

JETRO Philippine IT Industry Update: 2007-No.4 Software Development Industry

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1 Introduction

Main topics of this issue are updates on Philippines' software development industry. This issue covers industry data and information obtained after the issue No. 4 of 2006 (August, 2006) which featured the same industry. It also discusses topics on embedded software development in the Philippines as demand for embedded software engineers is particularly high in Japan. A list of embedded software development companies and initiatives in embedded system development engineer training at UP-ITTC (University of the Philippines IT Training Center) are also introduced in this report.

Software development company introduction section features 4 companies. Two of them, ASJ and IMI are Ayala group of companies and both of them established office in Japan in 2006 and 2007 respectively. Other two companies taken up in this issue are GSI, a Filipino owned company strong in geographical information systems and Ubiquitous Technologies Philippines, a Japanese owned embedded software development company.

On the last page of this report is an updated list of Philippine based software development companies that are already servicing or interested in servicing Japanese market.

2 Philippines' Software Development Industry

2.1 Overview and Recent Trends

Table 1 presents selected data on the Philippines' software development industry. According to a survey conducted by the Central Bank of the Philippines (BSP) in 2006, software development industry's total revenue in 2005 was about US\$ 400 million, of which 40% (US\$ 160 million) came from export revenue. The size of the Philippines' software development industry is a fraction of that of India and China while it is twice as large as that of Vietnam, as of 2005. (See Table 2) Data from Business Processing Association Philippines (BPA/P) says that the software development industry's export revenue in 2005 and 2006 were about US\$200 million and US\$ 272 million respectively. BPA/P projects that the Philippines' software export revenue in 2010 to reach US\$1.2 billion.

Table 1: Selected Data on Philippines' Software Development Industry (Source)

2005 Industry Revenue	US\$ 400 M (41%+ from 2004) (Survey by BSP in 2006) ¹
2005 Export Revenue	US\$ 160M (60%+ from 2004) (Survey by BSP in 2006) See Figure 1 for destinations
2006 Export Revenue	US\$272 Million (BOI-CICT-BPA/P, 2007)
No. of Software Development Companies	About 380 (PSIA 2006)
No. of Software Professionals (Incl. those employed in non-software industries)	About 79,000 (Study by XMG, 2006)
No. of IT Graduates	37,603 (CHED, 2005)
No. of Philippine Software Industry Association (PSIA) Member Companies	105 (PSIA, 2007)
2005 Employment in Software Industry	17,829 (Survey by BSP in 2006)
No. of Japanese Owned/Affiliate Software Development Companies (Incl. captive development centers)	About 20 (JETRO)
No. of Non-Japanese Owned/Affiliate Software Development Companies Providing Offshore Development Services for Japanese Market	About 15 (JETRO)
CMMI	Level 5: 8 Level 3 : 10 Level 2 : 2 (JETRO)

Table 2: Software Industry Sales and Export Sales of the Philippines, India, China and Vietnam (Data of 2005, in US\$ Million)

Country	Industry Sales	Export Sales	% of Export
Philippines ²	400	160	40%
India ³	23,000	18,000	78%
China ⁴	47,700	3,600	8%
Vietnam ⁵	250	70	35%

Japan is the 2nd Software Export Destination, after U.S.

The survey by BSP revealed that Philippines software development industry's export to Japan in 2005 accounted for 25% of the total export and Japan ranked as the second export destination after U.S.A. which accounted for 45%. (See Figure 1) In a separate study on Philippines' software industry conducted in 2004 sponsored by Canadian ODA, software export destination ranking at that time was U.S.A. (40%), Europe (40%) and Japan (12%). Although we should not simply compare these two different studies, there seems to be

¹ Survey by BSP reported in Philippine Pesos (Php.) In this report, it was converted to US\$ by exchange rate US\$1 = Php. 55.09.

² Source: Report of survey conducted by BSP in 2006.

