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THE DEVELOPMENT OF A STRATEGIC POSITION IN THE KOREAN INDUSTRIAL TURBINE NETWORKS

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Department of Business Studies, University of Uppsala

ABSTRACT - The development of a strategic position in foreign industrial networks is an important bridging function by reason of multinational enterprises (MNEs) role as international extension between foreign suppliers of high technology and those in need of technical resources. According to the network approach applied in the present study, foreign MNEs can obtain a strategic position in national industrial networks by complex interaction with industrial actors. The exchange of resources within those relationships are important elements of the position development activities. To overcome the lack of intra-organizational resources and the difficulties of distant markets, large MNEs are forming a specific kind of industrial network including a wide range of specialization for developing their own technology, which is an effective approach to reach a network position. This study proposes an operational model for a dynamic, developing process of network position, which is fruitfully demonstrated by an empirical study. Empirical data on the Swedish multinational enterprise, ABB STAL in Korea is analyzed by this model.

The conclusion reached in the empirical studies imply the importance of ABB STAL's interaction with others in the Korean industrial turbine networks. The network position development is affected by different factors. The exchanges are shaped by the activity and resource dependencies in the network and by the various actors' strategies. The political character of networks indicates some significant aspects of how ABB STAL should achieve a strong position associated with successful operations. Some such aspects are the government and industrial policies. The approach developed here has important strategic implications for the management of finns' positions in international business networks.

1. INTRODUCTION

The establishment of large multinational enterprises (MNEs) frequently plays a key role in industrialization, and modernization of newly industrialized countries (NICs). The Republic of Korea is one of these countries. The industrial development of Korea is heavily dependent on foreign high technology, equipment and investments. Korean government policies have concentrated the localization of market and manufacturing plants for the development of local industries to enable the foreign business establishments to integrate into the economy and the different cultural environment. Foreign MNEs have to establish and develop a certain position in national industrial networks by complex interaction with individual firms in the course of cooperative relationships. Their investment in these positions must therefore be based on the company's specific relations to the main actors, e.g. buyers, end users, engineering firms, suppliers, government authorities, research institutes, and other organizations. One interesting feature of the Korean industrial networks consists of the relationships between local firms and a number of foreign companies with high R&D activity. This kind of arrangement enables local firms to develop and to stay at the international competition level, or close to the level of the international quality standard. The scarcity of qualified technologies in Korea necessitates
the long-term development between these foreign and local firms, and other more traditional forms of industry-government cooperation are essential (Lee, 1991).

Engineering firms, shipbuilding and heavy industries are the main actors in the industrial turbine networks. The actors are part of a process of gradual tightening of interfirm linkages and a gradual expansion of the firm boundaries. Their role, which changed in the development process, was to design a modern form for industrial power plants and building a number of liquified natural gas (LNG) tankers through mutual interaction and by learning from industrialized countries. In the case of industrial power plants, resource exchanges became both internal organizations and external networks of main actors. The exchange of information is a primary function in these external networks of main actors. In the industrial turbine networks information is created through exchange relationships. These have become the driving forces of the development of a network position. In the case of building LNG carriers, Korea Heavy Industries and Construction Co. (KHIC) attempts to adjust inconsistent expectations through intensive resources exchange between the Korean shipbuilding & heavy industries and the related foreign suppliers and government authorities, thus promoting KHIC's "monopolistic growth" as a whole. In the recent industrial turbine networks of relationships the main Korean actors and potential foreign suppliers are expected to play an important role as changing the networks. The characteristic of the situation was rapid increase in the demand for electricity. It can be expected that the other Korean actors will strongly participate in the power plant business. Under such conditions, confidential relationships and mutual trust were assured by the expectation and achievement of sales growth. Conflict resolution between the Korean actors and the foreign actors, and within the networks depend on marketing and growth expectation.

Today, the Korean industrial turbine networks are characterized by the organizing of interdependent actors in the networks on the basis of historically given structures. The networks emerged across the boundaries of firms and industry, by flexible specialization, continuous development of new technologies, R&D and cooperation. These were the main advantages for competition. The development of a network position which takes into account the condition of the turbulent environment is the top priority of newcomers. In the Korean industrial turbine networks the firms are gradually restructuring managerial, technological and financial resources in order to meet a great domestic demand. This creates a new context for the industrial networks. Here we will review the true role of network position, which remains an important source of corporate growth.

2. RESEARCH PROBLEM AND THE PURPOSE OF THE STUDY

The previous section indicates many difficulties and problems which foreign firms encountered during their establishment in the Korean market (cf. Lee, 1991), in particular, these problems
can be referred to national factors such as cultural and geographical distance, difference in expectations, educational background, economic and industrial development level, industrial structure as well as factors related to the companies such as their previous international experience, contacts in Korea, applied technology, knowledge of relevant business counterparts etc. The problems the firms had to solve were due to both lack of information and lack of understanding of situations. Consequently, a first aspect of the research problem of the present study concerns the empirical aspects of how to identify and solve emergent problems and how to act when entering this new market. A newcomer must develop position of some sort in the established network which is often difficult due to the long-term stable relations in the existing hardly structured networks.

Another aspect of this research concerns the theoretical framework. Historically, the studies of international business, foreign direct investment and the MNEs were mainly undertaken by economists (cf. Dunning, 1958, et al., and Dunning, 1989). An assumption in foreign direct investment theory is that the foreign investment decision is the result of a rational plan, which is decided and implemented by top management, is at least implicit in many studies (cf. Vernon, 1966; Kindleberger, 1969; Caves, 1971, 1982; Buckley and Casson; 1976, 1985; Hymer, 1976; Dunning. 1980; Hennart, 1982, 1989; Reid, 1983; Anderson and Gatignon, 1986).1 The clear separation between the decision on entry and the implementation thereof which can be seen in much of the literature, is not fruitful (Lee, 1991, p. 26). There is no explicit discussion of whether, and if so to what extent, the entering firms have any position in domestic or international markets, and have relationships with a number of important actors, viz. influential individuals, potential customers and government agencies. These may have an important bearing on the entry process through their actions. The aspects should differently be considered from that of the rational plan. This is an essential requirement of a network approach focusing the sequence of activities leading forward to a situation in which the firm has established a position in the market. It can be argued that foreign market entry should be viewed as network position development in the foreign industrial environment. Such a view raises a number of interesting aspects which are emphasized by the Uppsala School (cf. Lee, 1991, pp. 34-41). Foreign market entry is not so much a separate event but more of a cumulative process taking place over time. The basic approach to this problem is the application of the network approach.2 In this study the issue is studied empirically as the same time as a theoretical framework is developed. The main

1 The foreign direct investment, which is based on industrial organization theory or internalization theory, as well as most writings on global strategies, belong to what Forsgren (1989, p. 6) called traditional direct investment theory (Doz, 1986 and Porter, 1986).
2 The network approach is a major theoretical framework for this study. It focuses research in international business and industrial marketing which has stressed the significance of lasting business relationships (cf. contribution in Engwall, 1984 and Håkansson, 1982). Subsequent studies (cf. Håkansson, 1989; Hagg and Johanson, 1982; Johanson and Mattsson, 1987; Laage-Hellman, 1989) have developed this interaction approach by extending the focus to industrial networks, defined as "sets of connected exchanging relationships between actors controlling industrial activities" (Engwall and Johanson, 1990).
theoretical contribution concerns the integration of the interaction and network approach. By studying interaction processes within relationships, the network position development over time can be analyzed. The network position describes how an actor is related to others through external relationships (cf. Mattsson, 1985, Hägg and Johanson, ed., 1982, Håkansson, ed., 1987, ch 9). All positions in a network are result of relationship development processes and are related to each other in a complex and multivariable way. Positions can also be created by individual firms which succeed in restructuring the networks. The network approach is a further development of the interaction model (cf. Håkansson, ed., 1982) with some fundamental assumptions regarding the characteristics of industrial markets. The network approach has been applied in different situations as a starting point for empirical studies. However, this approach is not developed in detail so as to allow immediate analysis of the empirical problems which have confronted the Swedish firms in Korea.3 The process dynamic in particular need to be elaborated. The model developed here is an analytical framework for the empirical study (Lee, 1991). In order to develop the model, theoretical concepts, mainly from the mentioned two approaches were amalgamated to reach a compatible view of the phenomena in question.

This study shows how ABB STAL’s strategic position has developed from interaction processes in industrial networks of relationships. To understand the process of Korean market entry, what problems do firms meet when entering the market and how can they manage these problems. Against this background the purpose of this study is to describe and analyze the network position development of the Swedish firm, ABB STAL, in the Korean industrial turbine network. This process viewpoint is essential in order to describe the development of long-term interaction in the Korean industrial networks.

The importance of these empirical and theoretical aspects of the research problem justify a study of the process of position development in the Korean industrial networks. This has a bearing on the global MNEs’ direct investment, transfer of technology and marketing to foreign markets (cf. Dunning, 1989). The basic idea of the present research is that firms invest resources in establishing and developing relationships with each other, thus becoming engaged in a wider network of connected relationships. This network is at the same time a strategic asset and strategic context of the firms as they develop their positions in the foreign industrial environments.

3. RESEARCH METHODOLOGY

In the present research project, the empirical study is based on in-depth interviews in three Swedish firms (ABB STAL, ABB Carbon and ABB Korea) which have been operating in the

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3 The empirical data is based on the previous research (Lee, 1987, 1991). The detailed analysis of the Swedish firms in Korea is existent in Table 1:1 (Lee, 1991, p15). There are 23 Swedish firms in Korea. ABB Korea is one of the largest firms established in 1972.
Korean market for several years. It is important to study the processes of the long period of time in order to analyze and understand the relationship development process and the establishment of network positions. The interviews were held both at the head offices in Sweden and at the affiliated companies in Korea. The case study covers the most expansive Swedish MNE’s sales subsidiary in different industries in the Korean market. During the different stages of the research, data were collected over a number of periods. The interviews dealt with the Swedish firm’s development of a network of relationships and positions with various kinds of actors in Korea. In addition written material was obtained from both published and unpublished sources. It thus includes both primary and secondary sources. However, the focus of this empirical study is not a historical analysis. Rather, by making a comparative analysis of the two types of network (e.g., industrial turbine and LNG carrier) an attempt is made to bring into relief the basic character of the industrial networks of relationships existing in Korea.

4 A CONCEPTUAL MODEL OF NETWORK POSITION DEVELOPMENT

The model developed here is an analytical framework for this study. The model consists of two basic parts, which is shown in Figure 4:1. First, in any national environment there are features different from those in others. The characteristics of the network environment include such factors as the policy pursued by the government, the construction of the industrial

Figure 4:1 The Model of Network Position Development
system, and the influence of cultural factors. **Second**, a foreign **firm** seeking to establish itself in this environment must pass through a number of **distinct** stages **where** short- and long-term interaction with different actors are involved. This will eventually lead to a network position for the foreign **firm** in the national industry.

4.1 The Network Environment

The characteristics of the network environment are **divided** into three parts, viz. Government policy, industrial system and national culture. Resources **exchanges** between actors situated in countries with major **differences** in such characteristics are **likely** to include **difficulties** and **friction** which differ in kind from that between actors in similar environments. This means that national characteristics influence the process of establishing a position in a foreign market.

**The Government policy** concerns special issues, such as the **financial** resources of industrialization, the **effect** of resources **allocation**, the government support to different types of **firm**, and frequently the government’s **role** as a **supplier** or a buyer in the development of **strategic** industries. These are determined more by **political** factors than by economic circumstances, such as primary exporters or large diversified **MNEs**.

**The industrial system** is composed of all the companies engaged in **production** and the use of goods and **services** and can be **seen** as networks of relationships between the companies (Johanson and Mattsson, 1987). The companies’ activities are **inter-woven** with the activities of others in the **large** industrial system. All industrial **activities** demand resources of various kinds held by other actors in the system.

**The national culture** consists of three elements, **political**, **sociological**, and psychological (Hofstede, 1983). These three reflect tradition and **common** ways of thinking and it is intimately linked with social norms, which are rooted in the **particular** culture, but may be different for other cultures. The **differences** between the actor’s cultural perceptions often hinders the progress of contacts between them. It is obvious that when unfamiliar actors, having different modes of behaviour, interact with each other, the time consumption may be increased to achieve “normal” interaction. In this **sense** the foreign actors need prior knowledge for the understanding of the culture.

4.2 The Position Development Process

The position is developed through short-term interaction and long-term relationships between the actors and includes both business and social **aspects**. The **importance** of a **particular** resource exchange and a relationship may **change** over time from the **first** initiation of the
contacts to building- and further an integration of the relationship and the whole process can be seen as developing through a series of stages.

The Actors, Short-Term Interaction and Long-Term Relationships

The actors (organization and individuals) - a supplier from an industrialized country and a customer in a distant (NIC) country - will engage in a complex pattern of interaction in the position development process. The resource exchange activities are carried out by the actors in the co-operation. The actors have certain characteristics which will influence the pattern of interaction - a relationship - that will be affected as a consequence of the actors’ characteristics. The major factors within the characteristics of the actors are distinguished as technology, experience, organizational size, structure and strategy, competition and type of industry (Håkansson, 1982, Lee, 1991). They steer its different directions and changes at the same time by their learning from the on-going process.

The short-term interaction can be seen as composed of six dimensions of resource exchange between two interacting actors to do business activities. These are exchange of hardware, exchange of technical information, exchange of proprietary rights, exchange of general information, financial exchange, and social exchanges (Thunman, 1988, Lee, 1991). These are often important for the initiation of relationships due to the involvement and commitment of its position establishment. In particular, the social exchanges is the most important function in resolving difficult problems and reducing uncertainties, and in developing the long-term relationship (Håkansson & Österberg, 1975; Cunningham & Turnbull, 1982; Håkansson, ed., 1982).

