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A Survival Strategy of Medium-sized B2B Enterprises in  
Japanese Machinery Industry:  
Common Strategies Found in Many Quality Enterprises

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**A Survival Strategy of Medium-sized B2B Enterprises in Japanese  
Machinery Industry:  
Common Strategies Found in Many Quality Enterprises**

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**Abstract**

For the past few years, we gathered information by interviewing management personnel in long-standing Japanese domestic medium-sized enterprises. We specifically visited enterprises in the machinery industry that specialized in B2B business. Site visits were made for a total of 38 enterprises in wide ranges of regions and categories. These enterprises appear very different at the first glance; however, from the perspective of management strategy, they were all quite similar. Similarities come from one set of common strategies found in many enterprises (=26 enterprises) regardless of region, field, or category.

**Keywords**

long-standing medium-sized enterprises, “high general versatility” products, equipments, and processes, definition of business domain, problem-based solution services, usage of knowledge and technology, and spiral of accumulation.

## 1. Problem Involved and Topic.

A perplexing phenomenon is at work in Japanese manufacturing industry today. The phenomenon includes drastic fall in domestic growth rate, unceasing yen appreciation, and overseas transfers of large-scale production facilities as a result. Ever since mid-1980s, business environment for small and medium enterprise manufacturing has been in decline for a lengthy period. Fundamental textbook-economic principles dictate a large fall in the number of small- and medium-sized enterprises under such a business environment. If those numbers were maintained, it is presumed to be a result of new enterprises replacing the old, with most surviving small- and medium-sized enterprises growing into large-scale enterprises. In reality, the number of small-sized enterprises with less than 20 employees has indeed decreased drastically. However, the number of medium-sized enterprises with 20 to 300 employees has only seen a small decrease.<sup>1</sup> In addition, the number of mid-sized enterprises has been maintained without those surviving enterprises growing into large-scale enterprises.<sup>2</sup>

The business environment for Japanese domestic manufacturing industry has considerably worsened over the years. Then how did so many medium-sized enterprises survive over the years without major scale-ups? An intriguing phenomenon was discovered while investigating the above problem.

For the past few years, we gathered information by interviewing management personnel in long-standing Japanese domestic medium-sized enterprises. We specifically visited enterprises in the machinery industry that specialized in B2B business.<sup>3</sup> Site visits were made for a total of 38 enterprises in wide ranges of regions and categories, and business fields from automobile manufacturing to electronics. Even in the same field of electronics, some enterprises manufactured cell phone parts, while others manufactured printer parts.<sup>4</sup> To be even more precise, there was an enterprise that produced printer heads, while another enterprise produced printer springs. The enterprises were spread throughout Japan and belonged to various business categories such as equipment manufacturing and mechanical processing, in addition to parts manufacturing.

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<sup>1</sup>The definition in this article essentially follows the Small and Medium-sized Enterprise Basic Act in Japan. In Small and Medium-sized Enterprise Basic Act, small and medium enterprises for manufacturing industry are defined as enterprises with stated capital under 300 million yen and less than 300 permanent employees. In addition, those enterprises with less than 20 permanent employees are defined as small businesses.

<sup>2</sup>Please refer to Kishimoto [2011a] and Kishimoto [2011b], as this phenomenon is observed in these data.

<sup>3</sup>Machinery industry specifically refers to transportation machinery, electromechanical, general machinery, and precision machinery industries.

<sup>4</sup>However, the number of enterprises visited for interview exceeds 39 with small businesses, large-scale enterprises, or B2C enterprises included. In total, approximately 100 enterprises were interviewed.

These enterprises appear very different at the first glance; however, from the perspective of management strategy, they were all quite similar. Similarities come from one set of common strategies found in many enterprises regardless of region, field, or category. Furthermore, it cannot be explained with common counter arguments such as niche strategy or differentiation strategy such as core technical competency.

Of course, not all enterprises visited have applied these strategies. In reality, 26 enterprises have been confirmed to use this set of strategies (See Chart 1), with the remaining enterprises survived by embracing other business strategies. Furthermore, the possibility of sampling bias cannot be discounted. However, 26 enterprises represent over 70% of the 38 enterprises interviewed, which is a significant percentage. This is a phenomenon worthy of closer analysis and arguments through hypothesis formulation rather than hypothesis testing. Therefore, this article will consider the following two topics:

- 1) The strategies used by many long-standing medium-sized enterprises.
- 2) How these strategies ensured the survival of enterprises over a long term.

## **2. Information Gathering and Sample Selection**

Before moving to the main topic, here let us briefly explain the method for information gathering and a concise review of existing research.

