

## Growth Mechanism to the "Global Niche Leader": Comparison Study of Japanese and German Companies

Masanori Namba

Ritsumeikan Asia Pacific University, Beppu, Oita, Japan

**Abstract**--Small and medium-sized enterprises ("SMEs") around the world are attracting attention as sources of employment and economic growth because, amid the economic downturn after the recession stemming from the financial crisis of 2008, SMEs- medium-sized companies in particular-revealed their resistance to economic shocks.

Among SMEs, there is a group of companies that has maintained the top position in a specific global market for many years. They are called "Hidden Champions", "Global Niche Top" and "Born Global Companies". In this article, I define them as "Global Niche Leaders".

Among these companies, Germany's "Hidden Champions", have been making significant contributions to that country's economic growth by expanding exports much like their larger counterparts.

The value of German exports in 2012 reached nearly twice that of Japan's, placing third in the world behind China and the United States.

However, although the existence of Hidden Champions and GNT companies attracts attention, their growth mechanisms are not fully understood.

In this paper, I aim to clarify the growth mechanisms of Japan's GNT companies and Germany's Hidden Champions.

### I. INTRODUCTION

#### A. Background and Significance of This Research

It has been pointed out that medium-sized enterprises that lead the pack in terms of global markets (i.e., Hidden Champions<sup>1</sup>) form the basis of Germany's consistently outstanding export earnings.

In Japan and the United States, the top 10% of companies account for 90% of exports, but in Germany, these companies account for only 70% of exports, which reveals the extent to which medium-sized enterprises contribute to exports.

Among Japan's SMEs (i.e., companies with less than 300 employees), only 2.8% directly export their own goods, but in Germany, 20% of companies with fewer than 250 employees are engaged in direct exportation.<sup>2</sup>

Japan's Global Niche Top companies ("GNT companies") are close in nature to Hidden Champions.

The methodology used is a comparison study based on case studies gathered by interviewing senior executives about the path their companies have taken from foundation to their

current top global position in view of technology management with a particular focus on innovation creation and the appropriability of innovation.

Then commonalities among these companies are abstracted and then transformed into models.

The subjects of research are seven Japanese and four German companies that are called Global Niche Top and Hidden Champions respectively.

#### B. Definition of Terms

**1. GNT (Global Niche Top) products** refer to products that consistently rank at or the near the top of their field in terms of world market share. In this paper, I use the term to refer to products manufactured not only by Japan's GNT companies, but also by Germany's Hidden Champions. I define GNT companies as those companies that possess GNT products, but I will refer to the German companies I surveyed as Hidden Champions.

**2. Innovation** is defined as the commercial application of something new by a company.

**3.** Innovations that are progressive and continuous and have little immediate impact on society or customers are defined as **incremental innovations**, while innovations that are rapid and discontinuous and have a major impact are termed **radical innovations**. Furthermore, radical innovations can be divided into two types:<sup>3</sup>

- (1) Innovations that possess heretofore unseen functional characteristics;
- (2) Innovations that provide significant (5-10x) improvements in known features or significant (30-50%) reductions in cost.

**4. Appropriability of innovation** refers to the ability of a company to appropriate the gains resulting from its innovation for its personal benefit.

#### C. Research Questions

For this paper, I have established the following research questions.

1. How did the companies in question take advantage of opportunities for growth and tie them to the creation of innovation?
2. How did the companies in question take the first step toward globalization, the source of increased sales?
3. What are the similarities and differences between Japanese and German companies?

<sup>1</sup> Conditions of Hidden Champions (by: Simon, H.) "Hidden Champions", 1996.

(1) Number one, two, or three in the global market, or number one on the company's continent, determined by market share.

(2) Revenue below \$4 billion

(3) Low level of public awareness.

<sup>2</sup> 2012 White Paper on International Economy and Trade, Ministry of Economy, Trade and Industry.

<sup>3</sup> Definition from Japanese translation of R. Leifer (2000), p.5.

#### D. Research Methods

1. Examine previous research: I examined the existing research to identify unresolved areas. Descriptions of previous works are based primarily on secondary information.
2. Case study comparison between Japanese GNT companies and German Hidden Champions: I visited the companies in question to conduct field surveys.
3. Case study analysis: Extraction of common and differing factors.
4. Considerations and conclusions.

