Can examples of the Japanese "Galapagos Effect" theory be identified among South Korean High-Tech Service Companies?*

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Abstract

Purpose - This study uses the 'Galapagos Effect' theory proposed by Japanese researchers to investigate if there is a basis for applying the theory to South Korea, specifically in the High-Tech Service area.

Research Design, Data, and Methodology - The underlying characteristics of Japanese business environment that led to the Galapagos Effect are identified, and then Korea is investigated to see if these characteristics are also evident. The case studies of three South Korean companies are explored to see if they can be considered as examples of the Galapagos Effect

Results - The findings illustrate that some evidence for the existence of the Galapagos Effect does exist in Korean companies, but more research is required to systemize the phenomenon.

Conclusions - The study concludes that proactive measures at a Government and business level should be implemented to mitigate the effects of the Galapagos Effect in Korea. The existence of evidence suggests that there may be grounds for more comprehensive studies in order to try and make a generalization. In addition, more study needs to be done to establish exactly which kinds of high-tech service companies are most likely to hit barriers due to the Galapagos Effect as it is not clear from the existing evidence.

Keywords: Innovation, South Korea, Japan, Barriers, Internationalization.

JEL Classifications: O32, O30, O31.

1. Introduction

1.1. Overview

South Korea has reached a critical juncture in its economic development. In recent decades, enterprises from the country succeeded in manufacturing, exporting and selling a wide range of products based on a combination of factors including governmental support, competitive pricing, innovation and quality. However, some key industries, including shipbuilding, car manufacturing and consumer electronic production, are now facing challenges. Competitive pricing advantages are diminishing due to rising production costs and competitors are taking away market share in

certain countries. To overcome the challenges, innovation must be used to create new markets, and new products must be developed to serve those markets. One way to develop innovation strategies is to study other countries and businesses to see what challenges they faced, and how they either overcame or failed to overcome them. Then, the insight gained from these studies can be used to create strategies and solutions.

One country that has already reached this stage of economic development with mixed success is Japan. In the 1980s, Japan became one of the leading countries in the world when it came to the development and manufacture of high-end technology products (Nishimura, 2005). Japan did have a relatively large domestic market for these products but the majority of Japanese businesses generated the bulk of their revenue from exports. However, production costs in Japan gradually became higher and the country then lost its pricing advantage to lower cost competitors including Korea

and Taiwan in a number of industries (Kotabe & Murray, 2004). This prompted Japan to focus on the manufacture of ultra high-end precision components and products where the expertise and the quality required could not be easily replicated at lower prices (Ogawa, 2007). The number of jobs in this area is generally lower so the country aimed to offset the manufacturing job losses with the creation of service jobs (Drucker, 2014). This transition has not been considered to be completely successful though as the creation and expansion of international service companies is a not a trivial task.

Thus, it is possible to compare Japan and Korea's trajectory even though the two countries are currently at different stages. Kushida (2011) proposed the theory that Japan achieved global leadership in certain sectors including automobiles, precision equipment and high-tech components, but a phenomenon known as 'The Galapagos Effect' held back the country in Information and Communications Technology (ICT), especially when it comes to ICT services. Research Studies have been carried out on how this Galapagos Effect affected Japan but few studies have been carried out to date on how this may also apply to South Korea. The objective of this paper is to explore the available evidence to see if examples of the Galapagos Effect can be identified in Korea and what significance it may have for future innovation in the country.

1.2. Literature Review

Based on previous research, business collaboration is one of the key ways in which lead times for innovation can be minimized and improved. Studies by Goldman (1995), Larson (1992), Mooer (1996), Teece (2007), Chesbrough (2003), Gawer and Cusmano (2002), and Iansiti and Levien (2004) identified the importance of business networking using a common language, open innovation, open platforms and business ecosystems. Thus, language barriers and limitations on collaboration and networks could have a negative effect on innovation activities.

While studying innovation activities in Japan, Natsuno (2005) popularized the term "Galapagos Effect" to describe the innovation problems in the Japanese mobile phone industry in the mid-2000s. It was inspired by Charles Darwin's biological research proposing that isolated species evolve to develop unique characteristics allowing them to adapt to their local environment. The business version of this term was used to explain why Japanese companies developed a large number of advanced mobile phones in the 1990s and 2000s but they were unable to export them successfully, as the Japanese phones were evolving on an isolated path (Ashton, 2011). The Galapagos Effect has also been listed as a possible reason for why Japan's share of world export value declined from 30% in the 1990s to less than 15% in 2015 (Iwatani, Orr, & Salsberg, 2011).