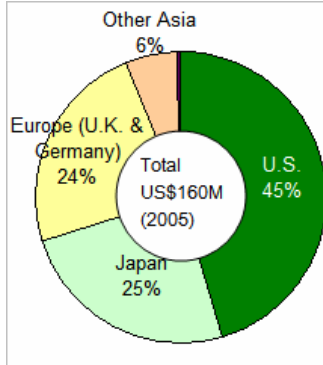
³ Source: NASSCOM Indian IT Industry Factsheet

⁴ Source China Software Industry Association (Software industry size as of 2005 amounted to 390 billion RMB. Computed at \$1=8.18 RMB)

⁵ Source: <http://english.vietnamnet.vn/tech/2007/06/707710/>

an indication of increasing trend of software export from the Philippines to Japan. While majority of the export revenue from Japan could probably be attributed to the activities of about 20 or so Japanese owned software development companies based in the Philippines, interest to Japanese market among non-Japanese software companies seems to be rising recently.

Figure 1 : Philippines' Software Export Destination (2005)⁶



Filipino Companies Establishing Presence in Japan

Recent notable moves by Non-Japanese software development companies entering and/or expanding business in Japanese market would be establishment of Japan office by three Filipino owned companies in 2006 and 2007. In 2006, ASTI, a system integrator under one of the Philippines' largest conglomerate Ayala Group opened Ayala System Japan (ASJ). In the same year, Alliance Software, a Cebu based software development service company lead by young Filipino entrepreneurs also opened their Japan office. In 2007, another Ayala group company, EMS (Electronics Manufacturing Service) provider IMI also established office in Japan.

Intensifying Competition over Human Resource and Increasing Industry-Academe Collaborations

Competition over software development human resources in the Philippines is intensifying. Factors behind this include expansion and new entrance of software development operations by large U.S. companies such as Accenture⁷, Lawson Software and others, contact centers and BPO companies being competitor of hiring software development talent, and exodus of software engineers to abroad such as Singapore and Middle East. In July 2007, Philippine Software Industry Association (PSIA) issued a statement expressing strong opposition to aggressive recruitment practices in the Philippines by Singaporean recruiting firms. The pressing need and importance of human resource development for software industry's future growth are widely recognized and industry-academe collaboration is becoming increasingly active at individual company and specific school level.

⁶ Source: Report of survey conducted by BSP in 2006.

⁷ Accenture which employs 12,000 people in the Philippines opened their first facility outside Metro Manila in August 2007 in Cebu. Accenture's Cebu facility will be offering Application Management, System Development and other high value added IT outsourcing services to their global clients. They also plan to expand their business to BPO and call center services and plans to hire 500 to 700 workforce. (Source: Local newspapers on August 3, 2007 and press release from the Philippine Information Agency (PIA) press release on August 2, 2007.

However, industry-wide or nation-wide strategic initiatives specifically targeting the building of future software development resources are yet to be seen at the moment.

Increasing On-Site Work in Japan

Over the past few years, not only companies operating offshore software development based in the Philippines but also companies sending Filipino engineers to work in Japan have been becoming increasingly active. One of the most recent news was the establishment of Jobstreet.com, an internet based job matching services operating in 7 countries in Asia including the Philippines, in Japan as a joint venture with a Japanese company Asian Commission. They will start offering foreign engineer job matching services for Japanese market soon.

PhilNITS Certification for IT Engineers, Gradually Expanding

Philippine National IT Standard (PhilNITS) exam and certification for IT engineers, started in 2002, is a mutually recognized certification not only between Philippine and Japan but also among other Asian countries that are members of ITPEC (Information Technology Professionals Examination Council). PhilNITS-FE (Fundamental IT Engineers Examination) so far produced 472 passers over 5 years while PhilNITS-SW (Software Design & Development Engineer Examination) was administered for the first time in 2007 and 13 out of 20 Filipino software engineers who took the exam passed. In the 2nd and 3rd Pan-Asian FE examination administered in October 2006 and April 2007 respectively, Philippine marked the highest passing rate (13.2% in October 2006 and 26.9% in April 2007) among the participating ITPEC member countries.