#### E. Field surveys

For this study, I visited seven Japanese GNT companies and four German Hidden Champions. I selected seven GNT companies located in Kyushu from among those listed in the Ministry of Economy, Trade and Industry's *300 of Japan's Exciting Monozukuri (Manufacturing) SMEs, 2008*. The four German Hidden Champions were chosen from among those discussed in Simon's *Hidden Champions* (2009). Table 1 and 2 list the Japanese and German companies surveyed

respectively.

I conducted preliminary surveys with each company and held follow-up interviews with either the president or senior executives (The presidents of all of the Japanese companies and the president of one German company agreed to be interviewed.) Two of the four Hidden Champions have over 2,000 employees, but I included them in my comparison (a) since they were also categorized as Hidden Champions by Simon and (b) to gain an understanding of the actual situations facing a wide range of Hidden Champions.

## II. PREVIOUS RESEARCH

Simon, H. first proposed the idea of Hidden Champions [6]. The term refers to companies deemed as global market leaders according to a large-scale survey and is roughly synonymous with GNT companies in this paper.

Simon, H. conducted a follow-up survey of the Hidden Champions, further developing his argument [7]. According to him, the growth strategies of these companies are not to

TABLE 1: OVERVIEW OF JAPANESE GNT COMPANIES SURVEYED

Company	Major products	Global share	Year of GNT product development	No. of employees	Location In Japan	Founded	Incorporated
Mori Ironworks	Tire molding drums (Industrial machinery)	40%	1930	47	Fukuoka	1905	1934
Nakashimada Engineering Works, Ltd.	Press headers and formers(Precision machinery)	70%	1960	122	Fukuoka	1911	1951
Seibu Giken Co Ltd.	Honeycomb rotors (the key component in desiccant dehumidifiers)	30%	1974	200	Fukuoka	1962	1965
Nishimura Works Co., Ltd.	Compact, energy efficient dryers for wastewater treatment	100%	1987	51	Saga	1920	1945
Toa Koki Co., Ltd.	Cast cylinder liners for diesel engines on large marine vessels	60%	1950	300	Saga	—	1944
JDC Co., Ltd.	Non-scratching metal coil winders	90%	1980	14	Nagasaki	—	1968
Honda Kiko Co., Ltd.	Specialized pumps (latex pumps)	90%	1970	146	Fukuoka	1949	1951

Source: Drafted by the author

TABLE 2: OVERVIEW OF GERMANY'S HIDDEN CHAMPIONS SURVEYED

Company name	Major products	Global share	Year of GNT product development	No. of employees	Location	Founded	Incorporated
Giesecke & Devrient GmbH	Banknote paper, security printing, credit card security systems, banknote processing systems	80%	1852	8000	Munich	1852	1852
3B Scientific	Science teaching aids, medical teaching aids (birthing simulators)	20%	1950	432	Hamburg	1918	1948
Omicron Nanotechnology	Scanning electron microscopes	70%	1987	200	Taunusstein	1984	1984
ProMinent Dosiertechnik	Water treatment systems, magnetic drive pumps	70%	1968	2300	Heidelberg	1960	1960

(Omicron: Acquired by Oxford Instruments in 2011)

Source: Drafted by the author

worry about competitors, but to focus on customers and follow an original path. He also claims that all Hidden Champions "prefer direct contact with customers" and his survey shows that percentage to be 69.4%.

However, M. W. Rennie proposed the similar concept of "Born Global" in 1993 [5]. He claims that it is possible to succeed in world markets without an established domestic base by citing the case of a new breed of Australian firm.

Namba M. observed the "two-step innovation process" from commodity products companies to GNT companies in 2007 [4].

Venohr, B. and K. E. Meyer described that these companies (Hidden Champions) continue to prosper with family ownership combined with professional external management, strategies of market leadership in global niches and a persistent focus on operational effectiveness [8].