Dujarric and Hagui (2009) used the example of Japanese anime content to illustrate how the Galapagos Effect may have limited the ability of Japanese Media to be globally successful. According to the research, anime and manga comic books have been popular in Japan since the 1970s and this turned into a huge highly-developed domestic industry that could have been translated and exported all over the world. However, despite some success stories, manga and anime only achieved limited market penetration outside of Japan. The study concluded that this was because the themes and narratives in the manga and anime were too tailored to Japanese consumers only and therefore only had niche appeal for people outside of Japan. Shirakawa, Furukawa, Hayashi, and Masaroshi (2014) explored how the Galapagos Effect is affecting Scientific Research activities in Japan. Again, this study highlights how Japanese researchers frequently work independently in parallel to International Research trends and the results are then often published in the Japanese language only. The study concludes that this leads to diminished effect and impact from Japanese Scientific research.

Some of characteristics that led to the Galapagos Effect in Japan were:

- The country's island mentality
- Relatively low levels of ethnic diversity
- A language barrier
- A regulatory system that frequently protected domestic companies against international competition
- The availability of locally produced advanced technologies.

So, in order to explore the possibility of South Korea also being a country affected by the

Galapagos Effect, an evaluation of the existence of the above characteristics is necessary.

To begin with, consider the island mentality characteristic. South Korea is not geographically an island nation like Japan. However, North Korea effectively separates South Korea from Japan and Russia, meaning that land borders to Korea are not traversable under normal circumstances (Jenkins, 2015). This has turned South Korea into a country with an island mentality in many ways as it is directly disconnected from any other country by land. The country also had a very long isolationist period in history when it became known as the "Hermit Kingdom" during which interactions with any country other than China were very rare (Kim, 2016). Thus, it can it be said that the basic characteristics of an island nation exist in South Korea.

Next, diversity needs to be looked at. The number of non-Korean passport holders living in Korea has gradually grown in recent decades and as of 2016 they represented 3.4% of the overall population (Jo & Jung, 2017). However, the percentages are a bit misleading from a diversity perspective, as many of the non-Korean passport holders are ethnic Koreans from North East China and members of the Korean diaspora who gave up their Korean passport to gain economic advantages. South Korea only allows dual nationality in very limited situations; so many ethnically

Korean people born inside the country that receive a second nationality end up being classified as "Overseas Koreans" and are counted as non-Korean even though they are linguistically and ethnically Korean. Moreover a lot of the non-Korean passport holders in Korea who originate from other countries are classified as "Guest Workers" which means they have to leave Korea after a certain period. So, there is little integration and low levels of interaction between the Guest Worker groups and the local population (Yoon, Adams, Clawson, Chang, Surya, & Gihane, 2017). Thus, it can be concluded that Korea has a relatively low level of diversity.

Now, the Korean language can be explored. The Korean language is the official language in both North and South Korea and it is also one of the official languages in the Yanbian Autonomous Prefecture and Changbai County in China. The language is also widely used by ethnic Koreans in Japan, central Asia and Russia and the Korean diaspora. This brings the total number of Korean speakers in the world to close to 80 million but virtually all of the native Korean speakers are also ethnically Korean (Kim & Filimonau, 2017). The Korean language is distinct even though it does share some vocabulary and grammar structures with the Japanese language. The level of second language competency is growing in Korea but it is still relatively low (English, 2017). This means that there are significant language and localization barriers to overcome for Korean companies seeking to export products and services internationally. This is another shared characteristic that is present in both Korea and Japan. So, it is acceptable to say that the language isolation of Korea provides a barrier to the international exchanges required for innovation to flourish in non-manufacturing industries.

Next, a look at Korea's regulatory system is presented to see if the evidence suggests that the Government frequently protected domestic companies against international competition. When Korea was developing and moving up the value chain in the 1970-1990s, the Korean Government was very involved in steering and incentivizing companies to operate in certain industries (Kwon, 2017). In return for cooperation from the companies, the Korean Government often protected the industries in which they operated, until it became beneficial for those barriers to be removed. These kinds of protective measures create an insulated environment in which companies could thrive locally without competition until they evolved enough to compete internationally. However, this development approach seemed to work better for manufacturing industries than service industries (Kim, Heshmati, & Dany, 2006). This use of government-led protectionism was also a prominent feature of Japan's development, which contributed to the creation of products and services that diverged from global companies (Wu, 2017). Therefore, it can be said that this is another common feature between Korea and Japan and that this characteristic seems to exist in Korea.

