

How the difference in product characteristics affects the relationship with customers? ~In the case of the electronics parts industry increasing its focus on the automotive market~

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Abstract

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The electronic parts industry of Japan is very internationally competitive. However, the types of suppliers can be roughly classified into two types; a specialized supplier and a generalized supplier according to the on-going “selection and concentration” of business operations, and each supplier has a different product characteristics.

In recent years, the electronic parts industry in Japan attempts to increase its focus on the automotive market. While expanding auto parts transactions, it can be thought the differences in product characteristics in each supplier will make a difference in the relationship with customers.

In this paper, by comparing analysis of a specialized supplier and a generalized supplier increasing their focus on auto parts transactions, it is clarified generalized supplier tends to maintain fixed relationships with customers in comparison with specialized supplier in the auto parts transaction.

Keywords

Electronic parts industry, Auto parts transaction, Supplier system, Relational skills.

1. Introduction

The electronic parts industry of Japan keeps international high competitiveness, market share and profitability. However, the types of suppliers can be roughly classified into specialized supplier and generalized supplier. The former maintains competitiveness by focusing resources on a special field, and the latter focuses resources on a wide range of parts.

Recently, we can see that Japanese electronic parts industry is increasing its focus on the automotive market rather than consumer market. As shown in Figure 1, percentage of electronics parts to the value of shipments of auto parts is increasing, and its proportion is over 30% since 2012. Figure 2 shows comparisons of amounts of auto parts sales for the year 2012 with those of 2016. For example, the sales of Nidec in 2016 were about 261 billion yen, which is over three times the amount in 2012. Considering the fact, Japanese electronic parts industry is much more likely to shift their business to automotive market rather than consumer market that is shrinking to stabilize profitability.

The automotive industry has a design concept of integral architecture. Therefore, custom designed parts or special order parts are mainly used for assembling an auto car, and standard parts are rarely used (Fujimoto, Ku, Konno 2006, p.68). Originally electronic parts suppliers mainly develop standard parts for consumer market, however enhancement of sales for the automotive market makes them to develop parts depending on customer’s request. This means they are required for parts transactions which are different from those for consumer market.

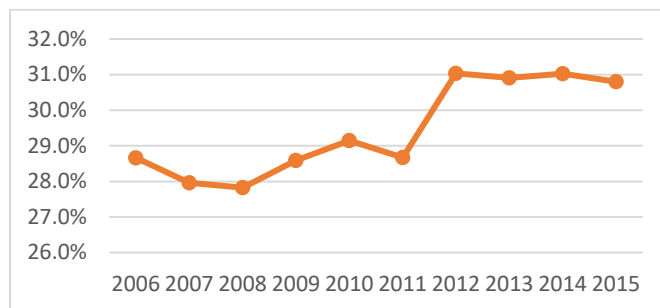


Figure 1. Trends of electronic parts share to the value of shipments of auto parts
Source: JAPIA (<http://www.japia.or.jp/research/foword.html>)

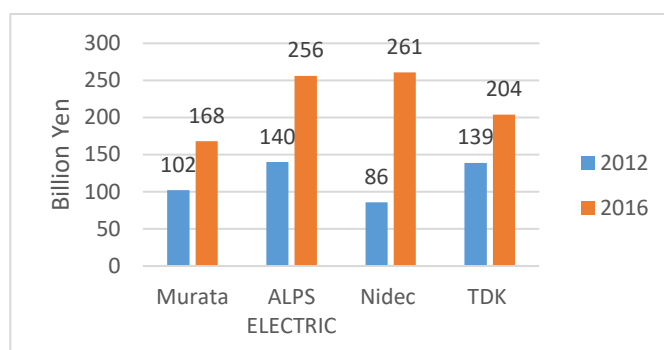


Figure 2. Comparisons of amounts of sales for the automotive market in major suppliers
(Comparison of 2012 and 2016)
Source: Securities report of each firm

In this paper, how the difference in product characteristics affects the relationship with customers is clarified through case studies of a specialized supplier and a generalized supplier in the electronic parts industry which are expanding automotive transactions.

Regarding the previous research of Japanese supplier system, long-term continuous transactions between makers and suppliers are studied in depth at the level of the differences in design drawing such as “Drawing Supplied” and “Drawing Approved” (Clark and Fujimoto 1991, Asanuma 1997). It has been statistically proven that in comparison with European or American suppliers, Japanese suppliers have more “Drawing Approved” (Clark and Fujimoto 1991) and are engaged in the development phase in auto makers (Konno 2007).

