

# An Exploratory Study on Cooperation between Large Enterprises and SMEs, Competitive Advantage and Business Ecosystem Health

## *Focused on Samsung Electronic's Business Ecosystem*

[Min-Jae Kim, Jang-Woo Lee, and Jae-Min Shin]

**Abstract**—This study explores the cooperation between large enterprises and SMEs, competitive advantage, and business ecosystem health. The cooperative relationship between large enterprises and SMEs is characterized by their cooperative density and cooperative quality. Competitive advantage is composed of cost advantage and differentiation advantage by positioning and resources.

To achieve the purpose of this research, data were collected from 101 vendor companies with S-electronics and analyzed with the theoretical study using the structural equation model. The results of this research areas follow.

First, the cooperative density was determined to gauge its positive effect on the cost advantage, and the cooperative quality was revealed to assess its positive effect on the differentiation advantage. Second, the cost advantage was surfaced to evaluate its positive effect on the productivity, and the differentiation advantage was found to discover its positive effect on the robustness.

**Keywords**—Intensity of cooperation, Quality of cooperation, Business ecosystem, Samsung Electronics

## I. Introduction

South Korea's economy was industrialized during its so-called compressed growth led by large companies, but the polarity between large companies and SMEs (small and medium-sized enterprises) deepened [1]. For instance, the profitability of large companies increased from 5.56% in 2009 to 6.80% in 2010, but that of SMEs decreased from 4.84% in 2009 to 4.47% in 2010 [2]. This reduced the comparative power of SMEs and made them bankrupt, which deepened industrial dependence for parts and materials supply on overseas markets. This cyclic process is expected to degrade the competitive power of Korea.

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In addition, as the global environment shifts from competition between individual companies to competition between business ecosystems [3], companies are starting to focus not only on their future wealth but also on their internal capability to improve the health of the entire business ecosystem. Successful companies are achieving this goal by establishing platforms (service, tools, and technology), which the members of the business ecosystem are using to strengthen their behavior [3], [4].

In these domestic and foreign environments, win-win growth has started drawing more and more attention. Win-win growth is a new management paradigm that creates fair rules such as on equal opportunity, fair competition, and benefit sharing to realize 'shared growth' in the global competition era [1]. That is, cooperation between large enterprises and SMEs is improving the performance and competitive power of SMEs, which is expected to eventually enhance the health of the entire business ecosystem. However, preceding studies on the cooperation between large enterprises and SMEs used the intensity of their cooperation mixed with other qualitative factors of cooperation, and researchers used their intermixed financial performance, technical innovation performance, and cognitive performance. Besides, there have been few studies on the effects of cooperation on the capability and competitive advantage of SMEs.

In this study, the cooperative relationship between large companies and SMEs was divided into the behavioral variable, which is the intensity of the cooperation, and the attitudinal variable, which is the quality of the cooperation. The effects of the cooperative relationship on the competitive advantage of the cooperating company were also examined. In view of the business ecosystem, the performance index that was appropriate for the current competitive situation was determined by examining the health of the companies that composed the ecosystem. The future direction of the cooperative relationship between large enterprises and SMEs was presented, and the basis for the necessity of cooperation was established.

## II. Research Model and Hypotheses

### A. Intensity of Cooperation and Competitive Advantage

According to [5], the competitive power of the business

ecosystem is determined by three factors: product development, assembly/production, and the supply chain. The hierarchical structure of competitive power can be seen in terms of SMEs that supply parts and materials, large enterprises that develop products and assemble and produce the products, and the supply chain that connects large enterprises to SMEs. The competitive power of the SMEs that supply parts and materials is determined by technology, human resources, financing, and the market, which involve production, personnel, finance, and marketing capabilities [6]. It is difficult for the SMEs in Korea to handle all of them by themselves, because most of them are very small. Accordingly, it is recognized that cooperation between large enterprises and SMEs is required in majority of managerial activities such as strategy formulation, marketing, and personnel/organizational management [7], including technology and financing [8]. Multilateral cooperation will contribute to shared growth and the solution of polarization.