Information gathering is mainly based on results of interviews and observations made during site visits.<sup>5</sup> Most interviews were conducted by authors themselves, but transcriptions of interviews and notes taken by other researchers were also used for some enterprises.<sup>6</sup> Research was conducted on 26 long-standing medium-sized enterprises engaging in primarily B2B transactions in the machinery industry. Enterprises are considered to have maintained the medium-sized enterprise status if they have continuously operated as an independent company and generally had 20 to 300 permanent employees in Japan between 1990 and 2011.<sup>7</sup>

Managers or equivalent executive positions were interviewed, regardless of whether or not the authors were conducting the interview. In addition, guided tours of headquarters and factories were also held for some enterprises in our research. Durations for interviews and site visits vary by

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<sup>5</sup>Of course, other methods such as literature research were also used as extra references.

<sup>6</sup>For example, transcription of the interview published by NHK [2011] was used for “D. Enterprise.” However, this is the only enterprise that used publicly available recorded interview. Interviews for other enterprises were conducted by researchers we worked with on other research projects. Their interview notes and transcripts of recorded data were used.

<sup>7</sup>Some enterprises in our research have left the 20 to 300 range for very short periods of time. The sample size was considered to be more important than strict qualification for the purpose of our study.

company, but at least 90 minutes were spent on each company.<sup>8</sup>

Using interviews and site visits as the method for information gathering has two major drawbacks: insufficient sample size and sample bias. However, an effort was made to address these problems. The former problem was addressed by increasing the sample size. Interviews and site visits were conducted in 38 companies, and this number is considerably larger than typical information gathering conducted for this type of research. The latter problem was addressed by selecting enterprises in a variety of industry, region, manufactured products, and categories.<sup>9</sup> However, this sample is still very limited compared to the parent population, and the existence of bias cannot be denied. Specifically, it should be noted that the sample consists of primarily financially well-performing enterprises. The reason for such possibility of bias is because enterprises with poor financial performance typically turn down requests for interview.

Despite these drawbacks, we consider this method to be the most effective for information gathering for research involving hypothesis formulation. There are alternative methods such as literature research and other public domain materials, as well as survey research. Understanding of cases in detail and information outside of the main topic can be very effective for formulation of new hypotheses. However, in the case of small- and medium-sized enterprises, it is considerably difficult to obtain information from public domain sources compared to large-scale enterprises. On the other hand, survey research is often effective when a clear hypothesis already exists, but it is not suited for detailed information gathering without a clear hypothesis.

### **3. Blind Spots of Existing Research**

By focusing on activities of long-standing small- and medium-sized enterprises in Japan, and gathering information in detail from various industries and regions, let us determine a common pattern and observe the logic behind that pattern. The following is the summary of the research.

There is a large amount of research on small- and medium-sized enterprises in the Japanese machinery industry. However, none of such studies focused on the topic discussed in our research, to our knowledge. On the other hand, given the interest of each researcher the appearance of blind spots for this kind of research in today's Japanese academic circle is understandable.

Common research fields for Japanese small- and medium-sized enterprises in the Japanese

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<sup>8</sup>More than four hours were spent for an interview in some cases. In addition, some companies were visited multiple times.

<sup>9</sup>The enterprises selected for the research were located in eight prefectures: Tokyo, Kanagawa, Saitama, Shizuoka, Nagano, Aichi, Niigata, and Yamagata.

machinery industry are supplier system, industrial agglomeration (including cluster analysis), and small- and medium-sized enterprises (SME) research. Supplier system and industrial agglomeration research are fields of high interest for theory formulation, and there are plenty of resources available.<sup>10</sup> However, both fields focus on the system as a whole. To them, small- and medium-sized enterprises are nothing more than components of the system, and researches on SMEs were also conducted to understand the mechanism of the system as a whole. For that reason, there is a scarcity of research that focused on activity patterns of small- and medium-sized enterprises, and observations beyond their fields of interest such as supplier system or industrial agglomeration. The available research resources are not (small and medium-sized) business strategy theories, but mostly business systems theories or business relationship theories.

On the other hand, researchers interested in small- and medium-sized enterprises do exist among researchers in Japan Academy of Small Business Studies. However, vast majority of these researchers are solely interested in information gathering of individual enterprises. As such, abstract observations made on business strategies of small- and medium-sized enterprises other than venture capitals are extremely rare.<sup>11</sup> In addition, the few research papers that contain abstract analysis usually apply existing principles and frameworks of business strategy without any modification. Making abstract analysis on information gathered and formation of hypothesis is nonexistent.<sup>12</sup>

On a different note, there are cases where researchers who studied business strategies of large-scale enterprises shifting focus on small- and medium-sized enterprises as well in Japan.

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<sup>10</sup>There are many literature researches for these fields. Major industrial agglomeration researches include works by Kiyonari and Hashimoto [1997], Seki [1993], Watanabe [1997], and Watanabe [2011]. Major supplier system researches include works by Asanuma [1997], and Fujimoto, Nishiguchi, and Itoh [1997].

