The History of a Mother Factory

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Abstract: This study identifies the usage of the term “mother factory” in the Japanese mass media, Japanese academic research, and non-Japanese academic research and analyzes historical changes in the usage of the term. It indicates that initially, all three groups used the term to mean “a unit that continuously supports overseas factories,” but over time, the term has taken on additional connotations outside of Japanese academic research.

Keywords: mother factory, mother plant, parent factory, Japanese multinational corporation

Introduction

The term “mother factory” is widely used in the Japanese...
Every year, an increasing number of articles referencing “mother factories” appear in the Japanese mass media. Moreover, academic research, particularly in the international business domain, also uses the term. When the Japanese production system began to garner attention in the 1980s and its advantages were realized, a “mother factory” became known as the organization that facilitated the transfer of that system (Yamaguchi, 1996). Since that time, the term “mother factory” has been used in academic research outside of Japan as well (Liker, Fruin, & Adler, 1999).

However, the term has never been clearly defined and is used in many ways. For example, articles in the Japanese mass media have variously described a “mother factory” as “a factory that acts as a parent for developing production technologies and human resources and strengthens the function of guiding and controlling overseas factories,” ² “a factory that engages in product development or product prototyping, creates prototypes of new products, and leads other mass production plants in development of the latest manufacturing technologies,” ³ and “a factory that develops new technologies and transfers them to overseas factories.” ⁴ Because the term has diverse meanings, it is likely to be used differently in the Japanese mass media, Japanese academic research, and non-Japanese academic research. ⁵ However, no studies have examined the differences in the usage of the term. Unless such differences are clarified, use of the term without a common agreement on its meaning could lead to misunderstandings.

⁵ In this paper, Japanese academic research is defined as “studies conducted by researchers belonging to organizations located in Japan” and non-Japanese academic research is defined as “studies conducted by researchers belonging to organizations located overseas.”
This study identifies the different usage of the term “mother factory” in the Japanese mass media, Japanese academic research, and non-Japanese academic research and concludes that a difference exists in the way each of these three groups defines the mother factory. Initially, all three groups commonly held to the definition of mother factory as “a unit that continuously supports overseas factories”; however, over time, all but those in Japanese academic research departed from this original meaning.

Usage of the Term “Mother Factory” in the Japanese Mass Media

First, let us examine the usage of the term “mother factory” in Japanese newspapers and magazines. We used a newspaper
Table 1. Initial use of the term “mother factory”

<table>
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<tr>
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<th>First day</th>
<th>The company that was referred in the article</th>
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</thead>
<tbody>
<tr>
<td>Asahi Shimbun</td>
<td>Apr. 6, 1987</td>
<td>Minebea Co., Ltd.</td>
</tr>
<tr>
<td>Mainichi Shimbun</td>
<td>Mar. 20, 1990</td>
<td>–</td>
</tr>
<tr>
<td>Yomiuri Shimbun</td>
<td>Jun. 15, 1993</td>
<td>Honda Motor Co., Inc.</td>
</tr>
<tr>
<td>Nihon Keizai Shimbun</td>
<td>Sep., 19, 1989</td>
<td>–</td>
</tr>
<tr>
<td>Nikkei Business</td>
<td>Dec. 8, 1986</td>
<td>Honda Motor Co., Inc.</td>
</tr>
</tbody>
</table>

company’s database\(^6\) to search the number of articles each year that used this term.\(^7\) Figure 1 presents the results of this search while Table 1 indicates when the term was first mentioned and the company that was being referenced. Based on these results, it can be seen that “mother factory” has been widely used since it appeared in the newspaper in 1983 for the first time. We consider four periods: between 1980s and early 1990s, between the late 1990s and early 2000s, late 2000s, and since 2010. Below, we more closely examine the usage of the term “mother factory” in each of these periods.