JICA Supported IT Human Resource Development Project at University of the Philippines Started 3rd Batch

University of the Philippines IT Training Center (UP-ITTC) was established in 2005 with assistance and support from Japan International Cooperation Agency (JICA) in order to fill the gap between the current output of the academe and real needs of the industry in IT human resources. Their training curriculum includes not only technology but also business and Nihongo. UP-ITTC's one year full time course graduated 80 in the past two years and another 80 are currently enrolled.

Supply of Nihongo Capable Engineers is Limited but there are Signs of More to Come in the Future

Admittedly, only very limited number of companies in the Philippines today have software engineers who are proficient in Nihongo. (Those are mostly Japanese owned companies.) However, there are some signs that imply the situation may improve in the future. For example, Japanese Chamber of Commerce and Industry Philippines (JCCIP) recently established "Business Nihongo Committee" to investigate and propose measures to increase Nihongo capable human resources in the Philippines. Also, some Filipino owned software companies are starting to have in-house Nihongo training. UP-ITTC mentioned in the previous paragraph allocates 400 hours of Nihongo training in their 1,600 hour training curriculum.

2.2 Embedded Software Development in the Philippines

It is very difficult to estimate the size of the embedded software

development industry in the Philippines for there is no statistical data available. Based on various sources such as JETRO's ITS/ITES Company Directory which JETRO updated in March, 2007, company websites, and hearing from the industry, JETRO created a list of companies that are engaged in embedded software development. (See Table 3) Total number of employees in the 10 Japanese companies included in this list is estimated at about 1,600 but specific number of engineers engaged in the embedded software development is unknown.

Table 3: List of Companies Engaged in Embedded Software Development in the Philippines (JETRO study)

Company Name	Ownership	HW	Type
Advanced World Systems, Inc.	J		T
ASTI (Advanced Science & Technology Institutions) of DoST	F	X	T
Astra (Philippines), Inc.	J		T
Fujitsu Ten Solutions Philippines, Inc.	J	X	S
Tsukiden Software Philippines, Inc.	J		T
Ubiquitous Technologies Philippines, Inc.	J		T
NEC Telecom Software Philippines, Inc	J		S
N-Pax Cebu Corporation	J		T
Canon Information Technologies Philippines, Inc.	J		S
Epson Software Development	J		S
System For Information Technology, Inc.	J		T
ASTECC	A	X	S
Emerson Network Power Embedded Computing (Engineering Center)	A	X	S
NCR	A	X	S
Lexmark Research & Development	A		S
Alliance Outsourcing & Software Development, Inc.	F		T
IMI Design & Engineering (formerly EAZIX)	F	X	T
MiCOM	F	X	T
Symphony Consulting	F	X	T
Hugle Technologies, Inc.	F	X	S

Legend: **Type:** S: Shared Services, Development Center T: Outsourced Services Provider, HW Column indicates if the company has embedded hardware design/development capability as well.

Recognition about "embedded system" and/or "embedded software" in the Philippines is not as high as in Japan. Most of the embedded development engineers in the Philippines are graduates of electronics and communications engineering (ECE), electrical engineering (EE) and mechanical engineering (ME) graduates. There are corresponding board exam for these professional and the number of recent board exam passers is presented in Table 4 below.

Table 4: No. of Selected Board Exam Passers in the Philippines

Board Exam Category	2005	2006
Electronics and Communications Engineer (ECE)	2,298	2,438
Electric Engineer (EE)	3,834	3,489
Mechanical Engineer (ME)	1,697	1,696

2.3 Embedded Engineer Training at UP-ITTC

Since 2004, JICA and the University of the Philippines (UP)

have been implementing "Philippine IT Human Resource Development Project" (July 2004 to July 2008). Under the project, UP-ITTC was opened in June 2005. UP-ITTC offers 1 year full time course (1,600 training hours) for fresh graduates and IT professionals with only a few years of industry experience aiming to equip them with proper IT skills aligned with the industry needs. From this course, 26 first batch graduated in April 2006 and 54 second batch graduated in April 2007. Many of the UP-ITTC graduates are now working in Japanese IT companies based in the Philippines. The 3rd batch of UP-ITTC full time course students, 80 of them, started the second semester on August 27, 2007 and working hard to acquire both technical skills and Nihongo proficiency targeting to graduate in April 2008.