Hosoya, Y. [2] points out the following as elements of growth strategy:

- Building strong trust-based relationships with customers
- Improving development and sales capacity
- Sensing leading trends in technologies and markets
- Deepening and utilizing expertise
- Developing advanced organizational capacity and human resources

Wagner [9] defines five stages of globalization—(1) Domestic, (2) Early Stage, (3) Exporter, (4) Advanced and (5) Global—and emphasized the importance of the first step toward future growth.

Within my retrieval of the precedent documents, there is no papers which refer to the detailed mechanism of the growth process of Hidden Champions.

### III. ANALYTIC FRAMEWORK

#### A. Evolutionary pathway of GNT companies

The origins and courses of development of GNT companies are many and varied. One viewpoint through which these can be addressed is the process of evolution to GNT products in Fig. 1.

There are three potential origins for GNT companies.

1. Be a **"Born Global Company"** (BGC)<sup>4</sup>, i.e., a company that aims to be a GNT company from its inception.
2. Engage in the manufacture and sales of **specialized or custom-made products** from the time of establishment.
3. Begin manufacturing **commodity** at the time of establishment, switch to specialized or custom-made products later and evolve into a GNT company.

As shown in Fig. 1, one can anticipate that innovation

will be generated when commodity products evolve into specialized and custom-made products, and again into GNT products. The two types of innovation, incremental innovation and radical innovation are both possible at each stage.

#### B. GNT products and globalization

In Fig. 1, to carefully monitor the development of products with a potential competitive advantage in comparison to each company's timing of globalization, I examined the following items:

1. When the decision was made to focus on a certain GNT product field;

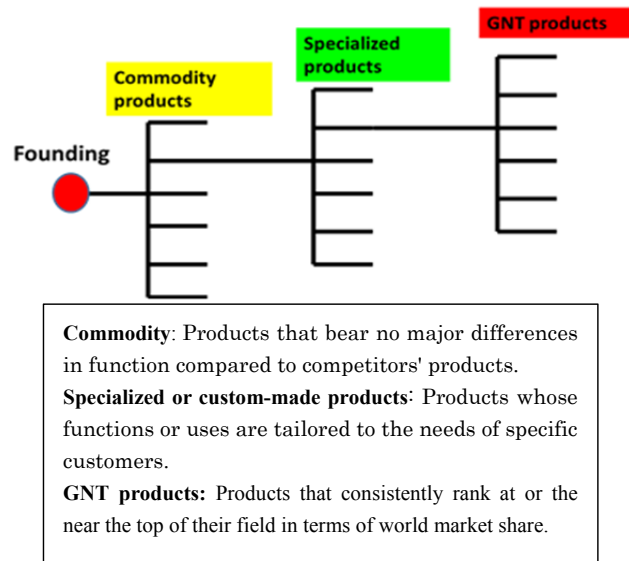


Fig. 1: Evolutionary pathway to GNT products

Source: Drafted by the author

2. When the GNT product was completed;
3. When the company began sales in the global market (i.e., exporting domestically produced goods).

### IV. RESULTS OF THE ANALYSIS

Purpose of the following analysis is to classify 11 companies surveyed in rough tendency. (It does not aim at a statistically meaningful verification).

#### A. Attributes of each company's major products

First, I confirmed the attributes of the products for each of the companies discussed in this paper. As shown in Table 3, all of the companies engage primarily in the manufacturing, processing and sales of capital goods, and none handle consumer goods. Each company possesses proprietary products and technologies as well as the capacity to design and develop products.

<sup>4</sup> "Venture businesses or SMEs that expand into international markets upon establishment or within two or three years after their founding." (From: Nakamura, Hisato. "Early Internationalization of Born Global Companies and Sustainable Competitive Advantages" (<http://www.toyo.ac.jp/uploaded/attachment/78318.pdf>).

TABLE 3: ATTRIBUTES OF EACH COMPANY'S PRODUCTS

Capital Goods	Complete facilities	Nakashimada Engineering Works Nishimura Works JDC G&E 3B Omicron ProMinent
	Sub-systems	Mori Ironworks, Honda Kiko, Seibu Giken, Toa Koki,

### B. Evolution into GNT companies

The evolutionary pathways for each of the 11 companies discussed in this paper are as follows.