<sup>11</sup>At the very least, this statement is true for business strategy theories. For example, Watanabe [2008] examined academic papers and literatures up to 2006, such as SME Edition “Research on Japanese SME”, “Research on Japanese SME 1980-1989”, SME General Structure Edition “Research on Japanese SME 1990-1999”, and Osaka University of Economics SME Business Research Department’s “SME Quarterly Journal” in order to gather information for their research topics. Academic papers and literatures used for this research surpass 20,000 in number. However, none of these sources were in the field of “business strategy.” In addition, government-owned Shoko Chukin Bank, Ltd has awarded “SME Research Awards” for authors in SME research since 1976. There are authors who used SME business strategy being awarded for venture capital enterprises (for example, Ohta [2008]), but none for long-standing enterprises. There are few researches that did not have business strategy as the main topic, but briefly discuss it. However, these studies only use business strategy as a case study, and no abstract analysis was made (for example, Yoshimi [2009])

<sup>12</sup>Inoue [2008], Inoue [2009], and Suematsu [1972] fall into this category. These researches make analysis by apply positioning school of frameworks and German economic theories. However, SME researchers who made abstract analysis on information gathered and formed hypothesis are do existent. Unfortunately, most of these researchers focus on business systems theory rather than SME business strategy. A prime example of this is Yukio Watanabe. Watanabe is one of the very few researchers who conducted interview research and site visits just like authors of this paper, and attempted abstract analysis on information gathered. However, as it can be seen in works such as Watanabe [1997] and Watanabe [2011], his main focus is in industrial agglomeration or industrial division structure. His major literary works also focus on mechanisms like “wholesaler transactions” or “convex social division structure.”

However, the interest and effort of these researchers were somehow directed towards supplier systems.<sup>13</sup>

For Japanese domestic small- and medium-sized enterprises in the manufacturing industry, there are few widely known theories even though these are not based on academic experimental studies. Examples of such theories are: “possession of scientifically advanced technology” such as ultra-precision processors as the source of competitive advantage; “Ability to meet customer demands” such as delivery date or customized products; “high productivity” of enterprises; and the reason for long-standing survival as “constant positioning in niche market.” These theories will be further explored in the next chapter and Chapter 7.

In any case, for research on business strategies of long-standing Japanese domestic small and medium enterprises, studies using inductive hypothesis formulation for analysis after information gathering are nearly nonexistent. In other words, there are no hypotheses that can be used for hypothesis testing in the current situation.

#### **4. Common Strategies Found in Many Quality Enterprises**

Taking the current situation into consideration, we begin our analysis with the intention to analyze the following hypotheses. These hypotheses are formulated based on the result of information gathering through interviews and site visits of 38 enterprises (especially the 26 enterprises that were considered to employ the common strategies). Due to the space constraint, this research paper only explores the abstract hypotheses formulated, and individual cases are being used only to assist the understanding of each hypothesis.

Out of a total of 70 long-standing Japanese B2B medium-sized enterprises interviewed in the machinery industry, 30 enterprises employed the following strategies.

##### **(A) Corporate Strategy**

- The enterprise achieves long-standing survival by focusing on the long-standing survival of one single core business.

\*The enterprise does not achieve long-standing survival by possessing multiple business operations, or shifting to other business operations as current operation move into a decline.

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<sup>13</sup>A prime example of this is the leading expert in Japanese business strategy theory, Hiroyuki Itami. Itami has released Itami [1984], which became the pioneering study for Solution Based View in business strategy theory. Later he co-authored supplier systems theory studies (for example, Itami, Kagono, Kobayashi, and Sakakibara [1988]) and industrial agglomeration theory studies (for example, Itami, Matsushima, and Kitsukawa [1998]).

(B) (Core Business) Business Domain

- The enterprise establishes a business domain by focusing on “high general versatility” product parts, equipment, and processes.

\* The enterprise does not establish its business domain from the perspective of “long-standing niche market.” However, the enterprise may eventually end up in the “long-standing niche market,” but that is not always the case.

(C) (Core Business) Method of Differentiation

- The enterprise differentiates its products and services from the competition by providing “problem-based solution services” at a reasonable price.

\*“possession of scientifically advanced technology,” “ability to meet customer demands,” and “high productivity” are necessary or are one of the reasons for the above differentiation, but these in themselves are not the main method of differentiation for the enterprise.

(D) (Core Business) Value Chain

- The enterprise does not only manufacture the products or offer services, but also committed to product development. In addition, the enterprise is also dedicated in sales and marketing.

\*The enterprise does not only manufacture and subcontract other works.

(E) Business Strategy Duration

The enterprise does not necessarily have to continually employ the above business strategies for 20 years, but has employed a single business strategy for a long period of time.

