs, import duties, taxes, common market or regional trading blocs, preferential treaties, nontariff barriers • How high are the specific tariff levels for AlphaConnect, both for a delivery in separated parts and as a complete product?	*Restrictive import policies*		X		X	X
• Required documentation, import procedures, and quotas imposed by the foreign government? • Special conditions of payment for imported products?	*Liberal import policies*	X		X		

Table 3: External decision variables for the target country environmental factors: policies and regulations, industry protection, and trade barriers.

The geographical distance to the foreign target country also impact the choice of entry mode, where for instance a large distance would imply higher transportation costs that might be deemed too high for a market entry through exporting (Root, 1998). The geographical situation and climatic patterns which may affect the foreign operations, such as e.g. the potential of natural disasters, need to be considered by the exporting company as well (Wood & Robertson, 2000).

External factors: Target country environmental factors	Indication	*Ex*	*Li*	*BEx*	*Eq*	*Sc*
Geography and climate • Shipping distance? • Climatic characteristics in the foreign country?	*Small geographical distance*	X		X		
• Natural disaster potential in the foreign country (earthquakes, volcanoes, floods, windstorms)?	*Great geographical distance*		X		X	X

Table 4: External decision variables for the target country environmental factors: geography and climate.

Characteristics of the foreign country's economy can too influence the choice of entry mode. Such a fundamental feature as whether the economy is a market economy or a centrally planned socialist economy should be taken into consideration. As equity entry modes are usually not possible for a centrally planned socialist economy, an entry into such a market must be done through exporting, licensing, or other contractual modes (Root, 1998). According to Pan and Tse (2000), when a firm adopts an equity entry mode, the company will find itself exposed to both the contextual and transactional risks of the target country's economy. It might therefore become important for a firm to purchase insurance to protect against external contextual risks, and arrange contracts so as to fend off opportunistic behavior and consequently lower the transactional risks. In contrast, organizations choosing to enter a foreign market through non-equity modes have a better chance to become aware of the risks involved with the market without also experiencing the negative side of them. According to Pan and Tse (2000), a non-equity entry mode normally also has a shorter presence in the foreign market, making it easier for the company to forecast the types and severity of these risks. Hence, the specific target country's risks matters more for the equity investment modes than the non-equity entry modes (Pan & Tse, 2000).

Additional features describing the foreign economy is the size it has – measured by the gross national product, and the absolute level of performance – measured by the gross national product per capita, features that both relate closely to the market size that is listed under the target country's market factors (Root, 1998), and which are also mentioned by Wood and Robertson (2000). What should perhaps also be taken into consideration according to Root (1998) is the dynamics of the foreign economy, a measure referred to by Wood and Robertson (2000) as the development and performance of the foreign economy. This is due to that an increase in the rate of investment, the growth rate of gross national product and personal income, etc., may justify an entry strategy with a higher breakeven point even though the current market size is below the breakeven point. Finally, the foreign country's external economic relations should also be examined by the organization wanting to expand into foreign markets. The external economic relations are indicators that show the probability in future changes in government policies on trade and international payments, and include the trade balance, the balance of payments, the debt service burden, exchange rate behavior, and so on (Root, 1998). For example, a depreciating foreign currency would encourage equity investment rather than exporting as an entry mode, and a weakening of a country's balance of payments often leads to import restrictions and perhaps even a devaluation of the exchange rate – a pattern seen more in developing countries.

External factors: Target country environmental factors	Indication	*Ex*	*Li*	*BEx*	*Eq*	*Sc*
Economic • Gross National Product growth and per capita income in the foreign country? • Stability of exchange rate and inflation rate? • Contextual risks: those external uncertainties embodied in the market environment, including political, ownership/control, operations, and transfer risk? • Transactional risks: arise internally from the opportunistic behavior of the local foreign firms, such as defaults on their obligations and payments?	*Dynamic economy*				X	
	Stagnant economy	X	X			X
	Restrictive exchange controls	X	X			X
	Liberal exchange controls				X	
	Exchange rate depreciation				X	
	Exchange rate appreciation	X		X		

Table 5: External decision variables for the target country environmental factors: economy.

Sociocultural factors also have an effect on the choice of entry mode, especially cultural distance (Sarkar & Cavusgil, 1996). Wood and Robertson (2000) investigates the cultural distance between the exporting and foreign country by looking at the internal and external shared lifestyles, customs, social relationships, how the cultural unity looks like, the language, the social structure, and if there are any ethnical differences. According to Root (1998), when variables such as these differ greatly in the target country from the home country, the costs of information acquisition will be high. This is due to that managers become more ignorant about the target country, and therefore also fear that the company will have great troubles starting up and operating production units there (Root, 1998). Hence, a great cultural distance favors non-equity entry modes where the company's commitment stays limited, whereas a culturally close country is both less risky and less costly for equity entry modes (Kogut & Singh, 1988; Root, 1998). This parameter of cultural distance also affect the sequence in which a company choose target countries, as companies normally first enter countries which are culturally close (Johanson & Vahlne, 1977).

Hofstede's (1984) work on cultural dimensions distinguishes countries based on five indexes: power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation. A country's power distance shows the equality between people in the society, where a high index shows that inequalities have been allowed to grow within the society, and a low index portrays a higher equality in a society that stress an opportunity for everyone. The individualism index shows a society with individual rights and the possibility to form a larger number of loose relationships should the index be high, and a society of a collectivist nature with closer family ties if low. For a country that has a high index score for the masculinity measurement the indication is that of a high degree of gender differentiation, where males dominate the power structure of the society. With a low masculinity index, the country provides a society with low levels of discrimination between the genders. A high uncertainty avoidance index points towards a low tolerance for uncertainty and ambiguity, which has a rule-oriented society instituting laws and regulations. For a low scoring uncertainty avoidance index, the society is less rule-oriented and has less concern for uncertainty. The final fifth index, the long-term orientation measure, gives indications for a society being prescribed to long-term commitments and has respect for traditions and a strong work ethic if the index is high, and a more rapidly changing society with less regard to traditions and commitments should the index score low.

An additional framework that can be used to describe cultural differences between countries is the "Silent Language" theory developed by Edward T. Hall (cited in Sebenius, 2002). This theory provides four categories that try to explain the behavior for different cultures: relationships, communication, time, and space (Sebenius, 2002). For the relationships category, cultures are defined as either deal-focused or relationship-focused. A deal-focused culture sees deals growing out of deals, whereas in a relationship-focused culture the deals arise from already developed relationships. The communication parameter splits cultures into high and low context, where communication is indirect for a high context culture, providing an environment where nonverbal cues play a significant role, and direct in a low context where there is little reliance on contextual cues. Communication also differs in discussions, where the information either requires detail or to be concise. Cultures are regarded as either monochronic or polychronic for the time category, in which a monochronic orientation endorse punctuality and strict consideration of schedules. For a polychronic culture, the pattern shows a time consideration that is more fluid, where deadlines are more flexible, interruptions are common, and the interpersonal relationships is more important than schedules (Sebenius, 2002). The final category, space, distinguishes cultures in accordance with how much personal space people require.

***External factors*: Target country environmental factors**	**Indication**	***Ex***	***Li***	***BEx***	***Eq***	***Sc***
Sociocultural What is important to consider as a foreigner when doing business in the foreign market? • Percent of the business community who speak English, and the extent of adoption of Swedish business practices in the foreign country?	*Small cultural distance*			X	X	
• Preferences in the foreign country with respect to color, shape, and size of the product? • Differences between Swedish and foreign views on the use of the product? • Attitudes toward products of Swedish origin?	*Great cultural distance*	X	X			X

Table 6: External decision variables for the target country environmental factors: sociocultural.

Home market factors are the market-, production-, and environmental factors of the domestic country (Root, 1998). A large market size in the home country would have a company grow to a larger size before it turns to foreign countries. Large companies also have a tendency to use equity entry modes to a greater extent than small companies. The large home market might though also have the larger companies becoming more domestic-oriented and perhaps not interested in all forms of international business compared to companies in small-market countries. According to Root (1998), companies in small domestic markets are instead attracted to exporting as a way to reach a more optimal size to achieve economies of scale. Further, also the competitive structure of the domestic market has an effect on the choice of entry mode. Firms in oligopolistic industries for instance try to respond on the action of its rivals in order not to upset the competitive equilibrium (Root, 1998; Sarkar & Cavusgil, 1996). Hence, an investment made abroad by one firm is often followed by an investment made by its rivals. As exporting activities are not seen as a threat for companies in oligopolistic industries, the oligopolistic reaction is biased to instead be through equity investment in production. In contrast, companies in atomistic industries are more prone to use exporting or licensing as a mode to enter foreign markets. As an example for the home market production factors, Root (1998) mentions the production cost as being one of the main decisive powers, where a high production cost in the domestic market relative to the foreign market

would encourage entry modes involving local foreign production, such as licensing, contract manufacture, and investment. For the environmental factor of the home market, Root (1998) describes the policy of the home government to be the most influential power. The home government might perhaps offer incentives for exporting activities, but be restrictive on foreign investment, pushing companies towards exporting, licensing, or other contractual modes, as the only options for foreign market entry.

***External factors*: Home country factors**	**Indication**	***Ex***	***Li***	***BEx***	***Eq***	***Sc***
Market	*Large market*				X	
• Domestic market size?	*Small market*	X		X		
• Competitive structure?	*Atomistic competition*	X		X		
Production	*Oligopolistic competition*				X	
• Production costs?	*Low production cost*	X		X		
Environment	*High production cost*		X		X	X
• Policies and regulations?	*Strong export promotion*	X		X		
	Restrictions on investment abroad	X	X			X

Table 7: External decision variables for the home country factors.

Variables found under the product factors are e.g. the differentiation of the product, the pre- and post-purchase services attached to it, if the product is a service or not, how technologically intensive the product is, and if it requires any adaptation for the foreign market (Root, 1998). Having a highly differentiated product presents the company with more viable entry mode options. According to Wood and Robertson (2000), the main focus here is whether the foreign market has the means to purchase the product, and if the foreign local needs are being satisfied effectively with it. The distinct advantages to competing products give the company a certain degree of pricing discretion, making it possible for the product to absorb both high unit transportation costs and high import duties, and still remain competitive for the foreign target country (Root, 1998). On the other hand, products that are weakly differentiated have to compete on a price basis, and are therefore more prone to be produced at a local foreign production unit. A high product differentiation therefore favors exporting as an entry mode, whereas a low product differentiation would have the company look for local production through the use of e.g. contract manufacture or equity investment. Products that require pre- and post-purchase services makes it difficult for the company to market at a distance, and hence, service-intensive manufactured products are more prone towards an entry through branch/subsidiary exporting and local foreign production. This tendency is especially important to consider should the product itself be a service. Since a service often cannot be produced in one country and exported to another, the company has to look for alternatives that gives the service a local production (Root, 1998). Viable entry modes for a service would be through e.g. the training of local companies such as in franchising, by installing branches and subsidiaries, or through selling the service under contract with the foreign customer such as e.g. technical agreements and construction contracts. Having a technologically intensive product also gives the company the option to license it in the target country rather than using other entry modes. Given that the technology intensity is normally greater for industrial products than consumer products, industrial-product companies are also more in favor of using licensing arrangements than consumer-product companies (Root, 1998). Should the product demand an adaptation for successful entry in the foreign target market, the entry mode chosen by the company would be one that takes it very close to the market through the use of e.g. a branch or subsidiary, or even into local foreign production through equity investment. This possible adaptation is what Wood and Robertson (2000) refers to as an adaptation cost, a variable that considers the adaptations

needed to both adjust to the tastes and preferences of foreign buyers, and with technical requirements the market has. The adaptation costs also try and describe the degree of test marketing and promotion needed for the product to guarantee satisfactory sales in the foreign market (Wood & Robertson, 2000).

***Internal factors*: Company product factors**	**Indication**	***Ex***	***Li***	***BEx***	***Eq***	***Sc***
Product differentiation Advantages and weaknesses of competing product in the foreign market • Customer needs and desires? • Dominant design – is there a pattern in the design of available products and do the customers have specific preferences in the products they look for? • Price levels on competitive products and the potential for the foreign buyers' ability to pay for the product? • The cost for the insulation glass and other compulsory parts in the foreign market?	*Differentiated products*	X		X		
	Standard products				X	
Pre- and post-purchase services • What should be its service attributes (use instructions, installation, warranties, repair/maintenance, spare parts, other)?	*Service-intensive products*			X	X	
Service/product • Service level?	*Service products*		X		X	X
Technologically intensive • Availability of patents? • Difficulty of copying the product?	*Technology-intensive products*		X			
Adaptation needed • Need to change the product specifications due to differences in foreign buyers' taste and preferences or technical requirements?	*Low product adaptation*	X				
	High product adaptation		X	X	X	

Table 8: Internal decision variables for the company product factors.

Agarwal and Ramaswami (1992) argues that firms are likely to choose an entry mode that offers the highest risk-adjusted return on investment, however, behavioral evidence shows that the same choice could also be determined by the resource availability and need for control within the organization. Root's (1998) second deciding internal power stems from the company's resource and commitment factors. A company that has more than sufficient resources in e.g. management, capital, production and marketing skills, is also offered with a greater number of possible entry strategies and has it easier to commit more extensively to the foreign target market (Young et al., 1989). In contrast, companies having limited resources would also choose entry modes that have a limited resource commitment. Hence, the size of the firm frequently becomes the critical factor in the choice of entry strategy. However, the amount of resources an organization has is not always what decides for the choice of entry mode. Also the willingness from the company to commit these resources in the foreign market matters greatly. For instance, a high-commitment company, regardless of its size, is more likely to choose equity entry modes than a low-commitment company (Root, 1998; Madhok, 1997). What decides for a company's level of commitment abroad can be visible in the corporate strategy, in the status of the international organization and the stance taken by managers. A lengthy, or even a short for that matter, successful experience in international business will also that encourage a company to continue and even increase its commitment

abroad (Root, 1998). In contrast, should the company experience failure early in its international business, the company would be prone to instead limit the resource commitments made abroad.

***Internal factors*: Company resource/commitment factors**	**Indication**	***Ex***	***Li***	***BEx***	***Eq***	***Sc***
Resource availability • Management and personnel resources? • Resources of firm to be allocated?	*Limited resources*	X	X			
	Substantial resources			X	X	
Commitment • Organizational structure and capacity?	*Low commitment*	X	X			X
	High commitment			X	X	

Table 9: Internal decision variables for the company resource/commitment factors.

2.2.2 Entry modes

According to Root (1998), an international market entry mode is an arrangement that enables the entry of a firm's products, technology, human skills, management, or other resources into a foreign country. The author distinguishes between three broad classes of entry modes, with each class having several sub-choices of modes. The classes are (1) export entry modes, (2) contractual entry modes, and (3) investment entry modes (Root, 1998).

Under the export entry modes, Root (1998) describes three sub-modes; (1) indirect exports, (2) direct exports to agent/distributor, and (3) direct exports via branch/subsidiary. Indirect exporting, as the name suggests, use middlemen in the firm's home country who do the actual exporting. While direct exporting does not use home country middlemen, the entry mode may use target country distributors as middlemen. Direct exporting by means of a branch or subsidiary would imply equity investment in the target country (Root, 1998).

Root (1998) defines contractual agreements as *"long-term non-equity associations between an international company and an entity in a foreign target country that involve the transfer of technology or human skills from the former to the latter"* (Root, 1998, p. 7). The author discusses eight contractual entry modes including; (1) licensing, (2) franchising, (3) technical agreements, (4) service contracts, (5) management contracts, (6) construction/turnkey contracts, (7) contract manufacture, and (8) co-production agreements. A licensing arrangement means that a company transfers to another company for a defined period of time the right to use that firm's intellectual property, such as patents, know-how, trademarks etc. Franchising is similar to licensing but it also includes assistance from the franchisor to the franchisee in terms of organization, marketing and general management under an arrangement that is intended to be permanent (Root, 1998). Other contractual arrangements involve the transfer of capital in return for either services or products manufactured.

Investment entry modes, or equity entry modes, are those strategies where the domestic firm invests money in for instance production plants in the target foreign market. Foreign production units may be classified as sole ventures or joint-ventures, depending on the level of ownership and control, where the former implies full and the latter shared ownership and control. A sole venture can be either acquired or started from scratch (Root, 1998).

The pros and cons of these various entry modes differs of course seen to that e.g. the ownership structure and the size of investment needed are some of the factors that separates them. The pros of exporting are according to Root (1998) that no incremental investment is needed, the startup costs are low, few risks are involved, the company can claim profits on current sales, and the entry mode can act as a learning experience towards entries with a higher commitment. The major cons are that the company cannot claim the same portion of market size as perhaps an equity investment would, and it grants the domestic firm less control in the target market. The pros of contractual agreements include the limited financial exposure (Roberts & Berry, 1984), the possibility to receive income from a technology that has already been written off against domestic sales, circumvention of import barriers, quotas and transportation costs, decreased exposure to political risk, the company stays immune to expropriation, possible adaptation costs are transferred to the licensee, the commitment needed is low, and it offers a rapid expansion to other markets (Root, 1998). The cons associated with contractual entry modes are the dependence the licensor has upon the licensee's market performance (Roberts & Berry, 1984), lack of control over e.g. marketing operations, the possible limitation in income to both a maximum percentage given and the duration of the agreement, the risk of the licensee becoming a future competitor, and that the licensor cannot use an alternative entry mode over the duration of the agreement (Root, 1998; Teece, 1986).

The pros for a sole venture are according to Roberts and Berry (1984) the rapid market entry that is possible, and that it may offer lower initial costs of entry into the foreign market, particularly if key parameters for success are intangibles such as patents and R&D skills. Root (1998) further states that a sole venture entry enables a company to fully exploit the foreign market with its competitive advantages, it may possibly lower the costs to the product due to savings in transportation, tariffs, and the lower cost of labor and raw materials, it may increase the availability of supply of the product should quota restrictions exist, the company may obtain a higher quality of supply, it can create marketing advantages based on the closeness to local preferences, and the mode may also offer a quicker and more reliable delivery of goods. One of the cons to a sole venture entry is that the parent company may lack the experience needed to direct the new business, which can have it take years before the company can actually execute on the investment (Roberts & Berry, 1984). Additional cons of a sole venture are that it requires substantially more resources which also means a higher exposure to risks, the company becomes subjected to political risks such as expropriation, the information needed for good entry investment decisions is far greater than for exporting or contractual agreements, it requires high startup costs and long payback periods, and it is difficult to disinvest from the entry mode (Root, 1998).

The pros with a joint venture entry mode is the distribution of risk it can have and that it can exploit the small/large company synergies of e.g. technological and/or marketing advantages, where usually the small company provides the technology and the large company the marketing (Roberts & Berry, 1984). The mode may also offer the possibility to enhance or develop new capabilities for the firm and gain new knowledge that can also be given within an acceptable period of time (Ekeledo & Sivakumar, 2003). Cons associated with joint venture entries are of course everything that is associated with the potential conflict between the partners (Roberts & Berry, 1984). Additional cons are the loss of control experienced as the ownership now is shared, the lock-in effect, and the contextual risks associated with having operations located in a foreign country.

2.2.3 Entry mode selection

In order to propose a suitable entry mode strategy for Alpha, an evaluation of various entry modes is carried out. This approach combines the models of Root (1998) and Pan and Tse (2000) and provides a thorough and unbiased evaluation of the alternatives. Due to limitations of this thesis in terms of scope, time and resources, a financial net present value analysis of the various alternatives is excluded. The recommendations presented here are therefore purely from a strategic perspective.

The first step is to determine what Root (1998) refers to as the feasible alternatives, i.e. entry modes that are actually possible to carry out. Similarly, Pan and Tse (2000) propose a hierarchical model for this step, where entry modes are eliminated in each phase. According to the authors, the advantages are twofold: First, it recognizes the limitations of human cognitive capacity by breaking down the decision making into levels, which makes the process more simplistic. Second, the approach is suitable because of the large differences that exist among entry modes and the criteria for said modes. There is for instance a large difference between entering the market by an acquisition or through export via intermediaries (Pan & Tse, 2000).

The second step involves determining which of the export and contractual agreement alternatives that is actually viable for Alpha. Once this is determined, the final step involves evaluating the remaining viable entry mode alternatives and selecting the entry mode strategy that best matches the context created by the internal and external factors of the model.

3 Methodology

A description of the methodology for this thesis is provided in this part of the paper. It includes an account of research strategy, research design, method for data collection, data analysis, sampling, and rationales for said approaches.

3.1 Research strategy

The research strategy adopted for this Master thesis is a qualitative strategy. Since this paper seeks to address a firm-specific and exploratory problem, testing one or several hypotheses by means of a quantitative strategy would be difficult as there is little theory to test. To answer the question how Alpha can gain entry with their product AlphaConnect in California given the characteristics of that market, a qualitative strategy is preferable as many of the variables influencing the answer are unknown. For instance, Alpha are currently unaware about who the decision makers are in the purchasing process of point connect products in California. This is important to find out as it may have implications on the choice of entry mode strategy. A qualitative research strategy should, according to Bryman and Bell (2007), focus on words rather than quantification in the collection and analysis of data. It emphasizes an inductive approach with regards to theory, i.e. theory is generated through the collection and analysis of data. The strategy stresses the importance of analyzing how individuals interpret the world, and has rejected the conduct of the natural scientific model. It also considers social reality as always changing and emergent of individuals' creation (Bryman & Bell, 2007). As interpretivistic, the strategy requires that researchers respect the difference between people and objects, and that social scientists understand the subjective meaning of social action. Finally, the qualitative research strategy supports constructionism, which argues that social phenomena and their meanings are continually being constructed by social actors. It implies that social phenomena are not only produced but also that they are in a constant state of change (Bryman & Bell, 2007). As entry mode strategies and the ways in which managers deal with the concepts are reasonably better understood when looking at it from an interpretivistic and constructionist point of view, adopting a qualitative strategy is therefore essential. Furthermore, the design of entry mode strategies is reasonably very much affected by the actors dealing with it and that it therefore can also be subject to change over time. Taking a positivistic stance for this topic might be difficult as it would imply that the design of entry mode strategies is independent from the social actors dealing with it. Qualitative research is also very much concerned with explanation, i.e. why questions, and emphasizes context (Bryman & Bell, 2007). Selecting an entry mode strategy without considering the context of its implementation would most likely result in failure. Although there are some disadvantage associated with qualitative research such as that it is too subjective, it is difficult to replicate and the findings can be difficult to generalize (Bryman & Bell, 2007), they are minor issues with regards to this research. For instance, since the findings of this paper are firm-specific it does not matter whether or not they can be generalized. The findings are only valuable to Alpha.

3.2 Literature review

The literature review is an essential part of any thesis as it provides the foundation on which the research questions and research design are justified (Bryman & Bell, 2007). Bryman and Bell (2007) further argues that a literature review is mainly carried out to identify the following issues; (1) what is already known about a specific area?, (2) what concepts and theories are relevant to this area?, (3) what research methods and research strategies have been employed in studying this area?, (4) are there any significant

controversies?, (5) are there any inconsistencies in findings relating to this area?, and (6) are there any unanswered research questions in this area?

Before continuing on the details of this literature review, it is important to make a distinction between this paper and a conventional research paper. While it is reasonable to assume that a research paper traditionally seeks to explore new areas within a given field in order to contribute to the theoretical body of that field, this paper however merely seeks to answer a highly contextual and a highly firm-specific problem. The main point of the literature review in this paper therefore is to find theoretical models that best help answer this specific problem, i.e. how can Alpha enter the Californian glazing market?. Any contribution to the research field of entry mode strategies is thus irrelevant. Consequently, questions such as "are there any unanswered research questions in this area?" drops in importance.

In order to find relevant theories for this research, a literature review was conducted that shares characteristics with the systematic literature review. Tranfield et al. (2003, cited in Bryman & Bell, 2007) describe the systematic review as a replicable, scientific and transparent process that aims to minimize bias through exhaustive literature searches of published and unpublished studies. However, it is important to note that the systematic literature review described by Tranfield et al. (2003) was developed for the medical field and so it has limitations in management and business research, especially qualitative research. According to Bryman and Bell (2007), it can lead to bureaucratization of the process of reviewing the literature because it is too focused on the search process rather than the analytical interpretations generated by it. A second limitation relates to its application in qualitative research and particular the methodological judgments that inform decisions about quality that determine the inclusion or exclusion of an article. The systematic approach assumes that an objective judgment about the quality of an article can be made. Finally, the systematic approach is also influenced by epistemological position. Positivists have more interest in the synthesis of knowledge and the systematic approach is therefore more suitable for quantitative research (Bryman & Bell, 2007). As the research strategy in this paper is qualitative combined with the fact that the researchers of this paper have taken an interpretivistic perspective, the systematic approach in this paper is somewhat relaxed. For instance, while an extensive search process has been carried out to find articles to include in the research, some articles addressed in this paper have also been included based on recommendations from the supervisor of this Master thesis. Furthermore, some articles have been included through the reverse process of reviewing citations. Does this have an impact on the reliability of the research? Arguably it does not. While, it is quite possible that some articles have been excluded due to a relaxation of the systematic assumptions, it does not affect the quality of this research since the purpose of the literature review in this paper is to find theory that help answer a firm specific problem. The theoretical framework employed in this thesis has done just that.