1. Companies whose origins lie with commodity products: 4 (All Japanese)
2. Companies whose origins lie with specialized and custom-made products: 4 (3 Japanese, 1 German)
3. Companies whose origins lie with GNT products: 3 (All German)

### C. GNT products and globalization

Fig. 2 compiles the timing of the decision on the GNT field, the timing of the development of the first GNT products and the start of globalization (exportation) for the Japanese companies. In all cases, initial GNT product development was spurred on by one of the two types of radical innovation.

Fig. 3 shows the companies in Fig. 2 grouped by type.

**Group A:** Group with relatively early (1) decisions on GNT field, (2) GNT product development and (3) globalization start times.

**Group B:** Group positioned between Groups A and C.

**Group C:** Group with late (1) decisions on GNT field, (2) GNT product development and (3) globalization start times.

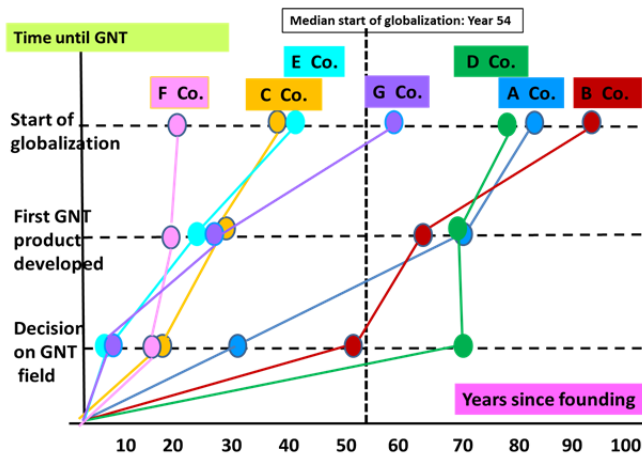


Fig. 2: Time from founding until globalization: Japanese GNT companies  
Globalization in this figure refers to companies engaging in direct transactions with foreign customers without relying on distributors or trading houses.

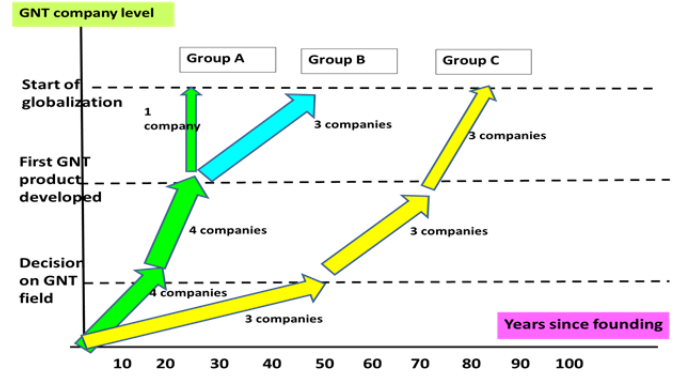


Fig. 3: Stages from founding until globalization: Japanese companies

Fig. 4 illustrates these same trends for the four German companies. The German companies generally tend to internationalize even earlier than the Group A Japanese companies, making them similar to Born Global Companies that expand globally soon after establishment.

Fig. 5 shows the companies in Fig. 4 grouped by type.