In long-term relationships, the companies are tied to each other through various kinds of bonds (Hallén & Johanson, 1990). There are technical bonds conditioned by a common technology and specific equipment in the technical adaptations and co-operations. There are knowledge bonds as the companies have knowledge of each other’s resources, organization, strategies and relationships. There are organizational bonds which are a result of various administrative adaptations and, i.e. special ordering arrangements between the organizations. There are usually legal bonds in formal written business contracts. There are economic bonds through a great volume of financial transactions. Finally, there are social bonds based on personal acquaintances and mutual confidence through social exchange which is crucial to maintain various kinds of bonds and to build up stable relationships over time. The different kinds of exchange lead to different bonds which combine into whole relationships where specific bonds constitute the parts. Every relationship has its specific bond structure.

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4 The definition is based on Engwall and Johanson (1990) who stress that all actors have a relatively clear view of their own relationships, albeit the views of interacting actors are not necessarily consistent. Likewise, different actors in the same firm may very well have perceptions of relationships with other firms which are naturally inconsistent. Generally, however, idea about the more remote relations in the network are vague and the ideas about distant actors may differ widely.
Stages in the Position Development Process

The process of position development can be described not only by the elements discussed above, but also by the passage of a series of stages. This means that when the process unfolds the actors must be able to move on, solve current problems and handle different types of exchange. The three stages (1. position initiation stage, 2. position budding stage, 3. position integration stage) are detailed below.

The Position Initiation Stage. The first stage is characterized by all activities taken between a foreign actor and a local actor to initiate contacts and establish a relationship. During this stage one actor starts with the evaluation of a potential new buyer or supplier and this takes place without any commitment between the actors. A number of informal and formal communication activities occur. In some cases the supplier is to enter an export market for the first time or is to appoint an agent or a middleman. At this stage there is psychic distance between the supplier and the potential customer which consists of the inter-firm distance between the actors. The evaluation of the other actor's competence is a process involving personal judgements as well as objective facts, and these judgements are made more or less economically rational and conditioned by e.g. experience, uncertainty, and distance. Distance normally influences exchange relationships and the high uncertainty indicates perceived difficulties for the customer to interpret the exact nature of the new environment. The interaction process normally reduces the distance or the uncertainty.

The Position Building Stage. The second stage is characterized by the actors' activities undertaken to establish the relationship mainly through the short-term exchanges and adaptations which will lead to the creation of particular bonds. The actors’ business experience is important to increase commitment to relationships, and also judge that of the other actors. The contacts between the actors become more extensive in terms of persons involved, more frequent formal and informal. The actors make not only more adaptations to each other, but also with other actors, such as suppliers, sub-suppliers, distributors, research institutes, government authorities, and banks etc. The social exchange between individuals in the two organizations reduces the social uncertainty and also creates an atmosphere of trust.

The Position Integration Stage. The third stage is characterized by actors' activities undertaken to institutionalize long-term bonds. When the actors have accumulated considerable experience of each other this will lead to standard operating procedure, trust and norms. The uncertainty has now been reduced to a minimum. The relationships are integrated by institutionalization of bonds which are also becoming a part of the national networks. The co-ordination requires that large volumes of complex information are gathered, exchanged, and processed. The foreign suppliers' product and process is now in the customer market with production and existing relationships. The actors become a tightly integrated network including interdependent resources and capabilities.
Network Position Development

The positions are established by the development through the stages in which the actors invest in the relationships with each other. The long-term bonds which are created between actors within a large number of relationships constitute a network of connected exchange relationships. The network position is related to the resources perceived to be possessed by each actor as well as to their relative dependence on this position in individual relationships. The relative positions of the actors are important driving forces in the development of stable network positions.

Strength of Network Position. The relationships are dependent on a number of cumulatively aggregated strong and weak bonds which define the strength of a network position. These positions result from earlier activities in the networks both by the actors and by other actors. Important aspects on the network position are (1) the strength (Strong/Weak) and the age (New/Old) of the relationships to other actors in the network; (2) the actor's control over exchange activities and resources in network; (3) the importance of the actors to each other due to their possession of professional knowledge, capabilities, exchange shares and a visit frequency. These aspects are based on stability of network positions. Important competitive advantages are created through strong network positions. The actor can maintain his positions by means of the continuous exchange relationships with counterparts which at the same time function as barriers to entry for newcomers. The marketing strategies are fundamentally related to the strength of the network position. In order to strengthen this position in the network the actors will have to create various kinds of strong bonds.

Position and Network Dynamics. The existing relationships develop continually and change through interaction. Government and industrial policy, technological change, and changes in resources also affect the network positions. We can distinguish between the linkage and control of activities (Håkansson, 1989). As two activities become more closely interlinked, they usually disengage from some other activities. Change in the performance of one activity may lead to adjustments along the activity chains and even to changes in related chains. Some of these adjustments will have a tightening and some a loosening effect on the network.

Regarding control, the actors can try to settle in central positions in the networks. They may compete for control over activities, resources and relationships in the network. This control refers both to direct control based on a strong central position and to indirect control based on power-dependence relationships.

The overall network structure shows the actors' strategic positions and their important connections. The actors can throughout identify certain weak and strong links in the network structure. The network position is conditioned by all types of relationships. In the management perspective the position involves both constraints and possibilities for present and future industrial activities and the management's international network positions.
5 THE ABB STAL CASE: THE NETWORK POSITION DEVELOPMENT

The analysis begins with the characteristics of the Swedish Company, ABB STAL, and the activity of the Company is described in shortly. The three stages of the major chronological activities are described and analyzed. Then the participating actors in the process of reaching the position in the turbine industrial networks are illustrated and analyzed.

5.1. THE COMPANY

ABB STAL AB, one of the world’s major turbine manufacturers, is one of the largest and most successful subsidiaries in the Swedish parts of the ABB Group. The Company has the responsibility for industrial power plants. The company's development was based on the establishment of ASEA in the evolution of the Swedish steam turbine. ASEA was founded in Sweden in 1883 and became the main Swedish firm in products and systems for power generation, transmission and distribution. In the case of high precision turbines, the Company developed into a leading manufacturer of turbines, and closely cooperated with STAL at an early stage. In 1959 ASEA merged STAL with de Laval Ångturbin and formed STAL-LAVAL. Later it was renamed ASEA-STAL. After the ABB merger it was also renamed ABB STAL. In 1989, ABB STAL was divided into ABB STAL and ABB Carbon (marketing turbine, equipment and technology for coal power stations).

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5 Asea Brown Boveri (ABB) group is an electrical engineering company and is also one of the major multinational enterprises (MNCs) specializing in global electrical industries. This group is involved in the worldwide marketing of various kinds of power plants and equipment, as well as and servicing a wide range of systems generally related to buyers and end users, which comprises power generation plants, transmission, distribution, industry, transportation, and application of electricity. ASEA AB (Sweden) and BBC Brown Boveri Ltd (Switzerland) have been merged since 1988. The company is owned equally by ASEA and BBC Brown Boveri. ABB Asea Brown Boveri Ltd, Zurich (Switzerland) is the Holding Company and Corporate Headquarters of the ABB Group.

The group is a federation of national companies and uses a matrix structure for its organization. The whole group has approximately 214,000 employees in 1300 independently incorporated units, which have been divided into both whole and partly owner companies throughout the world. Today, ABB has total turnover, viz. USD 29 billion. ABB’s worldwide activities are grouped into eight business segments comprising 65 business areas, each with its own profit responsibility for product development, production, and marketing. The eight business segments are categorized and their orders received per business segment as follows (ABB’s Annual Report, 1991): Power plants 17%, Power transmission 16%, Power distribution 10%, Industry 13%, Transportation 6%, Environmental control 12%, Financial services 3% and Various activities 23%. The Group has some 5000 autotromott profit centers. At the bottom of the profit centers are beginning to reorganize multination High-Performance Teams (Peters, 1992).

Geographically, the ABB Group is broken down into subgroups or companies in industrial countries. In the developing world, it is broken down into regions incorporating a number of counuies. Company managers are responsible for operations in each country in line with the global strategies of the business areas (ABB’s Facts & Figure, 1991).

6 Solvell, Zander and Poter (1991) explain the evolution of the Swedish steam turbine in connection with the development of the world class turbine manufacturers. High precision turbines were first developed by Gustav de Laval in the 1880s, and by Birger and Fredrik Ljungström in the 1890s. De Laval formed the de Laval Ångturbin company, and the Ljungström brothers Svenska Turbinfabriks AB Ljungström, STAL.
During the 110 years it has developed its various turbines into a diversified electrical engineering-technology firm with a strongly international structure. ABB STAL’s business operation has a pronounced high technological character with a number of assortment. For example, the Company offers a wide range of turbines, boilers and several kinds of integrated equipment used in oil-fired thermal power stations, nuclear power stations, gas power stations, and coal power stations. ABB STAL has 1.713 employees and had a total turnover approximately SEK 1,480 million in 1990 (annual report, 1990).

ABB Korea is one of the most important subsidiaries in the Asian market of ABB Group. ABB Korea is organized as seven divisions (five marketing divisions; Power Plants, Robotics, Transmission & Distribution, Environmental Control, Traction and two administrative divisions; Financial, Planting & Marketing Development) and two joint venture companies (ABB-Woojin and Hyosong ABB; Drives). Business areas are organized by ABB’s market segments to which global responsibility of real profit for the respective product areas are decentralized. Each division usually had contacts with the corresponding Company of the same product category in the ABB Group. ABB Korea functioned as a sales subsidiary (a commission Company) in terms of commission sales from a number of manufacturing and marketing companies. The Company has approximately 90 employees and the total turnover in 1990 was USD 500 million.

**Figure 5:1 ABB Korea Organization**

[Diagram of ABB Korea Organization]

The ambition underlying the organization is that the respective business segment directors (Company Executive Management and Corporate Staffs) will administer and answer for the activities all the way to the market. While retaining the responsibility for the operative coordination of the different business areas, the president of ABB Korea as country manager has distributed the primary responsibility for different divisional markets.

An important growth area for ABB Korea is the power plants segment. This segment is divided into nine business areas, viz. Gas Power Plants, Industrial and Utility Steam Power Plants, PFBC, Hydro Power Plants, Nuclear Power Plants, Power Plant Control, Fossil
Combustion Systems and Service. ABB Korea offers solutions for practically all power generation needs. The Power Plant Division usually contacts with ABB STAL in Sweden to market the various kinds of turbines and equipment both to the engineering companies and to end users in constructing power plants. In particular, the business area concerning industrial power plants is one of the most important in electrical engineering, and is performed by the division. ABB Korea holds a strong position in the industrial turbine area via its VAK and other specialized turbines, and technology.

The division has 60 employees (8 staff members, 16 marketing people, 11 engineers and in addition, 25 local secretarial and staff members are in the organization) and a 75% share of ABB Korea's total turnover. One of ABB's functions included acquisition of Combustion Engineering (U.S.A) so that organization of the Company is integrated by the Power Plant Division. The division also markets and installs the nuclear reactors and fossil boilers. ABB C-E International holds a 32% market share of nuclear reactors, but the Company functions as an independent business. The Company has some portion of the operations in the division.

5.2 ANALYSIS OF THE POSITION DEVELOPMENT PROCESS

According to the three-stage approach presented in chapter four, the first stage is characterized mainly by the efforts to initiate interaction between the Swedish and Korean actors by obtaining information about each other to make the exchange possible. The Swedish actors’ activities are concentrated to the establishment of positions in the Korean industrial turbine networks. The second stage is characterized by the Swedish actors’ exchange activities, undertaken to establish the relationships with indispensable Korean actors. The third stage is characterized by the actors’ activities in institutionalizing long-term bonds and by integration of the relationships in the networks.

5.2.1 The Position Initiation Stage

In 1958 ASEA signed a general sales contract with Gadelius’s Korean sales subsidiary in order to handle Korea’s demand for electrical equipment and power plant projects. ASEA held a 50% ownership of Gadelius. ASEA participated in the initiating business operations, since Gadelius had established a sales subsidiary in Korea in 1958. ASEA’s marketing activities were carried out by the Korean subsidiary of Gadelius. At that time Gadelius interacted with the Japanese subsidiary to exchange information in spite of a quite active marketing effort directed towards the Korean potential customers. It had been difficult to attract good marketers upon introduction on the market, for reaching sales volumes in different regions.

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7 At that time Gadelius attempted to sell offset printing m/c, filling m/c and packaging m/c in the market.
However, Gadelius sold mine winder and windlass to Kangwon Industrial Co. in 1960 and to Korea Tungsten Mining Co. in 1967. It was the first time that ASEA sold their products and established customer relationships in the Korean market.

During the 1960s industrial steam turbines were introduced directly by foreign suppliers without any co-operation with the Korean engineering companies. The financial resources were made by Japanese loans and foreign capital investment. During this period the power plant projects were performed in combination with financial ressources that were already prepared. For example, international credits were granted by the Korean Government to build up power plants and industrial factories, some of which required steam turbines and electrical equipment. Most of the foreign credits came to Korea in connection with power plant projects and were related to orders to foreign actors, ASEA’s competitors. These supplied power plant projects to Korean industries during this stage. The power plants were completely installed by the foreign engineers. The technological capability of the Korean engineers did not cover such highly sophisticated industrial turbines and related equipment in constructing the power plants. However, the demand for turbines increased only slightly more in Korea during the 1960s, probably because marketing was passive and the Korean firms were not in capital-intensive, mass-production and distribution industries. They were solely dependent on KEKO’s supplying of the predominant amount of electricity, which was sent from hydro power stations.