Finally, the availability of locally produced advanced technology is shown. South Korea appeared in the top tier of countries on the Global Innovation Index list (Dutta, Reynoso, Garanasvili, Saxena, Lanvin, Wunsch-Vincent, & Guadagno, 2018), ranking in first place when it came to patents. The countries Internet infrastructure is also ranked highly globally on the International Telecommunication's Union's (ITU) "Measuring The Information Society Report" (2018). Korea consumers were some of the earliest adopters when smartphones emerged and the smartphone penetration rate is very high (Jin, 2017). Moreover, Korean consumers have high levels of digital literacy (Noh, 2017). This environment creates a solid foundation for the development of advanced technology products and services. In fact, Korea exceeds Japan in many of these areas. This also provides a basis for the proposition that localized advanced systems could emerge in Korea that could initially be close to the leading edge or new international business areas. This is another characteristic of countries that may exhibit Galapagos Effect characteristics.

In summary, by using Japan as a basis for the Galapagos Effect, it is possible to check if the basic characteristics that led to the creation of the term also exist in South Korea. By looking at the available information, it is certainly plausible that the Galapagos Effect could also exist in Korea as the business and social environment in South Korea has quite a high level of commonality with Japan in the areas that relate to the formation of this theory. Thus, we can say that further study of Korea from this perspective is valid and may result in worthwhile findings.

2. Methodology

2.1. Study Approach

This study uses a qualitative approach to investigate three cases of attempted internationalization by Korean companies. In each case, the services provided by the companies could be described as relatively advanced in the marketplace or even as potentially innovative offerings compared to competitors at the time. The examples were identified and explored using the Local Knowledge Case Study approach. The Local Knowledge Case Study approach refers to when a person immersed in the local culture and industry identifies cases to study based on an awareness of the context. According to Flyvbjerg (2006), a researcher with a deep understanding of local conditions can successfully identify suitable case study examples from years of experience working in or studying the area. This approach has also been used by Eisenhardt (1989) to identify suitable case study examples.

They were then analyzed from an Illustrative Case Study perspective. This method is where a small number of instances of an event or phenomenon are identified and

described in order to establish a basis for further study as a starting point towards eventually building enough evidence to make a generalization. This approach was discussed and analyzed in research by Yin (2009) and Thomas (2011). It may be seen as being analogous to a pilot study (Gerring, 2004).

For the purposes of this study, three companies were selected for examination. Each of the companies had key characteristics in common. First, all three companies ascended to a point where they had close to complete dominance of the domestic Korean market in their respective business areas. In addition, all three of the companies selected used technology and business approaches that put them among the most advanced companies globally and they may have even surpassed the sophistication of the market leaders in some aspects. Finally, all three of the companies initially grew inside Korea until they reached an advanced level of domestic penetration before attempting to expand their services overseas. These attempted overseas expansions met with limited success suggesting that there is a possibility that they suffered from the existence of a Galapagos Effect.

3. Analysis

3.1. Case Studies

The three services that will be analyzed in this section to check for evidence of the Galapagos Effect are Cyworld, Naver and Kakao. These were chosen as case study examples based on the characteristics outlined in the methodology section above. The analysis will start off looking at Cyworld, followed by Kakao and will then finish with Naver.

Cyworld was an early version of a Social Network / Virtual Life platform that gained massive popularity in South Korea before Facebook began to dominate this business area. Four former KAIST University researchers in Daejeon launched the platform in 1999 (Chun, Kwak, Eom, Ho, Yong, Moon, & Jeong, 2008). After a few years of modest growth, the platform started to gain a lot of domestic Korean users in 2002/03. Cyworld services included some features that were considered to be at the leading edge of technology development at the time. For example, it was one of the first digital platforms that allowed purchases of Virtual Goods using a virtual currency called acorns (Jung, Youn, & McClung, 2007). Cyworld also allowed users to make an Avatar of themselves (called a Minime) and then prompted them to create a personalized homepage (called a Minihomepy). This virtual space allowed friends to interact socially in an online community when the concepts of Social Media were still in their infancy (Lee, Kim, Park, & Ahn, 2014).