Here follows and account of the search process: The actual research field was originally commercialization strategies of new products and searches were carried out within this area. However, commercialization strategies are a broad concept and entails research areas beyond the scope of this thesis. Therefore, the research area was narrowed to entry strategies and entry modes with new products. Electronic databases such as Google Scholar were used to search for several keywords and a combination of these keywords relating to entry strategies and entry modes. All searches were briefly reviewed by reading the abstracts of the papers. Research papers with abstracts that fit into the research topic of this thesis were then saved. Once the initial search was over, all collected papers were reviewed more thoroughly, and after this final scrutiny they were either kept or discarded depending on their

appropriateness for the thesis. The appropriateness was a subjective evaluation done by the researchers of this paper based on whether or not the papers addressed market analysis, entry strategies, entry modes, new products etc.

3.3 Research design

This paper adopts a multiple case study design. The cases that are being researched are Alpha and the Californian market for structural glazing. According to Bryman and Bell (2007), a research design provides a framework for the collection and analysis of data. The authors discuss five different types of designs: experimental design, cross-sectional design, longitudinal design, case study design and comparative design. As the research strategy utilized for this paper is qualitative and that this is a Master thesis with limited time constraints, it limits the amount of options available concerning research design. A longitudinal study would be difficult to carry out given the time constraint. An experimental design would also not be a viable option, as it is more suitable for experiments where one has access to at least two cases and have the possibility to manipulate different variables in one case to compare its effects with the other case. A comparative design would be complicated to conduct as well since most comparative designs are used to measure differences between two cases separated by for instance nationality or culture, and it would be very difficult to find a case that share the same characteristics as Alpha. Although a cross-sectional design is viable with regards to the time aspect, it is more associated with quantitative research where one studies many cases in order to quantify and analyze it statistically. This paper is slightly different from traditional research papers as one of the cases being researched is an entire market, which in turn consists of numerous actors and entities. However, as the market is still viewed upon as a case it does not affect the research.

3.4 Method for data collection

The main research methods employed in this paper are semi-structured telephone interviews and secondary data collection. Given the large geographical distance between Sweden and California as well as the scarce resources inherently associated with student research, it simply is not feasible to conduct face to face interviews with interviewees in California. Advantages associated with telephone interviews which are beneficial to this specific research include its low cost relative to face-to-face interviews, they are often times quicker to administer, one can easily interview people that are geographically dispersed, and it can reduce interviewer bias, as the interviewer is not present to influence the interviewee by for instance reacting inconsequently to various answers given by the respondents (Bryman & Bell, 2007). Weaknesses with telephone interviews include the inability to observe respondents in order to see how they react to different questions, the inability to employ visual aids, and lengthy interviews are often difficult to conduct over the phone (Bryman & Bell, 2007). Originally the telephone interview were supposed to be approximately 45 minutes long on average. However, due to difficulties of obtaining interviewees that were willing to participate in such lengthy interviews, they had to be shortened to roughly half that time.

The semi-structured interview is associated with qualitative research and is therefore a suitable method for this thesis. The emphasis of qualitative interviews relative to structured, quantitative interviews include among other things (1) increased interviewee freedom, (2) focus on the interviewee's point of view, (3) flexibility, and (4) rich, detailed answers (Bryman & Bell, 2007). This is in line with the research in this paper as one requires detailed and rich answers from interviewees in order to understand the context of such a complex entity such as a market. Also, by allowing interviewees to deviate from

questions it can allow for input and knowledge that was previously unknown to the researcher. A structured interview would most likely have failed to capture all the details and complexity of a market or industry.

The semi-structured interview was selected over the unstructured interview for a number of reasons. First, the unstructured interview relies at most on a brief set of prompts to deal with a range of concepts, which can lead to rather large deviations (Bryman & Bell, 2007). Given the rather short time available for these interviews over the phone, it was necessary to make sure that the interviewee did not deviate too much from the topic. Second, this paper follows a rather detailed framework for data collection in order to be able to recommend a suitable entry mode strategy. This framework has also been developed in relation with Alpha and contains several important questions that need answering. Therefore the semi-structured interview allowed making sure that the answers were received to answer the critical questions, but did also allow for some deviations from the main questions. For instance, several probing questions were asked in response to some of the answers given by interviewees.

When conducting research on a mature market such as the California glazing market there are already several sources of secondary information which makes primary data collection redundant. This secondary data include among other things financial data of the glazing market in California that is made available by the U.S. Census Bureau. Other sources of secondary data used for this thesis include the California Department of Finance, Manta.com, California Building Commission, and other governmental websites for the State of California.

3.5 Data analysis

Contrary to quantitative data analysis, there are rather few methods for the analysis of qualitative data (Bryman & Bell, 2007). The most common being analytic induction, narrative analysis and grounded theory. This research report has adopted a version of grounded theory as a method for the analysis of data. Simply put, grounded theory is theory derived from data that has been systematically gathered and analyzed throughout the research process. As described by Bryman & Bell (2007), the process is iterative and recursive, i.e. data collection and analysis proceed simultaneously. This has been a central feature with regards to the research process in this paper. The theoretical framework guided the search of data and when that data had been collected it has also been analyzed. The central tools of grounded theory are theoretical sampling, coding, theoretical saturation and constant comparison (Bryman & Bell, 2007). Theoretical sampling involves the collection and analysis of data and the formulation of hypotheses. The process is iterative and the researcher keeps selecting new samples for analysis until theoretical saturation is reached (Bryman & Bell, 2007). Coding is one of the most central processes in grounded theory and it entails reviewing interviewee responses and, in this case also documents of secondary data, and giving label names to parts that appears to be theoretically significant (Bryman & Bell, 2007). The codes used in this paper have been the various factors comprising the theoretical framework. For instance, information concerning the competition of structural glazing in California has been assorted under external target market factors and competitive structure. Whenever information about the competitive structure was found either by reading transcripts or reviewing secondary sources, it was added to the competitive structure section. The interview guide was also structured in such a way that questions followed the same structure as the theoretical framework, which enabled easy allocation of data into the codes of the framework as the interviews were conducted. This enabled easy overview of the data, as well as analysis. It also allowed for theoretical sampling and theoretical saturation. By continuously adding and analyzing

data with the framework, it was possible to reach a limit where it was deemed unnecessary to pursue further sources for this information. For instance, a strong tendency in interviewee answers was found with regards to the question of which different types of buildings and construction projects that use point connect systems. This question was therefore excluded in future interviews as it occupied precious time in already very time pressured telephone interviews.

3.6 Sampling

The sampling procedure in this paper has been convenience sampling and theoretical sampling. For this paper the original research target was the National Glass Association, NGA, as well as various glazing contractors in the State of California. The NGA is a trade organization in USA for glass and glazing products. It offers its members certain benefits and services, such as the publication of glass magazine, which is being published monthly by NGA. However, after initial contact with NGA no one at the organization was either not willing to participate or felt that they had sufficient knowledge about glazing in California to participate. The glazing contractors which were contacted were found by means of Manta.com, an industry search engine for the U.S. market, which provides detailed information about American companies for a subscription. This search engine contains industry categories and filters that enables the user to easily search and select companies based for instance on its industry affiliation, size, number of employees, and location. By restricting the search to the State of California and only firms with more than ten employees, a list of 179 companies was received. These companies constituted the sample of glazing contractors. Once the list was completed further screening took place by visiting each of the firms' webpage. Firms that did not have a webpage were discarded from the list. Visiting each firm's webpage was necessary in order to determine its representation for the research. Several firms in the list did not engage in glazing activities similar to that of Alpha and was therefore removed. This could for instance be due to some firms that focus on window repair only and not actual glass contracting. These firms were deemed unfit for the research as they most likely did not possess the knowledge needed for this inquiry, such as who the decision makers are in the purchasing process of point connect. After the final screening the list was left with 50 companies. The original intention was to keep contacting these firms until ten interviews had been received, however, as the data was collected a strong trend was in the answers. The data also led to the discovery of another category of companies that was found interesting for this research: architects. After eight interviews with glazing contractors, the theoretical saturation had been reached and it was decided that the final data was to be collected from the architects instead. The reason why architects were found interesting concerned their supposed involvement in the purchasing process of point connect products. According to several testimonies from glazing contractors, architects together with owners are the primary decision makers in that process. The architects were also found, screened and selected using the same process as for the glazing contractors. Since there are a lot of registered architectural companies in California, close to 9000 according to Manta.com, the search had to be filtered and therefore only included architectural firms with more than 50 employees. By doing so, the list was narrowed down to a more manageable list of 150 organizations. Also by limiting the sample to larger architectural firms, it was deemed more likely that these firms at one point or another had been involved in the design and procurement of point connect products. Non-response and an unwillingness to participate was a major issue with regards to these interviews. Several firms said no immediately while others stated that they simply did not have the time to participate in any interviews. Only two interviews were conducted with architectural firms. As sufficient data still was obtained from these two interviews, it is reasonable to assume that the non-response had minor bias on the findings.

The final interviews that was needed was with California officials in order to determine which legal aspects, i.e. building codes etc., that affects AlphaConnect. Non-response was not an issue here as these departments have an obligation to inform affected parties, in this case Alpha and how building codes affects their product. After conducting an interview with the California Building Commission, CBC, the interviewee explained that the State of California does not write any building codes by themselves but rather complies with the International Code Council, ICC. ICC was therefore contacted to participate in an additional interview that gave a deeper insight into the building code framework.

Several interviews were also conducted with Alpha in order to carry out this research. The first interviews were very informal in nature where the main purpose was to develop a mutual understanding of what both parties, Alpha and the researchers of this thesis, wanted to focus the research on. The final interview was informal, semi-structured and approximately one hour in length. The main point of the interview was to investigate Alpha's internal factors that affect choice of entry mode strategy. Topics discussed included among other things Alpha's available resources and resource commitment for various entry modes.

In order to collect sufficient primary data, a total of 15 interviews were held, including seven with glazing contractors, two with architects, one with the California Building Commission, one with the International Code Council, and four with Alpha. Interview responses are found in Appendix 1 and 2. Glazing contractors and architects are referred to as G and A, combined with a number (e.g. A1 or G3), in the empirical and analysis section.

3.7 Designing the interview guide

The interview questions for the semi-structured interviews were a product of the theoretical framework and discussions with Alpha. By following the framework, a guide was outlined through the various aspects of the Californian market that needed answering, such as size, who are the major suppliers of point connect, what legal aspect affect AlphaConnect, etc. There were also several questions that Alpha was interested in, questions that were not captured by the original framework by Root (1998). These questions included among other things the decision makers in the purchasing process of point connect products in California (Appendix 1).

Open questions were chosen over closed questions for several reasons. First, this paper has adopted a qualitative research strategy which requires rich and detailed answers from interviewees. Had the questions been closed they would not have been able to capture all the details from the interviewees' responses. Second, having closed questions would imply that all or most of the potential outcomes and answers were known in advance, which was not the case. Many of the aspects of this research were explorative and several of the answers were unanticipated. Third, by having fixed responses to the questions one faces the risk of biasing the interviewee (Bryman & Bell, 2007). This bias is mitigated by allowing the respondents to answer on their own terms and with their own words. Drawbacks of using open questions over closed include is its time-consumption, the need for coding of answers, and a greater effort from respondents (Bryman & Bell, 2007). The questions were grouped in accordance with the theoretical framework as target market questions, target market production questions, target market environmental questions, and target product questions. The interview guide can be found in Appendix 2.

3.8 Credibility of the research

Reliability and validity are concepts originating from quantitative research, however there are adaptations of the concepts that make them applicable for qualitative research as well.

3.8.1 Reliability

LeCompte and Goetz (1982, cited in Bryman & Bell, 2007) describe external reliability and internal reliability as follows: external reliability is the degree or extent to which a given study can be replicated and internal reliability refers to whether or not members of the research team agree about what they see or hear, which is similar to inter-observer consistency. External reliability is of course an issue in qualitative research because it is impossible to freeze a social setting and its context in such a way that the study can be replicated elsewhere (Bryman & Bell, 2007). When considering the external reliability of this thesis, it is of course very low. That however, is not a concern for this paper since the purpose of this research is to answer a research question that is highly contextual and firm specific. The research is not meant to be applicable for any other entity than Alpha.

Internal reliability however, is arguably high in this paper. There has been no major conflict or disagreement between the researchers of this paper about where to allocate a piece of data or how to interpret it. Interview transcripts and secondary sources have been reviewed by both researchers, which has enabled consensus to be reached without any difficulties arising.

There are however some measures taken which enables some level of replication in the future, which in turn increases reliability. First, the interview guide can be used to structure interviews in a similar manner. Second, the theoretical framework can also be used as a guide to replicate the research process.

3.8.2 Validity

Internal validity is described as whether or not there is a good match between researchers' observations and the theoretical ideas they develop, and external validity refers to the degree to which findings can be generalized across social settings (LeCompte & Goetz, 1982, cited in Bryman & Bell, 2007). Internal validity is often a strong point of qualitative research because of the prolonged participation with the research, which enables the researcher to ensure a high level of equivalence between concepts and observations. With regards to this research, internal validity is arguably high. A large amount of data has been gathered in order to propose recommendations for entry mode selection. Furthermore, the framework which steers data collection and analysis is adapted from solid and respectable sources within the field of entry strategies. The framework thus has reasonably high validity with regards to generating suggestions for entry strategies as it has been proven successful over time.

External validity often represents a problem for qualitative research because its employment of small samples and case studies. This paper is therefore not an exception as it is a case study. Again, as the findings generated by this research are meant for Alpha they are very contextual and are arguably not of particular importance to anyone outside the firm. Even if one were to consider a business in the same industry, Alpha holds a unique product that much of this research revolves around, which renders much of the findings inapplicable anyway.

4 Empirical findings

This chapter compiles all empirical data that has been collected throughout the research. It consists of both primary collected from semi-structured telephone interviews and secondary data, from various sources.

4.1 External factors

4.1.1 Target country market factors

4.1.1.1 Market size, growth prospects, and market information

Statistics presented in the 2007 Economic Census report by the U.S. Census Bureau (2007a), shows that there are in total 5,285 establishments in the glass and glazing contractor industry category for the whole U.S. market. These establishments together reached sales of 10,720,194,000 U.S. dollars and employed 57,601 people (U.S. Census Bureau, 2007a). The State of California represented 12.58% of the total number of establishments with 665 organizations (U.S. Census Bureau, 2007b). The sales for California reached a total of 1,734,327,000 U.S. dollars, which represented 16.18% of the countrywide sales (U.S. Census Bureau, 2007b). The State of California also employs 14.79% of the total number of industry employees with a workforce size of 8,521 people (U.S. Census Bureau, 2007b). California has more than twice the market size of New York which reached sales of 790,923,000 U.S. dollars (U.S. Census Bureau, 2007c).

According to all the interviewees, insulated glass has become the dominant alternative for most glass and glazing projects in the State of California. This is a result from institutional pressures coming from the Government and local demand to build more environmentally friendly constructions. President Obama launched for instance a "Better Buildings Initiative" recently to make American Businesses more energy efficient (White House, 2011). The Green Building Certification Institute, GBCI, also provides a certification standard named Leadership in Energy and Environmental Design, or LEED, in order to direct the energy efficiency of construction (GBCI, 2011). According to the California Building Standards Commission, CBSC, single pane is not allowed in California anymore. One of the interviewed architects, A1, put it; *"with any new project you have to more or less use insulated glazing due to energy savings and government initials"*. The isolation factor of insulated glass allows for less air leakage in buildings which allows heating systems and air conditioning to operate more efficiently. There are however still applications for single glass, according to interviewee G2, such as in distribution centers or warehouses where the higher cost of dual glass is not justified. Also, in these types of buildings isolation is not a concern. There also seems to be some incongruence in the answers concerning dual glass, however. One glazing contractor, G6, claim that they are still using monolithic, or single pane, glass for some point-fixed glazing systems. The interviewee justified it jokingly by saying that they do not have the climate here as you do in Sweden.

When considering the trend of point-fixed glazing systems, the answers vary. There are some interviewees claiming that it is increasing while others that it is decreasing. According to G2 and G3, point connect systems are increasing and has been for the past 5 to 10 years. One respondent, G5, had a more skeptic view on point-fixed glazing systems. For the past two years construction in California has severely slowed down. He said that he has only seen one or two jobs come across his desk during this last year. Due to the higher cost of point-fixed glazing systems, they oftentimes get substituted by a cheaper

system such as an aluminum framed curtain-wall. The economic situation and the fact that fewer constructions are built simply does not favor point-fixed systems at the moment. These claims were also supported by A2, especially when developers are involved in the construction process. A2 said that because point connect systems demands a higher price it sometimes get substituted for a cheaper curtain-wall system and even more so when developers are involved because they always look at the bottom line. According to architect A1, structural glazing or point-fixed systems has been on the market for roughly 15 years and these systems are still considered popular, albeit not as trendy as before.

With regards to the question of which type of buildings that uses point-fixed systems, the answers were in general congruent. Several respondents said that structural glass is used on "class-A, high-end type constructions", such as high profile office buildings, commercial entrances, museums, airports, hospitals, special constructions, schools, car dealerships, etc. While, according to G6, there is no specific type of building that only uses point-fixed system, it appears from the answers that most of these systems are used on large commercial entrances. One interviewee, G5, approximated that 90% of point-fixed structural glass goes into office buildings with large, dramatic entrances. Similarly, according to A1; *"The product is definitely used in the commercial market for high profile office buildings with big lobby type space, and also ground level retail space such as storefronts. As the product is there to cover a large area for transparency, it is not often valid for residential buildings."*

4.1.1.2 Competitive structure

Traditionally, the U.S. construction industry has experienced low capital requirements and low economic barriers to entry. This has led the construction industry to become very competitive, a situation that many aggressive project owners may take advantage of. As a result, gross margins for contractors have become as low as 2 to 5 percent for repetitive projects such as renovation and maintenance, and the construction of apartment and office buildings. The gross margin is somewhat higher for contractors when it comes to lump sum and complex projects as these normally involve more risks (Construction WebLinks, 2007). According to Construction WebLinks (2007), with the construction industry being so competitive in the U.S., focusing ones business is one of the most critical success factors for U.S. contractors. When focusing, the contractor should choose a region, sector, appetite for risk, client base, and size of project. The construction business is also very regionally focused in the U.S., where not even the large national companies are operating in all of the states at the same time. The regional focus has also been supported by several of the interviews, claiming that there are few international actors on the market. According to G2, there is one Italian glazing contractor on the market and a couple from Canada, but to his knowledge that is it.

The competitive structure of point-fixed glazing systems is less fractioned than the rest of the construction industry and seems to be dominated by fewer actors. The largest suppliers of these systems in the USA and California include according to various interviewees; Pilkington North America - distributed by W&W, Oldcastle Building Envelope, Innovative Structural Glass, Saint-Gobain, C.R. Laurence, and Dorma. Pilkington, Saint-Gobain, C.R. Laurence and Oldcastle are huge international suppliers of building products, where these fixed-point glazing systems only represent a small fraction of total revenue. Dorma is a family owned large international supplier of door and glass products. Innovative Structural Glass, ISG, is a local Californian firm, specializing solely on structural glass systems. According to G7, Pilkington has a hard time selling their glazing systems on the Californian market due to their focus on quality which results in a higher price. ISG are apparently winning many jobs in

California due their lower price. How ISG produce their systems have not been confirmed, however, according to G3, in one structural glazing job they did with ISG, ISG imported the glass from China. Similarly, G5 believed that ISG manufacture their systems in Mexico. Dorma originates from Germany and while they are active on the American market, they seem to be a small player when considering the interviewee responses.

Although this market consists of rather few actors, it is not solely oligopolistic. For smaller and custom jobs, it seems as though many glazing contractors source these systems on a component basis from individual suppliers and assemble the systems by themselves. According to two of the respondents, G3 and G6, for some jobs, especially custom jobs, the glazing contractor source all the components and assemble the complete systems themselves. When some point-fixed glazing jobs require customized solutions it might be difficult to buy these solutions from the larger suppliers of these systems. According to G2 however, most point-fixed systems requires engineering and contractors, purchasing the entire package/system from the suppliers of point connect systems therefore becomes easier. It is easier as the packages then include glass, spider fittings, point connects, and engineering.

The major competing fixed-point glazing systems available on the Californian market are found in Table 10 below.

System	Supplier
Pilkington Planar (Pilkington's website, 2011)	Pilkington North America
Stackwall/Vision Vue (Oldcastle's website, 2011)	Oldcastle Building Envelope
Glass Fin Structures/Tension Structure (ISG's website, 2011a; 2011b)	Innovative Structural Glass
SGG Spider Glass/Lite-Wall (SGG's website, 2011)	Saint-Gobain Glass
CRL Spider Fittings (CRL's website, 2011)	C.R. Laurence
Dorma Loop/Rodan (Dorma's website, 2011)	Dorma

Table 10: Major competitors on the Californian glazing market.

4.1.1.3 Marketing infrastructure

Generally there are two types of projects and contractors in the U.S.: buildings and heavy construction. Building contractors supply e.g. schools, hospitals, residential, skyscrapers, and shopping centers, whereas heavy construction for instance constructs factories, highways, airports, ports, and railroads. Few contractors operate in both, and contractors generally specialize in one sector, e.g. highways within heavy construction (Construction WebLinks, 2007). Contractors can also be divided into two types of contractors: general and subcontractors. General contractors contract directly against the owner of the project and manage, schedule, and budget the entire project. Subcontractors on the other hand, perform a particular part or job of the project, e.g. electrical, plumbing or glazing works (Construction WebLinks, 2007). For heavy construction, the general contractors self-perform much of the construction project and use subcontractors for only specialized tasks. Building contractors though use subcontractors substantially, and may actually not perform any construction task themselves, acting rather only as project managers and coordinators (Construction WebLinks, 2007).

Other major participants in the U.S. construction industry are architects, engineers, and other design professionals, manufacturers and vendors, and suppliers and materialmen (Construction WebLinks, 2007). Architects generally design the buildings, engineers the systems for the buildings, e.g. electrical,

mechanical, structural work such as glazing, and nearly all heavy construction, whereas the other design professionals include professionals such as geologists, construction managers, land surveyors, building code consultants, landscape architects, environmental consultants, and lead abatement and asbestos abatement specialists. Manufacturers typically sell equipment to the contractor who installs it. Vendors are like subcontractors but supply the contractor only with equipment and no labor on the jobsite. Suppliers and materialmen sell bulk materials such as lumber, concrete, paint, and wire to the contractor or subcontractor, leaving the buyer responsible for installing the material.

When asked to describe the generic sales and purchasing channel of point-fixed systems, all respondents painted a very similar picture. In most cases the demand comes from the owners of the construction who brings their inquiry to architects. The architects then propose an initial design containing structural glass which is presented to a general contractor. The general contractor sometimes also invites sub-contractors, which for instance include glazing contractors, for a preliminary budget hearing. The glazing contractors are invited to submit their offers for point-fixed systems to the general contractor. The owners and the architects then decide which system to use and are thus the major decision makers in the process. Figure 2 illustrates this process.

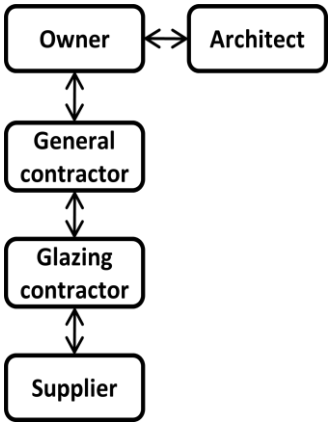

Figure 2: Sales and purchasing channels for the Californian structural glazing market.

4.1.2 Target country production factors

4.1.2.1 Production

Production factors in USA and California is better understood when one is aware of Alpha's current production arrangements.

In order to produce the AlphaConnect system, the metal attachment that is inserted into the innermost glass must be provided to the glass producer to be included into the actual production of the insulated glass. In order to protect their patented function of having the bolted system attached into the innermost glass, Alpha would still want to have the opportunity to send the component to the glass producer. When it comes to the choice of choosing a valid insulated glass producer for the completion of the system, every organization that has a modern production line for insulated glass will be able to put the attachment components into the glass themselves (Alpha, personal communication, 2011-01-31). Further, Alpha would also prefer to export the center support and four-armed cross components - which are the bearing connectors that attach to the attachment put into the insulated glass - directly to the construction site. But should this exporting process become too expensive, local components and production could be sourced

for this function. The highest priority by Alpha is to still remain in control over the production of the components that makes up the metal attachment put in the insulated glass as this is the patented solution which makes AlphaConnect unique (Alpha, personal communication, 2011-03-03).