In 1970 Gadelius signed a general agent agreement with a Koman Company, Hyupchang. The strategy of Gadelius was first to achieve small sales in Korean markets, where the agent, Hyupchang, was used with the primary aim of obtaining information by initiating contacts with potential customers. Thus, Gadelius indirectly initiated customer interactions through Hyupchang’s activities, which were characterized by its intermediate position in the information exchange. Hyupchang was acting as a linking-pin between Gadelius and the Korean customers. There was also a cost reduction partly based on the fluctuating demand from textile and pulp & paper companies, or widely dispersed shipowners and steel companies with a small volume in Korea. Otherwise it was very difficult for Gadelius to interact with the potential customers who had no earlier experience of purchasing foreign products and cooperation with foreign actors. Gadelius used only an agent instead of, e.g. a consultancy, in the Korean market, to complement Hyupchang’s offer selling. The two actors interacted with each other mainly by exchange of general and technical information or by social exchange during their common marketing activities in Korea. Between Gadelius and Hyupchang the personal relationships were important in facilitating the intensive exchange of different resources, viz. product samples, technical knowledge, information on Gadelius in general, cultural issues and companies’behavioural patterns in Korea. These exchanges were on the basis of a number of weak technical, knowledge, legal and social bonds created between the interacting parties.
In 1971 Gadelius and Hyupchang attempted to make contact with Hyundai Heavy Industries in order to increase their sales opportunity and they sold a trean balance. After the sales result, ASEA had some difficulties in co-operating with Hyupchang, although ASEA now had the resources to develop relationships with other customers and to explore more technical marketing alternatives. On the other hand, ASEA did not expect that any large sales results would be accomplished in Koma, considering it a developing country with small market size, internal communication difficulties, and few marketers, as well as being located at a great geographical distance. But there was an advantage tendency of sales expansion in the market for ASEA to consider an establishment of sales office in Korea.

One year later, ASEA Construction established a branch office in Korea for further development. The Company had five employees and continuously maintained its contact with Gadelius and Hyupchang. ASEA marketing was based on the combination contact channels between the two actors, with the object of increasing demand and successively developing in a pattern of interaction with customers. ASEA sold marine turbines, i.e. 32000 HP to Hyundai Heavy Industries. This was initiating a position in the shipbuilding market. Price and payment conditions for products were clearly negotiated between interacting parties; the delivery time and installation service, and the training of turbine maintenance were an essential function of ASEA's supply capability. ASEA's flexibility and adaptability were significant for selling successfully, in order to initiate relationships with the buyers. Consequently, ASEA had established a new position without affecting any evaluation of the network context. It took ASEA 14 years to achieve a position in the market through Gadelius and Hyupchange. The position was focused on the basis of building a number of long-term indispensable relationships.

The number of relationships at this stage is shown in Table 5:1. With many important individuals involved it was obviously important that position development activities be coordinated, in order to establish the initiating position. The Table shows the results for the actors studied and for their different types of partners.

### Table 5:1 Number of Relationships during the Position Initiation Stage

<table>
<thead>
<tr>
<th>Number of Relationships</th>
<th>Initiation Stage (1958-1972)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitora</td>
<td>(4)</td>
</tr>
<tr>
<td>Main Supplier (ASEA STAL)</td>
<td>1</td>
</tr>
<tr>
<td>Main Actora (Heavy Industriea &amp; Engineering Company, Agent)</td>
<td>2</td>
</tr>
<tr>
<td>Buyer &amp; End User Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Complementary Suppliers</td>
<td>1</td>
</tr>
<tr>
<td>Main Supplier's other</td>
<td>4</td>
</tr>
<tr>
<td>Auxiliary Relationships</td>
<td></td>
</tr>
<tr>
<td>Total Relationships</td>
<td>10</td>
</tr>
</tbody>
</table>
ASEA’s experience in the Korean market clearly indicates the need for a long-term marketing commitment, as it took 14 years to build up its initial position in the market. The resulting initiation position of the actors in shown in Figure 5.2.

**Figure 5.2 Actors Involved in Position Initiation Stage (1958-1972)**

5.2.2 The Position Building Stage

ASEA had by now a certain position in the Korean industrial market. Nevertheless ASEA did not increase its sales of electrical equipment or establish any marketing relationships in the period from 1973-1974, probably because the Korean actors were existed in the first oil shock or were not in capital intensive industries. The Korean economy had limited resources due to an economic depression. After the first oil shock the government was very interested in saving energy because it had negatively influenced Korea’s economic development in 1973. At the time, 53.5% of the nation’s total energy requirements were supplied by import oil. The cost of oil rose from less than USD 300 million in 1972 to over USD 1 billion in 1974, representing 14.9% of total imports” (Korea Trade Association, 1982). Under these circumstances the government energy saving policy influenced the large Korean companies to establish heavy industry & engineering companies in 1975. Consequently, they were interested in the industrial steam turbines and boilers. Because of the 1973 oil crisis the Korean Government chose to encourage the expansion and upgrading of production facilities. This policy allowed Korean companies not only to purchase products, equipment and technology at bargain prices in a buyer’s market but also to build up strong manufacturing capabilities.

This circumstance affected ASEA’s personnel, who worked very hard. On the other hand, control over marketing action seems to be just as important, since the agent, Hyupchang, and the few other initial relationships were little used in marketing products, e.g.
mine windlasses in 1975. In 1976 the Korean companies estimated the market demand for the number of power plants required for industrial areas. They began to invest in manufacturing Korean boilers through transfer of technology and license cooperation with foreign suppliers. The activities of Koman actors were successively increased in connection with their production and distribution.

The first nuclear unit was commissioned by KECO in 1978. Due to this motive, ASEA, concentrated on the marketing activities, which were organized as much as possible like ASEA’s marketing organizations and had 6 employees and a total turnover SEK 38 million in Korea. As the exchanges successively proceeded a technical and social bond emerged between ASEA and Hyundai. It seemed that this contributed to selling test equipment for diesel engines, high voltage test equipment and transmissions in 1979. Although this was not directly concerned with marketing the industrial steam turbine, ASEA obtained experience of establishing in the shipbuilding market. ASEA was very interested in obtaining a sales reference in the market and in obtaining specific experience of the choice of entry mode.

Gadelius invested capital in Hyupchang, thereby obtaining 80% of its stock in order to achieve an internal position and the Company was named Gadelius Hyupchang Ltd. After this, Gadelius began to control involvements in the entire business activities in Korea. This was in preparation for the establishment of a sales subsidiary. In 1979 Gadelius terminated the business agreement with the Korean Company, Hyupchang, in which it had held a 80% stock share. The Company separated an ASEA division from the previous organization and a sales office was established by ASEA in Pusan City. The division’s employees were increased to 11 persons who built up some marketing relationships with the Koman buyers. After the disruption of the relationship with Hyupchang the sales subsidiary became wholly-owned by Gadelius in the period from 1979-1982. In 1979 Gadelius established the second sales subsidiary to develop marketing for air conditioning systems and ventilators. The reason was that the Korean market greatly expanded and Korea developed into one of the world’s most economically dynamic countries with a long-term annual GNP growth of 8.5% during the 1960-1970s (UNIDO, 1987). In particular, the Korean companies rapidly moved to the Middle East, winning contracts for construction works and selling Korean goods, industrial plants and even foreign equipment.

In other business areas ASEA secured a good many orders from their customers by energetic marketing of electrical equipment and plants in the period 1980-1982. As the result of its marketing, ASEA had a total turnover of SEK 54 million. This affected the building of relationships with large customers, viz. KHIC, Union Steel, Poongsan Metal Co. and Asia-Hertel Tungsten and Daihan Coal Co. and influenced the decision for a large investment to establish a large sales subsidiary in order to improve ASEA’s whole marketing activities.
In the Industrial Steam Turbine area, ASEA and foreign suppliers attempted to market to potential buyers and end users, but they needed an active information exchange with domestic engineering companies in order to obtain high valuable information links for its marketing activities. This was also a significant factor for the engineering companies should confidently prepare for feasibility studying, e.g. technical and financial applications to the buyers and end users. It was necessary to convince the buyers the necessity of obtaining high electrical efficiency when investing in the power plant, and they presented investment plans and cash flow in the fundamental budget. Through the activities, ASEA could give two engineering companies high valuable competitive advantages in the market for their own plant projects. It was also possible for them to visit the mass energy consumers to introduce the technical advantages in concerning the reduction of production and maintenance costs. These constituted the basis for marketing activities. However, the high quality and price levels of ASEA’s turbines and equipment did not suit the buyer firms, as they were financially weak and labour-intensive. Moreover, they needed financial support from the government because the required financial support was lacking and a great capital investment was required in the initial stage of construction.

In 1982 the Fund of Energy Administration was also associated by the cooperation between the government and KEPCO. The purpose of this organization was to carry out the energy saving policies. The Fund had a great financial resources. The amount of the Fund's financial resources was dynamically increased up to approximately USD 380 million in 1990. Therefore, many companies could conduct energy saving projects in order to make use of the financial resources. Most of the financial resources were utilized by purchasing industrial turbines for the power plant projects.

With regard to ASEA’s marketing, the initial contacts were characterized by technically oriented interaction to build up customer relationships. In this phase, there were two aspects of marketing patterns for ASEA’s marketers which were mostly concerning the tightly knit networks of human relationships throughout day-to-day resotmes exchange activities. The first concerned the situation, when the end user had his own engineering people carry out power plant projects. They would attempt to pursue various kinds of subcontracts with suppliers in adjusting turbines to the power plants. Several subsuppliers were selected by the end user to develop the project. The second was that the end user chose a main (general) contractor, i.e. engineering Company or foreign supplier which usually decided to choose the type of turbine, boiler and equipment. This pattern of project implementation was generally predominant.

A sales contract on the steam turbine and associated equipment was signed between ASEA and Junjoo Pulp & Paper in 1982. This time ASEA competed strongly with the Getman Company, Siemens, and was partially influenced by ASEA’s results in earlier efforts. They obtained an order for approximately SEK 30 million from Junjoo. The project was
composed of a few packages, viz. training, installation and spare part supply. A new contract was awarded by Junjoo Pulp & Paper and an installation plan for the AP type turbine was provided. This made it possible for ASEA to build up a technical relationship with Samsung Shipbuilding & Heavy Industries (SSHI). Some auxiliary relationships were also built up to prepare for handling of the bureaucracy. Junjoo Pulp & Paper and SSHI were grouped into a member of subsidiaries in the Samsung Group. SSHI was the main contractor and a representative engineering Company within the group, but ASEA directly signed a sales contract with Junjoo to install a steam turbine. This involved the exchange of both specified and unspecified documents (including sheets for various inspection items) pertaining to the turbine, boiler and equipment. The transfer of essential knowledge to Samsung and Junjoo within installation and maintenance had now been in progress for one year.

The cooperation between parties and exchange of various kinds of information were specified through the contact. The contract also stipulated a number of future activities for the actors to conduct, thereby strengthening the inter-organizational joint planning. For example, most of the engineering activities were strongly dependent on ASEA STAL for the majority of technology and equipment in order to install the power station. A great volume of hardware and technical documents were shipped from Sweden. In consequence, financial exchange between interacting parties, e.g. payments in exchange for hardware and elements of technological exchange, were made by ASEA and the main contractor on certain occasions. The training programmes (i.e. a period of two weeks-four weeks) were executed by ASEA STAL in order to transfer technical knowledge to the main contractor and end user. The marketing process is in practicality similar to that of the turn-key project. If ASEA Korea obtained a sales contract with the main contractor, major activities of resources exchange, viz. exchange of hardware, technical information and financial exchange, were performed by ASEA STAL in Sweden. But exchanges of general information and social exchanges were continuously managed by ASEA Korea to maintain networks of human relationships. The social exchange was intense in connection with the exchange of general information. These distinctive activities and co-ordination built up stable customer relationships and avoided a great uncertainty in maintaining the project follow-up. This experience was important in solving current problems in the process.

In this project, SSHI worked precisely and found few item losses when installing the steam turbine during the cooperation period. The end user, Junjoo Pulp & Paper, lacked technical knowledge of the power plant system and had no experience in carrying out the plant project. Junjoo wanted to substitute those losses free of cost, but ASEA had counted on sales items of equipment. There was a large conflict between the interaction parties. Two junior engineers of SSHI visited West Germany once in order to attend the technical meeting and negotiation. ASEA did not consider SSHI to be not a turbine contractor, but participated as the third partner in the turbine business. ASEA’s behavioural pattern of discussion and
decision making were different. There was a large psychic distance between the individual actors. After completion of the negotiations Samsung was very disagreeable to ASEA. Consequently, Junjoo accepted and purchased some required equipment. As a result of this, the general impression for this period was that the development of relationships were not satisfactory, but ASEA developed some weak technical relationships. On the other hand, the German competitor, Siemens, invited SSHI to participate in the training course for a year, completely free of cost. Siemens gave attractive technical information and good maintenance service to SSHI in creating strong technical bonds and thus affected the relationships with ASEA negatively, leading to arise major conflicts. Later SSHI purchased several turbines from Siemens with regard to project applications.