These features meant that Cyworld dominated this emerging business area domestically in Korea. By 2007, Cyworld had somewhere between 20-25 million active users corresponding to almost half of South Korea's entire population (Jin, 2015). Cyworld were 50% owned by the SK Corporation, which is one of Korea's largest corporations. This also allowed for convergence so Cyworld then collaborated with the largest chatting service in Korea at the time (Nate-on) allowing users to communicate via instant messages (Kim & Jeong, 2016). This meant the extended ecosystem of Cyworld / Nate-On almost became a virtual monopoly in Korea at the time.

As Cyworld's user base penetration was approaching saturation in Korea, the company tried to expand internationally. Initially, Cyworld was available in the Korean language only, so this was an obvious barrier to international expansion. In 2006, multilingual versions of Cyworld were launched in China, Taiwan, Japan and the U.S (Cha, 2013). Even though the international versions of Cyworld were offered in the dominant local language of the target market, some non-linguistic barriers emerged when it came to user acquisition. For example, in the domestic Korean version of Cyworld, a Korean National ID number was required to sign up and join the website (Haggard & You, 2015). Asking for a national ID was, and still is very common in Korea for online services and transactions. So, in other countries, Cyworld emulated their approach in Korea and also required ID verification during the signup process. If the target country did not have a national ID system, a passport, driving license or school ID was required. However, this level of data disclosure on signup is rare for International websites in some regions (Cho & Kwon, 2015). Some potential users may have seen this requirement and felt uncomfortable with this level of information disclosure and even the number of steps required to get started, prompting them not to complete the signup process.

Another example of a barrier was that the members of the U.S version of Cyworld could not connect to the members of Korea's Cyworld. This severely undermined its appeal as many potential international users may have wanted to sign up mainly to connect to Korean friends and acquaintances based on word of mouth recommendations of the service (Wang, Chen, Wang, Wang, Wang, Li, & Ben, 2016). Moreover, the website design was optimized for Internet Explorer only which had a virtual monopoly at the time in Korea but many users in other regions preferred other browsers. In addition only certain services were localized and translated, so it became a light, pared-down version of the Korean service. These and other shortfalls meant that by November 2008, the expansion project was already considered a failure and the U.S operations were shut down along with the other international versions (McGinley, Zhang, Hanks, & O'Neill, 2015).

Cracks were also starting to appear domestically in Cyworld's business. In 2008, a report by Nielsen

KoreanClick reported that users were starting to gradually spend less time on the Cyworld website (Han & Oh, 2014). This appears to be when the web service started to go into decline. It also coincided with the emergence of smartphones. Cyworlds failure to adapt to the emergence of Smartphones has also been cited by Yoon (2016) as one of the reasons that the company's user base started to shrink in this period. This could be seen in the context of an inability to innovate and a poor reaction to a disruptive market entry. In addition, the cyber security systems of Cyworld became outdated. In 2011 CyWorld suffered a major data breach resulting in the person information of 35 million users being compromised (Song, Kim, & Huh, 2016). This may have also led to customers turning their backs on Cyworld. In 2015, Cyworld usage dwindled to a point where it was no longer viable as a business so an announcement was made that the service was being discontinued.

So, based on the theory of the Galapagos Effect, the reason why Cyworld went into decline would be that it was too tailored to their domestic market only. This meant that they failed when trying to expand overseas. In addition, when external emerging disruptive technologies reached the market i.e., the iPhone and the Android Smartphone Operating System, Cyworld's technology was not able to adapt quickly enough to deal with the external international threat and the stream of innovations that came with them.

The next case study that will be considered in this paper is the Kakao suite of services. Kakao Talk was first launched in Korea as a Smartphone mobile messaging service in 2010 (Jin & Yoon, 2016). The messaging service was initially made available in the Korean language only but an English version was made available in 2011. Other languages gradually followed and this suggested that the basis for expanding the service outside of Korea was under consideration early in the development plan for the product. During the next three years, the company managed to get a very strong market position in Korea and almost 93% of domestic smartphone users availed of the service by 2014 (Jin, 2017). The company used a common contemporary ICT business model where they tried to acquire a strong user base first and then they sought to monetize that base later. Kakao also merged with one of Korea's largest Internet portals, Daum, in 2014 to maximize their convergence opportunities.