UP-ITTC started offering Embedded System Specialization track from the second batch (school year 2007-2007). Of the 4 semesters of 1 year full time course, 3rd and 4th semesters are for specialization track. Embedded System Specialization track at UP-ITTC is composed of 162 lecture hours and 354 workshop hours. In April 2007, 13 graduated from the Embedded System Specialization track. Nine of them were employed by Japanese embedded software development companies, one of them was employed by a Japanese human resource augmentation service company, two of them set up their own business and one joined UP-ITTC as a faculty. UP-ITTC is targeting to secure 30 students to take up the Embedded System Specialization track in 2007.

Table 5: Time Allocation at UP-ITTC Embedded System Specialization Track (in Hours)

Level	Lecture	Workshop
Level 3 (3 rd Semester)	90	168
Level 4 (4 th Semester)	72	186

At the end of each semester of the Embedded System Specialization track at UP-ITTC, students are given a project. The project assignment given to students of the previous batch were development of ITRON Alarm Timer (36 hours) and mobile robot (mobot) using embedded Linux, Linux device driver, real time operating system (RTOS) and HDL (114 hours). At the final project presentation, mobots developed by the students competed in games such as line following race, maze-solving race and sumo wrestling (See picture below).



To implement embedded systems development engineer training at UP-ITTC, JICA sent short term experts twice to conduct training and technical transfer for future faculties. Participants of these training are actually contributing to the UP-ITTC embedded system specialization track as full time or

part time faculties. UP-ITT faculty members Mr. Emmanuel Rex T. Rodoriguez (in the picture, right) and Mr. Noel Benedict C. Ramos (in the picture, left) are two of the participants of JICA technical transfer training sessions. Showing an evaluation board and JTAG⁸ debugger which they used in the embedded Linux training, they said they want their students to try developing MP3 player or network camera as their next project. In November 2007, third session of technical transfer training by JICA expert focusing on device driver development is scheduled.



This report mainly featured the embedded system development track of UP-ITT but more detailed and updated information about UP-ITT in Japanese language can be found at <http://www.ittc.up.edu.ph/ithrd/>.

⁸ JTAG: *Joint Test Action Group*. Standard method of boundary scan test, one of the IC chip inspection method. It is also the name of the industry organization that set such standard. (Source: e-Words)

3 Software Development Companies

3.1 ASJ (Ayala Systems Japan)

ASJ was established in 2006 as Japan office of Ayala Systems Technologies, Inc. (ASTI), a Philippine based systems integrator under Ayala group, one of the largest conglomerates in the Philippines. Established in 1988, ASTI had been building reputation and track records as a systems integrator for Philippines local market. In 2006, however, ASTI made a major strategic decision to transform itself from domestic SI company to total IT service provider for international market. ASTI's Technology Service Division, headed by Mr. Basilio D. Lasco Jr. (in the picture) is a new division created to specifically pursue this new strategy of IT services for international market.



The Technology Services Division, started in 2006 has already grown to a team of 90+ employees as of August, 2007 wherein 60+ of them are for Japanese market businesses and 8 of the 60 are assigned in Japan. In the Philippines' IT services industry where "international" market typically means U.S. and European markets, Ayala group's emphasis on Japanese market clearly stands out. Technology Services Division has an aggressive expansion plan of increasing the number of workforce to 256 in 2008, 512 in 2009 and 1,024 in 2010. Mr. Lasco said he would foresee more than half of them to be engaged in Japan businesses.

ASJ and ASTI offer the following suite of services to Japanese market under the brand of "Global Bridge".

- ◆ Global Resourcing
- ◆ Offshore Software Development
- ◆ Offshore Software Testing & Maintenance
- ◆ Incubation Support Services
- ◆ Oracle Practices Services

The brand "Global Bridge" envisions ASJ and ASTI bridging the gaps that Japanese companies may face as they pursue global business expansion strategy. In other words, "ASJ/ASTI as the IT services provider for Japanese companies who plans to enter into the mainly English speaking global markets". At the same time, to address the Japanese language barrier, ASTI has started in-house training on Japanese language. Aside from 10 employees who are already JLPT⁹ level 2 or 3, currently 33 managers & staff study Nihongo regularly.

