Abstract—A research effort to find the reality of the business of Japan’s software globalization of enterprise-level business software systems has found that while the number of Japan-made enterprise-level software systems is comparable with those of the other G7 countries, the business is limited to the East and Southeast Asian markets. This indicates that this business has a problem in the European and USA markets. Based on the knowledge that the research has established, the research concludes that the communication problems arise from the lack of individualists’ communication styles and foreign language skills in Japan’s software globalization is compensated by similarities in certain Japanese cultural factors and Japan’s cultural power in the East and Southeast Asian markets and that this business does not have this compensation factor in the European and American markets due to dissimilarities and no cultural power.

Keywords—Cultural factors, global business, Japan, software globalization.

I. INTRODUCTION

Japan-made business software products in markets outside Japan seem to be an unknown entity, which is in contrast to the “Made-In-Japan” reputation and the ubiquitous-ness gained by Japan-made hardware products. However it is believed that the reality may be different. It is believed that using Japan’s economic and technological super power status in the world with a highly educated and large population as the base for argument, the number of Japan-made packaged generic software systems for business is comparable with those from other countries in the G7 Group, namely, US, Germany, France, UK, Italy and Canada. However as a non-English speaking country in the Asian region, Japan’s globalization of this type of software product is not as successful as that of Japan-made hardware products for reasons beyond the technical and technological issues. It is believed that cultural factors may have impacts on the globalization of Japan-made business software products and this belief has led to a research effort to find its reality. This paper reports on the outcome of this research.

The research involves studies on the process of selling and buying enterprise-level business software systems in cross-cultural environments, Japan’s software globalization, Japan’s cultural factors and impacts of cultural factors on business software system purchases.

Cultural factors include foreign language skills, communication styles, social identity, similarity attraction, cultural power, cross-cultural social associations, cross-cultural business relationships and issues, individualism and collectivism.

Hofstede Cultural Dimensions (HCD) define 5 aspects of culture of a country and its people: Power Distance Index (PDI), Uncertainty Avoidance Index (UAI), Individualism (IDV), Masculinity (MAS) and Long Term Orientation (LTO). The measurements of these 5 HCD help identify the differences and similarities between various nations [1]. Table I shows the index values of the five HCD for the nationals of the East and Southeast Asian, European and North American countries. It shows a significant difference in IDV between those of the Asian identity and those of Western identity. Hofstede defines these East Asian nationals as collectivists because of the low IDV index value and the Westerners (Europeans and Americans) as individualists (high IDV value). Collectivists have high context communication style, which contains vague and little information in expressions. They are hesitant in public speaking, less vocal in public and speak as a voice of a group. Individualists speak their own minds with low context and are highly encouraged to speak up in public as individuals.

Software globalization is a process of sales and marketing of a software product in markets outside the country-of-origin of the software product. It is a commercial venture that the vendor has to consider carefully. The consideration takes into account a number of X factors, such as software localization and cultural factors.

In general the business of selling enterprise-level business software systems is a multi-dimensional and multi-step process in which system product experts of the sales and marketing team play a critical role. This role requires the type communication skills of individualists, and foreign language skills and cultural adaptability in international business environment.
In this business, sales and marketing professionals cannot deal with technical aspects of the systems they try to sell. They need the help of system product experts who have expert knowledge of the system. For most enterprise-level business software systems, expert knowledge can only be acquired through a long hands-on working association with the system. In most cases, only those software engineers who are involved in the development and packaging of the system should have this attribute. It cannot be obtained through short training courses.

At various promotional seminars and conferences, and pre-sales stage, the system product experts give technical presentations, set up and demonstrate the system to show how it works on a particular business transaction. At pre-sales stage, they develop a proof-of-concept application that can simulate a transaction of a business operation similar to that of a prospective business client. At post-sales stage, they train and help users with setting up their computing environment and installation of the system. At implementation stage, they help customize the system.