\*The enterprise does not ensure long-standing survival of its core business by temporarily employing different strategies.

(B), (C), and (D) will require further explanations using case studies.

By “high general versatility” product parts, equipment, and processes, we mean products and services that have potential for use in multiple industries. Precision springs are a prime example of such products. Precision springs are used not only in watches, but also in printers, cell phones, and even in ballpoint pens and even in catheters for medical use. However, the general versatility of such product parts, equipment, and processes vary depending on how the enterprise defines its business domains. If a precision spring manufacturer defined its target market as “clients that use precision springs,” then clients other than the watch industry would be able to use the product. On the other hand, if the enterprise defined itself as “an enterprise that manufactures parts for watch,” then its general versatility would be lost. “General versatility” is greatly influenced by defined business domains.



As for (C), every client has multiple needs for every products and services. These needs are broadly divided into two types:

- (i) “Common needs by clients and orders for a product”
- (ii) “Unique needs for each client and order”

Using precision spring as example again to explain, “a certain tension” would fall under (i), while needs such as “springs that does not cause ink leak for ballpoint pen” would fall under (ii).

In B2B transactions, fulfillment of needs (ii) often leads to solution of client’s problems. There two approaches to fulfill needs (ii):

- ( $\alpha$ ) Segment the product lineup in advance for different uses.
- ( $\beta$ ) Discover problems after exchanges with clients, and build up lineup to solve the problems.

Basic stance for the seller in approach ( $\beta$ ) can be further split into two approaches:

- ( $\beta$ 1) Passive problem to customer needs.
- ( $\beta$ 2) Manufacturers assertively provide solution to problems.

We will refer to ( $\alpha$ ) as “make-in-advance”, ( $\beta$ 1) as “problem-based”, and ( $\beta$ 2) as “assertive” type solution approaches. The services that fulfill (ii)’s needs by approach ( $\beta$ 2) would be referred to as “problem-based solution services”.

Using precision springs as an example again, strategy (C) mentioned earlier would be an enterprise that did not obtain cell phone spring orders through reasons such as cheaper price, ability to meet deadline, product qualities, or high-precision processing technology. Rather, the orders are made because the enterprise fulfills customer’s unique needs such as “Make the phone slide smooth and have visually pleasing design, but still have few defects...” for a reasonable price. In addition, if their approach to solution of needs is still “problem-based”, they would fall under (C). Furthermore, if the enterprise received additional orders without unique needs as an exchange for fulfilling detailed and unique needs as described above, they would also be considered as (C) case. In reality, there are many such “exchange” barter cases.

Finally, regarding (D), this research paper uses the terms “product development” and “marketing” in a broad sense. “The enterprise adding new structural designs and changing the designs of its existing product lineup” is considered to be “product development”. Furthermore, “design” here also includes process designs in addition to product designs. For example, an enterprise processing wire rods into spring shapes must make decisions related to design. These decisions include what functions the springs would have (function design), what shape they would be (structural design), what kind of process would be used to manufacture (process design), and what kind of operations will be completed in what order in each step of the process (operation design). To be considered to

be deeply committed to product development, the seller (small- and medium-sized enterprises) must be conducting such product development for their business activity on a regular basis.

On the other hand, marketing refers to “all activities involving contact with clients”. This refers not only to pursuit of new clients, but also activities that improve relationship with existing clients. In addition, visiting clients in their own offices and activities aiming to bring clients to the company are included. Exhibition of sample products held in the manufacturing enterprise is a prime example of the latter. To be considered to be deeply committed to marketing, the medium-sized enterprises must be conducting such activities on a regular basis.

## **5. Logic behind the Long-Standing Survival**

In our observation, we have reached the conclusion that the above strategies are very rational strategies for the long-standing survival of enterprises without expansion of business scale. Let us list the results of our observations below as abstract hypotheses.

The 26 enterprises we have observed have all achieved long-standing survival by focusing on the long-standing survival of one single core business. For these enterprises to achieve long-standing survival with corporate strategies:

- (a) Core business must maintain lasting competitive advantage.
- (b) Core business must remain successful enough for survival of the enterprise.

These two items are absolute necessity.

*(a) How are lasting competitive advantages maintained (for the core business)?*

As (C) and (E) in the previous chapter may suggest, the 26 enterprises we observed all maintained their competitive advantages by providing “problem-based customer solutions” at a reasonable price to differentiate themselves. Therefore, the question “how these differentiations are maintained” must be answered to answer the original question. However, “the reason these enterprises can offer ‘problem-based solution services’” must be considered first to answer that question. We now consider this first.

In fact, the common strategies other than (C) are major reason for making “problem-based solution services” possible.

To offer “problem-based solution services”, enterprises obviously must understand unique needs in client orders, and must accurately communicate the unsolvable problems to clients. This can only be achieved if the company is deeply committed to marketing.