Cooperation can be diversely defined, but many researchers consider it not a fixed relationship but continuity, according to the intensity of the cooperative relationship [9]. The intensity of a relationship refers to the closeness of the relationship in view of the social network, which is the frequency of relationships with others and of interaction [10]. The intensity of cooperation, which is a behavioral variable, represents the behavioral concept of continuing the cooperative relationship and its extent [11]. The higher the intensity of the cooperation is, the higher the mutual trust becomes. This will lead to the sharing of important hard-to-get information, shared values and cultures, accelerated communication and mutual studies, reduced trade costs, and promotion of investments for future profit [10], [12]. In addition, studies have suggested that cooperation between companies has positive effects on the companies' core capabilities and competitive advantages [13]. [14] suggested that cooperative activities provide methods of obtaining information on new products or facilitate the development of innovative products. [15] stated that the connection between a company's knowledge system and that of other organizations has important effects on the capability of such company to develop innovative products. [13] stated that partnerships improve the capability of a company to access new technologies and markets, and to provide a wide range of products/services. In addition, many study results have shown that cooperation between companies influences the companies' cost advantages, such as through higher product quality and lower costs [16]. In this study, the following hypotheses on the relationship of the intensity of cooperation of a company and other organizations on the company's competitive advantage were derived from recent studies.

Hypothesis 1. The intensity of cooperation of a company with its parent company will have a positive (+) effect on its competitive advantage.

Hypothesis 1-1. The intensity of cooperation of a company with its parent company will have a positive (+) effect on its cost advantage.

Hypothesis 1-2. The intensity of cooperation of a company with its parent company will have a positive (+) effect on its product and marketing differentiation.

## ***B. Quality of Cooperation and Competitive Advantage***

[17] Suggested that the quality of a relationship is the relational exchange between two organizations, meaning the continuity of their long-term relationship, and that it serves as the medium between the relationship and its determining factors. The quality of a relationship is an attitudinal variable that can best set expectations of the satisfaction and future relationship [18]. A long-term cooperative relationship between a buyer and a supplier is efficient for greater competitive power, rather than the traditional framework of mutual control [19]. [20] stated that a long-term partnership is the key to success in improving competitive power through cooperation. In this study, as in the aforementioned preceding studies, the following hypotheses on the quality of cooperation and competitive advantage were derived, considering that the quality of cooperation is an important determinant of the effect of cooperation on the competitive power of a company.

Hypothesis 2. The quality of a company's cooperation with its parent company will have a positive (+) effect on its competitive advantage.

Hypothesis 2-1. The quality of cooperation of a company with its parent company will have a positive (+) effect on its cost advantage.

Hypothesis 2-2. The quality of cooperation of a company with its parent company will have a positive (+) effect on its product and marketing differentiation.

## ***C. Competitive Advantage and Health of the Company***

The effects of competitive advantage are as follows. First, cost advantage means that all costs of the activities of a company are lower than those of other companies, and that the company can compete with other companies at a lower cost. If a company can achieve a cost advantage and keep it, it will perform better than the industrial average. Differentiated advantage allows a company to price its products and or services higher than those of other companies, sell more even at the same cost, and maintain customer loyalty even in a recession. A sustained competitive advantage results in traditionally measurable performance such as larger market areas and higher profits. In addition, based on the Resource-based Theory, companies achieve competitive advantage by combining their internal resources to produce superior long-term performance [21].

The performance of a company depends on not only the capability of the company itself but also the performance of

the business ecosystem, which is at a higher level. The health of the ecosystem, which means the performance of the business ecosystem level, can be seen as the sum of the health statuses of the members of the ecosystem [22]. Therefore, if the health of the members of the ecosystem is not maintained, the sustainable growth of the leader company cannot be ensured [3]. Thus, it can be assumed that the competitive advantage of a company influences its health. Accordingly, assuming that a company's competitive advantage influences its health, the following hypotheses were derived.

Hypothesis 3. The cost advantage of the cooperating company will have a positive (+) effect on its health.

Hypothesis 3-1. The cost advantage of the cooperating company will have a positive (+) effect on its productivity.

Hypothesis 3-2. The cost advantage of the cooperating company will have a positive (+) effect on its robustness.

Hypothesis 4. The product and marketing differentiation of the cooperating company will have a positive (+) effect on its robustness.

Hypothesis 4-1. The product and marketing differentiation of the cooperating company will have a positive (+) effect on its productivity.

Hypothesis 4-2. The product and marketing differentiation of the cooperating company will have a positive (+) effect on its robustness.