One specific area that ASJ/ASTI focuses as an opportunity for Filipino IT engineers to shine in Japanese IT industry is Open Source Software (OSS). They believe the use of OSS will greatly increase in Japan soon. As English is the predominant communication and documentation language in global OSS communities, Filipino IT engineers' proficiency in English would help Japanese companies to learn and acquire the latest developments in OSS technology and adopt them much faster than waiting for Japanese translation of necessary documentation and information.

⁹ Japanese Language Proficiency Test

Although it has been less than a year since the launching of ASJ, engineers of ASJ/ASTI are already participating in business application software development project for a Japanese bank. Development work locations of this project are distributed across three countries, Japan, Philippines and India. Recalling the first year of operation after entering Japanese market, Mr. Lasco said "Japanese clients demand extremely high quality and faster speed of delivery compared to what we have experienced with our U.S. clients." And he added that they are adjusting and improving to better satisfy their Japanese clients.

"There are globally successful large Indian IT service providers such as Wipro and Infosys. We aspire to become the No. 1 Filipino IT service provider in the global market. We believe that if there is any Filipino company that can achieve it, it should be us in Ayala group." Mr. Lasco shared the company's determination.

(Website: www.asj.ayalasytems.com)

3.2 IMI Design & Engineering (formerly EAZIX)

Established in 1980, IMI is a large EMS (Electronics Manufacturing Service) provider with 21,000 employees, servicing global OEM companies. IMI is a member of the Ayala group of companies. EAZIX, a subsidiary of IMI established in 1998 as IMI's ODM (Original Design Manufacturer¹⁰) arm has recently been merged into IMI as Design & Engineering division (hereafter referred to as IMI-DE).

While IMI-DE offers services such as embedded system design, product development and engineering, IMI's manufacturing facilities can also handle the succeeding mass production phase as well. IMI operates design centers not only in Manila but also in Singapore, China and the United States. IMI-DE located in Manila, with about 80 employees, focuses on the design and development of embedded systems, wireless devices and test equipment. IMI is a unique company in the Philippines that has the capability to design, develop and engineer electronics products from the concept brought in by the customer, mass-produce, package, deliver and provide after sales services.

One of the examples of products IMI-DE recently designed and developed based on customer's product concept is a "Golf Ball Finder", a handheld device with embedded system which locates lost golf balls by receiving RF (radio frequency) signals from the RF-Tags embedded in the balls. Other products IMI-DE recently developed include electronic white board controller, smart metering device¹¹, wireless sensors, various devices deploying ZigBee¹², test equipment for electronics

¹⁰ ODM provider designs, develops and manufactures products that will be sold under their customers' brand.

¹¹ Smart Metering Device refers to utility (mostly electricity) consumption metering device which has new features such as data communication capability that allows remote and automated metering, consumption data logging per time of use or interval base, etc. Smart Metering has started in Europe and North America. Expected benefits of smart metering include energy conservation by improved demand control, diverse pricing scheme, prevention of fraud (falsification of metering device), among others.

¹² ZigBee is one of the standards for short range wireless communication. Compared to Bluetooth, ZigBee's signal transmission

device.

In 2006, sales to Japanese customers accounted for 53% of IMI's total sales (approximately US\$400 million) while American, European and other Asian customers accounted for 19%, 16% and 16% respectively. Recognizing that Japan is the most important market for IMI, the company established IMI Japan in February 2007. IMI Japan serves not only as sales and marketing office but also performs engineering services. As of September, 2007 two (2) full time engineers specializing in embedded Linux are assigned in Japan.

IMI intends to expand not only EMS businesses but also ODM services in Japanese market, leveraging embedded system development capabilities of IMI-DE. IMI-DE is particularly keen on tapping into Japanese automobile industry as it has experienced successes in automobile market in Europe.