Software globalization of enterprise-level business software products also involves the translation of user’s manuals into the written language of the local users. In most cases user’s manuals are written in the language of the country-of-origin of the software system and are translated into the target language of the users. For example for Japan-made systems, the initial language is Japanese. Translation of technical manuals from one language to another is a very difficult task because technical manuals of this type of software system have high technical contents and are normally written by technical writers, who are not only good writers, but also have in-depth technical knowledge of the system. There are many examples of poorly translated English version of Japanese user’s manuals [2] [3].

II. JAPAN’S SOFTWARE GLOBALIZATION

The research has carried out an investigation into the performance of Japan’s software industry in development, commercialization and globalization of enterprise-level business software products. The investigation has focused on finding out the number of Japan-made enterprise-level software systems in the Japanese market and markets outside of Japan. As software systems are grouped based on business solutions, it is much easier and effective to carry out a search for business systems based on a particular business solution than to a search without. It is because business software systems have been developed to support a wide range of business solutions and applications. As applications diversify, more software systems of different types and sizes are developed and commercialized. Because applications are numbered in the thousands, there could be thousand types of business systems in the market and as such it is almost impossible to find all these types of applications before any search can be carried out. For that reason, the investigation has focused only on major business solutions. Among the major business solutions are Enterprise Resource Planning (ERP), Computer-Aided Design and Computer-Aided Manufacturing (CAD/CAM) and Enterprise Application Integration (EAI). It has found that worldwide revenues in 2003 for ERP and CAD/CAM were $23b and $5.1 billion respectively, accounting for 55% of all business software revenue of $30 billion dollars [4],[5],[6]. The revenue forecast in 2003 for EAI technology was $2.5 billion dollars [7]. The revenues derived from these software solutions not only warrant their top ranking positions among all business software solutions but also indicate that they together have yielded 60% of the total revenues of the software industry. For this reason, they are considered to be the focus objects in this investigation.

Table II shows the result of the investigation. Note that the number in brackets represents the number of global systems sold in markets outside the country-of-origin. In the ERP category, 10% of Japan-made ERP systems are global. In comparison, 50%, 70%, 100% and 100% of systems made in the US, UK, Germany and France respectively are global. In the CAD/CAM category, 29% of Japan-made CAD/CAM systems are global. In comparison, 67% of US-made systems and 68% of (UK + Germany + France)-made systems are global. On the EAI category, Japan is in a comparable position with the European countries.

### TABLE II

**SYSTEM COUNT SORTED BY COUNTRY - OF - ORIGIN**

<table>
<thead>
<tr>
<th>Country</th>
<th>ERP</th>
<th>CAD/CAM</th>
<th>EAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>109 (54)</td>
<td>34 (23)</td>
<td>58 (47)</td>
</tr>
<tr>
<td>Japan</td>
<td>30 (3)</td>
<td>24 (7)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>UK</td>
<td>10 (7)</td>
<td>4 (3)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Germany</td>
<td>3 (3)</td>
<td>3 (2)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>France</td>
<td>2 (2)</td>
<td>2 (1)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Canada</td>
<td>3 (1)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>10</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>167</td>
<td>68</td>
<td>77</td>
</tr>
</tbody>
</table>

The above result coincides with the fact that US, Japan and Germany are the leading economic superpowers in the world using GDP as the indicator [8]. They have the largest and strongest business activities in their countries.
number of these systems developed and commercialized in each of these countries proves that business activities and demands are the contributing factor and stimulant for the development of these systems.