The early days (1980s–early 1990s)

“Mother factory” was initially used to denote “a unit that continuously supports overseas factories as a technology center.” It

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\(^6\) The database used in this search was Kikuzo II (which includes articles from *Asahi Shimbun*, *Asahi Shimbun Digital*, *AERA*, and *Shukan Asahi*), *Yomidasu Rekishikan* (which includes articles from *Yomiuri Shimbun*), *Maisaku* (which includes articles from *Mainichi Shimbun* and *Shukan Economist*), *Nikkei Telecom 21* (which includes articles from *Nihon Keizai Shimbun* (Morning) and *Nikkei Sangyo Shimbun*), and *Nikkei BP BizBoard* (which includes articles from magazines published by *Nikkei Business Publications, Inc.*).

\(^7\) The search was conducted on August 3, 2015.
first appeared in an article on Stanley Electric Co., Ltd., where a mother factory was described as “a model factory for overseas factories.” Until 1992, “mother factory” was most commonly mentioned in relation to Honda Motor (eight articles), where a mother factory was described as “a unit that transfers a company’s production system to overseas factories,”8 “a unit that transmits Japan’s superior production technologies to overseas factories as needed,”9 and “a unit that provides guidance as needed for improving the productivity and quality of overseas factory lines.”10 In other words, the initial meaning of the term in the Japanese mass media was “a unit that continuously supports overseas factories as a model factory.”

The second period (Late 1990s–early 2000s)

However, the meaning of the term “mother factory” changed during the second period. During this time, the mother factory was frequently introduced as “a unit that strengthens the unique functions for survival that do not exist in overseas factories.” Examples of these “unique functions” include the product prototyping, production of high-value products, production technology development, process development, and overseas support. In fact, articles in the Nihon Keizai Shimbun and the Nikkei Sangyo Shimbun that include both “mother factory” and “survival” increased from 0 in 1994 to 17 over the period from 1995 to 2002.

The third period (Late 2000s)

In the third period, restructuring of domestic production accelerated, and much focus was placed on mother factories as they made efforts to improve productivity. Many articles discussed

initiatives taken by mother factories to strengthen their mass production capabilities and lead overseas factories. For example, articles in the *Nikkei Sangyo Shimbun* from 2005 to 2007 presented examples of production innovations from Saida Manufacturing Co., Ltd., Makita Corporation, Mori Seiki Co., Ltd., NEC Akita, Ltd., Mitsubishi Electric Corporation, Victor Company of Japan Limited, Daikin Industries, Sony Corporation, NSK Ltd., etc.

**The fourth period (Post 2010)**

Usage of the term “mother factory” has increased sharply since 2010. Since many Japanese companies are forced to restructure their domestic sites because of the Great East Japan Earthquake and the yen’s appreciation, an increasing number of Japanese companies characterized their domestic sites as performing the role of mother factories. Because of this, an increasing number of articles on mother factories have come from sources other than the *Nihon Keizai Shimbun* and *Nikkei Sangyo Shimbun*. This has resulted in different companies defining different functions for mother factories, including product prototyping, mass production ramp-up, production technology and process development, and productivity improvement. As in the second period, domestic factories with unique functions for survival were called mother factories.

Recently, some articles have discussed regarding companies that have begun to position certain overseas factories as mother factories.\(^{11}\) The term “mother factory” as used in these articles has a meaning similar to “a factory that continuously supports overseas factories,” but such articles remain uncommon. At least when referring to domestic factories, articles still consider mother factories to be those with unique functions.

Summarizing the aforementioned facts, the usage of the term

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“mother factory” in the Japanese mass media is undergoing a change. Initially, it was referred to as “a unit that continuously supports overseas factories as a technology center,” but it gradually came to describe the state of “domestic factories that try to lead overseas factories.” Simultaneously, support to overseas factories was considered to be the function of the mother factory initially; however, this gradually changed to product development, product prototyping, production technology and process development, and mass production ramp-up to differentiate itself from overseas factories.