A new company, ASEA Korea (a wholly-owned sales subsidiary), was established from a division within Gadelius Korea in 1983 because Gadelius had a problem with the tax rules and the Korean laws and regulations. ASEA had 14 employees and a total of SEK 174 million a year. The important business areas for ASEA in Korea were same as that of ASEA Group. In particular, some equipment items were important as follows: automation equipment and deck cranes, turbines, subway locomotives and electric equipment, control equipment for galvanization plants, power components, ASEA-SKF furnaces, pressure equipment One year later, the president of ASEA Korea, Mr. Gert Andersson, came from Sweden. He recruited 12 personnel (total 26 employees) and organized the same divisional structure as that of the ASEA group in Sweden.

The cumulative activities were performed by ASEA’s marketers who were on the basis of building relationships. Later on, ASEA succeeded in concluding a sales agreement with Hanil Fibre Co. Therefore, ASEA Korea built up a relationship with the Company to install a steam turbine, but the main contractor was SSHI. This had such an adverse effect on ASEA’s business that SSHI wanted control over all the activities in influencing the previous project of Junjoo Pulp & Paper. However, ASEA installed the steam turbine at Hanil Fibre Co., chiefly in order to increase its credibility to the end user and even SSHI, thereby reinforcing its dominant position by building relationships. An effort was made in this period to speed up the growth of ASEA in Korea by adding turbine and electrical equipment to the assortment. Some of ASEA’s financial resources invested in building new relationships, were established and maintained to exchange information and resources in the power plant industry. The work was carried out in close contact with important individuals at certain customer firms. Another example, an order for an international project (SHOIBA) was obtained as an effect of building the confidential relationship with HHI when constructing a process system plant of saline water conversion in Saudi Arabia. A gas turbine (GT35:17MW) was installed at the Saline Water Conversion Corporation. On the other hand, the patterns of information exchange and customer contacts were supported in connection with the power plant network of

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8 Interview with Lee Bong-Joo, Manager of Industrial Project at the Power Plant Division, ABB Kom.
relationships. As a result of its activities, ASEA and potential buyers respectively were positively connected in exchange resources, for example, a few sales contracts of various kinds of electrical equipment were signed between ASEA and its major buyers for reexport to third countries. Daewoo purchased electrical- and automation equipment and marine measuring instruments to install on a ship of the US Line. ASEA sold respectively high-voltage transmission, instruments and other equipment to the Pacific Construction Co. and Lucky Engineering for re-export to Bangladesh, Burma, Malaysia and Nepal.

ASEA secured two large contracts with the state-owned customers. The first, when the largest state-owned Company, Pohang Iron and Steel Corporation (POSCO) attempted to modernize his production system. A great portion of the equipment and plants, viz. electromagnetic piping, steel making equipment and steering systems for flameless control, were installed at POSCO. The second, a contract for a turn-key project of Pusan subway was secured, after hard competition with Kawasaki, Mitsubishi and Siemens, who participated in the final round of bidding for the project which ASEA won in 1985. A large amount of equipment, e.g. control equipment, complete power supply installations and a signalling system for the subway were supplied and installed by ASEA. Recently, the maintenance of high quality service has been more important than the installed high quality equipment and instrument itself. In particular, the volumes sold by ASEA to specific public customers could convince substantially in the short-term with regard to other types of business assets. Two important relationships created a stable atmosphere among public customers. Consequently, ASEA, POSCO and Pusan City were closely interlinked with government authorities, institutes and auxiliary actors to establish a significant position. ASEA was usually able to keep its position as a major supplier to the state-owned customers because the relationships were thus be positively connected depending on whether the government administrative units were performing complementary activities. One year later, the company’s total turnover was dynamically increased to SEK 628 million (including the amount of reexporting) in Korea.

Let us take, for example, the case of a certain turbine maker, ASEA STAL, noted for technological excellence. The Company developed and marketed a model of VAX turbines having practically high energy efficiency. However, the turbine was not well received, enlivening the whole industrial turbine market and smoothly increasing the company’s sales. The reputation of marketing and maintenance of service was not satisfactory for the buyers and end users. Nevertheless, a large order was received for building a technical relationship with KHIC in 1987. A power plant project was developed through a previous relationship which had been maintained. The project was performed by a technical cooperation between ASEA and KHIC in order to construct a combined cycle power station at Panwol Industrial Corporation. The main contractor was KHIC, and the turbine and related equipment supplier was ASEA STAL. Due to the cooperation, the building relationship with KHIC would make progress in the near future.
Development of ASEA in Koma was made continuously in the construction field. An international project order (SAFWA) was obtained from Kuk-Dong Construction Co. in 1987. The Company bought ASEA’s GT35 type of turbine (18.5 MW), which was installed at the Ministry of Defence and Aviation (MODA) in Saudi Arabia. ASEA obtained this order in relations to its international relationships and ASEA Korea’s marketing efforts. After this event ASEA’s turbine set the norm for the competitors, e.g. Siemens, Fuji, Mitsubishi and Kawasaki in the Korean construction industry. Unfortunately, technologically superior competitors tend to make light of marketing ability. Even if they succeed in initiating the growth of the market by introducing a good type of turbine, boiler and equipment, some of them neglect to make the best of sales opportunities as the market grows. As a result of its circumstance, major Korean construction and engineering companies, HHI, SSHI, Lucky Engineering, Pacific- and Kuk-dong Construction Co., utilized ASEA’s turbines and electrical equipment in constructing power plants during 1983-1988, because of ASEA’s experience, technological and marketing capabilities. These products reached on an average 70-75% of the total turnover of ASEA in Korea. This was accentuated as the marketing and relationship building efforts resulted in the shipment of hardware to major Korean companies with the accompanying financial and other complementary exchanges. These activities created technical, knowledge, legal, economic and social bonds in the new relationships. The sales volume increased every year. This put ASEA at a strong advantage in its position building in the market. On the other hand,

It took ASEA fifteen years to build up the necessary relationships with the Korean actors. The relationships at this stage are shown in Table 5:3 (see position and network dynamics). The Table shows the results for the actors studied and for their different types of relationship. With the large number of actors involved it was obviously important that different relationships be built, in order to develop a position. The total number of relationships, approximately 35-40, were built by ASEA Korea’s division of power plant.

5.23 The Position Integration Stage

ABB Korea became a successful licensor to KHIC in both nuclear reactors (PNP) and fossil boilers (PFC) business area. The company even held the position of supplying steam turbines and equipment to KHIC when constructing the Panwol combined cycle power station. ABB Koma and KHIC negotiated detailed plans with each other in order to exchange hardware. All hardware was shipped to KHIC for assembly and installation within the power station during 1988-1989. The Swedish actor’s total hardware probably depended upon the type of turbine and the equipment involved in various kinds of power stations, since the Korean power plant

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9 Interview with Hokan Borin, Director of the Power Plant Division at ABB Korea.
market was composed of specific turbine, boiler and equipment markets. The different power plant markets can be classified as follows.

1. Nuclear Reactors (PNC)
2. Fossil Boilers (PFC)
3. Large Steam Turbines (PSU)
4. Gasturbines (PCT)
5. Large Hydro Power (PHP: Turbines and Generators)
6. Industrial Steam Turbines (PSI: 15-60MW)

The first four categories determine the number of large turbines and boilers installed within the power stations. Each of these turbines, boilers and equipment require at least one main power station. The supplier can also suggest the main contractors to choose the combination of the three categories, viz. steam and gas turbine, and those in the required size of boilers. The choice is dependent on the capacity of the power station (MW). Nowadays, the field of industrial steam turbines is an important business area in Korea. Private factories need to install turbines to set up their own power stations for supplying energy and electricity. The power station is usually based on a capacity of 15-60 MW. In general, an average of 2780 MW are demanded per year on the basis of an estimated 39 power stations (27.820 MW) from 1992 until the year of 2001 (The Economist, 1992, pp.126-127). This estimate is based on the national consumption of electricity. 

ABB Korea was confident of selling as many turbines as could be produced by the coordinating all ABB STAL’s activities with their total employees. In 1989 ASEA and BBC tried to integrate marketing networks and their organizations in Korea. The marketing items of turbines were co-ordinated and reduced by ABB Korea to adapt market requirements.

Some technical cooperation and equipment combinations in the Panwol project will now be discussed. ABB STAL and KHIC are two suppliers of equipment and integration systems used in large scale, installation of a steam turbine, electrical equipment and specialty boilers. Two companies have specialised in the power plant products which are used in different parts of a power station. Given the fact that they were supplying complementary equipment to the Panwol Industrial Cooperation (end user) and have complementary competence, ABB STAL and KHIC partly coordinated their marketing activities when constructing Panwol combined cycle power station. In the Panwol project they submitted a common technical application, but the actual main contractor was KHIC, which purchased a VAX turbine (60 MW) and equipment from ABB STAL. ABB STAL working as a subcontractor, was able to draw on their competence and add technical know-how resources

10 Hankuk Ilbo (July, 14.1992. No. 13603) stresses that the national energy consumption increased annually by 11% per year during 1987-1992. The issues of the national energy consumption is based on the government energy saving policy.

11 Korea Heavy Industrial Company is a largest corporate actor in the Korean heavy industry and one of the affiliated companies of KEFCO. The Company has usually an extensive technical cooperation with foreign high-technological suppliers and domestic shipbuilding & heavy industries.
of their own. KHIC has had the best contacts with the buyers (end users). ABB STAL has been able to benefit from KHIC's buyer relationships. By developing cooperation with KHIC, ABB STAL increased the integration of its relationships and coordinated activities in different nets. ABB co-operated with other actors in various ways to adjust its marketing organisation and to obtain external resources. This was focused on their ability to offer complete systems. Consequently, ABB STAL obtained a joint reference for building the power station. The construction period took over three years. However, for various reasons the expanded cooperation between ABB STAL and KHIC did not develop satisfactorily. As a result of the cooperation, the power station was installed, but an explosion occurred in the newly installed VAK turbine and the gear box broke down during the initial operation. The power station could have difficult functional problems with the surrounding turbine. The technical cooperation and locally manufactured equipment were not combined well during the construction period. The repairs took over one year. The technology and quality of the turbine were questioned by the buyers, which was more problematic for ABB STAL. The competitors began to criticize ABB's lack of technological capability and maintenance of service. The degree of ABB's reliability was diminished. To develop marketing and customer relationships, ABB Korea could consider changing the supplying item from the VAK turbine to the former AEG KANES turbine for a specific period, because ABB had acquired a German Company, AEG KANES, in 1989 and had changed the company's name to ABB Turbinen. The Company has taken over their business activities. The former AEG turbines were introduced and also had sales references in the Korean market.

One of the largest companies in the Korean heavy industry, Hyundai, purchased USD 7 million of piping equipment to assemble with a gas turbine at Anyang/Bundang combined power station (300 MW) in 1990. At that time HHI sent two technical specialists to the ABB subsidiary in Switzerland to stay for a period of one week. ABB concentrated on equipment selling by arranging technical cooperation for a feasibility study and training in concerning the power station. As a result of this co-operation ABB created strong technical and knowledge bonds with HHI. These events made it possible for HHI to require a technical license with a highly qualified foreign supplier in April 1991 in order to manufacture gasturbines. At the same time ABB was also looking for a Korean partner.

In 1991 HHI's business team (six people; three directors and three middle managers) visited ABB's subsidiaries (Mannheim and Baden) and HQ (Zürich) twice in order to obtain their technical cooperation. Several business meetings were arranged between HHI and ABB. ABB also sent three technical specialists to HHI to build up stable technical relationships. HHI has analyzed that a market breakthrough was achieved by ABB STAL in connection with the GT 10 gas turbine taken over from the Swiss Company, Sulzer Escher Wyss AG in

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12 Interview with Sten Olof Andersson, Area Manager (South Asia, Japan, Korea & China) of the Industrial Turbine at ABB STAL.
13 Interview with Gwack Ho-Young, Manager of the Engine and Machine Division at HHI.
Furthermore, ABB has high technological capability, extensive international business and acquisition. These factors would probably make it a great advantage for Hyundai to cooperate with ABB in comparison with Westinghouse. In September 1991 HHI signed a license agreement with ABB STAL. They are still waiting for the government permit from the Ministry of Commerce and Industry. With respect to the co-operations, one type of personal contact with HHI consisted in ABB’s development process pertaining to the daily routine work and future resource exchange activities. In particular, this co-operation resulted in a successful exchange of technical information which strengthened the relationship between HHI and ABB. HHI has proved their ability to manufacture gas turbines and to solve technical problems for the end user.

In preparation for the license co-operation and the local manufacturing HHI could enhance the importance of the co-operation between ABB Korea. Then two actors expected several interesting developments will be occurred in other relationships. As a result of its progress of co-operation, some of the main competitors’ initial contacts with potential customers were influenced by the integrating technical relationship between ABB and HHI. In particular, the strongest Korean supplier, KHIC, competes now strongly against HHI. However, on the steam turbine side Hyundai continued a license contract since the Company has been building a technical relationship with Westinghouse since 1978. The contents of the license are manufacturing steam turbines and generators, nuclear bunkers as well as other related supplementary equipment, even though Hyundai has a license contract with Westinghouse.

Recently, ABB established two divisions, viz. the Industrial Robotics (November, 1991) and the Environmental Control Division (an organization was adapted from Gadelius in February 1992). An organizational expansion is related to facts concerning the market situation and structure (see Appendix 2). It was in the interest of the ABB actors to continue the involvement in a wider integration of relationships. The main focus in all these activities was on increasing co-ordination to attain position integration through various strong relationships in the networks.