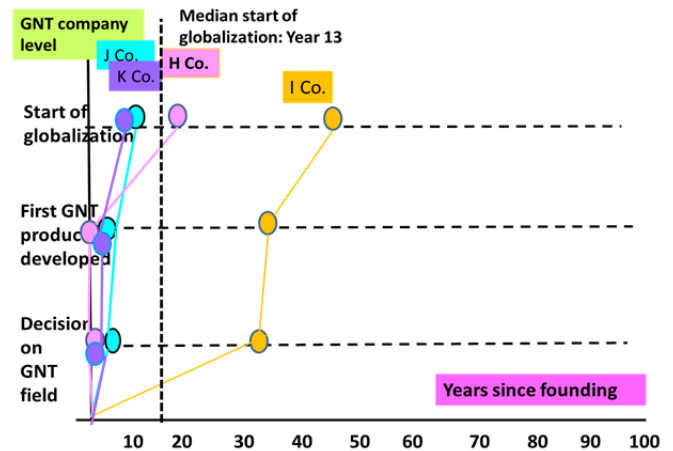


Fig. 4: Time from founding until globalization: German companies

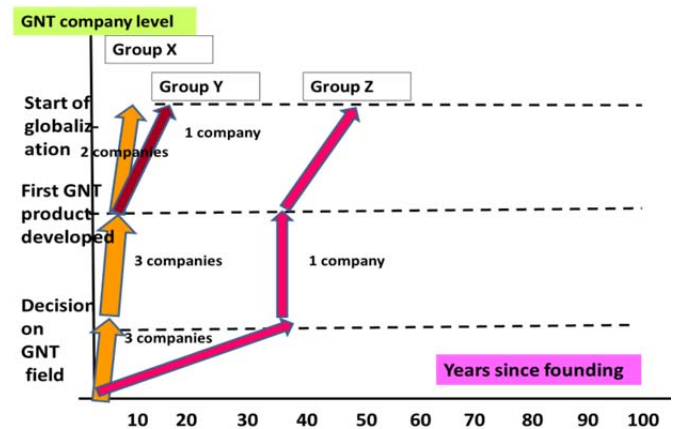


Fig. 5: Stages from founding until globalization: German companies

Looking at Fig. 5, initial GNT product development was spurred on by Type 1 radical innovation in Group X and by Type 2 radical innovation in Groups Y and Z.

Comparing Figs. 4 and 6, the trajectories for Hidden Champions are steeper than those for GNT companies as the former begin globalizing earlier than the latter. In particular, Group X, whose GNT product development was borne from Type 1 radical innovation, globalized rapidly.

Fig. 6 is a composite of Figs. 4 and 6.

In Fig. 6, one can see that the GNT companies of Japan (Groups A, B and C) take more time to reach each stage than the Hidden Champions of Germany (Groups X, Y and Z).

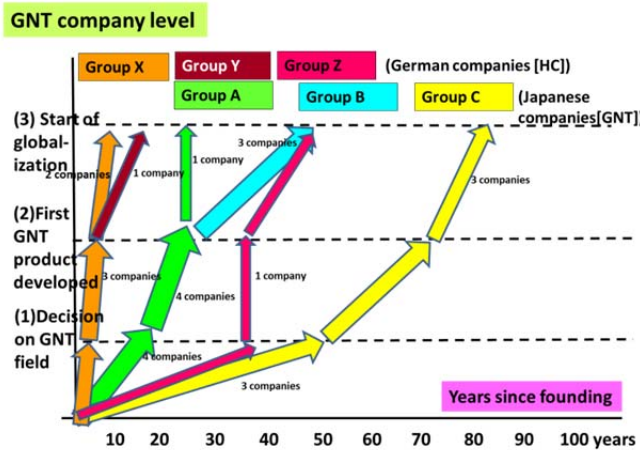


Fig. 6: Stages from founding until globalization: Japanese and German companies

The major factors underpinning this trend are the type of innovation at work and the speed and scope of globalization.

As Fig. 6 shows, the German companies begin globalizing earlier, with the two companies in Group X driven by Type 1 radical innovation.

Generally speaking, the Japanese companies I surveyed did not engage in swift global expansion. This is because when they developed their world-first products through radical innovation, domestic demand was strong and they were satisfied with leaving globalization in the hands of distributors or indirect exports. The only exception is one company in Group A which was forced to expand into foreign markets due to a small market at home.

## V. CONSIDERATIONS

In this section, I examine the growth mechanisms inferred from the above analysis.

### A. Commonalities between Japanese and German companies

Looking at growth processes, there are two general trends with respect to markets: **narrowing** and **widening**. Both the Japanese and German companies in this study have narrowed down their markets and products.

In other words, these companies begin developing GNT

products once they have narrowed down their markets and products.

The evolutionary pathways to GNT products in Fig. 1 reveal that four Japanese companies started with commodity, transitioned to specialized products and evolved to GNT products, while three Japanese companies and one German company began at the specialized product phase and three German companies began developing GNT products upon inception. The difference here is whether the GNT product was developed by a brand new company or in-house at an existing company.