Asanuma (1994) indicated that relational skills are established between makers and suppliers through stable business relations. These skills are required for suppliers to respond to requests from customers effectively and composed of two layers, surface layer and base layer which have different characteristics. The former responds to accumulation of learning results through transactions with a specific maker, and the latter means common technical capability. This concept is a little more complex than the theory of relational contract (Williamson, 1975), and Asanuma (1994) assumes that these skills are needed for long-term continuous transaction by the complex relational contract and evaluated through these transactions, while taking the Japanese makers and suppliers into consideration.

In recent years, the engagement in the advanced development phase of auto makers by suppliers becomes more important according to technological development. Ueda (1995) pointed out parts suppliers designed and developed prior to receive design requests in details from auto makers. They have a close relationship with auto makers from quite an early phase of the development and actively create a cooperative relationship with them from the cutting-edge technology development (Fujimoto, Ku, Konno 2006; Konno 2008). As mentioned above, because parts suppliers

are engaged in the advanced development phase, cooperative relations between auto makers and suppliers are relatively becoming stronger and longer-term.

2. Case Analysis Results

This paper is based on the case analysis of Company A as a specialized supplier and company B as a generalized supplier depending upon interview survey (conducted on Nov., 2016 for company A: Feb., 2015 & May, 2017 for company B) and secondary sources such as publication data.

2.1 The Case of a Specialized Supplier

Company A is a connector maker listed on the first section of the Tokyo Stock Exchange. About 80% of the total sales are from automotive market, and about 70% of all items are held by custom designed parts or special order parts. The auto parts should be developed according to customer requests, therefore many of them are “Approved Drawing” parts unlike standard parts that are mainly supplied for consumer market.

This company customizes parts by three stages in the development process, selection of standard parts, custom designed parts, and full custom designed parts and mainly responds to custom requests in case of responding to additional design to existing custom designed parts. After the parts set on the mounting unit are designed, connectors are designed for the purpose of connecting these parts, therefore these often have to be developed to satisfy design requirements which have already been fixed. In recent years, cooperative relationships between auto makers and parts suppliers are recognized to be important in the advanced development phase. However, in the case of connectors, the scope of engagement in the advanced development phase is limited due to the nature of the product. Therefore, it is hard to believe company A is actively engaged in the advance development phase of customers.

However, technical specifications other than disclosed or designated are technologies created by company A, therefore often patented by them. When applying for a patent, company A confirms acceptance or rejection of a patent application to the customer, it will not be refused unless customer ideas are considerably included in it. In case that a non-disclosure agreement is signed, company A negotiates with a customer to be a patent on own company side and narrows the scope of patent so as to avoid any troubles with a customer. Basically, because there are few experts on connectors in customers, it is easy for company A to secure intellectual property rights. Furthermore, as they mainly supply single parts, their proposals tend to be accepted due to a good stock of knowledge about connectors and abundant development experiences. Because of these circumstances, company A seems to be difficult to strengthen a long-term continuing transaction with a specific customer from the perspective of a relationship between makers and suppliers.

As mentioned above, company A responds to custom requests by partial improvement to existing custom designed parts and making efforts to divert products which are developed for a specific customer to other customers. By these actions, it is thought this company reduces cost for development of a component which allows them to maintain long-term continuing business relationship with a specific customer and makes efforts that relations with customers are not to be fixed.

2.2 The Case Study of a Generalized Supplier

Company B is a generalized supplier listed on the first section of the Tokyo Stock Exchange and supplies around 40,000 types of electronic component not only a single component but also a composite component. As other major suppliers, this company is shifting their business from consumer market to automotive market. According to the total sales by market, the sales of auto parts for the year 2012 accounts for 50% of total sales, however sales have been lately improved by about 60% in 2016.

To focus on the automotive market, suppliers are required from customers to develop modular products in which parts are compounded, and more advanced expertise and comprehensive strength are also required. In particular, company B is increasing sales of module products for the automotive market in recent years. For example, "power window switch" is a window opening and closing switch built in the door of an auto car and recognized as a module product customized in this company.

In the case of auto car development, regarding the core part that car makers satisfy product function, this company makes efforts to engage in coordination in the advanced development phase before specification is decided. If they can engage in the advanced development phase rather than from full custom development phase, they can recommend their standard parts and reduce cost required for development of a component. To perform this, company B is focusing on deeply concerned with customers and making efforts to be engaged in "design-in activities" in the advanced development phase ahead of other suppliers.