To monetize their user base, the company diversified their services by offering ten additional services alongside the basic messaging app (Lee & Lee, 2017). This opened up new business areas so more services were added regularly. Examples of additional services were the Plus Friend system allowing celebrities and companies to market themselves to followers, the Item Store where emoticons and other customizations could be bought, Kakao Story, which allowed the sharing of photos, Kakao Style, which made it possible to shop online from the app, Kakao Taxi, which made it possible to order and pay for Taxis and Kakao Game, which

was an online gaming platform (Staykova & Damsgaard, 2016). However, many of these services did not follow the multi-lingual trajectory of Kakao's core messaging app. There tended to long time lags between the services being offered in languages other than Korean and many of the services were functional domestically only. There may have been reluctance from Kakao to invest in trying to launch the additional services outside of Korea due to either cost barrier or due to the complexity of the third party agreements needed for some of the services to work internationally.

In 2014, signs of international acceptance stagnation appeared in Kakao's growth pattern outside of Korea (Yi, Lee, & Sang, 2016). Other international companies sought to make new features available in multiple countries and languages and this may have put Kakao at a disadvantage in competition with them. Some global competitors were also operating in direct competition with Kakao. For example, WhatsApp built up a large international user base and was then bought by Facebook. Moreover, another similar service, WeChat, became a dominant platform especially in Chinese speaking countries (Gan, 2017).

Therefore, Kakao has many parallels with Cyworld, but it is not clear yet if they will follow the exact same path. Kakao partnered with a large domestic company and tried to expand internationally with a lite version of their App suite but they were not successful enough to be competitive. The company offered continually more advanced services in their domestic market but basic versions of their services in the international market. This case again displays some of the features of the Galapagos Effect that were seen earlier but it is still at a relatively early stage. So, there may still be time for Kakao to seek markets outside of Korea again. If not, the company may become trapped within their own country as larger international competitors chew away at their domestic user base and potentially move ahead in terms of innovative service offerings.

The third case that will be presented here is Naver. In 1999, Naver was initially launched as a Korean language Internet Search Engine and information retrieval service (Kim, Kim, Beck, & Jung, 2015). Naver operated under the umbrella of NHN along with a gaming portal called Hangame. The company's strategy was based on the concept that a local search engine tailored for the Korean market and the Korean language could offer a service more suited to domestic Korean users than the current offerings available at the time. The service Naver provided has included a number of features that could be consider to be at the leading edge of technology at various times in its history. For example, the company was one of the first search companies to return search results with images and books in addition to websites. They also used a knowledge search system where answers were returned from other users as opposed to just a website result. This was vitally important in the success of the business as it created a

bridge between Korean language Internet sources and dominant international languages through user generated content information responses (Kim & Tse, 2014).

As the company grew, they also diversified their services and expanded their customer base. Naver became a news and media portal, an email service provider, data storage and communication platform, a gaming platform; a retail site and they also provided a microblog service called Me2day (Koo, Lim, Kim, & Cho, 2014). By the mid-2000s, Naver became the dominant service in Korea in their field, frequently accounting for close to 80% of search and information retrieval activity.

After firmly establishing an advanced service in Korea, Naver tried to expand to the U.S in 2005. They used the name NHN USA. They launched a trimmed down version of their Korea service based upon their search engine and information retrieval expertise. However, they entered a very competitive business area without a very distinctive offering and they were up against some companies like Google that were expanding very fast in the area. Despite very limited success, Naver continued to offer their services in North America for six years but eventually the NHN USA venture was considered to be a failure and it closed in December 2011 (Kim & Jeong, 2016). Naver also tried to expand into China in the gaming area in 2004 but this venture also closed in April 2010. Moreover, Naver also tried to expand their Search Engine Service to Japan a number of times. The most recent attempt was in 2007 but the service was discontinued in 2009 because their market share was less than 1% with Japanese users (Choi, Kim, & Yoon, 2014).

One notable venture from Naver that took a different expansion trajectory was the launch of a Smartphone chatting App called Line in 2011. Previously, most of the services from Naver were developed, launched and established in Korea and then attempts were made to export and localize the services for usage overseas. However, Line was created in Japan by Naver, as a solution to communication problems after the Tohoku earthquake in 2011, so it never really had any direct connection to Korean consumers and the Korea business environment. It was effectively a born global service as it was international right from the outset. Moreover the service was launched initially in the Japanese language instead of Korean. Line quickly became the dominant messaging platform in Japan reaching 94% of customers by 2016 (Hjorth & Richardson, 2017). Then, it also became successful in Taiwan, Thailand and Indonesia.

So, by looking at Naver we see examples of two types of business approaches within the one organization that resulted in very different international outcomes. The core Naver Search Engine and Information retrieval service has some common features with both Cyworld and Kakao in terms of development trajectory and ultimately international failure. Naver's services were developed in Korea in the Korean language for domestic consumers and then they tried to expand based on their dominant domestic market position into international markets. However, according to the Galapagos Effect theory, this meant that Naver was trying to launch an advanced service that was highly tailored to Korea's business environment into a market that it may not have been suited to. Thus, it may be categorized as another example of a negative outcome due to the Galapagos Effect.