Usage of the Term “Mother Factory” in the Japanese Academic Research

Next, we will examine the usage of the term “mother factory” in the Japanese academic research. We conducted an article search and full text search of the keywords “mother factory” on the Japanese

![Figure 2. The number of academic article/books on “mother factories”](image-url)
academic paper search engine “CiNii Articles” and found the number of papers that were not magazine articles. Similarly, we also conducted a search of texts using CiNii Books. The results of these searches are shown in Figure 2. As can be seen, the term “mother factory” was commonly used in texts around the same time as it did in the Japanese mass media articles. A summary of how Japanese academic research has used the term over time is provided below.

From 1990s to 2000s

The term “mother factory” began to be used in the Japanese academic research in the late 1980s, although the term was not clearly defined until the late 1990s. Representative research that defined the term “mother factory” was conducted by Yamaguchi (Yamaguchi, 1996, 1997, 2006), who clarified the function of mother factories by defining them as “a large-scale organizational unit in a parent company that serves as the hub for its technology transfer strategy by accepting overseas personnel, conducting training, and developing manufacturing technologies that are easy to implement overseas.”

For example, Yamaguchi (1996) noted the functions of mother factories as “the transfer of production technology from headquarters,” “dealing with problems at overseas factories,” “development of human resources that constitute the core of management in overseas factories,” “training of overseas employees,” and “facilitating the introduction of new products to overseas factories.” In addition, Yamaguchi (2006) compared mother factories in Japanese companies with those in their non-Japanese counterparts to identify the activities associated with the functions of mother factories that were specific to the Japanese companies. The results of this study revealed that mother factories in the Japanese

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12 Both these searches were conducted on August 3, 2015.
companies were more likely to engage in such activities as “developing equipment and tooling,” “dispatching staff from the mother factory,” “providing support for problem solving,” “helping improve overseas factory by accepting staff members,” and “understanding the conditions at overseas factories.” Based on this, Yamaguchi (2006) asserted that support by mother factories in the Japanese companies was continuous rather than a one-time transfer of knowledge.

This aspect of “continuous support” was also noted in Japanese academic research in the 2000s (Kondo, 2004; Morita, 2001; Nakamura, 2007; Nakayama, 2003; Yasumuro & Westney, 2001). Japanese companies tend to concentrate authority, resources, and competencies at their corporate headquarters (Kim, 2013, 2015; Mukai, 2015; Oki, 2013). Particularly, with regard to production, because domestic factories are usually superior to overseas factories (Fukuzawa, 2015), Japanese companies tend to transfer their superior domestic production system to overseas factories (Oki, 2012). Thus, Japanese academic research has tended to focus on the function to support for “weak” overseas factories and has called the units that provide such support “mother factories.”

Since 2010

Studies in recent years have also focused on the “continuous support function” of mother factories, discussing changes in mother factories from the perspective of “how they provide continuous support.” Suh (2012) analyzed Toyota Motors Corporation and indicated that the mother factory system in Toyota underwent a historic transformation; Toyota has created an organization that supports mother factories. In addition, Oki (2015a) indicated the case of Minebea Co., Ltd., to clarify that it is possible for a domestic factory to act as a mother factory in supporting mass production activities in overseas factories, even after ceasing their own
production activities. Furthermore, some have noted the possibility that an overseas factory could act as a mother factory in supporting other overseas factories (Machikita & Ueki, 2013).

The consistent focus of the Japanese academic research has thus been on the mother factory as “a unit that continuously supports overseas factories” and the change in its methods to support overseas factories. Indeed, the Japanese academic studies have also discussed the aspect of mother factories as “units that have differentiated functions from overseas factories” (Lin, 2009; Nakamura, 2007; Yanai, 1996). However, even these studies have considered the function of supporting overseas factories, noting that the functions of mother factories in Japanese companies include “capabilities in developing human resources” (Yanai, 1996; Lin, 2009) and “capabilities in continuous transferring” (Nakamura, 2007). This trend differs from that followed by the mass media.

Usage of the Term “Mother Factory” in the Non-Japanese Academic Research

Finally, let us examine the usage of the term “mother factory” in the non-Japanese academic research using a search13 of Google Scholar for the terms “mother factory” and “mother plant’ + multinational.”14 The first search term yielded 221 hits in articles and books while the second yielded 261. Of these articles and books, we selected those written by researchers belonging to organizations outside of Japan. Because searches of Web of Science/Knowledge and EBSCO resulted in only a few hits, one can safely say that the term “mother factory” is not frequently used in the non-Japanese academic research.