On the other hand, deep commitment to product development would be an essential action by the

enterprise to maintain problem (unique needs in orders) solutions. Indeed, “how” to change “one of” the product’s function, structural, process, and operation design would vary on a case-by-case basis. However, there is no guarantee that “one of” the change in design in is going to solve the problem. In this regard, it should be easily understood by thinking about the nature of detailed unique needs in orders. It is considered to be a problem because existing products’ functions, structures, processes, and operations cannot address it.

Fortunately, not all designs are constructed from scratch. Some designs have shared product development, product knowledge, and technology. Product knowledge and technology mentioned here are cases like “it is possible for us to manufacture this part in this product design, using this process, with this operation, and the product’s this part can have these shapes and functions, and certain cost target or deadline can be met,” to be specific. They point to the knowledge and technology that enable causal association between manufacturing methods (product design and process design) and services provided.

Such knowledge and technology are typically accumulated through experience in past experience of orders that required changes in partial designs. The existence of delivery deadlines and strong pressure of uncertainty in daily operations - - such knowledge and technologies required to solve problems are highly sought. Furthermore, knowledge and technologies are obtained through the unrelenting effort to deliver services.

The strategies (B) and (E) are vital for efficient application and effective accumulation of the above knowledge and technologies. The enterprise establishes a business domain by focusing on “high general versatility” product parts, equipment, and processes. By continuously employing strategies (A) to (D), the enterprises can make more accumulated knowledge and technology available to solve problems (unique needs in orders), thereby raising the probability of problem solution. Here again, let us look at an example we once discussed before: the precision spring manufacturer. This company established its business domain as clients using high general versatility products, providing problem solutions. This is why even for solutions for a cell phone maker’s order: “make the phone slide smoothly...” can be effectively handled by using part of the knowledge and technologies accumulated from orders for printer spring or other cell phone’s springs in the past. Past solutions can be applied because these are all spring-related problems. Unfortunately, not all problems can be solved using existing knowledge and technologies. For that reason, new knowledge and technologies are accumulated after solution of problems and delivery of services. Since strategies (B) and (E) were employed, the probability of knowledge being applicable increase for solutions of more advanced problems for the next order. If the next order was for medical (catheter)

spring, it would still be a spring-related problem. Thus, the probability of knowledge and technologies gained from slide cell phones being applicable would be high.<sup>14</sup>

By employing the common strategies listed earlier in daily problem solution process, efficient use of knowledge and technology, and effective spiral of accumulation that are required for solution of problems in the enterprise's product parts, equipment, and processes will be made possible. As a result, "problem-based solution services" for increasingly difficult problems can be offered as the time passes.

From the above observation, it can be said that there exists a significant advantage for forerunners, in their ability to offer "problem-based solution services" in products, equipments, and processes for a reasonable price. The enterprises that employed the above common strategies earlier will always be steps ahead of enterprises that employed the strategies later. In addition, such advantages can be maintained as long as the strategies are kept. This is the main reason for lasting differentiation.

Meanwhile, it is possible for a new enterprise to employ the common strategies, and provide solutions to more problems. In such cases, the competitive advantages held by forerunners can be lost. However, many enterprises have barriers to adaptation of the common strategies, or reasons that reduce incentives of adaptation. We cannot go too far into depth due to space constraints, but for example, enterprises in developing countries have competed by employing the strategy of fulfilling common needs by clients and orders for a lower price. Their competitive advantage is gained by employment of that strategy, and their incentives for attempting the strategy of differentiation by fulfilling unique orders are low. Western enterprises often compete by fulfilling detailed and unique needs, but it is common for them to take the "make-in-advance" approach. There are also many Western clients seeking such services, so their incentives for "problem-based" approach are low. On that note, the common strategies listed earlier are also not suitable for large-scale Japanese enterprises. We will explore more into the reason later, but it is difficult for large-scale enterprises to employ such strategies due to structural issues of the organizations. On the other hand, long-standing Japanese medium-sized enterprises can be expected to have employed these common strategies, but each enterprise focuses on different products, equipments, and processes. An attempt to change products, equipments, and processes would mean the abandonment of current strategies. Thus, it is rarely attempted.

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<sup>14</sup>For the sake of simplicity, we have used two different products for orders for our example. In reality, there is an overwhelming ratio of cases where same products are handled, but problems are different. However, changes in product itself do exist.

*(b) The reason maintaining successful core business leads to survival of the enterprise.*

Even if an enterprise establishes a competitive advantage, it cannot achieve long-standing survival unless there is also a certain amount of demand for that core business. However, when the above strategies were employed, the probability of maintaining long-term demand is high. There are essentially two possible reasons to explain it.