The earlier position building stage was characterized by continuous contacts with important buyers. These are continued in this stage, where the actors’ strategy is implemented by the various activities. Activities in the relationships are cumulatively institutionalized. An example of this was the co-ordinated activities of ABB Korea, which were performed by frequent contacts between the different types of individuals involved, particularly in

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14 The annual Report (ABB STAL, 1990) explained the gas turbine marketing activities in connection with the GT10 gas turbine. Five turbines were sold - two for China that were ordered by a Hong Kong-based American company, as well as three in Sweden. Two of the Swedish plants, in Karlskoga and Angelholm, are combined cycle plants consisting of a gas turbine with a waste heat boiler and steam turbine. This type of generation plant produces electrical power in a highly efficient manner. Overall efficiency will also be very high, since waste heat is utilized in a district heating system.

15 Interview with Chung Young-Sup, Manager of the Turbine Engineering Department at HHI.
purchasing and manufacturing matters with the buyer Company. Some statistics from the individual contacts and the frequency of visits are illustrated in Table 5.2. The relationships between the main supplier, ABB Korea (ABB STAL), and the buyers & end user, KEPCO (including their affiliated Company, KOPEC, KHIC and institution, KERI), HHI and other various units are integrated by institutionalized bonds between the individual actors in this stage.

Table 5.2 Frequency of visits and Other Personnel Contacts (1989-1992)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Buyer &amp; End User</th>
<th>Supplier</th>
<th>Auxiliary Actors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average four times a week</td>
<td>85%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average twice a week</td>
<td>15%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>At least once a week</td>
<td>45%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Average twice a month</td>
<td>25%</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>At least once a month</td>
<td>20%</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: Frequency of visits and other personal contacts based on statistical data from the Power Plant Division’s point of view. This data is available from the day on when the construction permit for the power station was received from MOER.

The Power Plant Division of ABB Korea has 16 marketing personnel and 8 staff members, and 11 engineers were engaged in marketing matters on both an individual and a collective basis, by personal contacts and visits in co-operative meetings. These meetings occurred on the average four times a week and at least once a month. There are some variations, for example, in 85% of the buyer contacts at least 16 marketing people from the Power Plant Division were involved in cooperation on an average of four times a week and 15% of the contacts were made on average twice a week. With respect to the buyer relationship, the contacts and visits were also necessary to deal with other types of partners, viz. suppliers (ABB STAL, and ABB’s other turbine makers), and auxiliary actors (government ministries; MOER, MOST, MTI and MOE, government authorities; KOPEC, KNPC, KDHC, KBPOS, KESCO, and banks, accountants, consultancy and lawyers). The contacts with the main turbine and equipment supplier, ABB STAL, are carried out by using telefax, telephone and

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16 The auxiliary actors are named in detail as follows. The auxiliary actors are divided into two groups, viz. the Government Ministries and the affiliated companies/institutions of KEPCO. The Government Ministries are the Ministry of Energy and Energy Resources (MOER), the Ministry of Trade and Industry (MTI) and the Ministry of Environment (MOE). The affiliated companies/institutions of KEPCO are Korea Power Engineering Co. (KOPEC; architect engineers to KEPCO, 1800 employees), Korea Nuclear Fuel Co. (KNPC; design & Fabrication of PWR fuel, 375 employees), Korea District Heating Corporation (KDHC; 280 employees), Korea Electric Power Operating Services Co. Ltd. (KEPOS; maintenance, operation and service of power stations, 3700 employees), Korea Electrical Safety Corporation (KESCO; electrical safety, 2100 employees), Korea Heavy Industries and Construction Co. Ltd. (KHIC; heavy component manufacturer for power stations, 6500 employees) and Korea Electrotechnology Research Institute (KERI).
official letter, but now communication by facsimile is a standard practice. The supplier usually visits the buyers 4-5 times per year.

One of the major buyers, KEPCO, which has two of their own affiliated companies, KOPEC and KHIC, had daily telephone conversations pertaining to routine work. They also used telefax and official letters for their contacts. The contacts involved the management and engineers from both actors. The contacts with these types of partners are characterized by other features. In particular, most of the contacts in the buyer relationships are made from the supplier side. The marketers of ABB Korea usually visit three previous actors to participate in meetings or to exchange information. They usually spent 4-5 days on contacts with the buyer companies when the power plant project was received by MOER. Before then they visited them irregularly with only a sporadic information exchange. It is interesting to notice that ABB's competitors also co-operate with KEPCO, KOPEC and KHIC, as this may increase their competence and control over foreign suppliers. The frequency of visits was strongly dependent on ABB's sales share. The frequency of contacts indicates some concentration and investments in the relationships.

There is another important social exchange (private contact nets), viz family, close friends in religious groups, school, university and military service, to support the partly stable relations to buyers (Lee, 1991). For example, ABB Korea and a potential buyer, UPUSC could have a close project negotiation in which a high volume of resources will be exchanged in the future, but the definitive choice of a supplier is not made in competition with other suppliers. The information control and negotiation balance was unaccompanied by a significant flow of inter-organizational relations in UPUSC as regards their strategy. In this difficult and sensitive situation ABB Korea's executive staff utilized their private contact nets to achieve information gathering and balance in certain business negotiations. Although such involvement in a relation was stabilizing, this does not mean that its content could not change or that conflicts did not arise. However, later ABB Korea obtained the project order from UPUSC. Much time is devoted to the initial relationships with new buyers. Due to the pattern of the co-operative relationships, various important individuals participated depending on the business subjects to be co-ordinated through the number of institutionalized bonds.

As competitors create new markets with their own advanced technology and the whole market begins to grow, the leading companies manage to participate in the final round of bidding for turbines nearly identical to those of competitors. This is what is meant by minimizing the loss of sales opportunities, a factor that contributes to integrate the strength of relationships. In this phase, some important factors of ABB's activities concerning competitive position should be analyzed from the buyer's (including end user) point of view. This is concerned with the Panwol project. During the period of repairing ABB Korea reacted very slowly in order to repair the turbine and gear box, because the technical investigation
was performed by a specialist sent by ABB STAL.\textsuperscript{17} The issue of emergency technical problem solving was important in strategy debates concerning the technological demonstration for KHIC, the Panwol industrial Cooperation and its competitors. Such slow reaction, gave ABB a great technical disadvantage. The extended time of the repairs of the turbine and gear box was detrimental to their image of the relationship. The end user was very sensitive to the technical disadvantages of utilising the VAX turbine and equipment. For example, the Panwol contract aggravated the situation, as Panwol Industrial Corp. had a major agreement with several manufacturing companies to supply both energy and electricity. At that time the supply was delayed by one year because of the time it took for the repairs. This carried a penalty clause of SEK 154 million for failure to supply on time. This involved the Power Plant Division of ABB Korea The sales engineers had discussions with KHIC and ABB STAL in Sweden to solve the problems. This placed ABB Korea in a difficult situation, impairing the credibility in their relationship to KHIC (who still has a major conflict with Panwol). Afterwards ABB Korea did not maintain any continuous strong relationship with KHIC.\textsuperscript{18}

From the technical point of view, this was seen as a significant disadvantage to its competitive power in the market. During the repairs the competitors, Siemens, Kawasaki and Fuji criticised ABB's technological ability. At this time Siemens invited Samsung Engineering to undergo technical training for one year in order to apply their system to the end users.\textsuperscript{19} After training Siemens created strong technical bonds with two Samsung subsidiaries. The subsidiaries' exchange of hardware and technical information are often conditional on technical bonds of Siemens. In practice, it was problematic for ABB STAL to overcome the difficult situation with the resulting loss of credibility with the buyers. Otherwise the main engineering companies, would consciously attempt to recommend the VAX turbine to end users in order to obtain high technological advantages and efficiency.

After this critical event of the Panwol project, ABB Korea has a new marketing strategy in cooperating with the main actors in various ways to adjust its market situation and requirements. It means that ABB Korea can also recommend some other types of turbines for the buyers on a short-term. This marketing strategy is considered by ABB Korea creating a way to avoid competitive disadvantages when establishing new relationships. For example, one relationship was built up between ABB Korea and Ulsan Petrochemical Utility Supply Company (UPUSC). The relationship was to be integrated into ABB's network of relationships because the UPUSC project was finally negotiated between the two parties. Instead of the VAX turbine, ABB recommended the AEG KANES turbine to UPUSC for

\textsuperscript{17} Interview with Choi Ki-Soon, Manager of Generation Dept, Panwol Industrial Cooperation (Combined Cycle Power Station).
\textsuperscript{18} Interview with Choi Ki-Soon (Panwol), Chung Young-Sup (HHI) and Lee Bong-Joo, Manager of Industrial Project at the Power Plant Division, ABB Korea.
\textsuperscript{19} Interview with Lee Bong-Joo, Manager of Industrial Project at the Power Plant Division, ABB Korea.
producing their own electricity and energy.\textsuperscript{20} ABB Korea might still find it necessary to establish a new relationship so that the interdependency is low in the beginning and then gradually develops into relation with strong bonds. Significant growth has come through the development of relationships with new buyers. The development of marketing has to include more technological problem-solving through mutual adaptations, as well as a flexible choice of turbine types and equipment.

In the Marine Business Area there was a great business opportunity for ABB STAL to obtain license cooperation with KHIC. It meant that ABB STAL might sell a great volume of equipment and turbine-boiler integrated systems to the major Korean shipbuilders, which have been prepared some projects for building six LNG carriers in the near future. For example, the present value of a LNG carrier is approximately USD 300 million. One of the major shipbuilders, HHI, has already obtained two orders from Korea Gas Corporation. With regard to this business, the president of ABB Korea has neither understood the Korean ways of business behaviour nor attempted to adapt to cultural differences. His passive involvement resulted in their losing several large orders from KHIC. Another competitor, Kawasaki, obtained a license contract with KHIC to supply steam turbines to the Korean shipbuilders\textsuperscript{21}

Thus, ABB had a weak competitive position from the customers’ point of view.

The important of the powerdependence relationship should be emphasized in this stage. Powerful corporations such as KEPCO, KHIC and HHI obtained highly stable positions for their businesses through state-owned organizations and their relationships, particularly with government agencies, which were integrated by close social and political contacts. These corporate actors could act on the basis of their own power in combination with the possibilities provided by the inter-organizational structure. This allowed them to pursue a range of goals related to valuable resources. However, ABB Korea’s top management considered that a political contact person should establish a strong-political bond in order to be efficient. The prime needs regarding political contacts in marketing activities are to create and utilize the relationships, which causes conflicts with rival companies operating in the power plant industry. He should ideally have extensive resource exchanges with establishments in the buyer network of relationships and with marketing contacts for which strong competition is expected in the long-term. It could be said that a powerful corporate actor is one who controls valuable resources and has exchange relations with others who control resources, such as government ministries and authorities, labour unions, banks, custom office, competitors etc. Therefore, the top management of ABB Korea needed to work on the political level, thereby becoming a member of the tightly integrated network of relationships regarding interdependent resources, capabilities and atmosphere. This meant that many strategic actions were decided on at a very high level. ABB Korea’s top

\textsuperscript{20} Interview with Lee Bong-Joo.

\textsuperscript{21} Interview with Jeon Hong Sang, Gemal Manager of Haglund & Offshae. He had worked at ABB Korea for 12 years (including the working period of ASEA Korea).
management conducted strategic negotiations with the different directors of KEPCO, KHIC and HHI. ABB Korea, however, has often drawn strength from strategic cooperation with the powerful corporate actors, viz. KEPCO and HHI, as well as the acknowledgement by people with technical know-how of its high technology. This is even though the top management of ABB Korea has a weak position in political network of relationships. Moreover, ABB Korea integrated the network of Combustion Engineering's relationships by acquiring the Company in order to enter the nuclear reactors market. The Company had a strong position in the market. ABB Korea is now one of the major suppliers in Korea. In the nuclear reactors market the orders were obtained by Combustion Engineering and placed up to 1991 in concerning the marketing result so that the Power plant Division of ABB Korea held also a 32% (4000 MW) market share. This situation favours the sales of the VAX- and other types of turbines, which thus have a strong competitive position. The total turnover of ABB Korea was approximately USD 500 million.

Through the integration of relationships ABB Korea knows that the organizational structure within KEPCO and HHI are analyzed by the same level of personnel of ABB Korea, because these are able to exert both an internal and an external influence on the networks of relationships. Various kinds of information exchange could ensue from the stable relationships, depending upon how tightly the relationships are integrated. ABB Korea and HHI plan to become cooperating partners on both domestic and international markets when the industrial permit is given in the future. To improve the strategic capability of its positions, the integration of relationships is significant for developing its position management, while still retaining the relationships of coordination activities in the context of the Korean network environment.

The relationships at this stage are shown in Table 5:3 (position and network dynamics). With the large number of actors involved it was obviously important that the different activities be co-ordinated, and the relationships be connected, to integrate the position. The total number of relationships, approximately 50-55, were integrated by ABB Korea's Division of Power Plant.