Mr. Michael R. Hansson, Managing Director of IMI Design & Engineering (left) and Mr. Luke B. Mendoza, Head of Value Engineering at IMI Design & Engineering (right)

(Website: www.imiphil.com/comp_prof_eazix.html)

3.3 Geo Spatial Solutions (GSI)

GSI, established in 1999, is a 100% Filipino owned IT solution provider specializing in Geographical Information System (GIS) and e-Government Portal Development. GSI is ISO9000:2000 certified and currently working on CMMI Level 3. As of August, 2007, no. of employees at GSI is 40. Mr. Efrén E. S. Ricalde, president and CEO of the company, is a long time Japanophile ever since he heard about Japan, from his father who made a business trip to Japan in 1970's, as a country where people value honesty and hard work. Even today, "honesty" and "hard working" are core of his management philosophy.

In 2005, GSI worked on a JICA (Japan International Cooperation Agency) sponsored project in which GSI created the latest map for Autonomous Region in Muslim Mindanao (ARMM), covering the entire 13,000 square kilometers of ARMM area. In this project, GSI created electronic map based on the image data taken from satellite, and updated the existing 1:50,000 topographic maps from NAMRIA (National Mapping and Resource Information Authority). The ARMM map developed by this project is going to be utilized in the

range is shorter and speed is slower but it consumes less power and cost is lower too.

various development project of the region in the future.

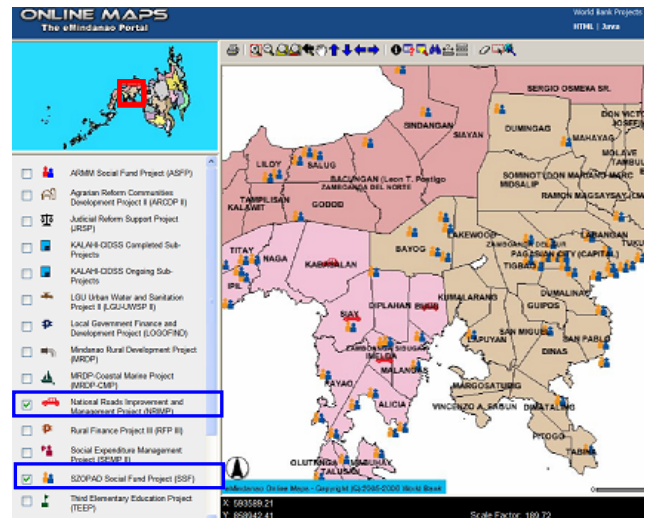


Mr. Efren E. S. Ricalde, president and CEO and Ms. Gemma Pelagio, Vice President and COO of GSI holding one of the 68 pages of ARMM maps they created in one of the JICA sponsored project they participated.

Another JICA project they recently delivered is Road Slope Management System (RSMS). This system centrally manages the data and pictures gathered by road slope field surveys conducted all over the Philippines by DPWH (Department of Public Works and Highways) regional offices in order to utilize such data and information for risk analysis and pro-active disaster prevention measures.

GSI also developed eMindanao Portal (<http://portal.emindanao.org.ph>) website and web application for World Bank funded projects. This site serves as a portal for World Bank Manila Office to centrally manage various data on all the World Bank supported development projects all over Mindanao. The system can provide project progress/status and generates reports on projects. On the online map where development project locations are graphically indicate on the map, not only the World Bank projects but also other projects supported by other international development aid organizations such as Asian Development Bank (ADB), Japan Bank for International Cooperation (JBIC), International Fund for Agricultural Development (IFAD), etc. can also be found on the web site of e-Mindanao Portal. GIS, as an IBM's premium business partner, built this portal on the IBM technology platform such as WebSphere Portal and DB2.

GSI is keenly interested in the Japanese market as their area for future expansion. They have initiated in-house Japanese language lessons where 20 students are currently learning Nihongo. Meanwhile, Ms. Gemma Pelagio, COO of the company joined the 3 month project management training by Japan's CICC (Center of the International Cooperation for Computerization) held in Japan last year and she passed level 4 of Japanese Language Proficiency Test. She is now aiming for higher level of proficiency.