In the case of the German companies, the people who developed the GNT product concepts started their own companies. (For example, one of the companies was established by a university professor.)

The Japanese GNT companies all developed their GNT products in-house.

### B. Analyzing the rapid speed of globalization among Hidden Champions

Hidden Champions I surveyed shared the following attributes.

#### 1. "Primary Expansion"

They were confident about their initial GNT products, established branch offices or subsidiaries in several countries in a well-planned manner and increased sales through rapid market development. I will call this kind of globalization "Primary Expansion". It refers to the process by which a GNT product permeates international markets while still maintaining high competitiveness. One example of this is ProMinent, which quickly developed its sales channels by establishing 55 sales and service subsidiaries, 12 manufacturing hubs and 60 sales offices (including REPs) worldwide.

#### 2. Needs-based GNT products

They continuously create new products from their initial GNT products to meet the needs of each country's market. I will call these "Needs-based GNT products", and they can be further subdivided into two types:

(1) The first type is Needs-based GNT products developed to respond to the detailed needs of a given country.

For instance, the faces on 3B's human body models are designed to look like the people in the region.

(2) The second type refers to increasing product lines by examining the needs from various countries to determine a globally common need. This is why 3B now boasts a lineup of 5000 products.

#### 3. Seed-based GNT products

The companies utilize internal and external "seeds" to develop new products that happen to respond to certain needs. I will call these "Seed-based GNT products". The development of these products is highly synergized with a company's core, i.e., its initial GNT product, and they possess



high appropriability of innovation.

One example of this is how ProMinent developed a large-scale water purification system based on its core GNT product, a metering pump.

The company developed a full-scale system from its initial GNT product to concurrently increase added value and cultivate new markets.

I will refer to the development of the aforementioned "Needs-based" and "Seed-based GNT products" collectively as "**Chained Expansion**".

This process of Chained Expansion allows companies to permeate markets relatively quickly by using their existing distribution networks. Fig. 7 is an illustration of this.

### C. Globalization of GNT companies

As Fig. 7 shows, most of the Japanese GNT companies surveyed in this paper employed a strategy of Primary Expansion. There are also several cases of companies maintaining their competitive advantage by enhancing initial GNT products in response to market "needs" or by incorporating "seeds".

## VI. ANSWERING THE RESEARCH QUESTIONS

**Question 1:** How did the companies in question take advantage of opportunities for growth and tie them to the creation of innovation?

(1) The Japanese companies tended to 'encounter' GNT products after transitioning through specialized and custom-made products from commodity, and they linked these to corporate growth.

(2) The German companies tended to identify opportunities for growth and develop GNT products early. This early globalization process corresponds to what Simon calls "the decision to export early".

It seems that Hidden Champions function according to a basic model in which the domestic market is a place to create innovation and the global market is where value is acquired. The transition from technological innovation to global expansion is quick in all cases. These companies do not limit themselves to domestic markets even if they can secure ample profits there; they view the global market as the place where businesses are truly developed.

**Question 2:** How did the companies in question take the first step toward globalization, the source of increased sales?

(1) The Japanese companies tended to globalize in response to changes in the external environment.

(2) The German companies globalized proactively. Due to the comparatively small market in Germany and the relative ease with which companies can sell to the other markets of the EU, Kamakura (2012) argues that favorable conditions are in place to facilitate companies in taking the first step toward globalization.

**Question 3:** What are the similarities and differences between Japanese and German companies?

To answer this question, I have summarized the growth mechanisms of GNT companies and Hidden Champions in terms of their similarities and differences.

### A. Similarities

1. The companies achieve GNT products by adjusting their products for narrow markets.
2. After narrowing their focus, the companies expand their niche markets globally.
3. Post-globalization growth is achieved by homogeneous expansion, i.e., developing markets for initial GNT products in more countries, and by heterogeneous expansion, i.e., developing new GNT products, systems or solutions based on the existing GNT core.
4. When executed adeptly, the development of primary expansion into Chained Expansion can accelerate the speed of growth and heighten innovation appropriability.