ABB STAL developed a strategic position through both an agent and a sales subsidiary. It was also found that the chronological order in which Gadelius Hyupchang was involved, was closely correlated with ABB STAL's business dealings. Figure 5:4 explains the main historical events of ABB Korea's position establishment process and the development of relationships. The starting point focuses on ABB STAL in Sweden and its business operations with one or a few industrial actors (e.g. counterparts). This is divided into three development stages in Figure 5:3. From this follows that ABB Korea and its two other joint venture companies established relations to other Korean suppliers in connection with the entry into a new market and the development of their network positions.
### Figure 5.3 Participating Actors in the ABB STAL Case

<table>
<thead>
<tr>
<th>Actors</th>
<th>Initiation Stage</th>
<th>Building Stage</th>
<th>Integration Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1958</td>
<td>1972</td>
<td></td>
</tr>
<tr>
<td>ABB STAL SWEDEN W.O</td>
<td>*</td>
<td>Development Activity</td>
<td>A.L.C Training &amp; Technical Cooperation, Local Manufacturing</td>
</tr>
<tr>
<td>IADELIUS SWEDEN P.O</td>
<td></td>
<td>Activity for Establishment of Korean Subsidiary, (M.S) Exporting &amp; Industrial Marketing for products, equipment and plant projects</td>
<td></td>
</tr>
<tr>
<td>IADELIUS JAPAN P.O</td>
<td></td>
<td>Activity for Establishment of Korean Subsidiary, Exchange of Information, Technical Support</td>
<td></td>
</tr>
<tr>
<td>IADELIUS KOREA W.O</td>
<td></td>
<td>Mainly Subcontracting Simple Marketing for Offset Printing m/c, Filling m/c, and Packaging m/c Industrial Marketing for Air Conditioning system and Ventilators</td>
<td></td>
</tr>
<tr>
<td>HYPUPCHANG A (M.S), Initial Customer Contacts Information Exchange &amp; Gathering, Marketing Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASEA CONST. Co. Office</td>
<td>Marketing for Electrical Equipment, Deckcrean and Marine Turbines Construction and Power Plant Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HYPUPCHANG IADELIUS P.O</td>
<td>(M.S), Concentration on ASEA's Marketing Establishment of District Sales Office, A.L.C, Delivery, Training &amp; Installation to Power Stations and Industrial Firma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASEA KOREA W.O</td>
<td>Projects Offer and Administration of Constructing Power Stations * 1 Training &amp; Installation of Various Kinds of Power Stations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KEPCO (Buyer)</td>
<td></td>
<td>(M.S), A.L.C Marketing for ABB's 8 Business Segments</td>
<td></td>
</tr>
<tr>
<td>ABB KOREA W.O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Actors</td>
<td>Kangwon, Korea Tungsten, Daehan, Poongsan, Asia-Hertel, POSCO HHI, KHIC, SSHI, Daewoo, Pacific, Lucky, Kukdong, Daelim Additional Actors, Affiliated Companies/Institutions of KEPCO 12 Competitors, AEG, Sulzer Escher Wyss AG, ABB C-E International</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Explanation:** ---- No Activity  <-> Relationships between Parties

**Abbreviations:**
- *: Competition for Tenders
- 1: Important Individuals
- M.S: Mainly Subcontracting
- P.O: Partly-Owned Subsidiary
- A.L.C: Administration of License Contract
- W.O: Wholly-Owned subsidiary
5.3 ANALYSIS OF THE NETWORK POSITION DEVELOPMENT

In this section the network position development is empirically illustrated with examples from the three stages of the process. The achieved network position derives from the process described in the above analysis of dyadic relationships developing into networks. The network position is illustrated by strong and weak bonds in the network of exchange relationships. Secondly, position and network dynamics are described as strategic positions are changing. Thirdly, the overall network structure is seen as positions related to other important connected positions within the structure of network relationships. The section concludes with a summary of the different features of network position development.

5.3.1 The Strength of Network Positions

The marketing strategies of ABB Korea were related to the strength of its network position based on various integrated relationships. These built up strategic positions, occupied marketing networks and were adapted to the response of the competition. ABB's strategic position for meeting the competition can be classified into two dimensions, viz. the competitive position and age of cooperative relationships. The competitive position concerns the public and private sector which form the boundary of the network. This was based chiefly on the strong positions which were integrated through cumulatively aggregated strong bonds in the relationships. The strong bond effects were due to the vigour of ABB Korea's strategic marketing response. This is shown in Figure 5.4.  

Figure 5.4 The Strength of ABB STAL’s Network Position

<table>
<thead>
<tr>
<th></th>
<th>Public and Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive Position</td>
<td>* Industrial Turbine (Power Plants)</td>
</tr>
<tr>
<td>Strong</td>
<td></td>
</tr>
<tr>
<td>Weak</td>
<td>* LNG Carriers</td>
</tr>
<tr>
<td>New Age of Co-operative Relationships</td>
<td>Old Age of Co-operative Relationships</td>
</tr>
</tbody>
</table>

ABB has successively developed two positions in the industrial turbine networks. The positions are grouped respectively into two types of network, viz. turbine and LNG carriers.
networks, which were characterized by the stable function of the member actors’ relationships. In the Power Plant Area ABB Korea has developed a strong position through various strong relationships on the basis of a long historical structure (e.g. the position was obtained by running 34 years with business relationships). ABB Korea otherwise mostly involved in tightly connected day today business relationships in the networks. Whereas ABB’s another position was weakly developed in LNG Carrier marketing networks, as the connections of the two types of network relationships, viz. industrial turbine’s various strong once and its own weak relationships, were to be found in specific application of the technology. Due to the market demands, it was necessary for ABB Korea to concentrate on sales of technology, some large volume of nuclear reactors, fossil boilers and the equipment to KEPCO, KHIC and the LNG/CCCP technology and equipment to HHI in heterogeneous markets. The supply volume dynamically increased in the period of 1989-1992. The short-term consequences of a strengthening of the supply position might be very significant in the equipment net, nevertheless sporadic orders of industrial steam turbines, viz. Dong-Hea Pulp and UPUSC, were continuously obtained and supplied to the end users. The conclusion to be drawn is that ABB STAL and ABB Korea were strongly established with KEPCO and HHI. In addition to this, more than one third of the nuclear reactors, fossil boilers and equipment were supplied by ABB C-E International. The main emphasis of this case is put on the buyer relationships and intensive formal and informal contacts, focusing on the major buyers, KEPCO (including KOPEC, KHIC and KERI) and HHI linked strong various kinds of bonds. The strength of the position is dependent on cumulatively aggregated bonds from individual to inter-organizational positions. The positions of individual actors depended on the number and quality of their relationships. The variation of ABB’s marketing activities as reflected in the relationship pattern are based primarily on the strength and properties of the individual level, the size of ABB Korea and its a significant position in the industry.

A number of different individual actors in the Power Plant Division of ABB Korea, are in regular contact with the buyers and end users regarding marketing matters. The frequent visits, negotiations and mutual adaptations related to marketing development. This is a very important process, directed at the integrating of strong relationships and planning of future activities. Thus, a stable balance between the individual actors’ relationships and business confidence are obtained. Stability was required until ABB became familiar with the processes of its buyers and end users. The stability was based on ABB’s own technological and organizational competence in adjusting to the buyer and end user side. Both sides attempted to rationalize day today operations. These enabled ABB Korea to associate with other positions and to enter into new relationships. The strength of the network positions was therefore developed by gradually identifying direct and indirect relationships in both the tightly and the loosely coupled networks. It provided an intensive way of developing actions from a strong position and to further defensive actions against competitors. It was frequently
suggested that information, resource control and mobilization are a treat to the competition. Still, ABB has a strong position according to KEPCO's and main actors’ evaluation in 1992, but it will be difficult for ABB to reach a top technological level with the cooperation of main actors in a short period. Unfortunately, the competitors attempted continuously to break down enry barriers in order to co-operate with KEPCO.

The age of co-operative relationships is dichotomized in the classes new-old The relationships with buyers, KEPCO and a few government authorities, end users and engineering companies are about 20 years old. The focus is on the position of Industrial Turbine Network so as to be defined as "old". The age of the relationships was not directly dependent on the strength of the position in relation to the competition, but the strength of relations might have a stabilizing function by maintaining a strong competitive position and integrating strong horizontal relationships. The content of a strong competitive position has been emphasized as a basic characteristic of buyer-supplier relationships in industrial markets. All maintenance activities can serve to develop the long-term relationships and various kinds of strong bonds generally support the strengthening network position. Consequently, the age of the relationships is of special importance, as stable relationships allow extensive exchange of resources.

In the LNG Carrier Area ABB has a weak position in the network relationships on the basis of its short historical structure. It is only three years old, so can be defined as "new" in the age of co-operative relationships. The dynamic growth process could be explained by the direct technological relationships and indirect power-dependence relations in a loosely structured network. To develop strong LNG Carrier network position ABB requires more extensive cooperations with major actors, viz. KGA, KHIC, shipbuilding & heavy industries, merchant shipping companies and international units. The power-dependence relations are characterized by the orientation of the connections, e.g. towards politicians, industrialists, bankers, journalists, etc. After the first competition of two LNG carriers, the development pattern of the chain resulted in some suggestions for the design of the location policy action. According to the industrial policy KGC plays an important role in the development of LNG Carrier networks and KGC always co-operates with four Korean shipbuilders (including their foreign suppliers) in order to attain a substantial development of the shipbuilding industry. The development is partly carried out by HHI and a common technical cooperation between Daewoo, SSHI and Hanjin, which will have the intensive technical cooperation over a period of 3 years. Therefore it is absolutely necessary for ABB STAL to continuously analyze its strategic position in relation to KGC, KHIC and the four major shipbuilders as well as other actors of importance, and to develop technological relationships with the major shipbuilders.

22 As mentioned above Hyundai Heavy Industries obtained hvo LNG carriers. The company is now building them.
Consequently, ABB Korea developed a much stronger position in turbine network than LNG Canier. Recently, ABB Korea controls over resources on the rapid market expansion by the strength of competitive position connecting the tightly structured turbine networks.

53.2. Position and Network Dynamics

ABB’s position was developed through intensive interaction between ABB Korea and various kinds of actors in the turbine networks of relationships. These could be characterized as stable even when taking changing positions into account. The development of new industrial projects were dependent on certain driving forces; industrial policy, high technology applications, strategy of resource exchange activities/organizational action, and conflicts in the corporate actors’ relation to the network. These influenced ABB to identify and delimit their networks, after the position building stage (see Figure 5:5 and 5:6).

The major buyers & end user, KEPCO, HHI and other buyers have continuously bought turbines, boilers and equipment from ABB Korea. The Company was a old supplier in comparison with others, nevertheless, ABB did not qualify as a permanent supplier. The number of buyers changed frequently in the industrial turbine network. In addition to this, the different types of ABB turbines were increasingly sold and their sales were dependent on the buyer industries and the market situation in the period 1984-1987. This favored the development of strong bonds between the buyers, engineering companies and others. The variation of buyer orders made it difficult for ABB to adjust to a different technical level. The possibility to adjust to present and new buyers depends on the volume of resource exchanges and the size of project. ABB had to mobilize more resources to the remaining buyers to avoid competition. ABB’s position was connected to the supply structure of KEPCO and KHIC, so the situation around ABB’s position was always changing in some ways. In these changes the individual relations strongly influenced ABBs' relationships with them. There are some distinctions between those suppliers who have had relationships with KEPCO and KHIC and those who have not, for example, in terms of the degree of confidence, trust and loyalty in repeat purchasing behaviour. However, a consistent selection of the same suppliers was made by KEPCO, KHIC and HHI in the period 1989-1992 in order to construct a number of different types of power stations. The sales volumes might have been generated by the suppliers, but also important for ABB’s position was that it was in fact strengthened by the VAK- and other specialized turbines, and technology. These have created some major network changes in both installing various kinds of power plants and concerning the integration relationships. The network position was also changed by influence of environmental factors.
As we can see in Table 5:3, the relationships have involved many parties in the development process. The number of relationships as a result of the exchange resources is illustrated from ABB Korea's point of view by the statistical data.

**Table 5:3 Number of Relationships during the Position Development Process**

<table>
<thead>
<tr>
<th>Number of Relationships</th>
<th>Position Development Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitors</td>
<td>(4)</td>
</tr>
<tr>
<td>Main Supplier (ABB Korea-ABB STAL)</td>
<td>1</td>
</tr>
<tr>
<td>Main Actors (Heavy Industries Engineering Companies)</td>
<td>2</td>
</tr>
<tr>
<td>Buyers &amp; End Users</td>
<td>3</td>
</tr>
<tr>
<td>Complementary Suppliers</td>
<td>0</td>
</tr>
<tr>
<td>Main Supplier's other</td>
<td>4</td>
</tr>
<tr>
<td>Auxiliary Relationships</td>
<td>10</td>
</tr>
<tr>
<td>Total Relationships</td>
<td>14</td>
</tr>
<tr>
<td>Duration (Years)</td>
<td>14</td>
</tr>
</tbody>
</table>

Note: (Main competitors/Total competitors). A number of foreign competitors and Korean buyers & end users dropped during the periods are not included.

The intensive buyer and end user relationships led to some difficulties in controlling cooperation and various types of coordination. This made it important for ABB to integrate its co-operative relationships. The strategy used by ABB has mostly been concentrated on the 16 major buyers & end users in the respective types of power plant, three complementary suppliers and 17 auxiliary relationships. Out of the 36 competitors, 12 main competitors were considered by ABB in the position integration stage. and this included almost all the foreign firms. The competitors existed in the respective markets. The integrated relationships also consisted of several coordinations which can be required to manage wide-range relationships so that the total increased from approximately 30-35 to 50-55. Since they have been building inclusively reciprocal and long-term relationships. They expected positive results from both actors to accomplish the gradual development of mutual exchange relationships. In ABB's case the results led to extensive marketing efforts in the integrating relationships.