Sample screen shot of Online Map on eMindanao Portal developed by GSI. Of the entire Mindanao map (upper left), selected area (inside red border) is zoomed up on the right side. Plotted on the zoomed up map are national road improvement projects and social fund projects supported by World Bank as selected on the lower left side.

(Website: www.gsi.com.ph)

3.4 Ubiquitous Technologies Philippines

Ubiquitous Technologies Philippines (hereafter referred to as UTP) is a 100% subsidiary of Ubiquitous Technologies, headquartered in Yokohama, Japan. JETRO interviewed Mr. Satoshi Azuma, the vice president of the company in UTP's office in Makati City in Metro Manila, Philippines.

As of August 2007, UTP has 30 engineers and they are engaged in development of mobile phone related embedded software, embedded Linux related software and software development support tools. UTP has developed and launched its own project management tool software product named CIQUEN (Collaborative and Innovative Quality Engineering). Several companies in Japan has implemented CIQUEN and using it for the management of software development projects that involve distributed development locations such as India, Manila and Japan.

UTP developed CIQUEN focusing to address the three major challenges of project management they identified. Those three challenges are 1) output was different from what was expected, 2) project progress is not clear, 3) history of specification additions/changes cannot be properly managed because those are separately communicated using e-mail. CIQUEN is composed of 6 modules and each module has corresponding CMMI¹³ process areas. (See the Table 6.)

Filipino engineers with about 10 years of industry experience who used to be the users of other project management tools lead the development of CIQUEN at UTP. All phases of the product development from planning to designing and developing were done in the Philippines. For CIQUEN supports both Japanese and English user interfaces, UTP is currently preparing for market launch outside Japan. CIQUEN is offered in three different delivery models. The conventional model is to install CIQUEN in the servers owned by the

¹³ CMMI: Capability Maturity Model Integration

customer. CIQUEN can also be offered in ASP (Application Service Provider) model or customers may opt to rent a server in which CIQUEN is pre-installed.

Table 6: Summary of 6 Modules of CIQUEN

Module in CIQUEN	Corresponding CMMI Process Area	CIQUEN Functionality
Problem Management	PMC	Action Items and Problems Management
Progress Management	MA	Managing Plan vs. Actual
Configuration Management	CM	Latest Document Information Sharing
Change Management	REQM	Specification Change, Change Request
Review Management	PPQA	Document Review Reports
Bug Management	PPQA	Bug Management (Description, Investigation, Action)

UTP conducts Nihongo training twice a week by bringing in external instructors. Some of its employees are sent to Japan for over a year so they can acquire practical Nihongo skills through OJT (On the Job Training). While UTP puts great deal of efforts into Nihongo training of its Filipino employees, it is also consciously seeking business opportunities that could leverage Filipinos' strength in English. For instance, some engineers of UTP are assigned to a project for a foreign company operating in Japan. In such circumstances, Filipinos' English proficiency is of great advantage and it tends to boost motivations.

Mr. Azuma shared his observation that competitive environment in recruiting software engineers in the Philippines has changed significantly over the past few years. In hiring software engineers, UTP often face competition not only with large American and European software firms but also call centers and BPO companies. Mr. Azuma said that he feels the need for some initiatives that encourage more young Filipinos to be interested in Japan in order to further develop collaboration between Japan and the Philippines in the field of software development in the future.



Mr. Satoshi Azuma, vice president of UTP (front row, right) and employees. (Photo taken at UTP office in Makati City, Philippines)

(Website : www.ubiquitous-tech.com)