### TABLE III
OVERSEAS OFFICE LOCATIONS OF JAPANESE SOFTWARE COMPANIES

<table>
<thead>
<tr>
<th>Owner/vendor</th>
<th>Software type</th>
<th>Software name</th>
<th>Overseas office location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jap</td>
</tr>
<tr>
<td>Fujitsu IS (\times)</td>
<td>CAD/CAM</td>
<td>EC ERP Explanner</td>
<td>1</td>
</tr>
<tr>
<td>Hitachi (\times)</td>
<td>CAM</td>
<td>TT Data ERP A.S.I.A</td>
<td>1</td>
</tr>
<tr>
<td>NEC (\times)</td>
<td>CAM</td>
<td>Open PDM</td>
<td>1</td>
</tr>
<tr>
<td>NTT Data (\times)</td>
<td>ERP</td>
<td>A.S.I.A</td>
<td>1</td>
</tr>
<tr>
<td>Oracle (\times)</td>
<td>ITAM</td>
<td>Fujitsu EAI Inter-stage</td>
<td>1</td>
</tr>
<tr>
<td>Shiseido (\times)</td>
<td>CAD/CAM</td>
<td>Caelum</td>
<td>1</td>
</tr>
<tr>
<td>Softex (\times)</td>
<td>CAM</td>
<td>ECUS</td>
<td>1</td>
</tr>
<tr>
<td>Sony (\times)</td>
<td>CAD/CAM</td>
<td>CAEUS</td>
<td>1</td>
</tr>
<tr>
<td>Symyx (\times)</td>
<td>CAD/CAM</td>
<td>Caelum</td>
<td>1</td>
</tr>
</tbody>
</table>

An investigation on the websites of the Japanese vendors of the ERP, CAD/CAM and EAI systems reveals that most of their subsidiaries are located in East and Southeast Asian countries such as China, Korea, Singapore, Thailand, Taiwan, Malaysia as shown in Table III. This is in contrast with the European and American vendors, which have offices in most regions of the world.

An investigation on the market shares of the ERP, CAD/CAM and EAI systems reveals that Japan-made ERP systems take 48% of the Japanese market but they are minor players outside the country. Japan-made CAD/CAM systems and EAI systems are also minor players in international markets.

An investigation on Japan’s software export destinations reveals that for the period from 1995 to 2004 about 60% are to the East Asian countries as shown in Fig. 1 [9], [10].

### III. JAPANESE CULTURAL FACTORS

#### A. Communication Style and Foreign Language Skills

In Ujiie’s comparison of the language expression between Japanese-speaking and English-speaking societies on the representational function of language, it has been found that the Japanese express their thought in a more implicit and vague way while English speakers are more explicit due to Japanese language being geared toward a “guessing culture”, i.e., speakers speak using indirect expression and listeners have to work out the meanings of what has been said, while English is for “expressing culture” [11].

The Japanese avoid uncertainty; they are often less assertive, less direct and less responsive than the American. They rely more on written communications channels or communication technology when communicating in English, avoiding face-to-face communication, which requires English proficiency [12]. The English speaking skills of Japanese businessmen are regarded as mediocre [13].

On the issue of language skills, most Japanese people are not fluent in English speaking despite many years of English learning at high schools and universities. The ability of the Japanese people to speak English is hindered in many ways. First reason is the English teaching of the Japanese education system that has focused more on English-Japanese translation than speaking. Second reason is the many phonetic contrasts between English and Japanese. In Japanese, the pronunciation of English words is based on the Japanese Katagana, which has only 5 sounds a, i, u, e and o. In the Japanese language, Katagana is used to phonetically write foreign words as they are pronounced but because its limited sounds, when speaking a foreign word in Katagana’s pronunciation, the original pronunciation of the word is distorted. For that reason, mastering English pronunciation is particularly hard for the Japanese. For example contrasts, such as rice vs. lice, vote vs. boat, pose vs. pause, math vs. mass, and hat vs. but, are all unfamiliar to Japanese tongues and ears. Third reason is the difference in the language composition. While the English language follows the Subject-Verb-Object composition, the Japanese language follows the Subject-Object-Verb composition. This difference makes the translation difficult because in many cases one cannot see the action of a sentence until it reaches the end where the verb appears. In addition, the “guessing culture” in the communication style of the Japanese does not help them speak English with the “expressing culture” of the English-speaking natives.