Even though Alpha prefers to have the metal attachment exported the company believes that to be rational, the glass and the aluminum profiles will have to be produced locally through the use of a subcontractor. However, this approach might change due to the possible market size – should the volume of the possible delivery be large, it might be economical to use the insulated glass production in China instead and export it from there to the U.S. (Alpha, personal communication, 2011-03-24). Looking at the trade balance in glass products between U.S. and China this might be a viable option. Between 2000 and 2008 the U.S. trade deficit with China in glass and glass products increased dramatically, with the imports from China increasing three-fold to an amount above 1,500,000,000 US$ (Haley, 2009).

Production of point-fixed systems in the State of California and the U.S. appears to be common. According to interviewee G2, point-fixed system was originally developed in Europe and so systems for the first American constructions containing these systems were imported. Nowadays however, many of the parts that make up a point-fixed system are being produced locally. Although there were some deviating opinions among the interviewees, the majority agreed that insulated glass is most commonly manufactured locally or in the United States. One interviewee, G3, claimed that they would not buy glass or components from China, especially glass and aluminum. The reason being that they prefer the extra security of having their components sourced locally should any complications arise, such as production delays, faulty components, etc. G3 also mentioned that many smaller components such as bolts or the four-armed cross components are many times imported because there are competitive prices to be had in international markets. According to G5, ISG manufacture its system in Mexico.

A1, had the following to say about production; *"The most important thing to consider is that imported products and systems are seen as expensive, expensive and also hard to coordinate with production schedules. And if I should use an imported product it has to have a feature that I couldn't get in the U.S. Overall it is a small factor, but if I have two identical products and where one of them is sourced locally, I have incentives to go with the locally sourced product. LEED also encourages local sourcing of materials, causing people to think a little bit more about buying things from local sources. I therefore think it helps to have local representation in terms of being able to meet you, getting your samples, and get help with engineering."*

4.1.2.2 Economic infrastructure

The economic infrastructure in the U.S. is arguably as good, if not better, as that of any other developed country. For California specifically, the economic infrastructure is extensive, claiming 15,000 miles of highways and freeways, 12 cargo airports, and 11 cargo seaports (GoED, 2011a). The state will also try and expand this infrastructure through California's Strategic Growth Plan, forecasting ambitious improvements to highways, freeways, railways, aviation, and the electrical infrastructure (GoED, 2010).

4.1.3 Target country environmental factors

Target country environmental factors include policies and regulations, industry protection, appropriability regimes, trade barriers, geography and climate, economic, and socioculture of the target country.

4.1.3.1 Policies and regulations

Political risk

For assessing the political risk for the U.S., the index put forward by Euromoney (2011a) is used. The index has a maximal score of 100, with the political risk category including the following factors: corruption, government non-payments/non-repatriation, government stability, information access/transparency, institutional risk, regulatory and policy environment (Euromoney, 2011b). With these factors evaluated, the U.S. scored 85.25 compared to Sweden's 90.83 and Luxembourg's 93.67 - the highest scoring country for political risk (Euromoney, 2011a).

Regulations

Successful contractors in the U.S. regard lawyers as an important resource and involve them early in construction projects to avoid problems before they occur (Construction WebLinks, 2007). To be able to operate as a construction contractor in the U.S., the contractor has to be licensed in accordance with their trade. When licensed to a specific trade, e.g. general, electric, and glazing, the contractor violates against its license should it operate outside of its licensed specialty. By becoming a licensed contractor, the company has proven that it both has experience in its area of business by passing a test, and that it has shown evidence of a reasonable financial responsibility. When two companies decide to form a joint venture, this venture also needs to be licensed separately (Construction WebLinks, 2001). Further, U.S. contractors are free to import materials as long as they follow the same laws as American materials, the import duties are paid, and meet contractual specifications. For some federal and state projects though, the contract require that only American-made materials are to be used (Construction WebLinks, 2007).

The U.S. legislation also covers building codes, which are guided by frameworks existing on international, federal, state and local levels. For the State of California, most construction must be designed and built in accordance with both state and local code enforcements, for which local governments employ inspectors that see to it that these are followed (Construction WebLinks, 2007). Published by the California Building Commission, CBC, the California Code of Regulations, CCR, includes all regulations adopted by California's state agencies and is made up of 28 titles. Title 24 is known as the California Building Standards Code, and specifically contains the regulations that affect the design and construction of buildings in the State of California (CBSC, 2011). The state law requires that building standards in Title 24 are enforced. However, cities and counties within the state are allowed to enforce more restrictive requirements than provided by Title 24 because of local climatic, geological, or topographical conditions, and also for fire and panic safety (CBSC, 2011). According to the source at ICC and A1, California is probably the strictest state as it also includes requirements for meeting standards for seismic activity, tougher energy codes, and the state is forward when it comes to adopting new codes.

The State of California has adopted their mandatory building codes from the uniform International Building Code, IBC, developed by the International Code Council, ICC. New editions of the ICC are released every three years, where addendums are presented periodically in between, and of which the latest version is from 2009 (Carney, 2010). The interviewee at CBC explains that they do not write any of the code themselves, they just adopt, update, and modify the code that has been written by ICC. However, these codes published by ICC do not include the California Amendments and not all model codes provisions are therefore adopted by the State of California as they either conflict with state laws or lack the specificity that is required by state law (CBSC, 2011). Hence, the building codes developed by ICC

should not be consulted for use in California; rather it is the most recent CCR Title 24 version that is to be used for construction projects within the state and jurisdictions. As stated by NGA (2006), a glazier never complies with a building model code such as ICC; it complies with a local building code. Further, part 6, 8, and 11 of Title 24 is not based on any model code and are instead developed by state adopting agencies. Part 6 and 11 make up for some of California's legislative work to become greener, with part 6 being named the California Energy Code and part 11 the California Green Building Standards Code, whereas part 8 is the State Historical Building Code and not relevant here (CBSC, 2011). The California Green Building Standards Code, for instance, requires all new buildings to be more energy efficient and environmentally responsible and also took effect on January 1, 2011 (Glass Magazine, 2010). Additionally, not all of the codes printed in Title 24 are applicable to all kinds of building occupancies, one has to control that state agencies which have jurisdiction over the subject also have adopted the code, and what amendments that might follow with it. An example of a state agency with jurisdiction is the Office of the State Fire Marshal which for instance has general application for hotels, apartments, dwelling, and high-rise buildings (CBSC, 2011).

Codes and standards also differs, with codes giving details of where a certain product is required and standards presenting the criteria for the which the product can qualify (Carney, 2010). The source at CBC explains that chapter 35 in Title 24, Part 2 is the reference chapter for which one finds all the standards applied to the building codes. Most of the performance standards are developed by technical organizations such as AAMA, ASTM, ASHRAE, and ANSI. However, when a technical organization is the developer of the standard, the standard is voluntary to comply with until it is referenced in a building code (NGA, 2006). For architectural glass, the selection is generally based on four factors: human impact loads, fire safety standards, energy standards, and the resistance to wind, snow, and dead loads, and windborne debris (NGA, 2006).

The human impacts loads are based on the possibility that individuals will make contact with the glass and are therefore specific to the use and fitting of glass products in glass doors, glass in railings, glazing used for indoor and outdoor swimming pools and spas, glass next to stairways and ramps, and special buildings such as athletic facilities (NGA, 2006). The G2 source explains that as long as the glass is tempered and is within the engineers' calculations, it will have no trouble to withstand human impact. Should the door or window require fire-rated glass, the glass system needs a fire protection rating. The use of fire-rated glass is based on building use and occupancy, and also on the location of the glass as related to the proximity of other buildings (NGA, 2006). When it comes to energy efficiency standards, the three important performance measures to follow are: the U-factor - a heat-loss measurement, visible light transmission - measuring the light passing through the glazing, and the solar heat gain coefficient - controlling for the amount of heat that the glazing lets into a building for skylights. These measurements' importance change based on geographical climate zones, of which there are 16 in the State of California (Carney, 2010; NGA, 2006; CBSC, 2010a).

The most common design load consideration needed to be taken for glazing systems are wind loads, with the ASCE 7 framework from the American Society of Civil Engineers being the current standard (CBSC, 2010b). The wind load requirement depends on several factors, such as the geographical location of the building, the building's shape and size, and the character of the surrounding terrain (NGA, 2006). California, is affected by the least amount of wind in the country, and therefore has the lowest wind load requirements (CBSC, 2010c). Because of these relatively mild winds, the state does not have to comply

with impact loads of windborne debris as it is not located in a hurricane-prone region (CBSC, 2010d). When applying vertical glazing to a building, the glazing must also be able to withstand seismic loads for which the ASCE 7 framework too provides the requirements for the different seismic zones (CBSC, 2010e). According to the interviewee at ICC, the State of California is made up of various seismic zones, each zone with its specific requirements. Dead loads are also a parameter affecting this kind of glazing system but that regulation is associated with sloped glass, a construction component also affected by snow loads and wind uplift requirements (Carney, 2010; NGA, 2006).

In the construction process of a building, architects and/or structural engineers are responsible for calculating these required loads for the glazing system, a responsibility that should not be put on the glazing contractor or fabricator. Still, when it comes to a glass manufacturer, he/she is responsible for their product to meet the specified load requirements (Carney, 2010). Additionally, for the specifics of a building's accessibility, these requirements are for the project architect to decide (NGA, 2006).

For the testing and certification process, and how to get AlphaConnect to become legal for usage in the market, the source at ICC explains that having an ICC evaluation report might be the easiest way to get traction in the U.S. The ICC evaluation report includes the evaluation of available test data for AlphaConnect to the IBC codes and matching it with existing acceptance criteria or protocol for this type of product should there exist any. Should a product for instance be very innovative it would often require the development of a new acceptance criteria. According to the source at ICC, a new acceptance criterion would have to be developed for AlphaConnect to evaluate this particular type of glazing system. This evaluation report can however be rather pricey, and for any building product that is reviewed the basic starting fee is 8525 US$. But this starting fee only starts the evaluation process of matching it with the IBC, and should the manufacturer want to test the product against any standard or have it recognized for any specific code in a certain state, the cost might go up to 15000 to 20000 US$ according to the ICC source. However, should the product go through the evaluation report, it is put in the ICC database and at their webpage, which according to them is the resource for designers and building officials. The product can then also be marketed with the report and ICC tag, a method that is common to use for manufacturers displaying their products at tradeshows for example.

Interviewee G7 explains though that there are no testing requirements in the building specifications, these requirements are instead pretested in the manufacturing of the system primarily to meet the demands of seismic activities. The interviewee from ICC explains that everyone is free to use a product as long as it complies with local building codes. Most of the building departments do require some sort of justification of the product and the easiest way to accommodate this is if you to have the ICC evaluation report. Still, having an ICC report do not shield the manufacturer from any liability claims should there be any kind of failure in the product. For a manufacturer to become shielded against this, he/she must evaluate the product against the building codes. This is according to the ICC source a common procedure among manufacturers, as they make use of their own engineering staff. The procedure involves that the manufacturer itself specify the product on drawings and attach engineering calculations or something that justifies the product, and then submit this to the building department who approves of it and then the system is installed. As mentioned above, with no acceptance criteria in place, there is an indication that no similar and competing system to AlphaConnect has been tested by the ICC. According to the ICC interviewee, there are many European standards that are appropriate to the U.S. market, but by the letter of the law it must be made certain that the product meets the American building code qualifications. But,

in the case of Alpha, if the company already has an established product that meets certain European standards, the ICC source states that the product will more than likely not face any issues in the U.S. building legislation. Additionally, also the American Architectural Manufacturers Association, AAMA, has a certification process for matching a product to architectural standards which might prove effective when trying to convince architects and design engineers of AlphaConnect (AAMA, 2011).

Answering for the questions of what the possible construction sizes for this kind of point-fixed glazing system are, the G2 interviewee explains that there are no limits to how tall the system might be built as long as the structure is engineered. However, given the high cost of the system, there are few actors that would install the system higher up than the street level, which is at the level where everyone can see it. For Southern California in the city of San Diego, the G7 source states that the systems are normally 28 to 30 feet tall, but that this height might differ when compared to Northern California which is more of a Mecca for new structural glazing systems. When it comes to the size of the actual window pieces, G2 says that these are available at up to 15 feet tall and gives coverage of up to 60 square-feet for an insulated unit. G7, representing Southern California, states that the windows are normally eight to nine feet tall and five feet wide, covering up approximately 45 square-feet per unit.

Appropriability regimes

The legislative groundwork for how the U.S. protects intellectual property was laid out during the late 1970s and early 1980s when policy-makers became increasingly concerned with the country's decline in high technology industries, such as the semiconductor industry (Coriat & Orsi, 2002). Since then, the intellectual property rights protection has become even more stringent for the country. Already participating in the Trade Related Aspects of Intellectual Property Rights, TRIPS, agreement under the World Trade Organization since 1994 (Ostergard, 2000), the U.S. Chamber of Commerce developed the PRO-IP Act that became enacted in 2008 (U.S. Chamber of Commerce, 2008). The PRO-IP Act was put in place to improve the federal government's capacity to protect intellectual property even further and to toughen civil and criminal laws against counterfeiting and piracy (U.S. Chamber of Commerce, 2008). That the intellectual property rights are tough in the U.S. is understandable as intellectual property in the country is worth more than 5 trillion US$ and accounts for more than half of all U.S. exports (U.S. Chamber of Commerce, 2008). By calculating for the average level of intellectual property protection, the United States was listed as one of the top-scoring countries in Seyoum's study from 1996. With a maximum score of 21 for patent protection, the U.S. scored 19. The exact same figures were seen for the United States' trademark protection, but the country claimed only 7 out of 9 for trade secret protection. For the final factor, the United States scored 17 out of 21 for copyright protection (Seyoum, 1996).

Industry protection

According to the Market Access Database from the European Commission, there is no industry protection in place for the State of California. There is steel industry protection for a few other states in the U.S., an industry protection that is directed towards the use of American made steel components in the construction of governmental buildings (MADB, 2011a). As stated by A1, LEED also bear the requirements of using locally sourced components for construction, which however is due to the focus of environmental friendliness.

Trade barriers

The European Union and the United States are each other's main trading partners enjoying the largest bilateral trade relationship in the world. In 2007, they together also made up for almost 60% of the world's GDP (European Commission, 2009). Between these two entities there still exist a certain amount of trade barriers, made up of both tariff and non-tariff barriers. Tariffs has been reduced substantially and eliminated between the two parties, however, there are still significant duties and tariffs applied to various sectors such as food products, textiles, footwear, leather good, ceramics, glassware, and railway cars (European Commission, 2009).

When it comes to non-tariffs, EU exporters face steep regulatory barriers as products increasingly have to comply with multiple technical regulations regarding consumer and environmental protection (European Commission, 2009). These regulations do however not apply specifically to the product segments that AlphaConnect belongs to, as they affect products such as e.g. pharmaceuticals, wines and spirits, and pressure equipment (European Commission, 2009; ECORYS, 2009). How these non-tariff barriers affect AlphaConnect is instead what is described above in the regulative section: the lack of a unified federal regulatory framework. As there are no certainties that AlphaConnect will work legally in a different local jurisdiction should it comply with the building codes in another, the matching of legal frameworks becomes cumbersome and a trade barrier in itself (European Commission, 2009). There also exists a lack in the recognition from U.S. Customs of the European Union as a customs union, with the consequence being the non-acceptance of EU certificates of origin (MADB, 2011b). Similar to tariffs, EU exporters also experience added costs by facing a number of additional customs barriers through import user fees and excessive invoicing requirements. Out of these user fees, the most significant one is the Merchandise Processing Fee which is levied on all imported merchandise at a fixed rate of 0.21% of the value of the imported good with a maximum fee of 485 US$ (European Commission, 2009).

For construction services specifically, there exist non-tariff barriers for non-U.S. investors as the sector is domestically focused. This has it that an entry into the U.S. construction market is mainly achieved through the acquisition of an existing American firm (ECORYS, 2009). In order to be able to operate in the U.S. construction market, a foreign construction firm must therefore either establish or acquire U.S. entities, hire U.S. sub-contractors, or be represented by an American joint venture for operational and regulatory reasons (ECORYS, 2009). Additional non-tariff issues that are related to trade and investment in the U.S. are e.g. tax code requirements, non-use of the metric system, and perhaps double certification needs with differing standards between the two entities (ECORYS, 2009).

AlphaConnect's specific tariff level if shipped as a complete system is 0% of Free On Board value, FOB. This percentage applies to countries that are a Most Favoured Nation, MFN, which is when a trade agreement exists between the country of origin and the U.S. (MADB, 2011c). If the system instead is shipped in separate components, the percentage of FOB for MFNs is at 5.7% for the articulated bolt and inner clamping plate (MADB, 2011d), 0% for the spider cross arm (MADB, 2011e), and ranges between 2.9 to 8.6% for the plastic washer and adhesive tape (MADB, 2011f; 2011g; 2011h, 2011i).

4.1.3.2 Geography and climate

Considering the geographical distance to California from Gothenburg, Sweden, exporting is associated with relatively high freight costs and lead times. To make the costs visible, these have been calculated for freight via both air and sea sent from production sites in either Sweden or China, with a package that has

the size of 160cm x 80cm x 50cm, a weight of 100kg, delivered without insurance, and with the declared value of 1000 US$. From Stockholm, Sweden, to San Francisco, California, the price for air freight lands on 840 US$ and for sea freight it goes for 620 US$ with this kind of package (Freight Calculator, 2011a; 2011b). With the same kind of package size sent from Hong Kong, China, to San Francisco, the price for air freight totals to 1030 US$, whereas for sea freight it becomes as low as 429 US$ (Freight Calculator, 2011a; 2011b).

The geographical situation and climatic patterns of California, the seismic activities frequenting the West Coast of the U.S. specifically, is actually what sparked Alpha's interest to enter this market in the first place (Alpha, personal communication, 2011-01-31). The State of California is situated on the boundary between two of Earth's major tectonic plates – the Pacific and North American Plates – and suffers daily from over 100 recorded earthquakes (Field & Milner, 2008; Berkeley Seismological Laboratory's website, 2011). According to Field and Milner (2008), California will continue to experience around 3 earthquakes annually with a magnitude 5 or greater, a number that almost doubles if the aftershocks are included. Additionally, as there is a likeliness greater than 99% that California will suffer from at least one earthquake that will have a magnitude of 6.7 or more within the next 30 years, building codes and earthquake insurance have to be adjusted to meet these powerful quakes (Field & Milner, 2008). Three quarters of the economical earthquake losses in the U.S. also come from the State of California, and the damages in California for the next coming ten years is expected to exceed 30 billion US$ (CSSC, 2003).

4.1.3.3 Economic

The economy of California is the 8th largest in the world, representing 13% of the United States' GDP with 1.9 trillion $US (GoED, 2011a; BEA, 2011). For foreign investors, the State of California offers several advantages. According to GoED (2011b), the state is considered the number one state for attracting foreign investment, stating that there is no other location that can match California on the Pacific Rim when it comes to its combination of "*geographic location, large consumer market, well-educated workforce, and concentration of corporate, financial and high-technology resources"*. With the largest concentrations of *"international banks, foreign consulates, and bi-national chambers of commerce in the United States"* (GoED, 2011b), and the largest trade network of any state (GoED, 2011a), California is a great market for many foreign investors. California ranks first in the U.S. for an attractive location for international employers (GoED, 2011a).

The economic risk for the U.S. is quantified out of a total score of 100 and the category includes variables for bank stability/risk, GNP outlook, unemployment rate, government finances, and monetary policy/currency stability (Euromoney, 2011b). With this assessment, the U.S. scored as low as 60.67, comparing to Sweden's 78.17 or Norway's - the best scoring country - 90.40 (Euromoney, 2011a). To improve these rather weak statistics, GoED (2010) believes that the streamlining of environmental permits will generate additional economic activity in the construction, architectural, materials, and finance industries.

The Californian economy has experienced a large decline in economic activity since the credit crunch, which hit the world in mid-2008. According to A2; *"In California things are very slow right now because of the economy. Our engine is on a slow burn and we have budget problems. It has been going on for some years, even when Schwarzenegger was Governor. He couldn't get people to vote for increased taxes, so as a result it is kind of like a depression that has been going on in the USA. We are normally the*

engine that drives USA, California that is. But that engine right now, say we have 12 cylinders normally, it is only four or five going right now. The only strong point in new construction would be healthcare. Not much office building constructions and hotels, and higher education are being built." G5 painted a similar picture during his interview. According to him, there are not that many high-risers going up anymore because construction has severely slowed down for the past 2 years. And because point connect systems are expensive and considered luxurious the demand for these products has decreased as well.

When looking at information presented by the California Department of Finance in its latest financial bulletin in April this year, they acknowledge some signs that the economy is in fact improving. *"More signs of an improving economy arrived in February 2011. Job gains continued for the fifth consecutive month and, further, the gains were spread widely across the private sector. The unemployment rate dropped for the second month in a row."* However, with regards to residential construction it appears as though it is still a weak point in the Californian economy. *"[...] home building and real estate markets continued to be a major source of economic weakness for California."* (CDoF, 2011a). With regards to non-residential construction the Department of Finance reported the following; *"Nonresidential construction permitting also slowed slightly in February but was still up almost 11 percent from a year earlier. In fact, permitting accelerated on a year-over-year basis in four out of the most recent six months. For the six months ending with February 2011, nonresidential permitting was up 7.5 percent from the same months a year earlier."* (CDoF, 2011a). Looking into the future, the economic forecast for the coming years in the State of California shows promising figures for construction with the market being back at 2006's figures for total construction valuation by the end of 2013 (CDoF, 2011b). In the first quarter of 2006, construction was valued at 66 billion US$, a figure that declined to 30.6 billion US$ by the end of 2008 (CDoF, 2011b). The forecast for 2011 is that the construction will be valued at 31 billion US$ by the fourth quarter - figures comparable with the pre-crisis valuation, at 52.2 billion US$ for the final quarter in 2012, and to reach 65.8 billion US$ by the end of 2013 (CDoF, 2011b).

4.1.3.4 Sociocultural

The cultural index scores provided by Hofstede (1984) for both Sweden and the U.S. are as follows; Sweden scores 31 out of 100 for power distance, whereas the U.S. scores 40. For individualism, Sweden scores 71 and the U.S. 91. The uncertainty avoidance in Sweden is at 29, compared to 40 in the U.S. Masculinity shows a great difference between the two countries with Sweden scoring 5 and the U.S. 62. Long-term orientation shows the closest cultural match with Sweden scoring 33 and the U.S. 29.

Cultural differences between Sweden and USA according to the framework of Edward T. Hall (cited in Sebenius, 2002) are as follows: North Americans are considered deal-focused in accordance with the relationship parameter as they tend to move to the next potential customer when the payment from the previous deal has cleared (Lintzén & Svedjeholm, 2006). Swedes are also deal-focused, but Americans can be considered somewhat more people oriented than Swedes according to an interviewee in Lintzén and Svedjeholm (2006). For the communication parameter, both Sweden and the U.S. show a similarity in both being considered low context cultures, which implies a preference for concise, to-the-point communications (Sebenius, 2002). The cultures are also similar in that they want to reach agreements rather quickly. However, according to an interviewee in Lintzén and Svedjeholm's (2006) thesis, Americans are more trained in sales and negotiating skills as business is built on more competition in the U.S. which might have the effect that Americans are louder and speak more in negotiations than their Swedish counterparts. On the time category, both cultures are monochronic and both therefore value

punctuality (Lintzén & Svedjeholm, 2006). Still, the American interviewee in Lintzén and Svedjeholm (2006) argues that Americans are perhaps more easygoing than Swedes. The personal space is also that similar between the two cultures, both requiring 1 to 2 meters. Again, the American interviewee suggest that Americans can be perceived as slightly more easygoing and relaxed when it comes to personal space (Lintzén & Svedjeholm, 2006).

Additional details to the cultural aspects of the two countries are that Swedish managers are considered more formal in their relationships and they do not like to haggle over the price, but rather provide professional proposals. Swedes also value consensus and avoids confrontation (Lintzén & Svedjeholm, 2006). Furthermore, Americans write very thorough contracts and business agreements, but they are also considered more informal than formal compared to Swedes (Hedqwist, 2004, cited in Lintzén & Svedjeholm, 2006). It is in addition important to establish a personal relationship first in the U.S. before one can sell any actual products (Lintzén & Svedjeholm, 2006). What is also noteworthy is that North Americans generally have limited insight into other cultures and have often little experience of working with people that do not share the same values to succeed in different markets (Winters, 2000, cited in Lintzén & Svedjeholm, 2006). Still, managers from the U.S. generally have a positive view of Europeans and European products (Lintzén & Svedjeholm, 2006).

That the American counterparts have a positive view of Europeans products was also seen in the interviews performed. There were no bad opinions but some respondents seemed to have a lot of respect for European products. When asked about the interviewees' opinions about Swedish products the answers were also quite similar. One architect, A1, associated Sweden with IKEA that offers good design to a low price, which is a good association according him. The same interviewee however had some issues with imported products in general as they many times are associated with a higher cost, especially products from France and Italy. Imported products are also considered difficult to coordinate with production schedules, since they might require long shipping distances which takes time. Should any complications arise with the imported products such as for instance defects, it might require a longer time to get a replacement shipment which could negatively influence lead times. A1 stated that *"if I have two identical products and where one of them is sourced locally, I have incentives to go with the locally sourced product."* Also if a construction project is LEED, it will encourage people to source locally.