In the analysis of network dynamics it is possible to identify changing motivations and patterns from weak to strong relationship structures. Weak and strong relationships are illustrated in Figure 5:5 and 5:6. ABB's position and network dynamics are based on the development of relationships connected to the chronological chain, e.g. Gadelius-Hyupchang-ASEA Construction's office-ASEA Korea-ABB Korea. ABB's changing position in its buyer and other important relationships were dependent on these weak and strong bonds in the Koman industrial turbine networks.
Figure 5.5 Position and Network Dynamics

Building Stage
1988

Integration Stage
1992

Explanation:

- Weak Relationship
- Strong Relationship

E: Shipbuilding & Heavy Industries
S.H: Engineering Co.
In the position building stage (1973-1988). ABB’s internal organizations and parts of some relationships were loosely coupled in supplier-buyer and end user-engineering company networks (Old, New/Weak) involving complex interaction with resource exchanges. These created various weak botids. The weak cooperation can loosen the competitors’ net, as experienced by ABB, particular as the latter received organizational support when establishing a wholly-owned sales subsidiary and a district sales office to strengthen its supplier-buyer relationships. The geographical location close to the buyers was an important factor for certain types of buyers. This impelled ABB to accelerate the building of new relationships in Korea. Thereby ABB obtained an organizational effect from the connections with the different actors involved, which were mostly to be found in specific industrial areas of the country. It was possible to specify in emerging geographic dimensions of the networks.

In order to develop its network, ABB should guard its major advantages, i.e. securing of stable demand and intensive co-operation with five major buyers, viz. KEPCO, KHIC (Panwol project), SSHI (Junjoo and Hanil Fibre project), HHI (SHOIBA project) and Kukdong Construction (SAFWA project), which have already built up stable relations with the market. This competition effect derived from the strength of ABB’s network postion in relation to the strong bonds (ABB STAL-ABB Korea-KEPCO-KHIC, Old, New/Strong, Weak, and ABB Korea-HHI and Kukdong; Old, New/Strong). The dynamically increasing demand for electricity and the modernization plan for installing the different types of power stations have favourably influenced ABB’s relations with competitors who are already established in the networks. However, a potential newcomer, ABB (New/Weak) might have encountered resistance in the nuclear reactor and fossil boiler markets, in the form of strongly closed bond relations as entry barriers or protectionism. In the markets the dominant feature in its relation to other competitors was the newly merged ABB Korea, which attempted to integrate two different marketing networks (e.g. ASEA’s and BBC’s) in choosing turbine specialization items, which it has used in particular to break down the entry barriers facing competitors. This type of situation characterizes many networks which have rigid structures but are loose in special respects.

In the position integration stage (1989-1992), ABB acquired some foreign turbine companies, i.e. AEG KANES, Sulzer Escher Wyss AG and Combustion Engineering, in order to develop buyer relationships. The effect of these acquisitions, three major relationships (Donghae Pulp; New/Strong, UPUSC; New/Weak and KEPCO-KHIC-different kinds of local power stations; Old, New, New/Strong, Weak, Strong) were integrated by ABB Korea. These changes affected both the internal relations and external actors. Thus, different types of changes are embedded in ABB’s network position due to structural changes such as vertical integration, e.g. buyers & end users-suppliers (including complementary suppliers)-subsupplis. In this stage the two main groups within the respective networks showed a high degree of stability (ABB STAL-ABB Korea-KEPCO-ABB C-E International; Old,
New/Strong, ABB Korea-HHI-Anyang/Bundang; Old, New/Strong), whereas the positions in the sub-groups were on the other hand substantially more changeable: ABB Korea-KHIC-Panwol; Old, New/Weak, ABB Korea-SSHI-Daewoo-Lucky-Daelim, Old, New/Weak). One of the foreign suppliers, General Electric, had a strong relationship with both KEPCO and KHIC due to having supplied both a license technology of industrial turbine to KHIC and large turbines to KEPCO. Instead of the GE-KHIC technological relationships HHI has a strong relationship with Westinghouse by supplying license technology and equipment for the steam turbine (the Company is one of the strongest competitors to KHIC). A major supplier, ABB, is highly dependent on electric technology and know-how for the different types of turbines, boilers and equipment incorporated in their power plant projects. Consequently, the network dynamic is continuously dependent on a number of weak and strong relationships which affect the structure of the networks. For example, there were 17 weak relationships and 16 strong relationships in the position building stage. These were changed to 18 weak relationships and 34 strong relationships in the position integration stage.

On the other hand, the dynamic changes in the LNG carrier network were dependent on the rapid growth in marketing, regarding both new LNG carrier buyers and the major shipbuilders. These changed dynamically in connection with the relationships required in the building of the LNG carriers. The efficient handling of ABB's activities was performed within relationships, which already established in the industrial turbine network, but ABB did not establish new relationships, viz. KHIC, KGC and major shipbuilders. This means that they will have to build up new relationships and adapt their organizations in order to minimize conflict and adjust to the relationships between them.

The two specific types of network relationships carried out affect the structural changes in the different parts of the networks between the two development stages during the two different periods. Thus, the development of a strategic position is a crucial aspect here.

*Figure 5.6 The Turbine and Equipment Applications to the LNG Carrier Network*

Integration Stage

1992
and it should be possible to associate relationships with gradual and dynamic changes. The dominant feature in ABB Korea’s relations to the various kinds of indispensable actors is its long-term investment in networks. We have seen the long-term consequences of changing from a weak position to a strong one, which could be very significant in terms of network dynamics. It is therefore important to analyze the position in relation to the network.

5.33 Overall Network Structure

The overall network structure is based on all of ABB’s weak and strong relationships with many actors interconnected in the industrial turbine networks. Various kinds of relationships exist within ABB’s total networks, which is embedded in the Korean power plant industry. For 34 years the overall structure of the networks has been made up of ABB’s interconnection of all nets of a certain type and of all actors’ relationships in these nets. The structure of these nets is temporary as it changes over time, but it is a historical structure.

The overall network structure depicted in Figure 5:8 shows the relations from the perspective of ABB Korea. ABB can throughout identify certain weak and strong links in the network. By identifying the different links ABB can suggest several important strategic implications for the design of ABB’s industrial action in the future. For example, ABB had the weak links of the nuclear reactor network in Korea. Therefore ABB integrated the network of Combustion Engineering’s relationships by acquiring the Company to be interconnected with its company’s strong links of the nuclear reactor network. The weak links of the network would be strengthened when the overall network structure was satisfactorily developed by ABB. This involves the reinforcing of cooperation with certain types of actors or improving to build up some new actors. The creation of stability is combined with continuous small changes in the network relations of actors, but dynamical changes are also required in developing network of relationships.

The structuring role is an important function in the networks when performing the whole process of a power plant project. A significant factor of process innovation is heavily dependent on the existing close cooperation and the need for lower costs and quality efficiency. This creates strong links in relating to the network position. The need for restructuring exists between ABB (including international units) and important Korean actors in the power plant installation over a short period - clearly with considerable success. The purchasing processes of major buyers, viz. KEPCO, KHIC and HHI, are analyzed in detail through ABB’s supply network so that ABB can reduce complicated activities in the process. Over a long period the strong links of supply network are based on the high intensity of technical cooperation and contacts which are always combined by ABB. ABB’s supply network is evolving in connection with its analysis of the whole process of license cooperation and buyer’s purchasing process reviews. This analysis is based on the reputation
Note: The figure is based on industrial lifetime networks.

Utilization of International units for cooperation: ...
Training and industrial cooperation: ...
License contract (including training or utility study and application): ...
Exchange of technical and general information: ...
Administration channel: ...

Induced Bode's equipment, supply and exchange of technical information: ...
Part of whole ownership with technological cooperation: ...

Figure 5.7: Overall Network Structure in Terms of Type of Relationships.
acquired by ABB through its experience and previous performance in the marketing process and follow-up maintenance. Thus, a good reputation is one of ABB’s most valuable assets. Process innovations have helped ABB to achieve its strategic position in the network structure.

Through the picture of overall network structure we can identify the important Korean units (MOER-KEPCO-KHIC-affiliated companies/institutions of KEPCO, HHI, SSHI, Daewoo, Kuk-dong. Lucky, Daelim. Panwol, Anyang/Bundang, different kinds of local power stations, tax authority, banks, consultants, certified public accountants, lawyers, MOST, MIT, MOE). We can also give some examples of important ABB and international units, viz. ABB STAL-(ABB Carbon, ABB Turbinen and Sulzer Escher Wyss AG)-ABB KOREA-ABB C-E International-Combustion Engineering, as well as identify strong competitors. One of these, Siemens, also supplies industrial turbines and technology with a license contract with Halla, and even has good technical cooperation with SSHI and Samsung Engineering. The Company has a 8% market share so as to maintain its strong position in the industrial steam turbine (25-75 MW) market, while ABB has a 12% market share. There are two other important American competitors, viz. G.E and Westinghouse. GE has a license contract with KHIC to supply industrial turbines. KHIC has already obtained a 4% market share. Westinghouse has a license contract with HHI. The Company has a 9% market share.

As shown, five international units are important for ABB Korea's role as one of the leading suppliers of technology, turbines and equipment. In particular, the company’s organization of close cooperations with them is an important factor to constitute the supplier's competitive strength in installing different kinds of power stations. This has resulted in strong links related to different corporate actors and a number of process innovations. ABB has maintained its position in controlling resources vis-a-vis at least three main relation chains, viz. KEPCO-ABB Korea-KHIC-ABB C-E International, ABB STAL-HHI-ABB KOREA-Anyang/Bundang and ABB-Turbinen-ABB Korea-UPUSC and Donghea Pulp, and has also created a strong position via other relationships. This strategic position is related to extensive relations with various Korean and some international units. In the utilization of international units of cooperation, ABB utilized HHI's production and construction plants, and its manpower skill for project application to an Indonesian power station in order to improve their cooperation capability under circumstances similar to those of cooperations assigned to Indonesia. The related activity is an important factor in analyzing relations in the overall network structure. This is based on its strategic actions in mobilizing its own resources and allows a flexible utilization of HHI's resource. The activities have to conform to industrial opportunities with international market requirements. This has resulted in close cooperation between ABB, HHI and various units. The weak structure of the nets are stabilized by a number of important process innovations in the tightly coupled network structures made up of ABB and various industrial actors.
ABB’s position and the overall network structure illustrates well the importance of close relationships with various units in the power plant industry. This is another aspect of a cooperative combination. Intense international cooperation and technology for specialization of turbines, boilers and equipment are combined by ABB. Therefore, ABB’s Korean units and Korean main actors (industrial conglomerates) can be seen as members of a worldwide network consisting of firms, research institutes and government authorities engaged in the development of power plant industry and technology. Many strong linkages of technological development exist between the different units in the network structure. There are strong relationships with KEPCO, KHIC, according to ABB’s strategic actions in the respective nets. These important actors are large operating units included in the networks. In this perspective ABB can be connected with the national industrial networks (e.g. strategic industries) with regard to cooperation with KEPCO (including affiliated companies/institutions) and industrial conglomerates. Consequently, ABB’s total network is included in the government industrial networks concerning, e.g. the National Economic and Social Five-Year Plan, which is shown as dominating the involvement of government authorities.

6 CONCLUDING REMARKS

A major observation in this study is that the position development process is an important basis for Swedish MNCs’ entry and establishment strategies. The position development process of ABB is characterized by a gradual development, e.g. the establishment of Gadelius’s sales subsidiary, an agent, a joint Company, and a wholly-owned sales subsidiary. ABB developed a strategic position in Korea by initiating, building and integrating relationships with various Korean actors and international units. ABB’s international experience and previous performance helped its establishment in the Korean market. ABB’s electrical equipment, turbine and technology were required in the market and at that time ABB had worldwide experience, so ABB was well informed of establishment strategies, in particular for marine turbines in shipbuilding industry. The country-specific characteristics are important in this context, and it is primarily the country specific advantages - including psychic distance - which determine localization. ABB gradually increased its investment in Korea by establishing, reorganizing, integrating and using its knowledge of the Korean network environment and marketing. The long-term perspective is fundamental to the future global operations of its sales subsidiary. The market commitment has provided the knowledge, which will probably make it possible to establish facilities for the final stages of manufacturing, e.g. to produce simple products and assemble equipment, to adapt special applications of different power plants and provide service in the Korean market.

Through its position development in Korea, ABB gained valuable business experience during the period of Korea’s developing economy. An important aspect is that the close
relationships (e.g. close individual contacts in the human network of relationships) between supplier, buyer & end user and engineering companies affect ABB’s ability to deal with diversified strategic problems in the market ABB obtained therefore an extensive capability of solving problems and continued to develop relationships with the various actors through creating strong bonds in order to obtain stable orders. These bonds were interconnected with ABB’s position to make it possible to gather information and further transmit across ABB’s international units in order to respond quickly to the industrial activities. The industrial policy and cultural difference influence allow ABB after establishment to build technical cooperation with the major actors. Project contracts must depend on practical cooperation. Regarding this point, ABB’s Korean personnel resolved several complicated problems of cooperation in concerning previous two factors. By establishing district sales office in Pusan city, a strong position and relationships in the southern industrial areas were built. The integration of the nationwide position and all local nets of relationships helped ABB to create a strong position in the market after a relatively long period of development. ABB succeeded in utilizing the external resources, i.e. assets in the form of relations with various main and auxiliary actors. Thereby ABB has adapted to flexible actions for mobilization and coordination internal resources.