The first reason, to be specific, is the nature of the strategy (B) itself. Because the enterprise sets clients of “high general versatility” product parts, equipments, and processes as its business domain, it would not be vulnerable to fluctuations of an industry’s life cycles and demands from a region. In reality, the precision spring enterprise in our example began as a supplier of springs for watches to major accounts in their own region. As demand for it declined, the enterprise shifted to manufacturing of springs for printers, cell phones, pens, and medical uses (catheters). In addition, it maintained sales revenue by expanding its client base to other regions in Japan, and overseas.

There are usually technological problems for industry shifts, but when the enterprise employ the common strategies, “efficient use of knowledge and technology, and effective spiral of accumulation that are required for solution of problems” will be made possible, so it is hard to conceive insurmountable knowledge or technological barriers. The spiral of accumulation should also exist to a certain extent between different industries.

However, even if the above industry and client transfers are possible, they would run out of options if the demand for “problem-based solution services” ceased for the economy as a whole. But this is highly unlikely because creative activities such as development of new products and innovation are unceasing in the society as a whole, and maintains a certain scale of business. There are two external reasons for this assumption.

Development of new products and innovation always involve some form of new design (product design and process design). However, not everything is constructed from scratch. Most new designs are based on existing products, equipments, and procedures. In fact, most development of new products and innovations do not involve brand new creations. It can be said that customization of existing products occupy the vast majority of all new designs. Therefore, unique needs by clients for “high general versatility” product parts, equipment, and processes will continue to exist. For example, “make the phone slide smoothly...” in chapter 4 was a problem incurred from an order for a new slide cell phone. To be even more specific, “springs that does not cause ink leak for ballpoint pen” was a need that must be fulfilled in creation of a new ballpoint pen that used neither oil-based nor water-based ink, but a “neutral” ink.

Of course, these needs can be fulfilled by “make-in-advance” approach rather than

“problem-based” approach. However, neither approach is absolutely better than the other. They have their own pros and cons, so is “problem-based” approach even necessary? Usually, Western manufacturers of assembled products are said to employ the modular approach, while Japanese manufacturers employ integral approach in product designs. In theory, “make-in-advance” is appropriate for integral designs, and “problem-based” is appropriate for integral designs. However, the slide cell phone order in the example above was made by a Western client. Furthermore, it was an international corporation.

## **6. Potential for B2B Manufacturing Industry as a Whole**

Thus far, we have only examined case study in the precision industry until this chapter for explanations. However, the common strategies and logic behind long-standing survival has potential to be applicable in the entire manufacturing industry, at least in the B2B business.

The fact that the enterprises we have determined to have employed the common strategies have relatively diverse business domains (see Appendix Table 1) may support the above statement. Unfortunately, our sample size is still too small, and the possibility of subjectivity cannot be discounted, so it is insufficient as evidence. However, the evidence for the potential we assert is not based on insufficient facts. The following is our logical analysis.

A detailed explanation should not be necessary for parts manufacturing as a whole, regardless of industry or region. The common strategies and logic would be applicable to manufacturers that satisfy the condition in Chapter 4 and 5, “the enterprise defines its business domain as clients that use “high general versatility” product parts.” Even if it is a large spring, ultra-precision gear, or traffic mirror manufacturer, instead of a precision spring manufacturer.

So, the problem is not parts manufacturers, but whether it would also apply to other service providers such as polishers, heat processors, and assemblers, as well as industrial machinery manufacturers of engineering machinery, FA equipment, and other tools. By considering these industries from “final product value chain” standpoint, the possibility of application begins to emerge.

Indeed, there are differences between each industry from “final product value chain” standpoint. Parts manufacturers and manufacturing service providers handle different products and the number of operations responsible would differ. Using two enterprises that handle watch gears, a cutting processor would be responsible for cutting operation of the gears alone in the gear manufacturing process, but it will probably handle other parts manufacturing operations that require cutting process. On the other hand, a gear manufacturer would only produce gears, but it would be responsible for all

operations required in gear manufacturing. On a different note, industrial machinery manufacturer and operation service providers in parts manufacturing would operate in different locations. Even for watch gear operation processors, gear manufacturers and cutting processors, would conduct cutting operations in their own factories. However, if the manufacturer uses machine tools like lathe, gear's cutting operation would occur in the factories of clients who purchased the machinery.

However, all enterprises have one thing in common despite differences: being part of the value chain for the final product. Using the previous example, the gear manufacturers, cutting processors, and the lathe processors are all common in that they are part of the value chain for watches.

This commonality supports the potential. The common strategies are applicable across industries. In other words, these strategies can be used across the value chain. As such, it is not limited in parts manufacturing industry, but is also possible in operation service providers and industrial machinery manufacturing industries. For example, it is theoretically possible for the enterprise to “define its business domain as clients that use “high general versatility” products” as clients that require contamination detectors, comb-shaped lathe, or ultra-precision cutting operations.