4.1.4 Home country factors

4.1.4.1 Market

Although Alpha does not have an exact figure on the size of the domestic Swedish market for structural glazing, the market is considered small compared to other European countries. The market size is also hard to estimate as there is no SNI code for glass contracting in Sweden. According to Alpha, overall there are few constructions of point connect systems in Sweden, and should it sell in Sweden it would go to either Malmö or Stockholm and not Gothenburg where the company is located (Alpha, personal communication, 2011-05-11). The home market is also considered too small as there are very few fitting projects to bid on: bids are often left on projects where a structural glazing system such as AlphaConnect is not asked for, and Alpha therefore has to convince the project owner that the advantages of the system justifies the added cost.

Alpha also have difficulties when identifying valid competitors and considered themselves to be only one in Sweden that offers this kind of system (Alpha, personal communication, 2011-05-11). The competition

comes from other kinds of facades instead where, as stated, the price difference is considered too great. The only direct competitors that Alpha has identified domestically or in Europe are Pilkington with their Planar system, and Eckelt's Lite-Wall ISO which is a company owned by Saint-Gobain. Out of these two, Pilkington Planar has occasionally been installed on the Swedish market whereas Eckelt has only been seen outside of Sweden on the European market.

4.1.4.2 Production

The production costs for producing each of the components that make up AlphaConnect in Sweden are according to Alpha relatively expensive. Throughout the years though, it has overall become less expensive to produce the system domestically. However, should one want to sell individual components of AlphaConnect without contracting the entire system, it has to be produced abroad in order to be able earn any profit at all (Alpha, personal communication, 2011-05-11).

4.1.4.3 Environment

The company are not aware of any tax relieves or such incentives from the Government in order promote export instead of investment abroad. What exists though are programs that try to motivate companies to export more. These programs are put in place by Exportrådet - the Swedish Trade Council - and Business Region Göteborg - at the municipality level, both trying to help companies to establish themselves in foreign markets and motivate them to first of all develop their goods locally and export them from Sweden. In order to achieve this, the two organizations offer consultancy time for free or at a reduced price (Alpha, personal communication, 2011-05-11).

4.2 Internal factors

4.2.1 Company product factors

Today's strive towards an energy efficient society has also reached the construction industry, which has led to that also buildings is demanded to save energy. One solution to save energy in buildings is to use double or even triple glazing system. AlphaConnect is a patented point-fixed structural glazing system that is set out to function with this kind of glazing, and at the same time offering the aesthetic function of building frameless insulating glass facades and glass roofs (Alpha's brochure). AlphaConnect is easy to assemble, it handles glass thickness over 8 mm, and can be used with both double and triple insulated glazing (Alpha's brochure). The system also offers the use of thinner glass without compromising the strength of the facade through its combination of articulated joints and center support, a solution that both lowers the self-load and reduced the cost per square-meter of the facade (Alpha's brochure).

4.2.1.1 Product differentiation

Compared to other similar systems in the Californian market, AlphaConnect offers added advantages by having a fixing point in the inner glass: there are more possible glass combinations as there is no need to drill the outer glass, and the thermal insulation is superior with the elimination of cold bridges (Alpha's brochure). As the fixing points are positioned only in the inner glass, the outer glass can be soft-coated and therefore used with e.g. low emission glass, solar control coated glass, screen printed, sandblasted or tinted glass, clear float glass, tempered, and laminated glass (Alpha's brochure). Adding to this is the solution with a center support attached to the spider fitting of which the fixing points are fastened, a solution that eases almost all of the self-load of the glass - making it possible to use a thinner glass as there is overall less stress on the actual glass, lowering both the cost and weight of the system to the facade (Alpha, personal communication, 2011-05-11). The system further has possibilities to be applied

to several kinds of structures, such as metal structures, rod or truss construction, glass mullions or fins, and even to wooden constructions (Alpha's brochure).

The competing point connect systems that are in place in California have according to the glazing contractor interviewees a price range between 120 to 200 US$ per square-foot. Interviewee G5 and G6 also provided that the price a project owner normally pays for this kind of system ranges between 250 to as high as 350 US$ per square-foot. Looking at a curtain-wall system for the same application, the price generally varies between 70 to 80 US$ per square-foot according to G3. The pricing placed on the AlphaConnect system when sold to glazing contractors in Sweden becomes approximately 74 US$ per square-foot. For a curtain-wall system in Sweden the price would instead land on 59 US$ per square-foot (Alpha, personal communication, 2011-05-11). However, this do of course depend on the specific project being constructed, where for instance the size of the glass and the building's frame of which AlphaConnect is attached to matters when pricing it. Should the project demand a very complex installation, the price for AlphaConnect might run as high as 118 US$ per square-foot (Alpha, personal communication, 2011-05-11). According to Alpha, one of the reasons for why AlphaConnect was developed was due to the fact that available fixed-point systems where deemed too expensive to purchase. As stated, should the company go out on the market to purchase the components from available suppliers, the price would not even come close to the current price of AlphaConnect. With this in mind, the company knows that it has a good competitive price for AlphaConnect and they believe that there are no products with similar functions that can compete on its price (Alpha, personal communication, 2011-01-31; 2011-05-11).

When considering the features that AlphaConnect has - the clean aesthetics, thermal insulation, fixing points in the innermost glass, central support - it offers several unique features that at least Alpha has not seen for any competing product (Alpha, personal communication, 2011-01-31; 2011-05-11). None of the interviewees had seen this kind of system that has the bolts connected only to the innermost glass. Most interview subjects did though recognize this type of system as several similar competing products are seen on the market. The differences in aesthetics between AlphaConnect and competing systems is that in the latter the metal bolts go through the outermost glass, breaking the smooth surface of the system. Even though Alpha claims that a smoother outer surface has more advantages both functionally and visually, A1 saw it as a possible disadvantage as he finds an appeal in a structural glazing system that had metal relief points in the glass - a feature he regards as nice looking. However, all other interviews leaned more towards that AlphaConnect was at an advantage, and using the words of G7: *"the idea is very unique and cool"*.

Another competing feature of AlphaConnect concerns its durability, which has earned the system a Japanese certificate for highest achievable durability to withstand earthquakes. The testing done in Japan tested for seismic loads, typhoons and water tightness, tests that all displayed an outstanding performance of the system (Alpha's brochure). With this seismic performance in mind, an interest from Alpha has been to also start looking more at the markets that experience these often occurrences of earthquakes and hurricanes. One market that came to mind, showing a climate that both included the occurrence of seismic activity and perhaps the possibilities and ease for setting up business, was of course the State of California (Alpha, personal communication, 2011-01-31).

4.2.1.2 Pre- and post-purchase services

The first phase in a construction project for Alpha is the bidding process for which the company sends drawings with basic data in accordance with how the architects want the project designed. Should Alpha win the bidding, the planning phase is started in which all the technical details, such as e.g. installation, are solved for and calculations are made to decide for the amount of material needed in order to secure the production as soon as possible (Alpha, personal communication, 2011-01-31). The company do not have any production themselves; components are outsourced to partners instead. Once specifications are done, the drawings are handed over to the architect for approval and the final components are bought. When this has been completed, Alpha's part is done as the installation of the system is outsourced to another actor (Alpha, personal communication, 2011-01-31).

Occasionally, the company also gets contacted by an architect firsthand wanting to know how he/she could construct a building with AlphaConnect as a component for the facade. To sum up, when Alpha sells AlphaConnect to a customer, the company also includes engineering services in the package. These services include calculations and drawings for how the system fits into the building's facade, and also consultancy with guidance and suggestions for alternative solutions of installments (Alpha, personal communication, 2011-05-11).

There is no aftermarket for AlphaConnect. Approved of installers are often very geographically dispersed. This has it that it becomes very costly for the customer as the company has to send for an installer that might not presently be located in the area, a cost that Alpha cannot claim much revenue from as it is already that expensive for the customer (Alpha, personal communication, 2011-03-24). The interviewee G2 explains this by stating that improvements to an existing building is difficult for a point connect system as it would require a lot of demolishment.

4.2.1.3 Service/product

The AlphaConnect system is defined as a product with a certain amount of services tied to it. The engineering service has already been addressed, but what might be needed for the Californian market is training of local companies to be able to install the system. In the future, local actors may take over the engineering services from Alpha, which has been described as something that the company wish for (Alpha, personal communication, 2011-05-11).

Installation of AlphaConnect is very similar to other competing systems and would therefore not demand any specific training. The only information needed for an installer is the tolerance figures which describe how tight and exact the components have to be mounted. According to Alpha, it is often the curtain-wall systems that are more difficult to install as their installments varies from one system to another (Alpha, personal communication, 2011-05-11).

4.2.1.4 Technology intensity

The AlphaConnect system is patented for all of the markets Alpha operates in, including most of the biggest countries in the world such as the U.S. (Alpha, personal communication, 2011-01-31). However, the patent only regards the solution of the attachment to the innermost glass. The complete system itself cannot be considered technologically intensive as it a rather simple mechanical system, excluding for instance any form of electronics. As Alpha states it, the system has several competitors with a similar function and similar components, the only difference is the patented attachment to the innermost glass (Alpha, personal communication, 2011-01-31).

4.2.1.5 Adaptation needed

In terms of the aesthetics, AlphaConnect's very similar to competing point connect systems found in California as stated by A1. The view of the product in California, according to the interviewees, is that it is a very high-end product used for buildings that want to make a statement. Also for Alpha's domestic market, Sweden, the system is seen as rather luxurious (Alpha, personal communication, 2011-05-11). Explained by G7, the price of the system is of course always going to be an issues, however, as all states pushing for energy efficiency in buildings the company will have a good chance in selling the product in California. For a specific location in California, G7 points out that AlphaConnect would even have a better chance in Northern California and specifically San Francisco, as that region seems like the Mecca for new products in which this system is. Further, G7 bases the success of AlphaConnect on the several more options it gives to architects in using different coatings on the glass, its uniqueness, and that is might possibly be suited in a system that can withstand the blast requirements for government buildings which is a market that is growing now.

A1 expects AlphaConnect to work fine in the market. Also the ICC source appears to be positive to the product functioning well with the regulatory requirements, stating that there are many European standards that are appropriate also for the U.S. Even though AlphaConnect still has to pass the legislation in California, the ICC interviewee explains that having an established product that already meets certain European standards would indicate that the product would more than likely not have any regulatory difficulties in the State of California. In order for Alpha to get the marketing and promotion needed, most interviewees consider that architects are the ones that should be contacted and influenced. G6 mentions that one solution would be to get into architectural magazines, G7 suggests visiting architectural schools and universities, and going to trade fairs, and A2 points out the lunch-and-learn meetings - where a vendor might come to the architects to pay for the lunch and at the same time introduce their product. The first step though would according to G6 be to take a job to set up a track record as a reference in the Californian market for architects to have a look at. This job should perhaps also be needed to be bought by Alpha in order to get the contract stated G6.

4.2.2 Company resource/commitment factors

According to Construction WebLinks (2007), there are three essential factors a contractor should have in order to succeed in the American construction industry: the company should have a strong and experienced management, which is backed up with both skilled personnel and an adequate amount of capital. The biggest challenge is to actually get the experience needed. This challenge can only swiftly be overcome by acquisition or a joint venture with an existing U.S. construction company (Construction WebLinks, 2007).

4.2.2.1 Resource availability

The resources available for Alpha in number of employees are four including a part-time employed accountant. Out of the three people in the staff, two are engineers with one of these being the manager of the company. Due to the financial downturn and the limited projects performed by the company today, the financial resources available are also those limited for the organization. However, the level of resources available now in both staff and capital could change swiftly should the sales pick up in Japan (Alpha, personal communication, 2011-05-11).

Still, as the company does not have their own production it becomes very easy for them to speed up their production volume by using existing and additional subcontractors. The bottleneck for Alpha is instead the engineering staff, where additional projects would demand a lot of time for the existing employees as most project are unique and require their own time (Alpha, personal communication, 2011-05-11).

4.2.2.2 Commitment

Today, Alpha is not interested in starting up a business themselves in California. What is considered possible is to either go into some form of partnership or go through a financier that is willing to invest in the foreign establishment. Should Alpha start the business up from scratch in California, it would take a very long time in order to just penetrate the market and then even more time to just get a volume out of it (Alpha, personal communication, 2011-05-11). The company sees one of the issues being the lack of experience they have of the American construction market, an experience that is much easier to get should Alpha collaborate with a local actor that has been in business there for years. A local actor would also have the contact network needed to get a decent sales volume (Alpha, personal communication, 2011-05-11).

The company is as stated committed to several markets abroad already, with the reasons being that should the product receive sales on the international market it is also very easy to get a volume on it. For Sweden though, this is not the case as one would never get a volume on it here (Alpha, personal communication, 2011-05-11).

5 Analysis

In this part of the paper the collected empirical data is analyzed and contrasted against theories on entry mode strategies. Managerial implications and suggestions for an entry mode strategy are also presented.

5.1 External factors

5.1.1 Target country market factors

5.1.1.1 Market size, growth prospects, and market information

According to Root (1998), small markets favor entry mode strategies that have low breakeven sales volumes such as indirect exporting, licensing and some contractual agreements, whereas large markets favors strategies with high breakeven sales volumes such as equity investment in local production (Root, 1998). Based on the empirical findings, the size of the Californian market for glass and glazing contractors would probably favor an equity mode entry such as an acquisition or a new establishment. With sales that amount to approximately 1.7 billion U.S. dollars, representing over 16% of the total U.S. market, it is reasonably one of the largest glass markets in the world. Granted that point-fixed structural glazing systems represent a smaller share of total sales in the glass and glazing work industry, it is most likely still one of the largest markets in terms of sales that Alpha could target. The reason why an equity mode entry is favorable is that even though it would require large investments in terms of capital, the large market ensures a positive return on the investment (Root, 1998; Sarkar & Cavusgil, 1996), provided that Alpha can obtain a large enough portion of total market share. This greater profitability is achieved through economies of scale that yields a lower marginal cost of production (Agarwal & Ramaswami, 1992). It is important to note however that although a large market can favor entry mode alternatives with high break-even sales volumes, it does not exclude other non-equity entry modes such as contractual agreements.

With regards to future growth prospects, even though construction is currently in a down turn the future of structural glazing in California appears rather promising when considering the empirical findings. There are several interviewees claiming that point-fixed structural glazing has increased and insulated glass is definitely increasing as it has become a requirement for most buildings, which makes AlphaConnect a suitable product for the Californian market. Although overall construction is down at the moment, construction is a highly cyclical industry, which ought to reasonably increase demand for point-fixed structural glazing in the future. As was shown in the empirical section, construction is expected to return to the 2006 levels at the end of 2013. It should also be mentioned that while there are responses confirming the decline in the construction market, there are no evidence suggesting that point-fixed structural glazing is decreasing. Demand has simply stagnated for the time being in what it seems is a direct result of the financial crisis still looming in California. In conclusion, point-fixed structural glazing may experience a downturn at the moment, however the market has potential for growth in the future, which suggests that an equity mode entry could be possible.

The Californian market for point-fixed glazing systems is also attractive for other reasons besides it size and potential future growth. According to the empirical findings, these systems are often times used on high-end buildings such as commercial lobbies, large entrances, museums, airports, etc. This premium segment of the market often times also warrants a higher price, which in turn generates higher profits.

5.1.1.2 Competitive structure

As is evident from the empirical findings, the market for construction and structural glazing in California is subject to intense competition. The competitive situation is what Root (1998) would describe as more towards atomistic, i.e. the market consists of many non-dominant competitors. In such a market, other alternatives besides equity investments becomes more attractive, as the firm often do not require investment in production to enable the company to compete directly against dominant incumbents (Root, 1998).

In Sweden and markets in close proximity to Sweden, Alpha has vertically integrated into sub-contracting, i.e. installation, of structural glazing systems through their subsidiary. There are several implications arguing against this arrangement in California however. First, the competitive situation described in the empirical section of this thesis does not necessarily warrant an equity investment when considering theory, i.e. Root (1998). When the market is highly competitive such as in American contracting, equity and even export entry might be discouraged in favor of contractual agreements, as the market is considered too competitive to enter.

Second, to be able to operate as a construction contractor in the U.S., the contractor has to be licensed in accordance with their trade. When licensed to a specific trade, e.g. general, electrical, and glazing, the contractor violates against its license should it operate outside of its licensed specialty. By becoming a licensed contractor, the company has proven that it both has experience in its area of business by passing a test, and that it has shown evidence of a reasonable financial responsibility (Construction WebLinks, 2001). Becoming a licensed contractor in California is very likely associated with added costs due to complexity and bureaucratization.

Third, according to Construction WebLinks (2007), there are three essential factors a contractor should have in order to succeed in the American construction industry: the company should have a strong and experienced management, which is backed up with both skilled personnel and an adequate amount of capital. Hence, for an international contractor to successfully expand into the U.S., the biggest challenge is to get the experience needed, which can only be achieved quickly by means of an acquisition or joint-venture. Alpha has currently neither of these factors at their disposal for the time being, and that is why contracting, no matter entry mode, is discouraged in California.

It is important to make a distinction between the competitive structure of glazing contractors and suppliers of point connect systems. While the former is mainly focused on the installment of various glazing systems, the latter is usually responsible for the manufacturing and supply of these systems. Alpha is considered a supplier of point connect systems, whereas its subsidiary is classified as a glazing contractor. When reviewing the empirical findings on the competitive structure for point-fixed glazing systems in California, it is closer to what Root (1998) would describe as an oligopolistic structure. There are relatively few suppliers of these systems in California and many of these firms share similar characteristics. According to theory, in situations of oligopolistic competition the firm often requires entry by means of equity in order to acquire production facilities to compete directly with the power of dominant firms (Root, 1998).

There are however, some issues with this particular arrangement that needs to be clarified in order for this entry mode to be a viable alternative. First, Alpha does currently not manufacture their own systems for any of their present markets themselves, nor is there any explicit intention to do so on their part in the

future either. Alpha's current production arrangement for the AlphaConnect system is what Root (1998) would define as contract manufacturing. Second, starting a production plant in a foreign country without previous experience of manufacturing is reasonably attached to a rather high level of risk. It is therefore reasonable to assume that an equity investment for production in the U.S. is only viable if Alpha were to enter by means of an acquisition or a joint-venture. Theoretically, by acquiring an incumbent supplier of point-fixed structural glazing, Alpha has the opportunity to acquire valuable local resources within management, technology, distribution channels, workers, skills etc. (Root, 1998), which enables the firm to efficiently and competitively run a manufacturing plant abroad. The same logic holds true for a market entry by means of a joint-venture.

Although the empirical findings indicate an oligopolistic competitive structure with regards to the supply of point connect systems, it does not necessarily exclude other forms of entry modes. For instance, it has been found through the interviews with glazing contractors that ISG, a supplier of point-fixed structural glazing in California, does not manufacture their systems locally. According to G5, he is fairly certain that ISG manufacture its systems in Mexico. Furthermore, when G3 was interviewed, who actually did a job with ISG, they found that ISG imported the glass for its systems from China for that particular job. Finally, according to G7 ISG is winning ground in California, at least in relation to Pilkington, because they are able to offer its systems to more competitive prices. One cannot exclude the possibility that the reason why ISG can sell their products to lower prices, is because they are importing the components for its systems from low-wage labor countries.

5.1.1.3 Marketing infrastructure

The marketing infrastructure will have positive or negative implications for the choice of a particular entry mode depending on the availability and quality of good local agents. For instance, in foreign markets where good local agents are tied to other firms or are simply non-existent, it discourages such entry modes as indirect and direct exporting to a local agent (Root, 1998). In these cases other entry modes are perceived as more viable. Furthermore, according to Teece (1986) if incumbents control specialized and co-specialized assets needed to commercialize an innovation, in this case marketing channels, one could either enter a market by completely integrating all these assets or, if appropriability regimes are strong, one could license the product instead.

Given the findings, it could be argued that the marketing infrastructure of point-fixed structural glazing systems in California is somewhat different from the traditional channel structure of a manufacturer, a wholesaler and a retailer, found for most consumption goods. Point connect systems is a business-to-business product that is sold in a channel structure consisting of building owners, architects, general contractors, sub-contractors and finally suppliers of point-fixed glazing systems. It appears that most suppliers of these products market its product themselves except for Pilkington. Pilkington has a contractual agreement with a large glazing contractor, W&W, that has specialized in structural glazing of point connect systems. W&W market and sells Pilkington Planar in several locations in the U.S., including California and the New York area. In other words, except for Pilkington, marketing is an asset that most suppliers of point connect in California control themselves. From the empirical data, there appear to be no independent intermediaries specializing solely on the distribution of point-fixed glazing systems. The marketing are performed by the suppliers themselves.

Marketing, when viewed as a complementary assets in this context, is reasonably what Teece (1986) would define as a generic asset, i.e. there is no mutual dependence on the product/innovation and the marketing assets. The nature of the marketing channel in the case of point-fixed glazing systems is not especially straight-forward either. In most cases, marketing as an asset is integrated into the firm, except in the case of Pilkington. None of the incumbent suppliers of point connect has a monopoly or strong position in relation to the marketing channel, but rather everyone is competing on similar terms. When considering this from an entry mode perspective, it does reasonably not discourage any alternatives. Direct export to an agent or distributor would work as one could sell the product to an intermediary in the form of a glazing contractor, which in turn would market and sell the system on the Californian market. Pilkington's relationship with W&W illustrates this marketing arrangement. However, it seems as the most common alternative is that the suppliers of point-fixed structural glazing market its product themselves without the use of intermediaries. Several of the competitors for these systems are large wholesalers and manufacturers of building products and supplies, which offer its products for various contractors both in traditional channels and online. For these large suppliers, such as Oldcastle and C.R. Laurence, point connect systems are just one product out of many which the supplier distributes. To sum, since most suppliers of point connect market its own products, it indicates that Alpha should consider integrating marketing in California by means of an equity investment in an export branch subsidiary. However, the nature of the marketing channel does not exclude other alternatives since AlphaConnect can be marketed and distributed through for instance one of the many glazing contractors situated in California.

5.1.2 Target country production factors

5.1.2.1 Production

From the empirical data and interviews it was found that production of point connect systems in California and the U.S. is not only possible, but also relatively common. Insulated glass especially seems to be almost solely manufactured in the U.S. In fact, one of the glazing contractors, G3, was surprised when they did a job with ISG who imported the dual glass from China for a particular job. The current situation would favor a sourcing strategy where Alpha at least considers procuring the glass for its systems locally in California. Several glazing contractors however are certain that metal components for these systems are often times imported. These metal components, such as spider-fittings, require a relatively low level of production technology to manufacture and therefore one can obtain competitive prices by importing said components from countries with low-wage labor, which, when considering the theories of Root (1998), discourages local production as high production costs favor some mode of export strategy.

Actual prices of production costs have been difficult to acquire during interviews and the collection of data. One reason being time limitations, but most importantly, the actors that do possess the information about production costs in the U.S. and California are the actual suppliers of point connect systems and thus competitors to Alpha. There is an obvious conflict of interest for these actors to willingly share this kind of information.

Although the actual production costs have not been disclosed, information about the price level of point connect systems when they are sold to contractors have been found. This information allows for a type of reverse engineering of the price level for production. From discussions with Alpha, it has been found that

the price level, i.e. the price that suppliers of point connect charge to glazing contractors, for these systems on the Californian market is rather high, which could indicate relatively high production costs in California or, but less likely, that the suppliers have high mark-ups. Given that these systems are used in construction which is a fiercely competitive market, more than likely it is the former alternative. Combined with the fact that California is a highly developed economy with no comparative advantage with regards to the wage of labor in relation to developing economies, it is reasonable to assume that the production costs in California are probably not more efficient than Alpha's current production location. Either way it is safe to say that production factors in California are not cheaper than in low-wage countries such as China.

When considering the implications of the production factors on the choice of entry strategy, the findings are somewhat conflicting. On one hand, production in the USA and California is definitely possible and there are obvious benefits, such as: (1) a reduction in shipping distance which leads to lower freight costs as this has become more costly in recent times due the oil price per barrel increasing to a price of 113 US$, Brent Spot (Bloomberg, 2011b), and (2) there appears to be a preference among American glazing contractors to buy domestically manufactured products, especially the insulated glass as this brings with it added security should anything break. On the other hand, America is a developed country and its production factors are comparatively expensive when weighted against other low-wage countries such as China. Following the above logic, a shift in production from its current location to California is probably not advisable when looking at it from a cost perspective, especially with regards to metal components. Sourcing insulated glass from USA however should be considered as it is customary in California.