In contrast, Naver's Line service took a completely different development path that was unlikely to be influenced by the Galapagos Effect. The service was launched in Japan and moved quickly to other countries from there with the exact same service translated into the local languages. This meant that it did not get tied to the consumption characteristics of a particular country or region. This appears to have resulted in short term success but the medium to long-term sustainability of the service and this business approach is not clear yet.

4. Discussion

Overall, based on the available information, the evidence does suggest that the Japanese Galapagos Effect could also be prevalent in Korean businesses. In all three of these case studies, the evidence points towards this effect being a barrier to successful business development for these Korean companies. As discussed earlier, the Galapagos Effect is something that does not affect every business area and company. It appears to be much more prevalent in the service industries and specifically in services that involve high-end technology and sophisticated offerings.

The recommendation to both Korean and Japanese businesses would be the same. Despite the additional costs and risk involved, high-tech service based businesses need to be internationalized earlier before they become too closely tailored to local consumer markets. This is quite a big challenge because small and medium companies may lack the resources to launch themselves internationally early. More diverse countries have an advantage in this area because they may have access to the human resources needed to internationalize products locally without having to bring external workers into their domestic workforce. It could actually be beneficial for Governments in Korea and Japan to support the early internationalization of domestic service companies through localization and translation assistance in order to boost the chances of these companies being competitive internationally.

This could be achieved through the establishment of a subsidized early localization service that either matches up small and medium enterprises with suitable localization service providers or else via an in-house system. Companies may be able to find these kinds of services themselves but it may be time consuming and challenging for them to do

so due to language barriers. In addition to localization services, international customer support services would also be a necessity and again the human resources needed may not be available domestically in countries with low levels of domestic diversity. Again, the Government could assist with this step in order to encourage the early internationalization of companies and new business areas. In the future some of these functions may be possible through the use of Artificial Intelligence Bots that can have digital conversations with potential and existing customers.

As service offerings grow and the company develops, the key point is that wide diversions between the local offering and international offering must not be allowed take place. It is common in business to launch different add-ons or iterations at staggered intervals to certain language groups or regions but this must be carefully managed to ensure that a large diversion over multiple iterations does not occur. It may seem like a good idea to focus resources on the largest and most profitable market and in many cases that will be the domestic market. However, an over emphasis on the domestic market in offerings will exacerbate the Galapacos Effect, so it must be mitigated. A strategy where the revenue generated domestically initially offsets losses and provides development capital internationally may be needed.

5. Conclusions

This research paper attempted to investigate some examples of Korean businesses to see if evidence to suggest the existence of Japan's Galapagos Effect exists in South Korea. The research first tried to establish that Korea itself as a country had some of the characteristics exhibited in Japan that led to businesses in Japan suffering from this barrier to international expansion in certain fields. It was determined that based on the literature Korea does have many, if not all of these characteristics, meaning there is a basis in which businesses in Korea could be studied in this way. Then, three cases were selected for exploration to see if they could possibly have exhibited the characteristics of the Galapagos Effect as defined by Japanese researchers. In all three of the selected cases, the literature indicated that there is a strong possibility that the Galapagos Effect impeded successful international expansion. There are limitations to this study. As with any research that employs case studies, generalizations cannot be made. In this study, the three companies were selected because there seemed to be a strong possibility of the existence of the Galapagos Effect. The existence of evidence suggests that there may be grounds for more comprehensive studies in order to try and make a generalization. In addition, more study needs to be done to establish exactly which kinds of high-tech service companies are most likely to hit barriers due to the

Galapagos Effect as it is not clear from the existing evidence. Also, as shown in the evidence presented above the Galapagos Effect can apply or not apply to business areas within large companies so there is another limitation associated with studying any company as a whole.

A wide range of additional study options exist for this area as it is a new study area. The development of a quantitative method for measuring the extent of the Galapagos Effect would be a beneficial study area. It would also be valid to study more countries to see if there is also evidence of either the Galapagos Effect or to show certain countries have taken steps to minimize the barriers associated with this effect. Taiwan, Hong Kong and Singapore would be good study subjects with this in mind. Then, these findings could be used to give more comprehensive advice to the Japanese and Korean Governments and business leaders.

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