## **7. Ideas and challenges.**

Finally, let us now list a few suggestions and remaining problems as secondary analysis. Four ideas were derived from observations in this research paper.

First, there is the possibility that many enterprises may have achieved long-standing survival by employing these sophisticated business strategies. Some SME managers responded, “We do not have any set of business strategies.” In fact, some enterprises in 26 companies interviewed that employed the common set of strategies for this study gave similar responses. However, these words cannot be taken literally. It is true that some business strategies are not consciously employed by these managers. However, “whether or not their business activities (such as profit maximization or long-standing survival) result in actual business strategies (such as positioning or resource accumulation)” is not a matter of their conscious decisions. By analyzing from a third-person perspective, at least 26 companies observed in this research have employed very sophisticated business strategies. In addition, the common strategies employed by these 26 companies employed business strategies that led to long-standing survival without expansion of business scale. It is a set of business strategies rarely seen in large-scale enterprises. We have stated in Chapter 2 that abstract hypothesis formulation made by information gathering on business strategies of small- and medium-sized enterprises were blind spots in research. The suggested idea above further emphasizes the importance of such research projects.

Second, there is the possibility of common business strategies found in multiple regions, and categories, and business fields. The existing theoretical researches for SMEs are mainly for supplier system and industrial agglomeration (cluster analysis). Such types of research tend to limit themselves in a single industry or region. But this possibility suggests the importance of researches that would encompass multiple industries and regions.

It should be noted that such types of research should focus on business strategies of individual enterprises as an industrial theory research over agglomeration researches such as business systems theory. In addition, industrial theory research may bring new lights to business systems theory. All business systems are made up of enterprises and business relationships. However, existing business systems theories mainly focused systematic activities by large-scale enterprises or business relationships of multiple enterprises. On the other hand, business activities of SMEs were neglected for the most part. These are reasons for the necessity of future research in SME business strategy theories.

Third, source of competitive advantages for Japanese manufacturers must be interpreted using means other than commonly accepted theories. This is not to say the commonly accepted theories are wrong. However, there are things that cannot be explained using these theories alone.

At the very least, it can be said for the 26 companies observed, as the analysis made in previous chapters show. To elaborate: the “ability to meet customer demands” such as delivery date or customized products; “possession of scientifically advanced technology” such as ultra-precision processors as the source of competitive advantage; “high productivity” of enterprises; and the reason for long-standing survival as “constant positioning in niche market” may not have been the required conditions for long-standing survival according to commonly accepted theories. However, those were not the actual sources of lasting competitive advantages. In fact, the lasting competitive advantages were maintained by ‘continuously providing problem-based customer solutions’ at a reasonable price.” Furthermore, the commonly believed causes are the eventual results rather than conditions for the long-standing survival. All these competitive advantages should be naturally gained by employing common strategies (A) to (E).

Of course, we are aware that our study is only a case study. However, the need to re-evaluate commonly accepted theories using long-standing medium-sized enterprises not observed in this research is apparent.

Fourth, there is the possibility of better than expected positive division of labor between large-scale enterprises and SMEs in Japanese machinery. To be specific, large-scale enterprises handle new product development and innovation in basic designs of product function, structure,



value chain, or production process. SMEs handle detailed designs for product parts, equipment, and processes. It should be apparent that SMEs fulfill their functions by providing “problem-based solution services” for a reasonable price.

Large-scale enterprises and SMEs were not considered to have such a positive relationship in common business theories. The term that represents this best is “niche”. Large-scale enterprises can enter niche markets, but they do not because such markets are not financially attractive. The SMEs handle that unattractive market. It can be said that the term “niche” has implicit division of labor in economy as a whole.<sup>15</sup>

Of course, there is room for even more positive relationship in division of labor. For example, a relationship known as “approval plan” transaction is a prime example in his research of the automotive industry.<sup>16</sup> “Approval plan” transaction, in layman’s terms, is a transaction relationship where suppliers handle part of the product design. However, only division relationship in certain supplier systems and regions are addressed in supplier systems and agglomeration theories. Those theories did not envision a situation where a country’s machinery manufacturing industry being supplied by SMEs, through “problem-based solution services” with “high general versatility” product parts, equipment, and processes, for multiple products and industries.<sup>17</sup>

Unfortunately, it would be difficult to maintain the costs of detailed design for each product part, equipment, and process (in other words, problem solving) as enterprises scale-up, if such division relationship were to spread to the entire economy. However, this division relationship seems to exist in reality.