5.1.2.2 Economic infrastructure

Similarly, the economic infrastructure, i.e. transportation, communications, port facilities, etc., will have positive or negative implications for a given entry strategy depending on its cost level, quality and efficiency (Root, 1998). Basically if transportation and communication is expensive and inefficient within a country it favors non-equity entry modes, such as exporting or some form of contractual agreement. USA is a highly developed country with an arguably high level of economic infrastructure, which in turn does not discourage any form of entry mode. However, it is reasonable to assume that economic infrastructure as a decisive variable, has less impact on the choice of entry mode when the domestic firm originates from a highly developed economy and tries to enter an economy of similar nature.

5.1.3 Target country environmental factors

5.1.3.1 Policies and regulations

As is evident in the empirical section, the political situation in the United States is stable. According to Euromoney's (2011a) country risk rating, USA reached an average score of 81.60, which is a good score. The political score is higher and reaches 85.25. The average score is brought down due to USA's relatively slow economy at the moment. However, since the political situation is sound in the United States and California it does not have any negative implications on the choice of entry strategy, and is even favorable towards equity entry modes (Root, 1998). If for instance the political environment in California would have been unstable it would have had negative implications on equity mode entries, as it would increase the risks for these alternatives, e.g. expropriation of Alpha's business (Sarkar & Cavusgil, 1996). If the political situation is unstable it is better to deal with target market by means of export intermediaries or contractual agreements (Root, 1998).

When reviewing the empirical findings with regards to import policies and external economic relations, it gives an image of a nation in favor of international trade, especially with the European Union. As mentioned, USA and the EU are each other's main trading partners and they have worked to reduce trade barriers between the U.S. and EU member nations. A reduction in trade barriers does not have any negative implications on the choice of entry mode, however, it favors export entry modes as the costs associated with these alternative, e.g. tariffs, are reduced (Root, 1998; Agarwal & Ramaswami, 1992).

No information has been found that indicates that the U.S. wants to protect this industry either. Although there are some tariffs on the metal components when these are exported to the USA, its relative cost is low in comparison with the overall system.

With regards to appropriability regimes, the findings presented in the empirical section suggest that USA and California have some of the strongest intellectual property protection in the world. In situations of strong intellectual property protection, cooperative strategies such as licensing are often preferable in order to avoid competing directly with incumbents (Teece, 1986; 2010; Gans & Stern, 2002). Since AlphaConnect is patented, the characteristics of the Californian market would favor an entry mode by means of contractual agreements.

Building products in California are subject to heavy regulations, which are illustrated in the empirical section. Any product that is specified for a construction project must comply with California's Title 24, which is that state's building code. This heavy regulation reasonably also have some effect on the choice of entry mode. For instance, if Alpha were to enter the Californian market without evaluating its system via ICC, the company will require vast local knowledge of local building codes on that market. While this information is possible to acquire first-hand through careful study of California's building codes, it is reasonably easier to get this knowledge from a local agent of some sort. Thus, this rigid regulation of building products, suggests that Alpha should enter the market either by means of export through intermediaries or some form of contractual agreement. A further option would of course be to enter the market via an acquisition of an existing firm. Acquiring a firm enables Alpha to purchase existing resources, such as management, skills, knowledge, and experience (Root, 1998).

5.1.3.2 Geography and climate

Considering the geographical distance to California from Gothenburg, Sweden, the transportation costs could be considered rather high with a lengthy delivery time should the product be sent via sea instead of air freight. The geographical distance between Sweden and California therefore favors equity entry modes or some form of contractual agreement, as this allows Alpha to reduce costs associated with freight (Root, 1998). The added freight cost might otherwise hamper the competitiveness of AlphaConnect on the Californian market, which would make it difficult for Alpha to attain any significant sales.

Furthermore, the geographical situation and climatic patterns which may affect the foreign operations, such as e.g. the potential of natural disasters, need to be considered by the exporting company (Wood & Robertson, 2000). However, in Alpha's case, the climatic situation in California, i.e. the frequent earthquakes, only supports the firm's decision to enter the market, not how to enter the market.

5.1.3.3 Economy

The economic situation in any country will naturally have implications on the choice of entry strategy. Such a fundamental feature as whether the economy is a market economy or a centrally planned socialist

economy should be taken into consideration for the target country's environmental factors. Obviously in centrally planned economies entry by means of equity would be difficult due to higher restrictions and state involvement in ownership (Root, 1998). This however, is not an issue in California as it is indeed a market economy, which in turn does not discourage any form of entry mode, including equity entry. In fact, as is evident in the empirics, California is the leading American state with regards to foreign direct investment. It is the most popular location for international business and it is the state where it is easiest to attract venture capital and funding. All these factors reasonably have a positive effect on equity mode entries. First, it shows that the state welcomes foreign investments and, second, it is relatively easy to attract funding for investments.

The current economic situation in California and the United States is not very good however. It was illustrated that the U.S. only scored 60.67 on the economic index presented by Euromoney (2011a). Also stated by several interviewees is that the economic situation is rather bad in the State of California specifically. This variable is closely connected to the market size variable (Root, 1998) as discussed earlier. A slow economy will naturally have negative implications on sales as buyers are more careful with their spending. This has also been found empirically. In many negotiations where point connect systems are involved, they often times get substituted by cheaper systems, such as a regular aluminum framed curtain-wall system. The implications on entry modes are therefore similar to that of market size. Entering a slow economy/market with an alternative that is associated with a high break-even sales volume is therefore arguably more risky. If Alpha was to enter a slow Californian market by means of equity and cannot generate enough sales, the firm faces the increased risk of running into financial distress (Pan & Tse, 2000).

However, the exchange rate of the U.S. dollar, currently being valued at 0.16 to 1 SEK (Bloomberg, 2011a), has positive implications for equity mode entry and negative implications for export entry (Root, 1998). Now would actually be a good time to invest in California given the favorable exchange rate. Consequently, exports become less attractive as the purchasing power parity of American firms has decreased in relation to the Swedish krona. The appreciation of the Swedish krona, combined with a weak dollar, naturally makes it more difficult for Alpha to export products to California.

When considering the implications of the current economic situation on the choice of entry strategy, the findings are somewhat conflicting. The low exchange rate favors equity entry but the slow economy favors less risky alternatives such as exports or contractual agreements.

5.1.3.4 Sociocultural

Comparing Hofstede's (1984) index scores for Sweden and California shows that they are both rather similar with exception to one measurement: the masculinity index. Here, Sweden scores 5 out of 100 which is the lowest score in the data sample for this parameter, and the U.S. scores 62. With a high masculinity, which is visible in the U.S., the social norms are ego oriented with money and possessions being important. In a feminine country like Sweden, the social norms show a relationship orientation with the quality of life and people having greater importance. For politics and economics, masculinity has the priority of economic growth and conflict solving through force, and the Swedish feministic culture the concern of environment protection and conflicts solved via negotiation. In the job market, a masculine society such as the U.S. has a larger gender wage gap with fewer women in management, whereas the Swedish society shows the opposite. However, apart from the masculinity index, Sweden and USA are

relatively similar in terms of culture and it should therefore not have any significant impact on the choice of entry mode. Had the sociocultural environment in California been very different from that of Sweden, it would have discouraged certain entry modes which would involve close connection to the target country, such as equity mode entry, since potential conflicts, disagreements and miscommunications are more likely to arise (Root, 1998).

Furthermore, as was found in the empirical section, the perception of Swedish and European products seems to be very good in California. Although there were some non-responses due to lack of opinion, there were no negative comments about products of Swedish origin. Had the perceptions been bad it would reasonably have discouraged export entry modes in favor of contractual agreements and equity entries. In this case however, it is reasonable to conclude that the sociocultural factor have little implications on the choice of entry mode strategy for Alpha.

5.1.4 Home country factors

5.1.4.1 Market

As stated by Alpha for the internal commitment factor, in order to get volume on sales the company has to go abroad in order to get access to markets larger than Sweden. Had the market size in Sweden been large, it would have enabled Alpha to grow to a larger size before turning to foreign markets. Alpha explains that since there are few construction projects with this specific type of system and very few projects fitting AlphaConnect, the Swedish market is simply not enough (Alpha, personal communication, 2011-05-11). These statements quite simply indicate that the company experiences a very small home market which in turn forces Alpha to take its business internationally in order to succeed in the growth of the company. That the company has not been able to grow in its home market and is still small normally favors entry strategies that do not require equity investments. Consequently, companies that are small and that have a small domestic market are often attracted to exporting as a way to reach economies of scale (Root, 1998).

In their home market, Alpha consider themselves to be the only company that offers this kind of system in Sweden (Alpha, personal communication, 2011-05-11). Systems such as Pilkington Planar have occasionally been seen, but the frequency with which these similar systems are seen on the market is very low. As stated previously, a reason for this might be that this kind of product is not really asked for in Sweden, resulting in very few projects suitable for AlphaConnect. Although Alpha experiences few direct competitors, suggesting an almost monopolistic situation (Root, 1998), they are still facing intense competition from substituting products, which would characterize its competitive situation as oligopolistic, moving towards atomistic (Root, 1998). Normally when firms compete in oligopolistic industries they try to respond to the investments made abroad by its rivals whereas firms in atomistic industries are more biased towards exporting or contractual entry modes (Root, 1998), however, since Alpha has no direct competitors that are very similar to the firm they are also less influenced by the choices of its rivals. Pilkington for instance is one of the world's largest glass manufacturers where its point connect system is just a small fraction of its entire business. Comparing Alpha with Pilkington is arguably therefore not especially applicable. It is thus reasonable to assume that the competitive situation in Alpha's home market, although intense, has little implication on the choice of entry mode strategy. It merely forces Alpha to target international markets, but not how to enter these markets.

5.1.4.2 Production

According to Alpha, the production cost for manufacturing the AlphaConnect system in Sweden is rather costly and it therefore has to be produced abroad in order to earn any return at all (Alpha, personal communication, 2011-05-11). In order to offer cost-effective systems, Alpha is using foreign production means instead of home country production. In a sense, the company has therefore already chosen contract manufacturing as an entry mode (Alpha, personal communication, 2011-05-11). As this choice of using foreign production instead of domestic has already been made, the analysis of this factor takes a different turn. The high production cost seen for the home market would according to Root (1998) encourage foreign production, a circumstance that Alpha has already acknowledged and acted upon. Comparing the price of what the AlphaConnect system is sold for in Sweden to a similar system sold in the U.S., it was found that Alpha's product is sold at almost half the price (Section 4.2.1.1). Taking this into consideration, the price paid by a contractor in the U.S. is rather high, indicating that the production in the foreign market is more expensive than Alpha's existing production arrangements. With this mind, it favors current production arrangements and entry by means of exports instead.

5.1.4.3 Environment

Alpha are not aware of any tax relieves or such incentives from governmental agencies that would influence the firm to go with exporting instead of investments abroad as entry modes (Alpha, personal communication, 2011-05-11). What exists are governmental programs that tries to help companies to establish themselves in foreign markets and at the same time motivate them to first of all export their goods from Sweden (Alpha, personal communication, 2011-05-11). Even though Swedish firms do not receive any compensation for exports, they are still encouraged to do so, which would indicate a small bias towards choosing exports over other entry modes. However, in this specific case, governmental policies reasonably have little or no impact on Alpha's entry mode decision for the Californian market. Had the Swedish government offered incentives, such as tax relieves, for a given entry mode it would have had more of an impact on this decision (Root, 1998).

5.2 Internal factors

5.2.1 Company product factors

5.2.1.1 Product differentiation

With regards to the empirical findings, AlphaConnect first of all matches California's requirements for energy efficiency since it utilizes dual glass, which has become the norm over the last years in California according to the CBC interviewee. The added advantages AlphaConnect has compared to other similar systems are basically gained from the two main technical features it has: the fixing point being located in the innermost glass and the center support. The innovative construction also results in a very competitive price. These two unique features are features that Alpha has never seen from any of their competing products (Alpha, personal communication, 2011-01-31; 2011-05-11). What the fixing point in the inner glass does is that it eliminates cold bridges, giving a thermal superiority to the system, and at the same time offering the aesthetic function of a frameless glass with a clean surface. The same feature offers customers more possible glass combinations, combinations that perhaps better can meet the stringent requirements put in by the legislative powers in California, which is seen as very valuable to architects according to G7. The second feature, the center support, lowers the self-load and reduces the cost per square-meter for the system. This is achieved by placing the self-load of the glass on the center support,

loading it onto the structural frame of the building instead, easing the stress on the glass which makes it possible to use thinner glass. As a result, thinner glass leads to lower costs. Similar features as those offered by AlphaConnect has not been found by the researchers of this thesis when reviewing competing systems. When comparing the price level of AlphaConnect with that of competing products, the former can be sold at a much more competitive price. Given the empirical findings, AlphaConnect is more differentiated than other systems on the market. What differentiates a product is according to Wood and Robertson (2000) whether the foreign market has the means to purchase the product and if the foreign local needs are being satisfied effectively with it. Two conditions which are being met with the AlphaConnect system. Having a differentiated product allows Alpha a certain level of pricing discretion which in turn can act as an absorber for transportation costs and high import duties, and still remain competitive in the foreign target country (Root, 1998).

Apart from A1, all interviewees consider the features of AlphaConnect to be competitive on the Californian market. According to G7, *"the idea is very unique and cool"*. When considering the product's very competitive price, AlphaConnect has the possibility to bare transportation costs for an export entry mode, without the risk of becoming too expensive. However, should Alpha want to compete with curtain-wall systems, local sourcing of the glass might be demanded. This could be solved through using contract manufacturing which the company has a good experience with. In all, exporting for the metal components making up AlphaConnect's attachment is still a viable option and something that Alpha wants to remain having control over (Alpha, personal communication, 2011-03-24). What decides for the use of Chinese production means would instead be based on the volume of glass needed for the project as it of course is a trade-off against transportation costs. Stated by G3, competing systems have already used Chinese glazing products in California, as it probably has been proven cheaper. The company would first have to decide for if they would want to use Chinese glass production, and if they find it appropriate, the company needs also to evaluate the cost of transportation for each shipment seen to the size of the project. For the metal components however, the indications listed above point towards exporting being a viable entry mode.

5.2.1.2 Pre- and post-purchase services

When AlphaConnect is sold to a customer it also includes engineering services. These services include engineering- and construction calculations and drawings for how the system is to fit the building's facade, and also consultancy services which includes guidance and suggestions for alternative solutions of installments (Alpha, personal communication, 2011-05-11). Alpha believes that should operations be started up in California, it is necessary to supply customers with the engineering services together with the system. However, they do think that after a while of successful installations of AlphaConnect, the installer for the system might have engineers available that can take care of these services (Alpha, personal communication, 2011-05-11). Furthermore, as is shown in the empirics, there is practically no aftermarket for AlphaConnect, or any other point connect systems for that matter. Aftermarket sales only concern damages to the facade that has been caused by an occurrence not covered by the warranty. In most cases, this responsibility falls upon the glass manufacturer and not Alpha. For repairing the facade, it becomes rather expensive for the customer and the operation is also rather difficult as it perhaps would require a lot of demolition work according to G2.

All things considered, it is reasonable to assume that AlphaConnect is a low to moderately service intensive product. Accordingly, this has minor implications on the choice of entry strategy. The post-

purchase services are practically non-existent for Alpha, and the only pre-purchase service is engineering. However, the engineering service is normally handled electronically, especially for Alpha's clients located in markets abroad. Hence, this factor does arguably not have a decisive impact on the choice of entry mode since the engineering services can be managed from a distance. Had AlphaConnect been a highly service intensive product, it would normally have favored an entry strategy with closer proximity to customers as a product that require pre- and post-purchase services is normally difficult to market at a distance (Root, 1998). Hence, service-intensive manufactured products are more prone towards an entry through branch/subsidiary exporting and local foreign production (Root, 1998).

5.2.1.3 Service/product

This variable is not really relevant for the choice of entry mode for Alpha since AlphaConnect is classified as a product, not a service. Had the product been a service, Alpha would probably have to look for alternatives that give the service a local production with the reason being that a service often cannot be produced in one country and exported to another (Root, 1998). Viable entry modes would have been through e.g. the training of local companies such as in franchising, by installing branches or subsidiaries, or through selling the service under contract with the foreign customer, such as e.g. technical agreements and construction contracts. However, since AlphaConnect is a product this variable has no impact on the choice of entry mode.

5.2.1.4 Technology intensity

AlphaConnect is a patented point-fixed structural glazing system which indicates a certain level of technology intensity. A technologically intensive product gives Alpha the option to license it in the target country rather than using other entry modes (Root, 1998). Compared to consumer products, industrial products are generally more technologically advanced and therefore more in favor of using licensing arrangements as an entry mode than consumer products (Root, 1998). A point connect system in itself is a rather simple mechanical system with for instance no electronic components included in the design. However, AlphaConnect's innovative design, where the bolts are only attached to the innermost glass pane has awarded the firm with a patent. Combined with the arguably tight appropriability regimes of California and the USA, it makes licensing a highly viable alternative for Alpha as an entry mode strategy. The downside of this arrangement includes the small fraction of the entire system which is actually licensable. If Alpha were to license its design, they would only attain a small fraction of the total revenue from the sales of its system, since only a small part of it is patented. The sales of the glass for instance, which constitute a rather large part of the overall system, would not generate any income for Alpha. Had the entire system been patented, the potential royalties would have been much larger and therefore also making licensing a better choice of entry mode. Now it becomes less attractive.

5.2.1.5 Adaptation needed

When reviewing the empirics, it is evident that AlphaConnect meets the expectations and preferences of customers in California. There already exist several similar systems on the market with both the same basic functions and aesthetics as AlphaConnect, which also has been available on the market for at least fifteen years according to A1. The view of the product is also the same in Sweden as it is in the State of California, i.e. according to several interviewees it is a high-end product used for commercial buildings. From a customer preference perspective, AlphaConnect does reasonably not require any adaptation.

The technical requirements of the Californian market also show a seemingly good match with AlphaConnect. For instance, the ICC source appears to be positive to the product functioning well with regulatory requirements, stating that having an established product that already meets certain European standards would indicate that the product would more than likely not have any regulatory difficulties in the State of California. Additionally, according to G7, as the state pushes for energy efficiency in buildings Alpha will have a good chance of selling the product in California due to its utilization of energy efficient dual glazing. G7 further explains that it will probably be successful as it offers architects several options of using different coatings on the glass, thanks to its feature of leaving a clean surface on the outermost glass.

To sum up, there seems to be a fit between AlphaConnect and the Californian market both with regards to customer preferences and technical requirements, which suggests that little or no adaptations are required. This factor therefore does not have any significant impact on the choice of entry mode. Had AlphaConnect required large adaptations, which would have been associated with high adaptation costs (Wood & Robertson, 2000), it normally would have favored an entry mode which brings the firm closer to the foreign market, such as equity investments in production or a direct exports via branch or subsidiary (Root, 1998).

5.2.2 Company resource/commitment factors

5.2.2.1 Resource availability

Alpha is a micro company which currently employs four people and outsources all of its production by means of contract manufacturing (Alpha, personal communication, 2011-05-11). With the economic downturn few projects are also offered the company, putting a strict limit on its financial resources. When considering the firm's resource constraints, an equity investment as entry mode might therefore not be viable. If Alpha would have had sufficient resources in e.g. management, capital, production, and marketing skills, it would have also been offered with a greater number of possible entry strategies as the firm would have been able to commit more resources to the foreign target market through for instance equity investments (Root, 1998). In contrast, since Alpha has limited resources it is influenced to choose an entry mode that has a limited resource commitment, such as e.g. exporting or contractual agreements (Root, 1998). An equity mode entry is arguably attached to too high a risk for Alpha, and so the firm is left with either contractual agreements or exports as suitable entry modes.

5.2.2.2 Commitment

Alpha is not interested in starting up their own business through an equity entry in California today, which classifies the firm to what Root (1998) refers to as a low-commitment company. On the contrary, a high-commitment company, regardless of its size, is more likely to choose equity entry modes than a low-commitment company (Root, 1998). The reasons why Alpha do not want to enter California by means of equity is that it could potentially take a very long time before they reach an adequate sales volume, and that the company lacks both contact network and experience from doing business in the American construction market (Alpha, personal communication, 2011-05-11). What is considered possible is to either go for some form of contractual partnership or, but much less likely, via a financier that is willing to invest in a foreign establishment. However, the probability of finding a suitable investor is low according to Alpha. The valid entry modes are therefore some form of contractual agreement or exporting.

5.3 Recommendations for entry strategy

In order to propose a suitable entry mode strategy for Alpha, an evaluation of various entry modes is carried out. This approach combines the models of Root (1998) and Pan and Tse (2000) and provides a thorough and unbiased evaluation of the alternatives. Due to limitations of this thesis in terms of scope, time and resources, a financial net present value analysis of the various alternatives is excluded. The recommendations presented here are therefore purely from a strategic perspective.

The first step is to decide whether or not to enter the market by means of an equity- or non-equity mode. The generic equity modes available to Alpha are (1) starting a new venture via Greenfield investment, (2) acquiring an existing firm, or (3) invest in a joint venture (Root, 1998; Pan & Tse, 2000).

Although there are several benefits associated with an equity entry, it is according to this analysis not a viable alternative for Alpha, at least not at the moment, for the following reasons: While it is true that the size of the Californian market would favor a high break-even sales alternative such as equity entry (Root, 1998), Alpha does currently not possess the funds nor the commitment to expand its business overseas. Investing in California, whether it is by Greenfield, acquisition or joint-venture would require a large capital investment, capital that Alpha currently are not willing to spend. Greenfield investment in particular is especially difficult because it would require vast amounts of local knowledge to manage the business successfully. Since Alpha does not have local knowledge or experience from California it would be extra difficult to start up a new venture from scratch. Entry by equity is also associated with higher levels of risk as the firm would be exposed to both contextual and transactional risks (Pan & Tse, 2002). It might therefore become important for a firm to purchase insurance to protect against external contextual risks, and arrange contracts so as to fend off opportunistic behavior and consequently lower the transactional risks. In contrast, organizations choosing to enter a foreign market through non-equity modes have a better chance to become aware of the risks involved with the market without also experiencing the negative side of them. Hence, the specific target country's risks matters more for the equity investment modes than the non-equity entry modes (Pan & Tse, 2000). The risk aspect is further acknowledged by Teece (1986), who argue that the advantages of a contractual solution is that the innovator will not have to make the upfront capital expenditures needed to build or buy the assets needed for commercializing the product. This reduces risks as well as cash requirements. Thus, by entering through contractual agreements or export, Alpha can avoid the contextual risks such as local politics, ownership risks, operational risks etc., to a larger extent. The current economic situation in California also discourages equity mode entry. The empirical data shows that construction in California is down and that point connect systems often gets substituted for cheaper products such as aluminum framed curtain-walls. The current market situation could make it difficult for Alpha to attain adequate sales and in turn cash flows to the firm. If Alpha invests in a startup for instance, they would run the added risk of not being able to pay debt holders, which could put the firm in financial distress. Furthermore, Root (1998) argues that one advantage of investing in equity entry is for the firm to gain access to for instance local production that can lower the cost of supply. However, as is shown in the previous analysis, the production costs are not necessarily cheaper in USA. The price level of point connect systems are higher on average compared to Sweden, which could be an indication of higher production costs. Second, through the interviews it was found that one actor within this industry that is performing well, ISG, is manufacturing its system outside of USA, most likely in Mexico or China. To sum up, following Root's (1998) recommendations on equity investments: Direct investment should be made only after a company has a detailed understanding of the investment climate, the market, competitors, and production factors in

the target country. This vast knowledge requirement can very seldom be met by an inexperienced international company.

The second step is thus to decide which of the export- and contractual agreement modes that are viable alternatives to Alpha.

Out of the contractual agreements the following alternatives are viable according to the analysis; licensing and contract manufacturing. Franchising as a business model and entry mode is not really viable since it is more suitable for larger, established firms and also service industries. Alpha is neither. It is reasonable to assume that it would be very difficult to convince a foreign potential franchisee to carry the risk of adopting a business model of a company that is completely unknown in the U.S. A franchising agreement would also put added pressure on Alpha in terms of supporting the franchisee with organization, marketing, knowledge, etc. (Root, 1998). Alpha reasonably has too few employees to support this strategy effectively at the moment. Although a relatively large part of Alpha's business involves services in the forms of engineering of construction projects, the firm is not solely a service firm. It therefore excludes entry modes such as service and management contracts, technical agreements, and turnkey/construction contracts.

With regards to export modes, the only mode not viable is direct exporting through a branch or subsidiary since it would involve equity investments. When considering the internal factors of the analysis, Alpha currently does not have the resources or the commitment to invest resources in any form of equity investment in California.

Thus the viable or feasible alternatives available to Alpha are; licensing, contract manufacturing, indirect exporting, or direct exporting to an agent/distributor.

Step three, which is the final step, involves evaluating and selecting one of the remaining alternatives.