### B. Differences

1. While Japanese companies tend to develop Chained Expansion by focusing on the initial GNT product, German companies tend intentionally to enhance the initial GNT product into higher system product rapidly.

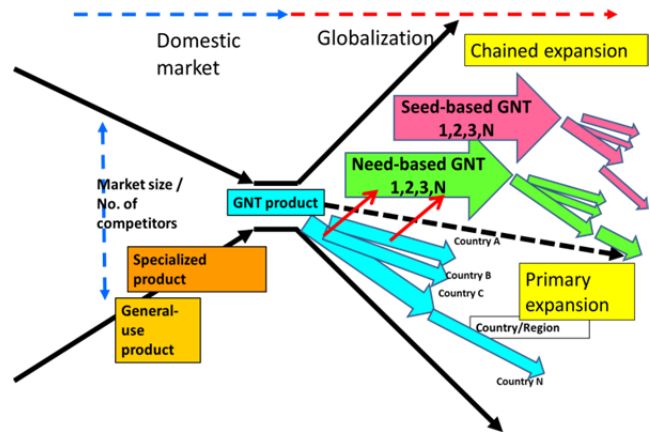


Fig. 7: Narrowing and expansion processes

2. While Japanese companies tend to avoid the risk associated with globalization, German companies see it as something that can be overcome if properly studied.
3. Japanese companies conduct self-assessments of their own products and underestimate their international competitiveness, while German companies objectively evaluate their products, paying close attention to the reactions of their customers.
4. Regarding the appropriability of innovation, German companies tend to carefully guard their innovations. Some of the companies even decided at the outset not to manufacture products that could be imitated.

## VII. CONCLUSION

A brief summary of the considerations above can be led to the following hypothesis in Fig. 8.

In Fig. 8, the vertical axis is sales and the horizontal axis is technical capacity and time. The curve illustrates the trend of sales over time.

Point (a) refers to the point in time at which the company developed a world-leading product, and point (b) is the start of globalization.

The line between points (a) and (b) refers to the GNT company candidacy period.

Even if technical capacity improves during this period, sales volume will stop growing if the domestic market becomes saturated.

Globalization helps companies rapidly increase sales with just slight increases in technical capacity. I call this the **"Globalization Effect"**.

I posit that the Globalization Effect is remarkable among Hidden Champions because they promote the Chained Expansion of their GNT products in addition to Primary Expansion.

For Japanese companies, the time span between points (a) and (b) in Fig. 8 has tendency to be longer than that of German companies, which may result in a slight delay in their "first step" toward globalization. The longer the time span, the longer this delay becomes.

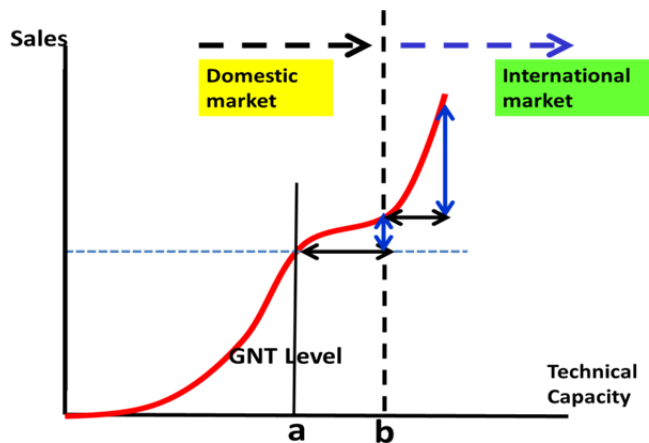


Fig. 8: Globalization effect

The topic of strengthening and maintaining the competitiveness of large corporations through globalization has been discussed for many years. In this paper, however, I compared Japanese GNT companies with German Hidden Champions from the standpoint of how SMEs create value from innovation, and this serves as a reminder of the strategies for large companies in the global market.

Looking at the German companies I surveyed, they seemed to keep a low profile as they contributed to the economic development of the countries in which they operated all while quietly expanding their own businesses.

Based on the hypotheses defined herein, I plan to continue this work with an expanded set of Japanese GNT companies and Germany Hidden Champions.

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