13 This search was conducted on August 3, 2015.
14 We added the word “multinational” because a search of the term “mother plant” only produced hits of agriculture-related research.
The timing of the first usage of “mother factory” in the non-Japanese academic research is uncertain. Only 46 hits of the term predate 1990, and none of these hits appeared in articles on multinational business management. “Mother factory” first began to be used in the non-Japanese academic research around 1990, which clarified the activities of Japanese companies’ domestic plants. Below is a summary of the non-Japanese academic research from 1990.

1990s

Florida and Kenny (1991) were one of the initial non-Japanese academic research that focused on the role of Japanese companies’ domestic factories. They identified the process for transferring the Japanese production system by dispatching of American employees to Japanese factories for training. However, they used the term “sister plant” rather than “mother plant” in referring to the Japanese factories.

Fleetwood and Molleryd (1992) provided an example of “mother factory” used in the context of the multinational corporation. In their article, they noted that Electrolux had classified its organization into a mother factory and daughter factories. However, the mother factory that they mentioned was responsible for products and for receiving reports from daughter factories. Thus, the same term “mother factory” was used for sites performing a different role than that of mother factories at the Japanese companies.

The non-Japanese academic research using the term “mother factory” to describe Japanese companies’ domestic factories began to appear in the mid-1990s. For example, McCormick, Cairncross, Hanstock, McCormick, and Turner (1996) explained that Japanese companies use mother plants to transfer knowledge to subsidiaries and to continuously communicate with them.\(^\text{15}\) Moreover, Liker et

\(^\text{15}\) In addition to this study, Lewin, Okumura, Sakano, and Valikangas
al. (1999) comprehensively discussed regarding Japanese companies’ mother plants. The first chapter of their book notes that mother plants play the role of coordinating manufacturing equipment sent overseas, training employees sent to Japan from abroad, and assigning Japanese expatriates to train local employees overseas (Liker et al., 1999, p. 19). In addition, Chapters 4 and 7 describe the instructions constantly given by Japanese companies’ domestic factories to their US factories.16

The aforementioned examples indicate that the term “mother factory” has been used in the non-Japanese academic research concerning the Japanese companies since 1990s. These studies have used the term to describe the model factory of the Japanese production system and focus on the continuous support function for overseas factories. In other words, similar to the Japanese academic research during this period, the non-Japanese academic research considers a mother factory to be “a unit that continuously supports overseas factories.”

2000s

From 2000, the term “mother factory” has been used primarily in reference to the Japanese companies (Brannen & Voisey, 2012; Edgington & Hayter, 2013; Mursitama, 2011; Wilkinson, Gamble, Humphrey, Morris, & Anthony, 2001; Whitley, Morgan, Kelly & Sharpe, 2003). Furthermore, some studies have used “mother factory” or “mother plant” for the non-Japanese companies (Davids, 2004; Gamble, 2000; Lee & Jung, 2015; Vereecke, Van Dierdonck, & De Meyer, 2006; Yang, Chang, Yang, & Wang, 2011), although these are few in number.

The use of the term in the non-Japanese research in the 2000s has

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(1998), which includes Japanese researchers, use the term “mother factory” to describe domestic factories at Japanese companies.

16 Chapter 7, however, uses the term “parent factory.”
become more varied than that in the 1990s. Among research on the Japanese companies, some use “mother factory” to mean something other than “a unit that continuously supports overseas factories.” For example, a mother factory has also taken such meanings as “a unit that commercializes and standardizes manufacturing processes” (Wilkinson et al., 2001) and “a unit that controls design changes” (Edgington & Hayter, 2013). In other words, the connotation of “continuously supporting overseas factories” has weakened, even though the notion of the mother factory as “a unit that transfers knowledge to overseas factories” is still common.