The obvious advantages for Alpha to use exports is that the firm can start exporting with no extra investments in fixed capital, low startup costs, and few risks (Root, 1998). Furthermore, direct exporting also serves as a learning experience where Alpha can further accumulate information and experience of the Californian market. Looking at it from an option perspective, exporting also allows Alpha to target the Californian market with minimum investment risk and lock-in, and the option to pursue other entry modes in the future. Should the Californian market prove unsuitable for Alpha, it would be much easier to exit the market without sustaining heavy losses if the firm enters the market by means of export, rather than equity or contractual agreements. Direct exporting, as opposed to indirect exporting, can also offer further advantages to Alpha. First, it gives Alpha added control in terms of influencing the foreign marketing plan in terms of price, promotion, etc. In indirect exporting this would be the primary concern of the intermediary and the target country agent/distributor. Second, it gives Alpha more and quicker information feedback from the target market, which in turn can improve the marketing effort. Direct export is at a disadvantage to indirect exporting with respect to the requirements it put on Alpha to learn the procedures and documentation of export shipments and international payment arrangements. Thus direct export has higher startup costs and greater information requirements than indirect export (Root, 1998). This however, is arguably a minor concern for Alpha, who is already an experienced export firm with business in several international markets.

If one disregards the disadvantages of exporting versus equity mode entry, there are still some disadvantages of exporting in relation to contractual agreements. First, as is illustrated in the empirical section, while there are no negative comments about Swedish products, there is a preference among actors in the Californian construction industry to source products locally. By shifting manufacturing to a an American plant or at least have increased local representation of AlphaConnect in the form of licensing or contract manufacturing, it would probably make the system more attractive in the eyes of Californian customers. Furthermore, with export come added costs and inflexibilities associated with additional freight costs and longer shipping distances. Such a simple thing that California is nine time zones behind Sweden can make communication with customers there more difficult. Even though Alpha would not enter by means of equity, export is still a more costly alternative compared to licensing. Similarly, Gans and Stern (2002) argue that a firm must undertake investments in marketing, manage multiple dimensions of uncertainty, and focus scarce organizational resources on establishing a market presence if the firm decides to enter through a competitive strategy, which in this case translates into exporting.

With respect to contractual agreements, there are also advantages of these modes in relation to exports. First, it would allow Alpha to circumvent the tariffs associated with exports to the U.S. (Root, 1998). Albeit that the tariffs are low, it is still an additional cost which reduces profits. Second, licensing enables Alpha to avoid any freight costs that arise from shipping goods to the USA (Root, 1998). Third, by entering the market through licensing it allows Alpha to tap into the knowledge, skills, and experience of locally situated partners (Root, 1998). This knowledge must otherwise be obtained by Alpha themselves, which would require time and added costs.

Teece (1986) further recognizes potential problems with licensing that could pose a problem for Alpha. First, it may be difficult to induce suppliers to make costly irreversible investments which are specific to AlphaConnect. *"To expect suppliers, manufacturers, and distributors to do so is to invite them to take risks along with the innovator"* (Teece, 1986, p. 294). The problem which this might be for Alpha is similar to the problems associated with attracting venture capital. Second, there is the risk that the partner will not perform according to agreed upon requirements and it might be difficult to end the contract (Teece, 1986). Due to for instance learning curve effects, Alpha might find themselves locked-in with a partner which makes it difficult to switch. Third, there is the potential risk that the partner may imitate Alpha's technology and attempt to compete against Alpha. According to Teece (1986), this latter possibility is particularly acute if the provider of the complementary asset is uniquely situated with respect to the complementary asset in question and has the capacity to imitate the technology, which the innovator is unable to protect. The innovator will then find that it has created a competitor who is better positioned than the innovator to take advantage of the market opportunity at hand. Finally, if Alpha enters by means of licensing they are only able to capture a part of the profit. Since the patented part in AlphaConnect is only a small part of the entire system, the licensing revenue would reasonably be much smaller compared to if Alpha sold the entire system instead.

To sum up, when considering the findings the most suitable entry mode for Alpha ought to reasonably be direct exports to an agent or distributor. The most important reasons being: (1) exporting serves as a learning experience where Alpha can further accumulate information and gain knowledge of the Californian market, (2) exporting, from a real options perspective, does not exclude other alternatives in the future, such as investing in a venture, (3) it is relatively risk free and requires modest investments compared to equity modes, (4) the mode grants more control of the target market, e.g. in terms of

marketing, and offers potentially larger profits compared to licensing, (5) it protects AlphaConnect's patent to a larger extent, and (6) Alpha offers a differentiated product, which has unique product features, is patented, and cost-efficient production, which can bear the added cost of freight associated with exports without losing competitiveness.

5.3.1 Determining the export channel

According to Root (1998), once the channel type is decided, the firm should develop criteria for the selection of channel members. As was illustrated in the empirical section, the actors involved in the marketing channel of point connect systems are architects, general contractors, sub-contractors such as glazing contractors, and suppliers of building products and material. From the discussions with Alpha combined with the outlook of the market, there are really only two suitable alternatives for the selection of a channel partner, glazing contractors or insulated glass manufacturers. Although, architects were found to be decision makers in this process, they are not suitable distributors of building products. They merely supply owners with designs and specifications and are normally not involved in the actual procurement of this kind of glazing systems. Furthermore, it has been shown that general contractors very often rely on glazing contractors to both handle the construction and procurement of these systems. Considering the current structure of the market, the traditional channel partner would therefore be the glazing contractors. In most construction projects of point connect systems today, the glazing contractor sources these systems from companies in California that are equivalent/competitors to Alpha.

From discussions with Alpha, however, insulated glass manufactures could also serve as a suitable channel partner. This is Alpha's current channel arrangement for Japan. Since Alpha must send a component of its system to a glass manufacturer in order to have it inserted into the glass in the production process, this could also be achieved by using an American supplier of insulated glass instead. Since customers prefer locally sourced glass, this could be an advantage of selecting this arrangement. One potential downside with this arrangement would be the fact that Alpha ends up one step further back in the supply chain, which in turn require the firm to decrease its price. Since there is an additional actor, i.e. the insulated glass manufacturer, between Alpha and the glazing contractor, Alpha will have to reduce its price in order to enable the glass manufacturer to earn a profit on the system.

To sum up, selecting a channel partner is arguable highly contextual and whether Alpha should export via a glazing contractor or glass manufacturer surely depends on the individual contracts negotiated with each partner. Therefore to recommend one channel partner over another is reasonably very difficult, if not impossible, since the decision to select an actor depends on information currently not known, i.e. the contracts offered/negotiated with each potential partner.

5.3.2 Action plan/Time plan

In short-term the following is recommended: The first step would be to initiate a screening process to select a suitable agent or distributor. This can be achieved by (1) drawing up the distributor profile, (2) locate distributor prospects and (3) evaluate prospects (Root, 1998). Since construction in California is in a trough and the market is not expected to return to pre-crisis levels until the end of 2012, there is no rush for Alpha to enter the market. It is arguably better to invest more time in this initial screening process in order to find a suitable channel partner.

In mid-term Alpha is recommended to contact prospects and present the firm and its products. After negotiations, Alpha should be able to find a suitable partner for the Californian market. In the meantime,

Alpha should also review possible bottlenecks such as engineering services in order to be prepared for an increase in sales. One strategy to get traction in California is what G6 referred to as "buying a job". Basically what it means is to sell the system at price which only covers the cost of the system but with no mark-up. The very low price should increase the likelihood of Alpha acquiring a glazing project in California. Albeit that Alpha will not generate any profits from this job, they still has a reference project of the AlphaConnect system that can be used to attract future customers.

In long-term, Alpha is recommended to evaluate the current market situation in California in order to make sure that opportunities are not foregone. Perhaps there are other alternatives to target the Californian glazing market that are now more suitable. There are for instance many factors suggesting that equity entry is viable in California such as its size, its oligopolistic structure, and the preference among Californian buyers to source locally. If Alpha has the funds in the future, they might find that pursuing a more aggressive and resource committed entry strategy will allow the firm to compete more efficiently on the Californian market.

6 Conclusion

In this final chapter of the thesis, general conclusions derived from the findings are presented. An account of the findings' managerial implications, as well as suggestions for future research is also provided.

The main research question addressed in this paper is: *what would be a suitable entry mode strategy for Alpha and their product AlphaConnect in order to enter the Californian structural glazing market?*

Previous research has shown that a reoccurring problem for many SMEs and small technology start-ups concern commercialization of new products. Because of these firms' youth and small size, they oftentimes have little experience and knowledge of the markets where their products are most suitable. Consequently, the problem is usually not the actual invention of a new technology or product, but rather to understand its market and how to commercialize it (Gans & Stern, 2002). Alpha, a small business situated in Gothenburg, Sweden is currently faced with a commercialization problem, i.e. how to enter a new market and commercialize a new product/innovation.

The purpose of this report has been to conduct a market analysis of the Californian structural glazing market in order to propose a suitable entry mode strategy for Alpha. This paper also attempts to develop a framework that can be used by Alpha or similar firms in order to make informed decision concerning entry mode selection for the targeting of foreign markets. As such, this paper makes very modest contributions to theory, but rather attempts to shed light on this very contextual and firm-specific problem. The framework however can be used by similar firms facing a similar entry decision problem. In order to have been able to answer this question, empirical data has been gathered through qualitative, semi-structured telephone interviews with various business people and local officials in the State of California, as well as from secondary sources. The collected data was analyzed primarily based on our theoretical framework which is derived from existing theories within market analysis, commercialization strategies, and entry strategies.

Based on our findings, it is reasonable to conclude that Alpha should enter the Californian glazing market by means of direct exports to a local agent/distributor for several reasons. First, after having analyzed the external and internal factors which affects Alpha's choice of entry mode, a list of feasible entry modes was obtained. This list excluded equity modes as these were deemed too capital intensive and too risky when considering Alpha's internal resource factors. The remaining viable options were, exporting, licensing or contract manufacturing. Second, after a careful analysis, contractual agreements were excluded mainly because there are several potential difficulties that can arise between the licensor and the licensee, such as contractual disputes concerning performance etc. Furthermore, contractual agreements would most likely imply a much smaller source of revenue for Alpha since the patented component only represents a small part of the entire system. Thus through simple elimination the remaining viable alternative was direct exports via an agent/distributor.

There are several advantages with exports as an entry mode strategy for Alpha: (1) exporting serves as a learning experience where the company can further accumulate information and gain knowledge of the Californian market, (2) exporting, when viewed from a real options perspective, does not exclude other alternatives in the future, such as investing in a venture, (3) it is relatively risk free and requires modest investments compared to equity modes, (4) the mode grants more control of the target market, e.g. in

terms of marketing, and offers potentially larger profits compared to licensing, (5) the entry mode protects AlphaConnect's patent to a larger extent, and (6) Alpha offers a differentiated product, which has unique product features, is patented, and cost-efficient production, which can bear the added cost of freight associated with exports without losing competitiveness.

With regards to the selection of a suitable export partner, our findings suggest either a glazing contractor or an insulated glass manufacturer. Through this research we found that the actors normally involved in the purchasing process of point connect systems are owners, architects, general contractors, sub-contractors such as glazing contractors, and suppliers of building material. The traditional channel for this product has been through the glazing contractors. Although, the architects are the decision makers in the process, glazing contractors are responsible for procuring the systems and installing them. A glazing contractor that would be willing to market and distribute AlphaConnect in California would serve as a good distributor for the Californian market. Suppliers of building materials could also be a possible export partner, insulated glass manufacturers especially. Alpha's current production arrangement requires them to send the patented component of its glazing system to the insulated glass manufacturer who inserts this component into the glass in the production process. Finding a Californian glass manufacturer that would be willing to expand its product assortment with a structural glazing system would offer double benefits. First, Alpha would find a suitable distributor for the market, and, second, the company would source glass from a local producer which is the preferred convention among local customers in California.

This paper also provides a framework for the evaluation of markets and its implications for entry mode selection that Alpha can utilize when targeting other markets in the future. For future use, the firm can fall back on this framework in order to make sure that suitable data is collected so that an informed decision about entry mode strategy can be made. This framework is also suitable for firms similar to Alpha, i.e. small firms that have a new, patented product which they want to target a foreign market with. The unique feature of this framework is that it combines theories within entry mode strategies and commercialization strategies. Teece's (1986; 2010) and Gans and Stern's (2002) frameworks within commercialization strategies are helpful from a theoretical perspective in order to understand the generic situations where a firm benefits from cooperative-, e.g. licensing, or competitive-, e.g. vertical integration, commercialization strategies. In a practical sense however it is difficult for any single firm to develop an informed decision about a commercialization/entry strategy based solely on the evaluation of the intellectual property regimes in which the firm operates, the dominant design paradigm of similar innovations, and whether or not important complementary assets needed for the commercialization of the innovation are controlled by incumbent firms in the market. From a managerial perspective there are several important variables which are not captured by the frameworks presented by the aforementioned authors. Consider for instance the size of the market or its competitive structure. Surely these are variables that ought to be considered should an informed decision about entry/commercialization strategy be made. Similarly, the framework developed by Root (1998), although very comprehensive, fails to capture important aspects of the market that are highly relevant for the design of an entry strategy revolving around a product that is patented/an innovation. Granted that the framework by Root (1998) recognizes the technology intensity of the product, it however does not consider whether or not it is easy to protect the patent in the target market, which is covered by Teece (1986; 2010) and Gans and Stern (2002). Thus, by merging frameworks from the fields of commercialization strategies and entry strategies, it ought to reasonably provide a more comprehensive model that is especially relevant for the design of entry mode strategies for a patented product.

6.1 Implications

Based on these findings it is possible to make further recommendations as to how Alpha should proceed with their entry into the Californian market. These steps can further be divided as short-, medium-, and long-term actions.

In short-term, we believe the first step Alpha should undertake is to initiate a screening process to select a suitable agent or distributor for the market in California. This is achieved by (1) drawing up the distributor profile, (2) locate distributor prospects and (3) evaluate prospects (Root, 1998).

In mid-term we recommend that Alpha contact prospects and present the firm and its products. After negotiations, Alpha should be able to find a suitable partner for the Californian market. In the meantime, the firm should also review possible bottlenecks such as engineering services in order to be prepared for an increase in sales.

In long-term we recommend Alpha to evaluate the current market situation in order to make sure that opportunities are not foregone. Perhaps there are other alternatives to target the Californian glazing market that is more suitable. There are for instance many factors suggesting that equity entry is viable in California such as its size, its oligopolistic structure, and the preference among Californian buyers to source locally. If Alpha has the funds in the future, they might find that pursuing a more aggressive and resource committed entry strategy, such as an equity investment, will allow the firm to compete more efficiently on the Californian market.

It is important to note that our recommendations for entry mode strategy are purely strategic, and does not rely on any financial analysis for the decision of entry mode, just financial indications, such as size of market etc. In order to make decisions on entry mode strategy that are supported by strategic as well as financial recommendations, we recommend Alpha to conduct net present value calculations for future entry mode decisions. By forecasting sales and required capital investment expenditures of individual entry modes, one can calculate or estimate which mode that offers the highest expected return. Complementing strategic recommendations with financial calculations ought to reasonably provide the most informed decision.

This research provides Alpha with an entry mode strategy, but has modest implications on the choice of marketing plan. We have found indications on price levels of these systems in the market as well as suitable channel members that require targeting. There is however several components of the marketing plan that is not covered by this research. Decisions on suitable promotion mix, personal sales, direct marketing etc., is for instance not included. We did find however that one architectural firm has a feature called "lunch-and-learn", where the architectural firm invites suppliers to present its products. This could be a potential way to promote the product to architects, creating a type pull marketing demand for AlphaConnect. Furthermore, we recommend that the marketing plan is devised in collaboration with the export partner, who should be able to provide expertise in this matter, since they have experience and knowledge of its domestic market.

6.2 Future research

There appears to be gap in theory with regards to a universal definition of the concept commercialization strategy. Commercialization and commercialization strategy are often used interchangeably, and can entail everything from the management of an innovation in the idea stage to decisions with regards to how

to market the innovation. It is reasonable to assume that a universal definition would simplify and further facilitate understanding in this area.

When reviewing the theories and frameworks for entry strategies there appear to be no framework that treats SMEs or technology start-ups separately, despite the large differences that exists between firms of different size and age. Consider for instance equity mode strategies, because of the limited resources of small and newly established firms, entry modes which require large investments are very often not viable alternatives. By adapting the framework for SMEs one might attain a framework that is more suitable when analyzing entry mode decisions for smaller firms.

Since this framework has been developed for a single case, it would be interesting to test its validity by applying it to a different firm in a different context. Perhaps there are variables included in the framework that are irrelevant for a given situation. Similarly, the framework might fail to capture certain aspects or variables of a different context in order to select a suitable entry mode strategy.

6.3 Limitations

This thesis addresses a highly contextual and firm-specific problem and as such the majority of the findings cannot be generalized. It is also important to note that the research question treated in this paper does not attempt to contribute to academia within entry mode strategies, but rather attempts to provide research that is specific for Alpha. The findings and recommendations of entry mode specific to Alpha in this paper have therefore very little external validity.

References

AAMA. (2011). *Product Certification*. Retrieved 2011-04-10, from http://www.aamanet.org/general/1/109/product-certification

Agarwal, S. & Ramaswami, S.N. (1992). Choice of Foreign Market Entry Mode: Impact of Ownership, Location and Internalization Factors. *Journal of International Business Studies, 23*(1), 1-27.

ASE. (2011). *Technology: Point-fixed glazing*. Retrieved 2011-05-18, from http://www.ase-europe.com/p_g_projects_2.html

BEA. (2011). *Gross Domestic Product by State*. Retrieved 2011-05-12, from http://www.bea.gov/regional/gsp/

Berkeley Seismological Laboratory's website. (2011). *How many earthquakes are recorded in California every day, week, and month?* Retrieved 2011-02-03, from http://seismo.berkeley.edu/faq/rate_of_seism.html

Bloomberg. (2011a). *Currency rates*. Retrieved 2011-05-04, from http://www.bloomberg.com/markets/currencies/

Bloomberg. (2011b). *Energy & Oil Prices*. Retrieved 2011-05-04, from http://www.bloomberg.com/energy/

Bryman, A. & Bell, E. (2007).Business Research Methods. New York: Oxford University Press.

Buckley, P.J. & Casson, M.C. (1998). Analyzing Foreign Market Entry Strategies: Extending the Internalization Approach. *Journal of International Business Studies, 29*(3), 539-561.

Carney, G. (2010). Anatomy of a building. *Glass Magazine*. Retrieved 2011-05-03, from http://www.glassmagazine.com/article/commercial/anatomy-building

Cavusgil, S.T. (1985). Guidelines for Export Market Research. *Business Horizons, 28*(6), 27-33.

CBSC. (2010a). *California Building Code, Title 24, Part 6, Section 101: Definitions and rules of construction*. Retrieved 2011-05-07, from http://publicecodes.citation.com/st/ca/st/b1900v10/st_ca_st_b1900v10_1_sec002.htm

CBSC. (2010b). *California Building Code, Title 24, Part 2, Section 1609.3: Wind loads: Basic wind speed*. Retrieved 2011-05-05, from http://publicecodes.citation.com/st/ca/st/b200v10/st_ca_st_b200v10_16_sec009_par010.htm

CBSC. (2010c). *California Building Code, Title 24, Part 2, Section 1609.1: Wind loads: Applications*. Retrieved 2011-05-05, from http://publicecodes.citation.com/st/ca/st/b200v10/st_ca_st_b200v10_16_sec009.htm

CBSC. (2010d). *California Building Code, Title 24, Part 2, Section 1609.1: Wind loads: Definitions*. Retrieved 2011-05-05, from http://publicecodes.citation.com/st/ca/st/b200v10/st_ca_st_b200v10_16_sec009_par009.htm

CBSC. (2010e). *California Building Code, Title 24, Part 2, Section 2404: Wind, snow, seismic and dead loads on glass*. Retrieved 2011-05-02, from http://publicecodes.citation.com/st/ca/st/b200v10/st_ca_st_b200v10_24_sec004.htm

CBSC. (2011). *Guide to Title 24: California Building Standards Code 2010* (1st ed.). California, U.S.: California Building Standards Commission.

CDoF. (2011a). *Finance Bulletin, April 2011*. Retrieved 2011-05-03, from http://www.dof.ca.gov/finance_bulletins/2011/april/

CDoF. (2011b). *California Economic Forecast: Annual & Quarterly*. Retrieved 2011-05-22, from http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/FRCAFOR0411.xlsx

Construction WebLinks. (2001). *Surviving Your First American Construction Project – An Interactive Overview*. Retrieved 2011-04-20, from http://www.constructionweblinks.com/Resources/Industry_Reports__Newsletters/Oct_22_2001/american_construction_project.htm

Construction WebLinks. (2007). *U.S. Construction, Architecture and Engineering Industry: An Overview for International Investors*. Retrieved 2011-04-05, from http://www.constructionweblinks.com/Resources/Industry_Reports__Newsletters/Feb_2_2004/us_investors.htm

Coriat, B. & Orsi, F. (2002). Establishing a new intellectual property rights regime in the United States: Origins, content and problems. *Research Policy 31*(8-9), 1491-1507.

CRL's website. (2011). *CRL Regular, Heavy Duty, and Mini Spider Fittings*. Retrieved 2011-04-28, from http://www.crlaurence.com/crlapps/showLine/default.aspx?GroupID=37642

CSSC. (2003). *Earthquake Shaking Potential for California*. Retrieved 2011-03-31, from http://www.seismic.ca.gov/pub/shaking_18x23.pdf

Dorma's website. (2011). *Structural Glass* Systems. Retrieved 2011-05-05, from http://www.dorma.com/en/prod/glass/structural_glass_systems/(code)/overview

Dunning, J.H. (1980). Toward an eclectic theory of international production: some empirical tests. *Journal of International Business Studies, 11*(1), 9-31.

Ekeledo, I. & Sivakumar, K. (2003). International market entry mode strategies of manufacturing firms and service firms. *International Marketing Review, 21*(1), 68-101.

Euromoney. (2011a). *Country risk March 2011: Country rankings and acknowledgements*. Retrieved 2011-04-28, from http://www.euromoney.com/Article/2773235/Country-risk-March-2011-Country-rankings-and-acknowledgements.html

Euromoney. (2011b). *Euromoney Country Risk Methodology*. Retrieved 2011-04-28, from http://www.euromoney.com/Article/2773899/Euromoney-Country-Risk-Methodology.html

European Commission. (2009). *United States barriers to trade and investment report for 2008*. Retrieved 2011-03-27, from http://trade.ec.europa.eu/doclib/docs/2009/july/tradoc_144160.pdf

ECORYS. (2009). *Non-Tariff Measures in EU-US Trade and Investment - An Economic Analysis*. Retrieved 2011-04-04, from http://trade.ec.europa.eu/doclib/docs/2009/december/tradoc_145613.pdf

Field, E.H. & Milner, K.R. (2008). *Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years?* Retrieved 2011-02-03, from http://pubs.usgs.gov/fs/2008/3027/

Freight Calculator. (2011a). *Online Calculator for Air Import & Export Service from North America*. Retrieved 2011-05-10, from https://www.freight-calculator.com/AirCalculators.asp

Freight Calculator. (2011b). *Online Calculator For Ocean Consolidation Rates from Worldwide To USA*. Retrieved 2011-05-10, from https://www.freight-calculator.com/ocean-asia/oceanasia.asp

Gans, J.S. & Stern, S. (2002). The Product Market and the Market for "Ideas": Commercialization Strategies for Technology Entrepreneurs. Working Paper, Intellectual Property Research Institute of Australia.

GBCI. (2011). *LEED Building Certification*. Retrieved 2011-04-27, from http://www.gbci.org/main-nav/building-certification/leed-certification.aspx

Glass Magazine. (2010). California adopts mandatory green building code. *Glass Magazine*. Retrieved 2011-05-03, from http://www.glassmagazine.com/news-item/commercial/california-adopts-mandatory-green-building-code

GlassonWeb. (2011). *Point-fixed Glass in Architecture*. Retrieved 2011-05-18, from http://www.glassonweb.com/articles/article/237/

GoED. (2010). *California Investment Guide: An Overview of Advantages, Assistance, Taxes & Permits*. Retrieved 2011-05-12, from http://business.ca.gov/Portals/0/AdditionalResources/Reports/Updated%20California%20Investment%20Guide%20November.pdf

GoED. (2011a). *Why California - California's Economic Development*. Retrieved 2011-05-10, from http://www.business.ca.gov/WhyCA.aspx

GoED. (2011b). *Foreign Investment in California*. Retrieved 2011-05-10, from http://www.business.ca.gov/RelocateorExpand/ForeignInvestment.aspx

Haley, U.C.V. (2009). Through China's looking glass: Subsidies to the Chinese Glass Industry from 2004-08. *Economic Policy Institute, Briefing paper #242, October 8, 2009*.

Hodgson, R.W. & Uyterhoeven, H.E.R. (1962). Analyzing Foreign Opportunities. *The International Executive, 4*, 5-6.

Hofstede, G. (1984). *Culture's Consequences: International Differences in Work-Related Values*. United State of America: SAGE Publications.

