Facade Mother Factory for Correspondence of Customer’s Mother Factory System

Shohei HAMAMATSU

Abstract: The mother factory system is said to have broadly diffused the system of international division of labor used by Japanese manufacturers. However, is that truly the case? This paper provides an example of a supplier having a “facade mother factory” to respond to the demands of assembly manufacturer customers. This facade mother factory was not “a unit that continuously supports overseas factories,” as defined in prior studies. Instead, it was rather a “mother factory” needed as a facade to provide technical support services for customers, who happened to be Japanese companies.

Keywords: mother factory, technical support service for customers, supplier system, small and medium-sized enterprises

a) Faculty of Economics, Seikei University, 3-3-1 Kichijoji-kitamachi, Musashino-shi, Tokyo, Japan, hamamatsu@econ.seikei.ac.jp

A version of this paper was presented at the ABAS Conference 2017 Summer (Hamamatsu, 2017b).

© 2017 Shohei Hamamatsu. This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.
Introduction

When manufacturers expand their businesses by establishing factories overseas, the factories with a high level of technical and development capabilities for supporting those factories are called “mother factories” or “mother plants” (Yamaguchi, 1996, 1997, 2006). These are factories that have a base to send engineers to support the local factory, so that the company can provide appropriate technologies to them. These factories have the role of supporting overseas factories. The mass media and academic researchers within and without Japan have used the term “mother factory” in slightly different ways, though generally speaking, such a site is regarded as “a unit that continuously supports overseas factories” (Oki, 2016).

In Japan, large assembly manufacturers have adopted division of labor where product models the company has experience in developing and producing are made overseas. In recent years, the number of overseas sites requiring support have grown, which has placed a greater burden on mother factories and which has further required domestic sites to provide support to the mother factories (Suh, 2012). In actuality, however, there are many cases where mother factories have taken the lead in supporting overseas factories.

Japanese firms are known for having supplier systems with long and continuous collaborative relationships (Fujimoto, 1998; Takeishi, 2000). In a supplier system with such intimate collaborative relationships, assembly manufacturers that use a mother factory system (with development done in domestic sites and production done overseas with domestic support) must use suppliers that have a similar division of labor.

However, are small and medium-sized suppliers able to create the same division of labor used by these assembly manufacturers? 1) These suppliers have different management resources than the
assembly manufacturers, and 2) because their domestic sites are small, it is possible that the quality and amount of management resources in overseas sites exceed those in their domestic sites, which makes it difficult to have a well-functioning mother factory system and is likely to cause other phenomena (cf., Hamamatsu, 2016, 2017a). Thus, for this paper, the international division of labor used by small and medium-sized suppliers was studied in theory to create a new division of labor called the “facade mother factory” (Eisenhardt, 1989; Glaser & Strauss, 1967).

**Method**

In this paper, the case of Company A, a small and medium-sized supplier, was studied. Similar phenomena to those of Company A were seen in a number of other suppliers, though they were most striking in Company A. Because of this, a total of five interviews were conducted with the president of Company A in Japan and the management team in their Thailand site between 2012 and 2017, with each interview averaging between two and three hours in length. The content of the interviews focused on how the division of labor came to be and what actions were taken by managers in the long term, as well as the intent of those actions (Numagami, 2009). After the interviews, on-site visits were made to the manufacturing sites, with telephone and e-mail follow-ups.

**Case Study**

**Outlines of overseas expansion**

Company A is a small and medium-sized enterprise that makes casted products. Initially, the company specialized in large castings for machine tools, though around 1970, it began casting for small,
mass-produced automotive parts, which led to the company having two lines of business: large castings and small, mass-produced castings. It is not just the sizes of these businesses that differ; large castings use a method of casting with manual work called *tegome*, while small castings use a different, automated casting process.

In recent years, material substitutions have brought about weight savings in automotive parts, and Japanese domestic demand for small, mass-produced casted parts has shrunk. Company A therefore established a subsidiary in Thailand in 1994 and, in 1996, began operations there. The company entered Thailand with a view to increasing demand for castings in conjunction with the development of Thailand’s automotive industry. The company had no intent to replace its domestic production sites and did not even import products, though small, mass-produced castings by the Japan headquarters factory had a drop in utilization due to shrinking demand and halted production by 2016. In contrast, the small, mass-produced casting business in Thailand expanded greatly. The factory there makes automotive-related parts (automotive parts, motorcycle parts, and engine parts for tractors and generators) and air condition parts, with sales being evenly split between the two. In 2017, the Thailand subsidiary had sales of five billion yen and had more than 450 employees. The sales in Japan were approximately one billion yen, with more than fifty employees.

**Expansion of overseas business**

The customers of Company A’s Thailand site were all Japanese firms. The company expanded business to firms it had not done business with in Japan and thus increased in size. When it entered the market, demand for castings grew primarily in the automotive business due to direct investment by Japanese companies in Thailand during the period of startling economic growth in Asia. However, there were only 10 Japanese suppliers competing
with each other. Compared with the market for castings in Japan, where many small and medium-sized companies competed with each other, the market conditions were extremely favorable in Thailand.