Some studies of European companies also use “mother factory” or “mother plant” to mean something other than “a unit that supports overseas factories.” Davids (2004) explained that Philips attempted to establish mother factories in and outside Europe for product design, mechanization, quality control, and training in the 1960s. However, these mother factories were regional control centers for each product and not sites dedicated to the continuous support of overseas factories.

In addition, Vereecke et al. (2006) surveyed companies in Western Europe to categorize the roles of factories in their global networks. They suggested the role of “hosting network players,” which are “factories that accept visitors from other units and work with other sites on innovations.” They said that half of those factories categorized as hosting network players are described as being a “mother plant, the earliest plant in the network, located close to headquarters” (Vereecke et al., 2006, p. 1746). However, the role of the hosting network player is not that of continuously supporting overseas factories, even though it may transfer knowledge to overseas factories.

As can be seen above, studies that focus on European companies do not use the term “mother factory” to mean “a unit that continuously supports overseas factories.” Considering these studies,
including the study by Fleetwood and Molleryd (1992), the term “mother factory” as discussed in academic research on European companies has a strong connotation of being “a unit that gathers information from overseas factories.”

In contrast, studies on Korean companies use “mother factory” to mean “a unit that continuously supports overseas factories.” Gamble (2000) discussed Korean companies’ mother factories as controlling overseas sites, similar to the function of Japanese companies’ mother factories. Lee and Jung (2015) indicated that Samsung Electronics’ Gumi factory acts as a mother factory by continuously sending people to overseas factories to raise productivity and solve problems. This mother factory is certainly a unit that continuously provides support to overseas factories.

We can thus see that the meaning of “mother factory” as used in the non-Japanese research since 2000 has shifted from its original sense of “a unit that continuously supports overseas factories.” Studies on Japanese companies have begun to use the term to mean “a unit that transfers knowledge to overseas factories.” In the case of European companies, the term is used to denote “a unit that gathers information from overseas factories.” Simultaneously, studies on Korean companies have used the term “mother factory” in the same sense as in the Japanese academic research to mean “a unit that continuously supports overseas factories.”

**Conclusion**

Table 2 summarizes the above findings. The Japanese mass media initially called units that support overseas factories “mother factories,” but they eventually came to use the term to refer to units that have differentiated their functions for survival. Japanese academic research consistently has defined “mother factories” as units that continuously support overseas factories; however, recently,
it has begun to focus on the transformation of the mother factory system as well. Non-Japanese academic research initially considered a mother factory to mean a model factory for the Japanese production system and focused on the continuous support function within that definition. However, the term “mother factory” has taken on other meanings in recent years.

This study indicates that differences exist in the usage of the term mother factory—“a unit that continuously supports overseas

Table 2. Changes in the meaning of “mother factory”

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<th>1980s</th>
<th>1990s</th>
<th>2000s</th>
<th>2010s</th>
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<tbody>
<tr>
<td><strong>Japanese mass media</strong></td>
<td><strong>A unit that continuously supports overseas factories as a technology center</strong></td>
<td><strong>A unit that has differentiated functions from those of overseas factories for survival</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Japanese academic researches</strong></td>
<td>–</td>
<td><strong>A unit that continuously supports overseas factories</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>non-Japanese academic researches</strong></td>
<td>–</td>
<td><strong>A unit that continuously supports overseas factories</strong></td>
<td><strong>A unit that transfers knowledge to overseas factories (in the researches on Japanese companies)</strong></td>
<td><strong>A unit that collects information from foreign subsidiaries (in the researches on European companies)</strong></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>A unit that continuously supports overseas factories (in the researches on Korean companies)</strong></td>
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</table>
factories.” The Japanese mass media until the early 1990s, Japanese academic research, non-Japanese academic research in the 1990s, and academic research on Korean companies in the 2000s have all treated a mother factory as “a unit that continuously supports overseas factories.” In contrast, the Japanese mass media since the late 1990s and non-Japanese academic research on Japanese companies since the 2000s have de-emphasized their focus on the aspect of “continuous support of overseas factories.” One must note these disparities when using the term “mother factory.”

Acknowledgements

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Oki