ISG's website. (2011a). *ISG Glass Fin Structures*. Retrieved 2011-05-04, from http://www.structuralglass.com/gfo.php

ISG's website. (2011b). *ISG Tension Structures*. Retrieved 2011-05-04, from http://www.structuralglass.com/tso.html

Johanson, J. & Vahlne, J-E. (1977). The internalization process of the firm - a model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies, 8*(1), 23-32.

Kogut, B. & Singh, H. (1988). The effect of national culture on the choice of entry mode. *Journal of International Business Studies, 19*(3), 411-432.

Lintzén, J. & Svedjeholm, A. (2006). *The Impact of Culture on Business Negotiations between Swedish and US Businessmen: A Case Study of Two Swedish Businessmen*. Luleå University of Technology: Master thesis.

MADB. (2011a). *Barrier fiche for Steel Local Contents Requirements*. Retrieved 2011-04-20, from http://madb.europa.eu/madb_barriers/barriers_details.htm?barrier_id=960100

MADB. (2011b). *Barrier fiche for U.S. Customs Refusal of EU Origin*. Retrieved 2011-04-22, from http://madb.europa.eu/madb_barriers/barriers_details.htm?barrier_id=970144

MADB. (2011c). *Applied Tariffs: Product code 7308.30.10*. Retrieved 2011-05-20, from http://madb.europa.eu/mkaccdb2/atDutyDetailPubli.htm?datasetid=MAAT-US11-02v001&hscode=73083010&countries=US

MADB. (2011d). *Applied Tariffs: Product code 7318.13*. Retrieved 2011-05-20, from http://madb.europa.eu/mkaccdb2/atDutyDetailPubli.htm?datasetid=MAAT-US11-02v001&hscode=731813&countries=US

MADB. (2011e). *Applied Tariffs: Product code 7308.90.70*. Retrieved 2011-05-20, from http://madb.europa.eu/mkaccdb2/atDutyDetailPubli.htm?datasetid=MAAT-US11-02v001&hscode=73089070&countries=US

MADB. (2011f). *Applied Tariffs: Product code 3925.90*. Retrieved 2011-05-20, from http://madb.europa.eu/mkaccdb2/atDutyDetailPubli.htm?datasetid=MAAT-US11-02v001&hscode=392590&countries=US

MADB. (2011g). *Applied Tariffs: Product code 7318.21*. Retrieved 2011-05-20, from http://madb.europa.eu/mkaccdb2/atDutyDetailPubli.htm?datasetid=MAAT-US11-02v001&hscode=731821&countries=US

MADB. (2011h). *Applied Tariffs: Product code 7326.19*. Retrieved 2011-05-20, from http://madb.europa.eu/mkaccdb2/atDutyDetailPubli.htm?datasetid=MAAT-US11-02v001&hscode=732619&countries=US

MADB. (2011i). *Applied Tariffs: Product code 7326.90.60*. Retrieved 2011-05-20, from http://madb.europa.eu/mkaccdb2/atDutyDetailPubli.htm?datasetid=MAAT-US11-02v001&hscode=73269060&countries=US

Madhok, A. (1997). Cost, value and foreign market entry mode: the transaction and the firm. *Strategic Management Journal, 18*(1), 39-61.

Sarkar, S. & Cavusgil, S.T. (1996). Trends in International Business Thought and Literature: A Review of International Market Entry Mode Research: Integration and Synthesis. *The International Executive, 38*(6), 825-847.

NGA. (2006). *Guide to the Glass and Glazing Requirements of the Model Building Codes*. Virginia, U.S.: National Glass Association.

Oldcastle's website. (2011). *Curtain Wall: Stackwall/Vision Vue*. Retrieved 2011-04-02, from http://www.oldcastlebe.com/products/architectural-glass/structural/stackwall-vision-vue

Ostergard, R.L. (2000). The Measurement of Intellectual Property Rights Protection. *Journal of International Business Studies, 31*(2), 349-360.

Pan, Y. & Tse, D.K. (2000).The Hierarchical Model of Market Entry Modes. *Journal of International Business Studies, 31*(4), 535-554.

Pilkington's website. (2011). *Pilkington Planar Overview*. Retrieved 2011-03-29, from http://www.pilkington.com/the+americas/usa/english/products/bp/bybenefit/glasssystems/planar/default.htm

Quirouette, R. & Arch, B. (2011). *Glass and aluminum curtain wall systems*. Retrieved 2011-05-19, from http://www.aaa.ab.ca/pages/members/media/curtain%20wall_NoAnswers.pdf

Rahman, S.H. (2003). Modelling of international market selection process: a qualitative study of successful Australian international businesses. *Qualitative Market Research: An International Journal, 6*(2), 119-132.

Rahman, S.H. (2006). International Market Selection Process: An Investigation of the Relevance of Business Operating Environment. *Journal of International Business Research, 5*(1), 73-86.

Roberts, E.B. & Berry, C.A. (1984). *Entering New Businesses: Selecting Strategies for Success*. Working Paper, MIT Sloan School of Management.

Root, F.R. (1998). *Entry Strategies for International Markets*. San Francisco: Jossey-Bass.

Sarkar, M. & Cavusgil, S.T. (1996). Trends in International Business Thought and Literature: A Review of International Market Entry Mode Research: Integrations and Synthesis. *The International Executive, 38*(6), 825-847.

Sebenius, J.K. (2002). The Hidden Challenge of Cross-Border Negotiations. *Harvard Business Review, March 2002*, 4-12.

Seyoum, B. (1996). The Impact of Intellectual Property Rights on Foreign Direct Investment. *The Columbia Journal of World Business, Spring 1996*, 50-59.

SGG's website. (2011). *SSG Point Systems*. Retrieved 2011-04-20, from http://uk.saint-gobain-glass.com/b2b/default.asp?nav1=pr&nav2=details&nav3=Systems&nav4=8060

Teece, D.J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy, 15*(6), 284-305.

Teece, D.J. (1988). Capturing Value from Technological Innovation: Integrations, Strategic Partnering, and Licensing Decisions. *Interfaces, 18*(3), 46-61.

Teece, D.J. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning, 43*(2-3), 172-194.

Terpstra, V. & Sarathy, R. (2000). *International marketing* (8th ed.). Fort Worth, Texas: Dryden.

U.S. Census Bureau. (2007a). *Economic Fact Sheet for an Industry: Glass and glazing contractors, US*. Retrieved 2011-04-28, from http://factfinder.census.gov/servlet/SAFFEconFacts?_event=&_industry=238150

U.S. Census Bureau. (2007b). *Economic Fact Sheet for an Industry: Glass and glazing contractors, the State of California*. Retrieved 2011-04-28, from http://factfinder.census.gov/servlet/SAFFEconFacts?_event=Search&_state=04000US06&_industry=238150

U.S. Census Bureau. (2007c). *Economic Fact Sheet for an Industry: Glass and glazing contractors, the State of New York*. Retrieved 2011-04-28, from http://factfinder.census.gov/servlet/SAFFEconFacts?_event=Search&_state=04000US36&_industry=238150

U.S. Census Bureau. (2007d). *US Population Estimates*. Retrieved 2011-04-28, from http://factfinder.census.gov/servlet/GCTTable?_bm=y&-_box_head_nbr=GCT-T1-R&-ds_name=PEP_2009_EST&-format=US-40S

U.S. Chamber of Commerce. (2008). *U.S. Chamber Celebrates Enactment of Intellectual Property Law*. Retrieved 2011-04-20, from http://www.uschamber.com/press/releases/2008/october/us-chamber-celebrates-enactment-intellectual-property-law

White House. (2011). *President Obama's Plan to Win the Future by Making American Businesses More Energy Efficient through the "Better Buildings Initiative"*. Retrieved 2011-03-28, from http://www.whitehouse.gov/the-press-office/2011/02/03/president-obama-s-plan-win-future-making-american-businesses-more-energy

Wood, V.R. & Robertson, K.R. (2000). Evaluating international markets: The importance of information by industry, by country of destination, and by type of export transaction. *International Marketing Review, 17*(1), 34-55.

Young, S., Hamill, J., Wheeler, C. & Davies, J.R. (1989). *International Market Entry and Development*. Hemel Hempstead: Harvester Wheatsheaf.

Appendices

Appendix 1: Interview data from Alpha.

Interviews done with the CEO and the Export Sales Manager.

Meeting on 2011-01-31

A sales point for selling AlphaConnect in California is the earthquake activity there, as few systems exist that are tested for earthquakes. There are probably only two more in the entire world that has been tested for this, with Asahi being one and possibly Pilkington the other. But, earthquake testing aside, there are probably six or seven systems that can offer a similar aesthetics for glass facades where only an industry expert can see the real differences. The biggest producers are Saint-Gobain, Asahi Glass Co., and Nippon which owns Pilkington.

What we want to know is how we can enter the market and which barriers to entry that exist. Specific testing requirements can be one barrier and the structure of the distribution network can be another. We are not interested in producing and installing the system in California. Instead we would like to sell the system to a distribution company which requires collaboration with a glass manufacturer that provides 8 millimeter insulated glass.

The glass is heavy which makes it expensive to produce the glass in Europe and then send it to the U.S. This process might be possible as the first reference for the market, but future projects will probably not happen this way. Because of this, it is therefore important to find a collaboration partner in the U.S. who knows the market and can act as a distributor of the system.

Every glass producer that has a modern production line for insulation glass can produce this product and it should therefore not be hard to find a suitable one in California. Today, Alpha has collaboration partners on the markets for Great Britain, Germany, Lithuania, and Japan. The glass is currently produced for each market that the company has business in, whereas the metal components are only produced in Europe.

AlphaConnect got its earthquake testing done in Japan which is probably the toughest test in the world, and is also currently going through the European CE-labeling process.

How the company works:

An inquiry with attached drawings from an architect normally starts the process and the company often finds itself in competition with several other actors. If the contract has been awarded the company, a project is started where all the technical details are solved for and a calculation for the amount of material needed is done to secure a production volume as soon as possible. The drawings with adjustments are then handed over to the architect for approval, the final components are bought in, and the installation follows. The installation is not performed by Alpha as either its subsidiary performs it in Sweden or the collaboration partners abroad. Sometimes the project also starts with an architect approaching Alpha to get suggestions of how he/she can succeed with their ideas.

The company is not alone with offering a system with moving metal components that can ease the stress on the glass; the patent is instead based on the attachment being placed only in the innermost glass. For this type of solution, no other product comes near the price charged for this kind of system.

The market analysis for Alpha is to find basic data to tell if the product can even be sold on the American market, if not there is not meaning to go there to try and find collaboration partners. It is therefore valuable to see if insulated glass is used at all or to a great extent in the U.S. Should insulated glass not be used; AlphaConnect does not fit with the market as it is only used with double or triple panes of glass.

Meeting on 2011-03-03:
AlphaConnect is today regulated by insulation glass requirements and standards for both Sweden and Europe. The company is therefore foremost interested to see if these frameworks differ greatly from the American market.

In some markets it could be the distributor and installer that are the appropriate collaboration partners that Alpha is looking for as it gives them a possibility to offer their customers with a solution that gives a cleaner design to a competitive price. For other markets, such as France, it is the architect that has the most influence as construction companies do not dare to use a product that has not yet been approved by a consultant or an engineer. In Lithuania it is instead the buyer or project owner who decides for every detail in the project, and then there are markets for which it is the building companies that decides for everything.

We would therefore want to know who makes the decisions in the market, and who decides on what to be purchased or not and how this decision can be influenced.

The metal attachment which is inserted into the innermost glass is the one that is sent to the insulated glass producer by the company before the glass is joined together with silicone, whereas the metal components attaching to this attachment, the metal arms and the spider, is often sent directly to the construction site. This saves a lot of space for export when it comes to just the metal attachments inserted into the glass as about 150 of these can fit into one small cardboard box.

Meeting on 2011-03-24:
Every system that is bolted and uses insulated glass is a competing system to AlphaConnect, monolithic glass is therefore not a system that we compete with.

The sales channel can be either be the glass producer, the installer, an architect or engineering company, or a larger construction company.

We are interested in knowing what the correct sales channel is and to what extent this kind of facades are build. Is it mostly used for commercial shops or entrances, is it mostly for hotels or does it exist on the residential market as well? Can the system be used for several floors or is it only installed on the ground level, and how tall can these facades go? Answering these questions would give us a good view of what is demanded for the Californian glazing market.

In order to the exact market size you should only look at the volumes for insulated glass and if possible only for insulated glass used in bolted systems similar to AlphaConnect.

What is most likely for us is that we will use a subcontractor for insulated glass in the U.S., with the smaller metal components being inserted into the glass being sent to this subcontractor. Bigger components such as the aluminum profiles for the windows will probably also be produced locally in

California as it would not be economical otherwise. But of course, should the market volume be large enough it can be possible to send these profiles from China in large containers.

Also do check the tariffs levels for exporting to America. It might be possible to go around VAT should the final production be in the U.S. The steel industry might be protected by added tariffs.

One of the arguments for us not going to the U.S. by ourselves is the risk of being sued. This can be solved by instead selling the system to a partner that takes all of the risk by taking over the projection.

Check what the payment condition look like for the market, if you pay in advance or if payment after delivery applies. It might also differ if the product is imported.

What is normally the warranty extended to the customer is something we also need to know.

As the price for facades in Tokyo, Japan, is three times as high as compared to Sweden the final price of the system stays marginal when applying the AlphaConnect solution and the performance of the product therefore becomes more important. We therefore also need to know the price of similar systems existing on the Californian market.

The aftermarket for AlphaConnect comes into effect if the customer would even want to restructure the facade or if it has been damaged. Changing glass for Alpha is not interesting as the company's installers are geographically dispersed. This make is very difficult to send one installer to another city or region and it becomes very expensive to the customer, so expensive that we do not dare take out a profit margin for the work.

The pro with outsourcing the production is that we can easily and quickly speed up production and therefore do not need to manage this flexibility ourselves.

Meeting on 2011-05-11:

The size of the Swedish market:

We do not have an exact figure on this. The Swedish market is though rather small compared to other European countries. Its size also varies with what is currently constructed in the country. But for this product specifically, generally little is done with it and even less in Gothenburg. It is foremost in the cities of Malmö and Stockholm where it sells the most. We experience the Swedish market too small and few projects that fit the AlphaConnect system present themselves. Often it is on projects that we do not see as that valid for which we have to at least try and leave an offer on.

View of the product in Sweden:

Traditionally it has been an expensive product, but with our solutions it has come more in level with other kind of systems. Compared to other regular structural glazing systems (e.g. curtain-wall) the price for these is at around 4000 SEK per square-meter, whereas for AlphaConnect the price is at 5000 SEK per square-meter. This of course depends on the project, where the size of the glass and the buildings frame also affects the price. Should the project be very complex, the price for AlphaConnect can instead run as high as 8000 SEK per square-meter.

One of the reasons that we developed this system was that it was too expensive to purchase it the way it existed. Should we purchase the glass and attachments ourselves from existing competitors we would not

end up even close to the current price of AlphaConnect. With this in mind we are sure that our price is very competitive to other similar systems.

Competitive structure in Sweden:
In Sweden we rarely see Pilkington Planar, and if it is installed here we do not think that they are the ones installing it. Should a customer decide to go for a bolted system such as AlphaConnect, we feel that no other system competes with us at all. Normally we instead compete with other types of facades where the project owners often see the price difference to be too large. Eckelt, which is owned by Saint-Gobain, also exists on the European market. However, they are not seen on the Swedish market. We also asked for the price of their system before we had our own system, but it was considered way too expensive.

Production costs in Sweden:
The production is relatively expensive in Sweden. Throughout the years it has become less expensive, but if you want to sell these components as a system without being in charge of the installation it has to be produces abroad for us to claim any marginal at all.

Service:
When selling AlphaConnect the customer is offered an engineering service in which we help him/her with applying our product to the drawings. We believe that it will be difficult in the startup face for California not to offer this same service, but after a while it might be possible for us to lay this task on the installer's engineers instead.

Incentives to go abroad and work as Alpha do:
Should one get the production and sales going with this kind of product on the international market it is very easy to get a volume out of it. In Sweden we would never get any decent sales volume on it. As we do not produce the product ourselves it also becomes very easy to increase production through existing or additional subcontractors. The bottleneck is instead the engineering at the company, where each project demands its own time as they are unique. It may be possible to provide specific markets with a quick reference guide, but this would probably only work with certain concepts such as for a specific business chain with similar buildings needed constructed.

Incentives from government to export instead of foreign investment:
We have not heard of any tax reliefs regarding this, but through different programs it is motivated to export more than investing abroad. These programs comes from e.g. Exportrådet - the Swedish Trade Council - and Business Region Göteborg, which help companies to establish themselves on foreign markets by first trying to develop locally and export from here. Free consultancy time and reduced prices for additional consultancy work is given for this.

Demands on installer:
AlphaConnect is very similar to other competing systems in how it is installed and therefore does not require any specific training. The difference is probably just our center support which takes up most of the self-load of the glass, and relief the load put on the attachments. The bolts are therefore only affected by the wind load as the self-load is taken by the center support. This gives less pressure on the glass, making it possible to use thinner glass than otherwise possible. By using thinner glass, the price and weight of the facade is also lowered.

The only thing needed to be known for installing the system is the tolerance numbers, e.g. how exact the system has to be mounted in order not to face problems when putting up the glass. But this is more the specifications of the product and do not point to any training needed for installing it.

Warranty:
10 years are given by the glass producer which we hand over to the customer. For the facade specifically, a five year warranty is normal practice.

Resource commitment:
Right now we are not interested in starting up something by ourselves in California. It will instead demand some kind of partnership or possibly using a financier wanting to invest in this entry. Should we start from scratch with our own company in California it would take a very long time just to penetrate the market, and then even longer to get a decent sales volume out of it.

We do not have any experience of the American construction market and therefore need collaboration with an installer that purchases our components and knows the market well. Here, we will possibly look for a distributor or glass producer that feel they would gain a bigger market share by providing this kind of system for their customers. Partnering with a local company also offer us to reach out through this company's contact network of different installers.

Resources:
Today we have 3.5 employees including our part-time accountant. Employed are two engineers, with one of these being the manager of the company. The amount of employees and the financial resources of the company could though change quickly if for instance the sales in Japan would start to pick up.

Appendix 2: Interview data from the Californian respondents.

G1 - Owner, G2 - Owner, G3 - Owner, G4 - Estimator, G5 - Sales Director, G6 - CEO, G7 - Vice President/Estimator, A1 - Architect, A2 - Architect, CBC - Architectural Associate, ICC - Sales Director.

Question	*Int.*	Answer
What is the usage, commonness, and trend of insulated structural glazing (point connect)?	G1	It's common, but it's not real common. You don't get a lot of jobs with this system. This is not used a lot in everyday type buildings. You would not see this on a regular store front for instance. All new constructions has to be dual glazed. Also when you remodel an old house you need to put in dual glass. It is mainly due to environmental pressures.
	G2	That trend is definitely increasing. Insulated glass, low-e glass is increasing every day. There are new energy requirements that call for insulated low-e glass in new constructions. The clear majority, 75% at least of new constructions are dual glazed. Title 24 energy requirements demand this type of glazing. There are still applications for single glass however, such as in warehouses or distribution centers that does not have the same energy requirements.
	G3	I would say yes the trend is going upwards. For the past five years it has gone more towards insulated point loaded systems. Insulated glass is also increasing. Everything is dual glazed here now. But if you are talking strictly about point loaded systems I would say that at least 70% is insulated.
	G4	I do not have any specific knowledge of this and cannot really answer the question.
	G5	Very easily get substituted by a structural framed curtain-wall system - because point supported structural glass systems are very expensive. Dual glass is sky rocketing because of demand, environmental pressures, and fuel surcharges.
	G6	Well, it's a sporadic thing. We do a lot of monolithic. But also a bunch that has an insulated glass unit as well. We do about 15 jobs a year. I don't know that it's increasing - its job specific. They treat this as a more or less an architectural feature. Something that they'll use to attract you to the building and sometime it's just a small amount of it. Jobs up to a million dollars.
	G7	Not answered.
	A1	Yeah, any new project you have to more or less use insulated glazing due to energy savings and government initials. To answer for the trend, as a system it has been used and been popular for around 15 years. Due to it having been used for 15 years makes it less trendy though, but people still view glass facades as a good design.
	A2	In California things are very slow right now because of the economy. Our engine is on a slow burn and we have budget problems. It has been going on for some years, even when Schwarzenegger was Governor. He couldn't get people to vote for increased taxes, so as a result it is kind of like a depression that has been going on in the USA. We are normally the engine that drives USA, California that is. But that engine right now, say we have 12 cylinders normally, it is only four or five going right now. The only strong point in new construction would be healthcare. Not much office building constructions and hotels, and higher education are being built.

Question	*Int.*	Answer
What type of buildings/ constructions use insulated structural glazing? (hotels, commercial, residential etc.)	G1	Really high-end buildings, such as museums. I've seen this system on a couple of museums, airports. Maybe even on hospitals. But it is going to be very high end type of commercial buildings.
	G2	Instead of the warehouse just described or instead of a small storefront, such as a convenience store, subway sandwich store. Mostly these systems are used on class-A, high-end type of buildings. Major entrances to large buildings.
	G3	Commercial lobbies. We just finished a 40 000 square-feet Lexus dealership in California. It was a point loaded insulated system.
	G4	We install structural glazing in Schools, Hotels, Commercial businesses, residential applications. Mostly Commercial and Residential projects.
	G5	90% goes into office buildings at first level for a grant entry.
	G6	It varies. There is no specific thing that you can hang your hat on. Entrance on a commercial building, a library, we've done it in homes. Everything.
	G7	Commercial office buildings, you do not often see these systems in residential housing.
	A1	Definitely in the commercial market for high profile office buildings with big lobby type space, and also ground level retail space such as storefronts. As the product is there to cover a large area for transparency, it is not often valid for residential buildings.
	A2	This system, AlphaConnect, could be a curtain-wall and/or utilized at lobby level.

Question	*Int.*	Answer
Who are the major suppliers of structural glazing/point connect in California?	G1	I do not have any knowledge of who the major suppliers are, but Pilkington should probably be in the market and they are a big organization for glass.
	G2	Oldcastle Building Envelope, Pilkington, W&W, C.R. Lawrence. One Italian glass contractor, a couple of organizations from Canada.
	G3	A lot of times what we do is we actually buy all the parts ourselves, glass bolts etc., and then have it engineered. But when we do a larger project or for overall systems, I think its Saint-Gobain and ISG, Oldcastle and Pilkington. They engineered the system for the Lexus job. ISG bought all their glass from China.
	G4	C.R. Laurence.
	G5	ISG (pretty sure they manufacture theirs in Mexico), Oldcastle, Pilkington, Dorma.
	G6	Pilkington, ISG (pretty local), "Merryl", Oldcastle, a couple of companies from China.
	G7	ISG use PPG products. They fabricate the PPG glass and do not manufacture it themselves.
	A1	When I did my own project on the East Coast we used Pilkington Planar put together by WW Glass.
	A2	I don't really know, sorry.

Question	*Int.*	Answer
What does the generic sales and purchasing process of insulated structural glazing look like? Which actors (e.g. general contractors, architects etc.) are involved? Who are the decision-makers in the process?	G1	Architects design this. It would start with the architects and owner. The decision makers are the owners.
	G2	The owner asks the architects for something when it's just an idea in their head. The architects are then responsible for drawing the initial design. They drive the design intent. Architects and owner are the decision makers. Contractors, sub-contractors and suppliers follow.
	G3	It would definitely be the owners because it is very money driven right now here in California.
	G4	Owners and architects. The chain looks like the following: Owner-Architect-General Contractor-Subcontractor-Vendor.
	G5	Always the design team that bring it to the owners. But it is always the contractor who proposes a budget. At that point the designer will often have to modify its original design because it is often out of whack. The contractor sources material from sub-contractors and suppliers. Owner, architecture, general contractor, sub-contractor, suppliers. Sub-contractors are sometimes invited to the preliminary budget. GC sends info to glass contractors.
	G6	The initial decision makers are the architects. 90% generated through an architect and an owner. The order is Owner, Architect, General contractor, Glazing contractor.
	G7	Not answered.
	A1	There are large window-wall contractors/subcontractors that specialize in the installment of exterior skin systems (not just this system) that you will use for construction projects, contractors that offers advice and engineer a solution with their product. The architects are the ones that has the power to say that they want to see this in place, till the point of fitting and support where we will turn to others for advice for what the best system might be.
	A2	It comes from the architects who with representatives such as contractors design buildings with these kinds of systems. If we are looking at such a system we also look for alternatives because it's very cost driven, especially if developers are involved. Office buildings are usually developer-led and they always look at the bottom-line.