The fact remains that at least one more condition must be met for enterprises to provide high quality “problem-based solution services” at a reasonable price, and this condition is something other than common strategies discussed in this research paper. This condition is daily, yet extensive interaction between marketing, product development, and production. Even if the sales and marketing department accurately comprehend client’s unique and detailed orders, the client’s problems cannot be solved unless the information reaches product development or production

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<sup>15</sup>For example, Penrose [1959], the business growth theory author, has discovered the existence of this division of labor relationship in capitalist societies by expanding business growth theory logic into economic theory. In addition, he states this division relationship is the reason there are always certain number of SMEs present.

<sup>16</sup>Please refer to Asanuma [1997] for further analysis.

<sup>17</sup>Watanabe [1997], it is stated that similar situation exist in Japanese machinery industry using the concept of “convex social division structure.” However, Watanabe’s observations did not focus on new product development or innovation. In addition, the focus of observation was on processing service industry alone, and lacks analysis that considered both processing service and product manufacturing industries.

departments that make changes in product design and process design. The marketing department must be also stay up to date with product development and production status in order to accurately communicate problems that cannot be solved by the company, to the client.

Due to the limited number of employees, SMEs must have relatively horizontal organizational structure, and there is no need to add vertical chain of command. In addition, SMEs do not need to, and cannot divide job functions as specifically as large-scale enterprises. However, as enterprises scale-up, the organizational structures will naturally stratify, subdivide, and become specified due from operational performance issues, as described by organizational theory research led by Chandler [1962] suggest. Unfortunately, change in organizational structure creates difficulty in daily, yet extensive interaction between departments. This is the greatest reason why large-scale enterprises cannot employ the set of common strategies mentioned in this study.

Although few ideas and suggestions for future researches were made, this research paper is still incomplete as theoretical research paper. The sample size must be increased, hypotheses require further testing, and analyses formulated in this research must be compared to other studies, especially their relationships with business strategy theories of large-scale enterprises. There are many more topics that require further study.

Further elaboration of hypotheses is imperative over all else. The logic behind the common strategies as a cause for long-standing survival clearly requires additional explanations. Specifically, the common strategy set's barriers to enterprises other than Japanese medium-sized enterprises, and causes that reduce the incentives of its employment need elaboration. "How can enterprise shift to other clients and industries" is another question that requires further exploration. For example, an enterprise that relied on a specific client for majority of its sales would require a significant innovation to gain new clients, even if products and services offered stayed the same. Unfortunately, we did not have the opportunity to discuss this type of dynamic changes.

There are other hypotheses that require further elaboration. "Categorization of enterprises that employ the common strategies" is one of such hypotheses. This study only focused on commonalities as an introductory research. Although the 26 companies observed share many common traits in business strategies, it must be possible to further categorize them in smaller patterns. "Why the common strategies cannot expand the scale of core business" is another question that must be answered. One of the most interesting phenomena observed in this study is the fact that enterprises achieved long-standing survival without scale-ups, but needless to say, that observation alone is insufficient analysis of the phenomenon.

Finally, medium-sized enterprises that achieved long-standing survival also require a thorough

analysis. With that in mind, B2C enterprises and manufacturing enterprises other than those in the industrial machinery industry must also be considered for our study. The purpose of such research is to conduct a comparative analysis by reversing the argument to further understand this topic. However, the existence of enterprises that achieved long-standing survival is the greatest reason for such research. In enterprises we interviewed, some “possessed multiple core businesses, and shifted to other businesses as one went into decline”, yet these medium-sized enterprises managed to survive for over 100 years. We have also conducted interviews with B2C medium-sized enterprises, and these businesses employed business strategies similar to the common set of strategies discussed in this study, but their business domain was not defined as “clients that use “high general versatility” product parts, equipment, and processes.” There are a couple of such enterprises that achieved long-standing survival. It may be an obvious fact, but there is more than one survival pattern.

Chart 1: The enterprises determined to have employed the common strategies and their business domains (26 companies)

Parts (9 companies)		Equipment (9 companies)		Processing (8 companies)	
Company A	Large spring	Company J	Comb-shaped lathe	Company S	Ultra-precision pressing
B	Ultra-precision molded gear	K	Wood / non-metal machine tool	T	Precision sheet metal
C	Shaft	L	Ultrasonic equipment	U	Large metal casting
D	Traffic mirror	M	Wet-blast surface processing equipment	V	Deep drawing/pipe bending press
E	Precision spring	N	Cylindrical grinding machine	W	Stainless/vacuum processing
F	Carbide tool	O	Powdering equipment	X	Electrical/ laser processing
G	Centerless grinding machine	P	Wood / non-metal machine tool	Y	Carbide precision processing
H	Rubber molding	Q	Contamination detector	Z	Electrical processing
I	Roof attachment tool	R	Vertical grinding machine		

(Note 1) 26 out of 38 companies researched employed the set of common business strategies.

(Note 2) The business domain of each enterprise was determined through author's interview and site visits.

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