## D. Research Model

This study was based on the theoretical consideration of the establishment of an empirical study model, as shown in Figure 1. The model divided a company's cooperative relationship with its parent company into the intensity and the quality of the cooperation. To examine the correlation among cooperative relationships, the competitive power of the cooperating company, and the health of the company, the following research model was derived.

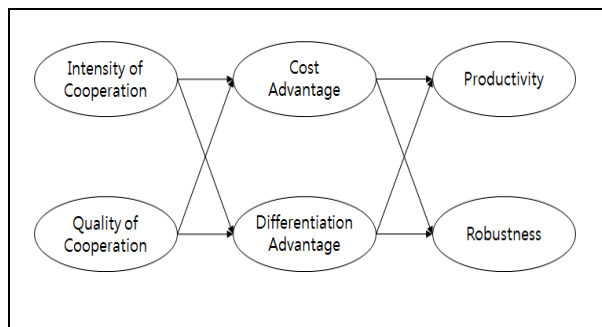


Figure 1. Research model

## III. Measurement

### A. Operational Definitions

Technical cooperation is defined as a supplier's participation in development and sharing of its information sharing system, technology, material assets, etc. [23]. Items profusely used by Korean SMEs, namely, transfer of technology or the level of technical guidance, and the level of provision of market and technology information, were measured using two five-point Likert scale questions. Manpower cooperation generally includes education and training, regular manpower dispatch, full-time manpower supply, etc. [24]. Accordingly, this study measured the employer education and training and manpower supply/dispatch using two five-point Likert scale questions. Financial cooperation was measured in terms of the level of support for the procurement of materials and for the purchase of high-priced equipment, using two five-point Likert scale questions [25]. Sales cooperation was measured in terms of support for logistics and distribution and for promotion of products, using two five-point Likert scale questions [24].

The quality of the cooperation was measured in terms of win-win cooperation (cooperation satisfaction) and future orientation (long-term continuity of the relationship), using two five-point Likert scale questions [26].

The competitive advantage was measured based on Porter's competitive advantage. The cost advantage was measured in terms of cost reduction, using five five-point Likert scale questions. The differentiation advantage was measured in terms of product differentiation and marketing differentiation, using seven five-point Likert scale questions. [27].

Based on the preceding studies that measured the health of individual companies in the business ecosystem, the average of the company's four-year ROI (net profit/total capital x 100) from 2008 to 2011 was used as the productivity, and the number of (disclosed) patents was used as the robustness [22], [28]. The market expandability was excluded from this study because no measurement tools have been developed, which made objective measurement difficult.

### B. Sampling and Data Collection

For one month and a half from August to mid-September 2012, a survey was conducted that targeted the executives of S-Electronics' primary subcontractors (members of the Subcontractors Association) by mail and e-mail. The survey aimed to examine influence relationships related to cooperative relationships, and thus, targeted only firms within S-Electronics' ecosystem. The questionnaire was distributed to 160 subcontractors' executives; and 104 of them responded. Ninety of the answered questionnaires were analyzed.



### C. Reliability and Validity Analysis

The reliability of the model that was used was found to be high, with the Cronbach’s  $\alpha$  of all the variables over 0.6. In addition, the exploratory factor analysis results showed that the characteristic values of all the factors were 1 or more, which indicated that there was no validity problem.

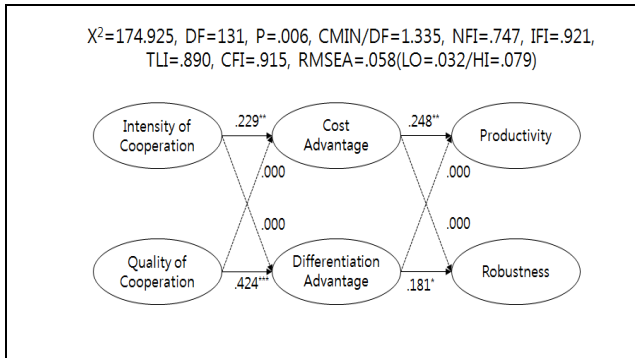


Figure 2. Results of the verification of the hypotheses

The path analysis of the proposed model is shown in Figure 2, and the results of the verification and analysis of the hypotheses follow.