Question	*Int.*	Answer
Which actor (owner, architect, contractor) decides on which system to use for a construction?	G1	The owner together with the engineers.
	G2	Probably the owners after consulting with the architects.
	G3	Not answered.
	G4	Owners and architects are at the top.
	G5	As I said previously, the design team brings their proposition to the owners and the contractor then proposes a budget.
	G6	With the situation right now in California, it will be the project owners that decide in order to keep costs down.
	G7	Not answered.
	A1	The architecture are the ones that has the power to say that they want to see this in place, till the point of fitting and support where we will turn to others for advice for what the best system might be.
	A2	We definitely have a say in which system to choose. We look at different curtain-wall systems but it also gets value-engineered. We give recommendations but they will look at the costs, especially if it is a developer. It would come from us.

Question	*Int.*	Answer
How is this type of product, insulated glass and bolting system, manufactured/ sourced (domestically or internationally)?	G1	I would assume that the system is sourced both locally and abroad, but I do not really know.
	G2	Most of the point connects themselves were originally imported, because I think that point connect is a European product. But nowadays I'm sure most of the components are also produced both in USA and are imported. You find a lot of components of these systems that are imported. But glass is all manufactured locally.
	G3	I was a bit surprised about them buying glass from China. I understand that a lot of components such as spider-fittings are imported, but glass, aluminum we don't want to buy from China in case something breaks. If something breaks it would take too long time to get an extra shipment. The majority of a project is made locally.
	G4	The only other company that I know of who makes a system similar to this is CR Laurence. Our company is not too familiar with this type of glazing.
	G5	ISG I'm pretty sure they manufacture theirs in Mexico. Oldcastle do theirs in California or 50% across the U.S. Glass is American made.
	G6	Both. We have done both. Pilkington is the largest. We have done jobs with Pilkington, ISG. We are currently making the structure ourselves for one job because it's custom. Glass is bought in California or domestically.
	G7	Not answered.
	A1	I do not really have any knowledge of that.
	A2	I don't think that is an issue. I think it's just the accessibility of the system and the components. The conclusion is that as long the system is accessible it doesn't matter where it comes from.

Question	*Int.*	Answer
What are the attitudes towards products of Swedish origin in California?	G1	For the most part, I think a lot of people have respect for European products. I think that Europe is a little further ahead in terms of architecture and the number of products available. I have a lot of customers who have seen products in Europe while on vacation that are not available here in California.
	G2	In my opinion I haven't heard anything bad about any products from Sweden. I think the perception of Swedish products is that most of the stuff that come here are of pretty high quality.
	G3	I have not experience and can't comment. The only thing I can say that we wouldn't import because our lead times are important to us. We like to have complete control over the turnaround time.
	G4	I believe Swedish products are generally considered quality products.
	G5	I don't have any exact view of Swedish products.
	G6	Not answered.
	G7	The attitudes towards products of Swedish I do not know of, but European products are thought well of.
	A1	The most important thing to consider is that imported products and systems are seen as expensive, expensive and also hard to coordinate with production schedules. And if I should use an imported product it has to have a feature that I couldn't get in the U.S. Overall it is small factor, but if I have two identical products and where one of them is sourced locally, I have incentives to go with the locally sourced product. LEED encourages local sourcing of materials causing people to think a little bit more about buying things from local sources. I therefore think it helps to have local representation in terms of being able to meet you, show you samples, and help with engineering. Generally, people think positively of Scandinavian design. The biggest identifier is IKEA and their Swedish products, which is a strong brand and which people see as offering both good design and inexpensive, which I think is a good thing. Whereas products sourced from for example Italy or France are seen as expensive.
	A2	European products are in general considered of high quality.

Question	*Int.*	Answer
What are the customers looking for when buying this type of point-connect system? Is there a dominant design or usage (structural glazing, curtain-wall etc.)?	G1	Curtain wall is the dominant alternative. Bolting systems are not really common.
	G2	The needs and the desires are to have as much vision as possible. A feeling of openness and uninterrupted vision not associated with heavy aluminum frames.
	G3	I think what they are looking for is a frameless appearance. A grandeur of an entrance. A statement. To make a statement of the entrance to the building.
	G4	Our company has no experience with this type of product. I would assume it would mostly be used for storefront applications. It would have to be tested by American standards to be used for curtain-wall.
	G5	They are looking for maximum visibility from the outside to the inside and maximum day lighting.
	G6	What he wants is some sort of a guarantee. He wants it according to American standards and with warranty. Warranty is somewhere from 10 to 15 years.
	G7	Architects are real big on the look of the system, and a dramatic look at that. But costs hold them and the owner back. Title 24 requires us to have dual insulated and low-e glass. Those striving for top LEED certification though, might pay the price for having a greater area of structural glazing.
	A1	Curtain-wall systems are used more often than structural glazing as they offer lower cost and they do cover a whole building instead of being used for a special feature of the building.
	A2	Not answered.

Question	*Int.*	Answer
What are the most competitive product features for purchasing this system for a project owner (price, quality, design, warranty, etc.)?	G1	Not answered.
	G2	I'm not sure about product features, as for the most part all point connection systems look basically the same. As you know the architect comes up with a design based on the owners requirements and if that includes point connect it is drawn accordingly.
	G3	I don't really know, but I assume that the cost of the system is important.
	G4	I believe price goes before quality.
	G5	It depends on the project of course, but the price of the available systems will probably never be discarded.
	G6	Price.
	G7	Price is key, quality is secondary. Pilkington provides quality, whereas ISG offers the same system for 100 US$ less per square-foot. Price is huge for private office buildings, whereas for government establishment you might have a better chance with design and quality as the funding is not often a problem. We have used ISG on fifteen different private office buildings, which is our niche.
	A1	Not answered.
	A2	We look at the design. We also have to weigh the cost. If there is a system with similar looks but to a lower cost, the client/developer will 98% of the time go for the cheaper system. Unless they want to go with a pretty sophisticated system. We do that, but so often it gets value-engineered.

Question	*Int.*	Answer
What is the average price level for this type of point-connect system per square-foot? What is the price for insulated glass (dual glass) per square-foot?	G1	Not answered.
	G2	It is the most expensive way to go if you going to put glass in. We send this out to someone like Oldcastle or C.R. Lawrence and they put together a unit price, because there is engineering involved. So when I'm going to build a glass curtain-wall that's 50 or 100 feet high, that's pretty common stuff, you know how much metal you need, and the metal people give you a price, the same thing for glass and aluminum. Then you put the components together as a glass company. When it comes to point connect, that needs to be put together by a supplier and then sold to us. So they sell us the point connects, the engineering, the glass, everything. The approximate cost for a point connects system is about 120 US$ per square-foot. There are variables of course which could drive the price higher such as glass type, complexity and access. These are my costs, not marked up.
	G3	Point connect is definitely higher than other alternatives. Many times that's the first product that gets substituted out on a job by a regular glazing unit. The cost for point connect is somewhere from 120 to 200 US$ per square-foot. We paid 130$ and we made labor on it and I remember it was good job for us. A typical curtain-wall might run us from 70 to 80 US$ per square-foot.
	G4	The storefront that we install has an average price of 19 US$ per square-foot material only.
	G5	It varies on the type of glass, the amount of points, the size of glass units - and will run you from 250 to 350 US$ per square-foot. The owner's price. Point connect is the most expensive alternative.
	G6	250 US$ per square-foot, general contractor price. If you follow the money its owner, general contractor, glazing contractor, suppliers. Point connect is the most expensive alternative.
	G7	For half-inch glass or 3/4 or one inch fins, it went for 150-160 US$ about four years ago. It has been awhile since they build this in San Diego and is now probably around 180 US$ per square-foot. You add another 45 US$ a square-foot for the insulated product. Typically the up charge in a one inch insulated unit versus a monolithic unit is about 8-9 US$ per square-foot excluding spacing, silicon, etc. Additional charges is for example 20 US$ per fabricated hole, the silicone, etc.
	A1	These are priced as system, but I cannot remembers the exact price and this was ten years ago.
	A2	I don't have knowledge in this sorry.

Question	*Int.*	Answer
Technical specifications: How tall can the facades be built? What are the possible size measures for the windows? How tightly do the bolts have to be mounted?	G1	Not answered.
	G2	There is no limit to height. This stuff is tied to a structurally engineered steel column. So as long as the structure is engineered there is no limit. However, given its high cost there is no bang for the buck to put this on anything else than an entrance in my opinion. No one is going to see this on 20th floor. In my opinion it should be on street level so that everyone can see it. Point connect systems require engineering and that is the determining factor relative to the glass size and vertical spacing. Glass is available here in California up to 4,572 mm (180") and up to 60 square-feet overall for an insulated unit. Legally, as long as the glass is tempered, for human impact and is within the engineers calculations it's fine.
	G3	I assume that there is no limit to height of properly constructed.
	G4	I don't have this kind of knowledge.
	G5	Not answered.
	G6	I don't believe that there are any size constraints on the glass, and for the bolts this is probably something that the manufacturer has to tell you more about as they have engineered it.
	G7	Engineers decide here, based on e.g. glass thickness, how tightly they have to be mounted. In San Diego they are normally 28-30 foot tall, and the lights run 8-9 foot tall, 5 foot wide. In Northern California this might differ though.
	A1	I don't really have knowledge in that area.
	A2	It depends on the manufacturing of the system. You have to consider seismic and wind-load.

Question	*Int.*	Answer
Is there any kind of aftermarket sales for this type of system?	G1	Not sure, I don't see how it could be sold in the aftermarket as it is expensive to repair this kind of system.
	G2	Aftermarket, such as a tenant improvements to an existing building would be tough for a point connect system as the structural steel required would mean a lot of demo. It is usually not a consideration for aftermarket applications.
	G3	I have not had to deal with any aftermarket sales with this system so I am not sure.
	G4	Not answered.
	G5	I don't see it applicable to this kind of system.
	G6	If it is not covered by warranty it is probably up to the owner of the construction to repair it.
	G7	Not answered.
	A1	Sorry, I have no knowledge of this.
	A2	I assume some kind of aftermarket is in place, but I don't know how and in what format.

Question	*Int.*	Answer
What is the average payment time normally extended to a buyer of the system? How long is normally the warranty period for the system?	G1	The contract sets the payment date for a project and the warranty would normally be around 2 to 5 years.
	G2	There is no extended credit from the suppliers. Keep in mind it's just another product the glass supplier handle so there is no special deal to allow a longer payment period to them. The warranty on the installation is usually 2 years, but America is FULL of lawyers and construction has a 10 year statute of limitations relative to construction defects.
	G3	Not answered.
	G4	The warranty is set to 2, maybe 5 years.
	G5	Not answered.
	G6	Payment is usually given after a month and the warranty can go for as long as 10 years.
	G7	We usually first draw after 30 days, and then there is always a 10% retention till the job is completed. Warranty normally runs between 2 to 5 years on this system, and occasionally up to 10 years. Typically it is 2 years for most projects.
	A1	I don't know actually, but I assume normal payment terms apply for this kind of product as well.
	A2	Not answered.

Question	*Int.*	Answer
Adaptation of AlphaConnect necessary? Is there a need to change product specifications etc.?	G1	Not answered.
	G2	Not answered.
	G3	We need seismic, wind-load and anchorage calculations to support our drawings.
	G4	Should it meet engineering calculations there are probably few obstacles for it.
	G5	As I have seen similar product on the market I don't think it will have any problems.
	G6	Hard to tell, I think you have to talk to an engineer for that kind of information.
	G7	They don't have a mockup testing requirement in the specification. Primarily it is the engineering information of the system that is required to be submitted prior to installation. They also have pretesting of the manufacturing of the system, primarily on the fitting with the seismic activity.
	A1	I imagine it would work fine. There is a question of whether there is some sort of certification required for a system like this. The place to look would be Title 24, California's own building code. It tends to get more stringent as buildings get higher, wind loading is the primary testing criteria – strength of attachments.
	A2	Is has to be an approved system, that is all.

Question	*Int.*	Answer
AlphaConnect provides two distinct features: it has the articulated bolts connected to the innermost glass pane, which gives a smooth surface, and it can withstand seismic activity. What are your views on these features? Do they offer any advantage or disadvantages for the Californian glazing market?	G1	Not answered.
	G2	Not answered.
	G3	I think its advantage because it's new. Architects love new designs, new concepts and new ideas to put on their buildings.
	G4	I can't remember having seen the attachment in the inner glass for any other product but that is probably an advantage.
	G5	Advantages would be as described in the product description, it offers many possible combinations of glass and the thermal insulation is probably good.
	G6	I have seen similar systems as AlphaConnect, a counter sunk system with a hex head. Used frequently for insulated glass. Suppliers are C.R. Lawrence, Pilkington, and ISG.
	G7	Price is of course always an issue. But, with all the states pushing for energy efficiency in building, you would have a good chance of selling the product in California. You would even have a better than good chance in Northern California (specifically San Francisco) as that seem like the Mecca for new products like this type of system. It give architects a lot more options and possible areas to cover as they can e.g. put low-e coating on, have it very energy efficient with little or no loss of thermal. The idea is very unique and cool. It would also be interesting to see the system withstand the blast requirements for government buildings, which is growing right now.
	A1	In terms of aesthetics it is similar to a number of other spider-type of attachments. I have not specifically seen another product that puts the attachment in the innermost glass, and in a way it might be a disadvantage only because I think one of the appeals of these systems are the relief that the points of metal on the corner offers, reliefs that I believe are regarded as nice looking. And I guess I will be worried about just holding one piece of glass whether it would have any chance of overtime wearing out the joint of the insulated panel. Since you are holding it up from one side, whether it couldn't cause some failure of the other piece wanting to delaminate or something.
	A2	I think there's a building on mission street in San Francisco, where they have a system kind of like that. I'm not sure though.

Question	*Int.*	Answer
Hypothetically, how would you introduce AlphaConnect to the Californian glazing market? (e.g. how should the product be marketed, manufactured, and which sales channel should be used)	G1	Not answered.
	G2	I would call on architects. I would also take it to the spec-writers show. It would be the places to introduce your product. Because the spec-writers are the ones that write the specifications for the architects.
	G3	I do a lot of pre-construction work, where I am called in by a design team, a grand contractor, and an architect. And I would introduce them to some of the systems they might use. Therefore I would go through the architects.
	G4	To be competitive you would have to open a factory in the USA to keep the costs down and also decrease lead time. Quality, lead time, and price are the biggest decision factors in today's market. Visiting architects and doing presentations of your product so your product becomes more known would be a beneficial marketing tactic. Architects build the specs, so you want them to recall your product as often as possible.
	G5	Dorma have a project similar to that. Dorma structural wall or point supported systems. Construction has severely slowed down for the past two years. Demand for point connect is very low.
	G6	I think your best bet is to go into architectural magazines. First step is to take a job and have it installed and then you have a track record. Once you have a track record then general contractors and architects are more willing to talk to you. Buy the job or whatever you got to do to get it.
	G7	Get the attention of designers, architects, and big houses. Perhaps go through education by visiting architectural schools and universities, and then the large architectural houses. Use mailers, show what it is capable of doing, and go to trading fairs. It is a very unique product.
	A1	Not answered.
	A2	We have what we call lunch-and-learn, where a vendor comes and talk about a system. The vendor pays for lunch and introduces his product. This is one marketing channel that we are influenced by.

Question	Answer: California Building Commission, CBC
What are the legal building codes or test requirements that affect this product?	In California we don't write our own codes, there's a couple that we do but they're insulated because they're smaller ones. The main codes like building, fire, residential construction, plumbing, electrical, mechanical, all those are codes that are published by international publishers. Building codes are published by the International Code Council, ICC. ICC publishes a whole body of codes but we only adopt a few of them and so they write all the code and then we adopt them for the state and then they get used in the state pretty much as they are written by the ICC. We don't add anything to the ICC code for California unless it's for a specific state agency such as public school, hospitals, and then those are related to the laws that govern those types of occupancies for the state. So they need a higher level of construction because they are central service. But generally at the local level, which is really what you guys are trying to hit is the market, which would be general construction in California. And each jurisdiction has its own local authority, so we set up the body of codes that all these jurisdictions use. But we don't write what's in them, it comes from ICC. The reason why that is important to you is if you guys have testing standards that show that it meet certain levels approvals. That's how the code works in California, there's a chapter called reference standards chapter, and within that chapter there's for instance ASTMs and all other standards that are listed in chapter 35 of the California Building Code, which is actually the 2009 edition of the International Building Code. Within these standards there are testing processes. If your product has testing standard approval, it means it's gone through a certain amount of testing that meets that standard. And so then people like architects who are designing buildings for California can then specify products that are in those standards. So that's where it is important for you guys to turn to the ICC, because you not only hit California but you'll hit every other state in the country. If you get into the ICC program you get your product listed as a product within the model code, it becomes a product that is adopted for use in the entire State of California. We don't really have an agency that is in charge of adding products into the code. We are on the regulatory side. We don't do anything other than updating and modifying the code. We just adopt a new edition of it every three years. We can't market anything, we don't sell anything, and we don't recommend anybody to use any specific products.
If they want to have this product approved, then we should contact ICC?	Exactly. What you are going to do then is get in line with every other product manufacturers of that product. And then an architect can then go into the code and then select those products in the code for use. And local building officials are going to accept them because they are referenced in the code as an approved standard. There is also a chapter in the code that gives general requirements, and within that chapter there is a section called alternative materials and methods. This section gives local building officials the option of improving a product that is not in the code. That kind of where you are going to, but it's a little more work because in California there's 540 jurisdictions, each one has its own process. So technically you'll have to lobby 540 jurisdictions. But the reality is you are going into the construction market and sell your product to those who are going to specify windows and doors and things you guys are doing. And once you get them to recognize this product as a viable alternative, they can specify it. If you can show these people who want to specify your product some kind of test standards that meet certain requirements, then that's just make it easier for the building officials to approve the product to be used in a particular condition. So usually they want something that has gone through a test that shows it meet the minimum requirements of the code standards.

CBC: Does your product meet energy requirements? Have you heard of California energy commission?	Because of energy requirements, single pane is not allowed anymore. What they do in California is they write all the energy requirements that everyone has to comply with for the state. Within Title 24, which contains California's building codes, one of the parts, part 6, is called the California energy code, and it's written by the energy commission, and through legislation, through law they have the authority to write all the energy standards for all of California. So when an architect is specifying a window product he wants something that is going to meet basic energy requirements. They might be a good source to check that your product comply with their standards. And I think that for sure will eliminate any resistance from the State of California.
Ending words	The only other thing I can say is to find out which test and standards affect your product, what ASMTs, etc. That's where you need to go to get some kind of sticker or certification, if you don't already have some test like that. Even if you are not in the code, you can still get in the state, you just have to market it.

Question	Answer: International Code Council, ICC
We want to make sure that this product is approved for the American market, California specifically?	Definitely having an ICC evaluation report can help get traction in the USA. Everyone here is free to use a product if they can, if the particular building department will allow it. Most building departments are going to require some sort of justification of the product and the easiest way to accommodate that is as the building department told you to have an ICC report. If you burden the building department with a bunch of DIN standard testing they aren't going to necessarily accept it and find it burdensome to review and aren't going to be knowledgeable enough to know what they should look for. That's why they refer to ICC evaluations report to basically have done that evaluation against the ICC codes. Then they feel much more comfortable with a consolidated document stating exactly what it's been evaluated for, what's it area of use, what's it wind-loads, seismic loads, gravity loads.
How do you test this product?	What happens is we have numerous building products that are coming from overseas, south America, Asia, Europe, and we realize there are many test standards across the globe. What we do is we take all your test data that you have that justifies your product and we review that against the IBC codes to understand what would be applicable. More than likely an IBC code is going to reference quite a bit of ASTM standards. We'll probably be involved in testing of you product to meet certain IBC code and hence ASTM standards to justify your product. There are many European standards that are appropriate but by the letter of the law we need to make sure that it is meeting our qualifications here. If anything, meeting European standards is very good evidence that your product will do fine.
How much is the price for this kind of testing?	For any building product that is reviewed the basic fee is 8525 US$. That begins the process. What that means is a file is opened for a particular manufacturer and product and data needs to be submitted and we need to first understand do we have an existing acceptance criterion or protocol for this type of product? If a product is very innovative, very new, that would often require a new acceptance criterion for that product category to be developed. We have a huge database of acceptance criteria so most applicants will fall into a particular acceptance criterion. What I want to do now is to see if we have product of existing nature, a similar product and then we can see the path for this product. To see if we have an existing report for a product of similar nature.

What would happen if you export this product to USA and wouldn't have been tested by ICC before and something was to happen?	This is outside of my scope; it's more of a legal issue. As I said before a private person or builder can try to use any product they want. If there was some sort of a failure I would imagine there would be some liability falling on the person who chose to put it in, the person who installed it or you the manufacturer. Having an ICC report doesn't shield you from liability claims. That's not its intent. The intent is to give an unbiased review by an entity who creates the building codes. Codes are constantly changing; they are on a three year cycle. It may offer some level of protection but that's not its intent at all. The evaluation is used by building officials to use as resource and for designers to also use it to feel comfortable when specifying a product, and manufacturers as in your case use it to gain traction in the U.S. market.
We heard that if you get this product approved and evaluated, the product is listed in a reference chapter for the spec. writers to refer to. Is this a correct assessment?	If the product goes through the evaluation report, it is put in our database and on our webpage, and that is the resource for designers and building officials. You are then also free to market your product using that report. Example on tradeshows would be a very common site where you see manufactures displaying their products that has been evaluated. It's simply factual evidence, its reputation being factual and unbiased. Building officials can check a product that has been evaluated to make sure it complies.
Building products in general, how many are approved by the ICC?	We have thousands of reports. It is important to remember that there are certain things in the code that wouldn't require an evaluation report; they are covered so to speak by the language of the code. The purpose of an evaluation report is also to evaluate a product when it is not really clear how it fits into the code, because the code cannot simply cover it in all possible scenarios. Particularly with new innovative products. The code is rather a framework and the evaluation is service that can help bridge where there is a gap or lack of clarity between the code and the product.

If a product does not comply with the code, it can't be used on the market?	That is true. We have had numerous manufacturers who during the testing and analysis of kind of building product have realized that perhaps the product does not comply with certain areas of the code, they have then gone back to R&D and modified the product so that it does pass. It may be an iterative process where the manufacture may have to back and modify different things in order to comply with the code. I your case, with an establish product that already do meet certain European standards, more than likely there wouldn't be issues. But that is the purpose of our evaluation to start from ground zero and evaluate the product per the code and applicable standards which are more likely the ASTMs. It depends also on the evaluation content that you are looking for. Are you seeking only recognition for the gravity or the self-load of the class or are we also talking about wind-loading on an exterior condition, seismic load as well, if so what seismic zones. So, there is a ton of variables involved in what the report content could be. It could be one or two pages, or extremely elaborated. Back to the cost issue, when you do submit an application with that basic fee and the test data, you and the staff engineer are assigned to this product to figure out what recognition you are looking for, is it strictly gravity, is it wind load, etc. All those variables need to be worked out and when they are worked out we create a plan of evaluation. It depends on the content you are looking for and then you understand what testing is needed. At the end of the process there will be the additional fees associated with for example how many products are being tested, it depends on the length of the report, figures, charts, how many codes are you seeking recognition for, certain states have particular codes. It would end up costing anywhere from between 15000 to 20000 US$ when all is said and done.
The alternative would be to check the code for yourself and make sure that the product complies with the code?	That's true. You can do that internally with your tech staff, in fact most manufacturers have some sort of engineering staff that has already done that. Bear in mind that the code is intended to be a minimum. But certainly many manufacturers are aware of the code requirements for their products, and then their development and testing will reflect that. As a manufacturer you are more than welcome to specify your product on drawings, submit it to the building department, have it approved and then installed. But most of the time that's where you going to hit that barrier at the building department. They might say, well what's the justification for this product? And you are more than welcome to submit engineering calculations or something that justifies this product. It's their choice whether to accept or not accept what you're submitting. For them the easiest tool for them is to have an ICC report and that's something that applies nationwide, as opposed to deal with an engineering justification discussion with every building department the product hits.
If you take this directly to the building department you might have to repeat the process for a different state?	Maybe, maybe not. It depends on the state. Generally speaking, California is probably the strictest state. We have seismic loads, and we're pretty forward in adapting codes. Florida might be interesting due to hurricanes though.

If this product is evaluated would that mean that it is approved for areas with seismic activities as well?	ICC is not a testing facility. We are strictly the engineers and the evaluators. We would state what testing is required and we would ask that you go to the appropriate laboratory credited to such testing. We have all the information on all those labs whether they are here in the U.S. or abroad. You would have that testing done and submit the data to us. We only tell you what tests are needed and then evaluate the results of the test. As far as seismic if that's what the manufacturer is interested in, that seismic recognition. That would be something that is discussed on the initial application and then the engineer can comment on which type of testing is required for that type of recognition. We have various seismic zones, ABCD, etc. Some products are not approved for different zones. If that is something the manufacturer is interested in as I said there are a lot of variables in the content of the report, we can tell you how what's involved. It might be you know several hundred thousand dollars of testing, I don't know, it may be less, it all needs to be evaluated and worked out. A lot of manufacturers will start off with a simple report for gravity, perhaps wind-load. One can build on the report with different tests and add-ons.