The coordination with ABB’s international units are important for ABB’s role as one of the leading suppliers of technology, a wide range of turbines and equipment in different types of power plants. ABB could thereby improve turbine specialization to conform to the local market requirements. This specialization strategy is a significant factor for building new buyer relationships. ABB’s high stake in the market is indicated by its role in the development policy for the local power plant industry. This requires a strong technical bonds in cooperation and technical problem solving in service networks, which builds up confidence in ABB. The establishment of ABB C-E International in the business area of nuclear power plant allowed sufficiently efficient to supply their nuclear reactor, fossil boiler and equipment to major buyer & end user. The need for integrating with the Korean main actors and developing market ABB attempted to invite some engineering companies to participate in a special training course. The content of training is improving the capability for feasibility studies, project application and project implementation of specializing turbines. The importance for this is stressed by the fact that the major competitors carry out this function in a highly systematic way. However, ABB’s position in the Korean networks. is very strong because its technology, turbines, boilers and equipment are utilized by major industrial actors with the most cost efficient method both for producing high-efficiency energy and electricity, and maintenance. In the Korean market the consideration of technology-intensive equipment is very important for the buyers’ & end users’ perceptions regarding the technical available. This is particularly true when the largest buyer & end user recognized that.
In order to integrate with the market, ABB's close interaction is necessary between the major buyers, KEPCO, KHIC, HHI (including the engineering companies). Thus, important competitive elements will be continuity of contact, fairness in dealing, design, training, supervision, delivery, installation, start operation and maintenance. For instance, a license contract with HHI was extended to create another project. Such cooperation involved effective exchange activities in performing a common project which was active in the Indonesian market. The large number of relationships that ABB had built up in enabled close contacts and quick gathering of information. By this ABB has been able to create a great advantage in eny barriers which define its position against competition. The American competitors had especially political support to strengthen their power-dependence relationships because the American Embassy had strong political relations with the government authorities. This made it possible to obtain technical cooperation with the Korean main actors. Regarding this point, G.E and Westinghouse could continue to obtain large orders in the nuclear reactors and other type of power plant projects. This is a significant positive effect for them to develop a strong position in the networks.

There are two significant factors for ABB to maintain its a strong position in the turbine networks. Firstly, ABB should guard its major advantages, i.e. securing stable demand through specialization tubines, and cooperation with KEPCG, KHIC, HHI and other main actors, which have already integrated with the market. The rapidly developing economic situation and the long-term modernization plan for the power plant industry has favourably influenced ABB's relations with the competitors already established in Koma, whereas the potential Korean (e.g. companies have foreign license technologies) and other foreign companies might have encountered resistance, in the form of closed protectionism (e.g. a monopolistic supplier, KHIC's main relation chains). This type of situation characterizes turbine networks which have a rigid structure but are loose in special respects. Secondly, ABB must be able to understand the country's political system and cultural differences considering the technical complexity involved. Some relationships of ABB will have developed by the orientation of the strong connections, e.g. toward politicians, industrialist, journalists and bankers, etc. Thus, the relationships will provide bridges to other networks, “the infrastructural relationships can be crucial for securing long-term survival for companies otherwise mosdy involved in tightly knit day-to-day business telationships” (Hallen, 1992). Furthermore, in order to do important business, ABB must perform business lobbying, for instance, there are important individual connections as well as connection between exchange activities. The related activities of the lobbyist influence the people’s opinion, the gathering of information and current problem solving which is the object of the lobbyist’s efforts.

In the perspective of cultural differences ABB should consider the recruitment of qualified personnel who was educated by both Korean and Swedish university educations. The analysis of the characteristics of the Korean network environment can be carried out by
combining two basic perspectives. Through their Korean origin and education the personnel could have a useful perspective for understanding and explaining the business behavioural pattern of the buyers' and the competitors' viewpoints. At the same time the personnel can consciously take the perspective of the Swedish firm. Thus, the results of the analysis can be advised ABB Korea's chief executives to do corporate strategy for adapting the industrial application and adjusting its market requirements. They will thereby be able to better understand ABB's position, strategies and influence on the local networks. If the approach will be developed by ABB Koma. The Company will have important strategic implications for the management of the firm's position in the industrial turbine networks.

The structure of the network in the Korean market can be characterized as tightly structured turbine networks and loosely structured LNG carrier networks. The networks of the power plant industry have shown a high degree of contact intensity and much versatility in these relations, and ABB STAL and ABB Korea have pursued different lines of action in its establishment and acquisition therein. There is also a high degree of stability which allows technical co-operation involving both the individual and the organization levels. The point of significant issues is the individual features which are required for developing a stable long-term relationship in the networks.
APPENDIX 1

Information on the Empirical Study

The ABB STAL Case

The Main Interview at ABB STAL AB

ABB STAL AB

Johan Hansson General Sales Manager, Industrial Turbine Division 1992 04 16
Asia, Oceania & Middle East Asia 1992 08 22
Christer Sjöström General Sales Manager, Industrial Turbine Division 1992 04 16
North and South American Markets 1992 07 08
Sten Olof Andérsson General Sales Manager, Asia, Africa, Oceania 1992 08 22

ABB Carbon AB

Christer Tännander Marketing Manager, Sales and Development 1992 07 08

ABB KOREA

Hakan Borin Director, The Power Plants Div. 1992 05 01
Lee Bong Joo Marketing Manger, Industrial Project & Power Plants 1992 05 08, 09
Oho Sai Young Director, After Service 1992 05 12
Han Yun Sok Director, Planning & Marketing Development 199205 13

ASEA International

Lars Elvhage Regional Manager, Middle East, South and East Asia 1985 09 06
Åke Hägglund Area Manager, Middle East, South 1985 05 04
Gert Andersson President, ASEA Korea 1985 09 08
1987 01 30

DaeWoo Shipbuilding & Heavy Industries

Ki Won Kwang General Manager, Ship Marketing 1992 05 06
Han Byung Hwan Team Manager, Machinery Outfitting Design Team 1992 05 08
Kwak Do Hee Deputy G. Manager, Estimation & Procurement Dept. 1992 05 08

Hyundai Heavy Industries

Gwak Ho Young Manager, Engine & Machinery Div. 1992 05 19
Chung Young Sup Manager, Turbine Engineering Div. 1992 05 19
Kim Kyung Rul Assistant Manager, 199205 19

Panwol Industrial Corporation

Choi Ki Soon Manager, Generation Div. 199205 14

Han Jin Heavy Industry

Lee Chul General Manager, Ship Marketing 1992 05 06

Hägglunds & Offshore

Jeon Hong Sang General Manager 1992 04 30
APPENDIX II

THE MARKET SITUATION AND STRUCTURE

1. Market Situation

Recently, ABB Korea has two important product applications, viz. various kinds of turbines in different types of power stations and steam turbine-boiler integrated system in LNG carriers, which ABB Korea is marketing to the buyers and end users. The first application is concerned with the government energy-supplying policy. The government’s industrial guidelines issued for the modernization of the power plant industry in July of 1990 was again planned to promote a government-led monopolism in the industry. The issues was based on the previous government decision in August of 1980. The state-owned Company, KHIC has, therefore, a monopolistic position in meeting the demand for power plants in Korea. The demand has been estimated by KEPCO and the Ministry of Energy and Resources and 39 power stations (USD 37.5 billion) will be constructed until 2001. The power stations are composed of four types of power station, viz. nuclear (29%; 8,100 MW), coal (45%; 12,440 MW), LNG/CCPP (19%; 5,320 MW) and hydro (9%; 1,960 MW). The KHIC’s capacity can supply 1520% (USD 7.5 billion) of the demand. The remaining demand will probably be met by either foreign suppliers with subcontracts or domestic suppliers. However, KHIC emphasized that they will continuously maintain a leading position in the market in order to develop technological capacity and international competitive strength.

The national consumption of electricity increased annually by 11% during 19861991. With regard to this, ABB Korea has estimated the potential demand to be between 5 and 6 industrial turbines per year from 1991 to 2001 so that the Company will probably sell at least 1 or 2 turbines per year. There are two types of turbines, viz. back pressure and condensing type turbines in the market. Many Korean companies want to use the condensing type turbines in order to maximize high efficiency in the short-term. On the gas turbine side ABB STAL signed a license contract with HHI to produce gas turbines in Korea. They are still waiting for the industrial permit from MCI. This has become an important business area in the market, because the Korean people consider that the air pollution is highly become when a large number of power stations are consuming a great amount of oil and coal.

The second application is concerned with the transportation of natural gas. A great amount of natural gas will be transported by the Korean LNG carriers from Malaysia and Indonesia to Koma. KHIC has also monopolized the supply steam turbine to shipbuilding companies, which will build up total 6 LNG carriers up to the year of 2006. The present price of a LNG carrier is approximately USD 300 million and the building period takes more than 3 years. There is a marked shift towards increased production, technology and capital-intensive manufacturing processes. Quality is more important when buying high-technology vessels, such as passenger ships, container ships, and liquefied natural gas (LNG) tankers. There are two types of LNG carriers, viz. the Norwegian MOSS type and the France Membrane type. Hyundai has already obtained 2 orders for LNG vessels and is still building them with the MOSS type. The two LNG carriers will be built by Hyundai and Yukong Merchant Shipping companies.

The competition for the third and fourth LNG carriers is very hard between the main shipbuilders, Hyundai, Samsung, Daewoo and Hanjin. They are all concentrating on marketing activities and participating in the bidding for LNG Carriers in order to obtain orders from the Korea Gas Corporation. Under these circumstances ABB STAL applied for engineering services of a package propulsion system to Hanjin and Daewoo in concerning the marketing development. The system available from ABB/Kockums consortium is a combined approach. The system is consisted of steam turbine, boiler and generator integrated into the engine room. It has a competitive advantage from the customer’s point of view, but there are also some disadvantages. ABB STAL is neither a shipbuilding Company nor have had much experience in installing the Integrated Automation System (i.e. cargo handling and propulsion system) to LNG carriers. There are already other international competitors, such as Mitsubishi and Kawasaki, as suppliers to the Korean shipbuilders in the market. However, the estimated
contract value is approximately USD 30 million and the price for a solely steam turbine is approximately USD 12 million.

The sales forecasts predict a certain and stable market in Korea. The market does not change quickly, nor will it be a dynamic environment in the future. ABB Korea is familiar with the Korean market, so they know how they are going to sell. This is a strength for ABB Korea when they implement their marketing strategies.

2. Market Structure

Recently, in the power plant market there has been a steady move in the direction of monopolistic market structure with significant direct foreign investment. Both the market and power plant industry are now dominated by KHIC and twelve foreign companies which compete for market shares. The market shares are based on orders placed up to 1991 (Growth in Power Facilities; KEPCO, 1991). There are six submarkets: Nuclear reactors, Fossil boilers, Large steam turbines, Gas turbines, Large hydro power station and Industrial steam turbines which are divided between the above companies and are also organized in the market structure as shown in Figure 7: 1.

Figure 7:1 Market Structure

In the nuclear reactors market the largest firm is Westinghouse which has a 41% (5,037 MW) share. The second is ABB C-E International which has a 32% (4,000 MW) share. Framatome has a 15% (1,900 MW) share and AECL has a 11% (1,400 MW) share. All four suppliers have long sub-contracted installation services to KEPCO so that they often deliver the nuclear reactors directly to the power stations where the reactors are erected.

In the fossil boilers market there are 12 suppliers. In particular, five large suppliers, viz. Combustion Engineering, Babcock Hitachi, Babcock Wilcox, Steinmuller and Babcock Atlantique, which have a total of 82.5% (10620 MW) of the market shares among others. The remaining seven suppliers have a 17.5% share together.
In the large steam turbine market there are 13 competitors. Six large international suppliers which have a 88.7% market share among others. The remaining 7 suppliers have a 11.3% market share. The largest firm, General Electric (GE), has a 42% (11,038 MW) market share and has a license contract in supplying turbine technology and equipment to KHIC. The second is GE Co, which has a 13% (3,374 MW) share. Alsthome has a 12% (3,110 MW) share. Westinghouse has a 9% (2,325 MW) share and has a license contract with HHI. Hitachi has a 7% (1,725 MW) share and ABB has a 6% (1,550 MW) share.

In the gas turbine market the largest firm, GE, which has a 57% (2,240 MW) share and has a license contract with KHIC. The second largest firms are Westinghouse and ABB, which have respectively a 18% (700 MW) market share. ABB has a license contract with HHI. UTI has a 7% (275 MW) share and Toshiba has a 1% (30 MW) share.

The large hydro power market is divided into two submarkets, viz. turbines and generators. There are eight competitors in both markets. In the turbines market four major suppliers, viz. Fuji, Hitachi, Neyriquie and Toshiba, have a 96% market share. In the generators market there are also four major suppliers, viz. Fuji, Alsthome, Toshiba and Hitachi, which have a 96% market share together.

In the industrial steam turbines market the competition depends on the size of the steam turbines (25-75 MW) for small-middle size power station and how they can efficiently apply their turbine-boiler integrated systems to the engineering companies or end users. There are six major suppliers in the market. Their market share is based on order distribution in the period 1984-1991. According to KEPCO's data (1991), the market shares are ranked as follows. The largest firm is Mitsubishi (Japan), which had a 15% (310 MW) market share. The second is AA, which had a 14% (300 MW). The third is ABB (Sweden), which has a 12% (total 13 units: 280 MW). Fuji (Japan) has a 10% (252 MW) share. Siemens (Germany) has a 8% (197 MW) share and has a license contract with Halla, HIC (Korea) has a 4% (52 MW) share and others have (32 MW). Mitsubishi, ABB, Fuji and Siemens have strengthened their positions in the market, but Kawasaki has a strong position in the small size turbines (10 MW) market.

In the LNG carrier market, Mitsubishi and Kawasaki have strong positions as compared with competitors such as ABB, Fuji and Siemens. Mitsubishi has technical coorporation with HHI, which is building two LNG carriers with the MOSS type. Kawasaki has a license contract with HHI to supply steam turbines to the Korean shipbuilders, who will build two LNG carriers of the Menbrain type. Both two Japanese suppliers succeeded in integrating their technological relationships with HHI and KHIC.

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