Hypothesis 1: As to the effect of the intensity of the cooperation with the parent company on the cost advantage of the cooperating company, the hypothesis was accepted with a factor loading of 0.085 ( $\beta= 0.229$ ) and a CR=1.989 ( $p= 0.047$ ). As to the effect on the product and marketing differentiation, however, the hypothesis was dismissed because there was no significant effect.

Hypothesis 2: As to the effect of the quality of the cooperation with the parent company on the cost advantage of the cooperating company, the hypothesis was dismissed because there was no significant effect. As to the effect on the product and marketing differentiation, however, the hypothesis was accepted with a factor loading of 0.324 ( $\beta= 0.424$ ) and a CR=3.605 ( $p= 0.001$ ).

In the case of long-term and win-win cooperation, however, it can be said that its effect on the cooperating company’s cost advantage was low. It showed that product and marketing differentiation is important in sustaining the competitive power of the cooperating company, as the effect of the cooperation on the price cut or the company’s price competitiveness was low.

Hypothesis 3: As to the effect of the cost advantage of the cooperating company on its productivity, the hypothesis was accepted with a factor loading of 5.016 ( $\beta= 0.248$ ) and a CR=2.318 ( $p= 0.030$ ). As to the effect on the robustness of the company, the hypothesis was dismissed because there was no significant effect. This indicates that the competitive power obtained through the cost advantage had a positive effect on the short-term productivity, but did not influence the robustness, which is a long-term performance indicator.

Hypothesis 4: As to the effect of the product and marketing differentiation of the cooperating company on its

productivity, the hypothesis was dismissed because there was no significant effect. As to the effect on the robustness of the company, the hypothesis was accepted with a factor loading of 39.692 ( $\beta= 0.181$ ) and a CR=1.691( $p= 0.091$ ). This indicates that the competitive power obtained through the product and marketing differentiation cannot increase the short-term productivity, but influences the robustness, which is a long-term performance indicator.

### IV. Conclusion

As the competition between business ecosystems becomes increasingly important, this study was conducted to divide the cooperative relationship between large enterprises and SMEs into the intensity and quality of their cooperation and to identify the effects on the competitive advantage of the SME and the health of the company.

The study results are summarized as follows. First, the intensity of the cooperation with the parent company significantly affected the cost advantage of the cooperating company, but not the product and marketing differentiation (H1). Second, the quality of the cooperation with the parent company did not significantly affect the cost advantage of the cooperating company, but significantly affected the company’s product and marketing differentiation (H2). Third, the cost advantage of the cooperating company significantly affected the productivity of the company, but not the robustness of the company (H3). Fourth, the product and marketing differentiation of the cooperating company did not significantly affect the productivity of the company, but significantly affected the robustness of the company (H4).

These results indicate that the effects of the intensity and quality of cooperation on the cost advantage and product/marketing differentiation of the SME differ. Therefore, the study results show that the establishment of a future-oriented win-win cooperative relationship is important to an SME’s achievement of competitive power, although the intensity of the SME’s cooperative activities such as financing, sales, and technological cooperation is also important. In addition, the effect on the health of the company varies depending on the competitive advantage of the SME. The cost advantage, including price cuts or price competitiveness, significantly affected the productivity, which is a short-term performance indicator, but not the robustness, which represents sustainability. The product and marketing differentiation did not significantly affect the productivity, which is a short-term performance indicator, but significantly affected the robustness, which represents sustainability. These indicate that the effects on the health of the company vary depending on the competitive advantage of the SME, and the establishment of resources and strategies is important for the health of the business ecosystem.

The limitations and future research directions of this study are as follows.

First, the sampling was limited to the partners of S.

Electronics for the analysis of the ecosystem, and could not be directly applied to diverse ecosystems. There were also few samples. Therefore, further studies should use more samples in diverse ecosystems, and comparative studies on the ecosystems are also required. Second, only win-win cooperation and future orientation were used to measure the quality of the cooperation, so the quality of the cooperation was not fully described. Therefore, further studies are required to measure the quality of cooperation through diverse measurement questions. Third, productivity, robustness, and market expandability must be measured as the factors of the health of the cooperating company in view of the business ecosystem, but only the productivity and robustness were used in this study. In addition, the productivity and robustness of the company were measured using limited variables. Therefore, the health of the company must be comprehensively measured using diverse variables.

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