#### B. Japan’s Cultural Power

Cultural power is part of soft power. Soft power can be defined for a certain field. A condition for a field to have soft power is that it must have a feeling of “presence” and “respect” [14]. Two fields can identify Japan’s cultural power are education and language because they are the major mechanism for transmitting cultural messages. According to a study on Japanese language education overseas in 2003 by Japan Foundation, there are more than 2.4 millions non-
Japanese students studying Japanese language [15]. These students include those at primary, high school and university, and working adults. East Asia and Australasia together have the largest Japanese-language studying population, accounting for 87% of the world’s Japanese-language studying population. In this region, Korea has the largest population of 894000 students, representing approximately 39% of all Japanese-language students worldwide, followed by China with 388000 students (17%), Australia (382000), US (140000) and Taiwan (129000). In addition, Thailand and Indonesia account for another 6.2% of the total students. It is worth noting that the Japanese learning or speaking population in Europe does not appear in the register. When classifying the purposes of learning the language, the study reveals that while working adults and university students want to speak Japanese for utility needs, i.e., for current or future work-related purposes and for studying in Japan, younger students want to speak Japanese mainly for cultural exchange.

For East Asians, both English and Japanese are foreign languages and the attractiveness of learning these languages is the benefit of learning them as a way to get good job opportunity. The large population of East Asian people learning Japanese language appears to be a result of high level of Japanese business presence in the region.

While studying Japanese language at home can help understand the Japanese culture, it is far from being sufficient to grasp the heart and soul of the Japanese culture without living in the country. On the issue of living and studying in Japan, Japan has a high number of foreign students in its various educational institutions. Table IV shows the student enrolment population in Japan’s educational institutions in 5 different years.

The number of East Asian students who come to Japan to live and enroll at various Japanese educational institutions increases every year. Similarly the number of students taking Japanese language study at their home schools also increases every year. They value the attractiveness of learning the language for many reasons as explained earlier. This proves that Japan has educational and linguistic powers but these powers are limited to the East and Southeast Asian region, not in Europe or America. The number of European students in Japan is negligible. As such Japan’s cultural power has limited scope.

The impacts of the combination of these two types of cultural power of a country are that while people come to the country to study on the fields of their choices, they improve their language skills and get to know the culture of that host country. When these people go home, they not only become experts on their fields but also are bicultural linguists. They help create mutual understanding of each other culture in many situations, such as face-to-face meetings between people from their former host country and their countrymen. They subconsciously become the cultural ambassadors for their former host country and help create social and business communities between the social and business communities of their former host country and their own country.

Research by Hutchinson on commonality of language and bilateral trade and by McIntyre on language and communication and by Smith on business negotiations has proved that the role of these bicultural linguists is important in business relationships, negotiations and international trade [16],[17],[18]. As such educational and linguistic powers are regarded as a contributing factor for creating a large number of such bicultural linguists and ambassadors. They play a role in international trades and business relationships. According several researches, when one party has good understanding of the other culture, the party can adapt the other culture to improve the cultural similarity and hence the relationship [19],[20].

C. Japanese’s Social Identity - Asian Identity vs. Western Identity and Similarity Attraction

Culture relates to social identity in many ways, i.e., similar culture results in similar social identity. Culture reflects social identity [21]. Cultural similarity and social identity can be more noticeable in multicultural countries such as Australia and the US. In these countries there are a significantly large number of people from other countries immigrating to live and work. In these societies, migrants are clearly identifiable by their differences in racial and behavioral characteristics. While people of Western identity form the majority of the population, Middle-East, East and Southeast Asian migrants form minority groups.

Many studies have identified that there is a clear social demarcation between those of Asian identity and those of Western identity [22],[23]. Social demarcation is not about racial discrimination but about differentiation of social identity.

Social identity plays a role in cross-cultural social and business relationships. Observatory evidence of real life rituals and the above studies indicate that people of similar social identity like to create their own associations to socialize with each other.

The Japanese, Chinese, Korea and many other East and Southeast Asian nationals have many similarities. Apart from the HCD that identify them as collectivists, their ethnical
identity such as facial features, skin tone, and their daily rituals, such as Buddhism, Confucian, rice, chopsticks etc. make them belong to the (East) Asian identity.