As auto cars are developed according to design concept of integral architecture, it requires coordination by each customer for enhancing the overall performance by mutually coordinating optimum designed parts. Therefore, most of the "power window switch" are customized by each model, but the inside structure is composed of own standard parts (such as switch part, contact structure, circuit configuration).

These auto parts are basically designed according to "Drawing Approved". In other words, these are customer drawing designed by company B based on customer specification, and all contents given in drawings are belong to the customer. As the part on the outside such as a degree of curvature, feeling is full custom based on customer design, those cannot be diverted to other customers. However, because the inside structure is based on a specification of company B, if the customer agrees to communalize own parts with other customers, it is possible to divert these parts to them in case that company B covers development cost. If the customer doesn't agree, company B negotiates with them so as to guarantee the number of transactions including the future order quantity and divert existing model to another model in order to suppress product unit price. In the event of the customer agrees, they collect development cost by signing a contract incorporated some of these points. The separation of customer specification and supplier specification offers numerous benefits not only auto makers such as reduction of development cost and lead time but also suppliers such as secure of the business continuity with them.

3. Results

Table 1 presents a summary of the comparison.

Table 1. The factual comparison of company A and company B

	Company A	Company B
Product Characteristics	single parts	single parts /module parts (composite parts)
Types of Transactions	Auto parts :80% Drawing Supplied < Drawing Approved	Auto parts:60% Drawing Supplied < Drawing Approved
Avoidance of Lock-in Effect	Positive (Easy to avoid comparatively)	Positive but difficult for auto parts
Securement of Intellectual Property	Easy to secure	Difficult in module parts development
Engagement in the Advanced Development Phase	No (There are exceptions.)	Yes
Degree of the Cooperative Relationship with Customers	Low	High

Common feature provided by case analyses includes their main customers are auto makers, and they are required for providing custom designed parts. In addition, they are required for supplying parts based on the design concept of integral architecture, while modularizing the inside of the parts as much as possible, securing intellectual property and diversifying them for other customers.

Next, the differences between the two suppliers are described. Firstly, it is a difference in product characteristics. Company A develops single parts, while company B develops not only single parts but also module parts (composite parts). From the viewpoint of the auto maker, company B engages in the advanced development phase, while company A rarely engages in the advanced development phase. In addition, the difference is also seen in securing intellectual property and avoiding from lock-in effect.

4. Discussion

The fact that generalized supplier develops parts including module parts (composite parts) against specialized supplier mainly develops a single part seems to make a difference to the relationship with customers and come out clearly in the transaction of auto parts. This is discussed in detail.

Company A cannot develop module parts because their technology field is narrow, nor is engaged in the advanced development phase due to the nature of the product. In that sense, the opportunity for creating value added is limited, however they have to develop customized auto parts. Meanwhile, since auto makers have no deep knowledge about parts technology, it is possible for them to take technical initiative in the range of their own products, secure intellectual property and take the position easy to divert designed parts to other customers.

On the other hand, company B has comprehensive technological capabilities, therefore they are required for composite parts and possible to develop according to customer requests. There is an opportunity to create added value for customers. However, as composite parts are special order parts developed by auto maker's initiative even though designed based on "Approved Drawing", the intellectual property is on customer side. Therefore, in order to create added value, company B has to be engaged in the advanced development phase and deepen the business relationship with a specific customer. At the same time, they convert own product to other customers with modularizing inside of the parts and commonalizing parts as possible as they can.

5. Conclusion

For electronic parts suppliers, increasing its focus on auto parts means the basic product design concepts are made "integral" or "modular", and the proportion of integral type is increased. In particular, it means the parts become to be compounded for a generalized supplier.

Particularly in the development of composite parts for automotive market, as suppliers are required for engaging in the advanced development and coordinating for each customer, investment in R&D must become a relationship specific investment, and suppliers can only recover development expenses from a transaction relationship with a specific customer. For that reason, there are some aspects that suppliers need to deepen relationships with current customers and improve their appraisal.

On the other hand, a specialized supplier is considered to make efforts such as modularizing the inside of the composite parts, expediting common use of composite parts and diversifying them to other customers. In this way, electronic parts suppliers are required not only to build capabilities and secure profits in transactions with current makers, but also to emphasize the possibility of diversion to other customers.

Although this research has analyzed two suppliers, it is necessary to implement some case studies and consider whether the results are adaptable to other suppliers. These aspects would be the object of future studies

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Biography / Biographies

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