Leveraging this healthy environment required a structure for capturing new customers while lowering defect rates and costs and improving productivity. Producing casted products requires manual labor, which impacts quality and productivity, therefore requiring direction and management of local employees through frequent communication. Thus, the president of the Japanese headquarters also acted as the president of the local entity and spent at least 10 days a month in Thailand, building and managing the local organization there. Moreover, the president had a member of the management team that had worked for nearly 40 years at the headquarters, serving as the managing director in Thailand. This was due to the Thailand business being given even more priority than the domestic business, allowing the company to maintain a Japanese-style system of quality control, gain customer satisfaction, and capture follow-on work in the healthy business environment.

In 2012, Company A invested in infrastructure in its Thailand factory because of the growth in production volumes. Thailand was quick to recover from the collapse of Lehman Brothers, bringing in orders even as production capabilities grew, such that infrastructure investment by supplier companies could not keep up with the increased local demand. Further, in 2014, another casting company in Japan made an investment along with Company A’s headquarters and the overseas company of Company A to create a new company that would allow the manufacture of mid-sized castings of two to three tons. The investment was made out of the awareness that machine tool manufacturers would begin production in Thailand, and in the future, there would be an increase in production by Japanese machine tool manufacturers in Thailand, accompanied by increased demand for casted products. The company brought in
sales of five billion yen in 2017, returning royalties and dividends to the Japanese headquarters.

Structure of domestic factory

In contrast to the growth of business in Thailand, Company A’s domestic sales in Japan in 1990 were eight billion yen, and sales in 1995 were three billion yen, shrinking to one billion yen in 2013. From around 2005, the creation of lighter cars increasingly led to the integration of parts through a rethinking of alternative materials, moving from steel to aluminum and resin. At the same time, domestic demand for small, mass-produced castings dropped. Of the two businesses, large and small castings, large castings was to be maintained, though because small, mass-produced castings shrank, since they accounted for about 70% of sales in 1990, falling to about 10% in 2013 and coming to a hard stop in 2016.

The remaining demand for large castings in Japan became unstable at times and varied with economic circumstances, though it declined annually. “We were told by our bank that our account would be better if we did not have a large Japanese plant and instead had an apartment-sized office” (interview with Company A president, April 6, 2017).

However, there was a need to continue production in Japan. This was because customers doing business with Company A in Thailand were all Japanese firms with a mother factory system, and these customers demanded a similar response from Company A. Japanese customers asked Company A to provide two technical support services from Japan.

First was a prototyping support service. The Japanese customer did mass production in Thailand, after first prototyping and evaluating in Japan. When doing so, suppliers created prototypes in Japan along with the customer and needed to have their products
evaluated. Being able to do those evaluations in Japan and having a production infrastructure that can respond to prototyping in Japan was seen as a backup when troubles should occur in Thailand that might cause production to stop there. The president of Company A noted, “This was because if we said we had no in-country production facilities, we would be asked if we were OK and had a backup structure” (interview with Company A president, June 7, 2017).

Second was an emergency support service. Production at the Thailand facility required domestic Japanese engineers that could determine what to do when technical problems occurred. Several days after such a problem, an engineer might go to the local Thailand site to gain a better understanding of the issue and would be asked to show that they had a backup structure in Japan. However, in an interview, the president of Company A noted, “Parts that are started in Thailand should be allowed to be completed in Thailand with no involvement by Japanese engineers.” Customers that do not know anything about machining are satisfied with machining experts from Japan that “frankly tell them they can get a certain level of precision” (interview with Company A president, April 6, 2017). In other words, support from Japanese sites took the form of explanations to customers rather than actual support to an overseas site.

Two technical support services provided to customers from Japan, namely a “prototyping support service” and “emergency support service,” were factors that differentiated the Japanese firm from local and foreign companies and enabled them to capture business from Thailand sites. These technical support services for customers required maintenance of domestic Japanese production. The prototyping support service was needed to have an organization and infrastructure to respond to domestic prototyping, and the emergency support service allowed the company to have functions related to domestic Japanese production and to keep engineers. Thus,
Hamamatsu

the company could not shut down domestic operations.

**Concluding Remarks**

In prior studies, a mother factory has been viewed as “a unit that continuously supports overseas factories” (Oki, 2016). However, the system of division of labor used by Company A was different from the mother factory system of prior studies (Oki, 2016; Suh, 2012; Yamaguchi, 1996, 1997, 2006). The overseas factories of Company A were not being supported but rather the customers of Company A were supported, and the system was a means of supplying “technical support services for customers” overseas, the customers in this case being Japanese firms. The domestic factory of Company A was not technically superior to its overseas factories. However, customers with a mother factory system demand a level of service from suppliers that assumes the existence of a mother factory. To respond to such demands, a “facade mother factory” was created to act like a mother factory system, regardless of the company’s overseas factories having management resources and organizational capabilities needed to respond to various troubles.

However, this is perhaps a transitional phenomenon. For example, when expanding business between Japanese and Thailand sites with “non-Japanese customers” without a mother factory system, the importance of a domestic factory as seen herein disappears. Or, with a long-term overseas business relationship with a Japanese firm that has a relationship of trust between the customer and the firm’s overseas site, it may be that demand for support from Japan goes away. In such a case, there is no need for a facade mother factory. In that sense as well, a mother factory was not created out of a need to actually support an overseas site, and so a facade mother factory was created because the customer required it.
Acknowledgments

This work was supported by JSPS Grant-in-Aid for Publication of Scientific Research Results, Grant Number JP16HP2004.

References


Suh, Y. (2012). Maza koujousei no henka to kaigai koujou: Toyota jidousya