Similarity attraction deals with relationships and research has consistently shown that similarity increases interpersonal attraction and the greater degree of similarity between two parties, the greater the interpersonal attraction and better outcomes in business negotiations will be [24],[25],[26].

D. Business Culture: Japanese vs. Chinese and Westerners

Numerous studies on the business cultures of the Japanese, Chinese, German and American people have acknowledged that Japanese and Chinese have many similarities in their business cultures and also there is a stark contrast between the business culture of these two Asian people and that of the Europeans and Americans [27],[28],[29],[30],[31].

The Japanese and Chinese interlace private life and business, and regard personal relationships as more important than business contracts. They like to approach to a relationship through a trusted and respected intermediary. They treat all personal relationships as a long-term business and as a result patiently spend a considerable amount of time entertaining each other at business dinners or lunches to explore the mutual understanding between them as a prelude to “small business talk” in informal environment. In contrast, the Westerners see work and private life as two independent aspects of life and hence treat business relationships as part of work, not personal. They prefer direct approach to business partners without a middleman. They are impatient with delays and prefer to achieve results with deadlines.

IV. CULTURAL FACTORS IN BUSINESS SOFTWARE PURCHASES

The research has carried out a survey to find the impacts of cultural factors on the selection of an enterprise-level software system from vendors from Japan, Germany, US, UK, France and Italy in Australia. The target participants in this survey were IT managers and IT professionals of East Asian (Asian-Australian) and Western (European-Australian) background.

The survey result shows that there is a clear indication that cultural and ethnical preference for certain countries exists when a buyer makes the decision to buy a global business software system. Buyers of both Asian and European-Australian background give the strongest preference to the US and UK. Germany is regarded highly while France, Italy and Japan receive rather low scores, indicating they are not the preferred countries-of-origin to do business with in terms of enterprise-level business software systems.

Communication in both speaking and writing is an important factor in shaping up buyers’ decision. As business software is an invisible object, in buying and selling business software systems, good communication especially in technical expressions, communication styles and public speaking skills are the key to every persuasion. In this aspect, American and English people are regarded highly not only in public speaking and technical presentations, but also in documentation.

Similar or familiar social and business culture has a role in the decision. As European-Australians (EA) have more exposure to the Western culture, they appear to understand the behaviours of the people from these Western countries. While EA are more familiar with their European business culture of direct approach to business and contract negotiations, they find less familiar with the Japanese business culture. Asian-Australians (AA) are not only knowledgeable of Western business culture but also appear to understand the Japanese way of informal style of business dealings. Having similar ethnicity and culture, they can have a good or better working relationship with the Japanese than with those from Germany, France and Italy. EA like to do business with those of European background more than with those from Japan while the AA do not appear to show their concern on this issue.

As Australia is considered a Western country in many aspects, from ethnicity, social rituals and culture to business even though it is geographically closer to Asia than Europe, the end result of this survey is a notion of generalization that while Western buyers have higher preference for systems from vendors of their own cultures, Asian buyers can accept both Japanese systems and Western systems for their business operations. It is because East and Southeast Asian people are not only familiar with the Western culture but also to the Japanese culture.

The result of this survey provides a strong reasoning that explains why Japan-made software systems or Japanese software vendors have stronger presence in the East and Southeast Asian markets than in the European and American markets as reported earlier.

V. CONCLUSION

The research has found the reasons that can explain why Japan’s software globalization performs better to the East and Southeast Asian countries than in European countries and America. The fact that Japan’s software globalization has performed well in the East and Southeast Asian countries appears to be because similar cultural factors, such as same Asian identity, similarities in social and business cultures with other Asian nationals, and Japan’s cultural power in this region, have compensated for their communication problems in this business. The problem that Japan’s software globalization has had in the European and American markets is that in addition to the Japanese’s communication problems and Westerners preferring to buy systems from vendors of Western background, their contrast cultural factors, such as dissimilarities in social identity and business culture, collectivism versus individualism, do not help the Japanese business to build good business relationships with Western customers.

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