4 Data & Statistics

4.1 IT Related Enrollment & Graduates

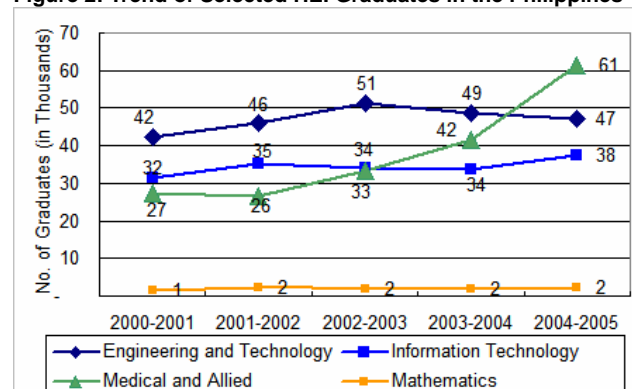
Table 7 shows the selected data on IT education at Higher Education Institutions (HEIs) in the Philippines. In 2005, 37,603 graduated from IT related courses. Compared to this number of IT graduates, however, there were only 210 graduates from Master's and Doctoral courses of IT discipline.

Table 7 : Selected Data on Philippines Higher Education and IT

No. of HEIs offering IT related courses	695 (2006) <ul style="list-style-type: none"> No. of Campuses : 910 No. of Courses : 1,900
No. of Universities	88 (2006)
No. of Faculties in IT Related Courses	5,591 <ul style="list-style-type: none"> In Public HEI: 723 In Private HEI: 4,868
No. of Enrolments (AY2005-2006)	
Information Technology	235,342 (Incl. 1,821 in Master's and Doctoral)
Engineering & Technology	302,389 (Incl. 2,890 in Master's and Doctoral)
Mathematics	12,716 (Incl. 910 in Master's and Doctoral)
No. of Graduates (AY2004-2005)	
Information Technology	37,603 (Incl. 210 from Master's and Doctoral)
Engineering & Technology	47,200 (Incl. 489 from Master's and Doctoral)
Mathematics	2,191 (Incl. 94 from Master's and Doctoral)

Japan Information Technology Services Industry Association (JISA) alerted, in a recent report titled "Proposal on HR Strategy for IT Service Industry", with the sense of crisis that the career in IT Services industry in Japan is becoming increasingly unpopular among students. In the Philippines, important criteria in selecting one's career includes whether or not you have a chance to work abroad by choosing the profession, which often times means higher salary than working in the Philippines. In recent years, graduates of Medical and Allied courses have been rapidly and significantly increasing because many Filipinos seek the opportunity to work abroad as care givers and nurses. On the other hand, graduates of IT related courses has not been increasing much while that of Engineering and Technology turned to a declining trend in 2003. (See Figure 2)

Figure 2: Trend of Selected HEI Graduates in the Philippines



4.2 Fixed Telephone Lines and Mobile Telephones

While the subscribed teledensity (fixed telephone line) in the Philippines has been stagnant at around 4% for many years, mobile phone density progressed far more rapidly and reached 41% in 2005, ten times higher than that of fixed telephone line. (See Figure 3 and Figure 4) Nation wide average of subscribed teledensity was 4% in 2005. If you separately look at national capital region (NCR) and the rest, teledensity in NCR was 14.4% as against 2.4% in the rest of the regions, indicating far lower penetration of fixed telephone lines outside NCR. (See Table 8)

At the end of 2005, there were 34.8 million mobile phone subscribers in the Philippines. SMART had about 44% share of the subscribers while the shares of GLOBE, PILTEL and DIGITEL were 36%, 14% and 5% respectively.

Figure 3: Trend of Fixed Telephone Lines and Teledensity in the Philippines¹⁴

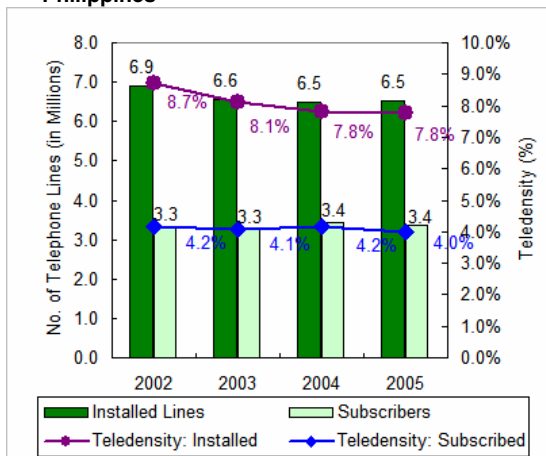
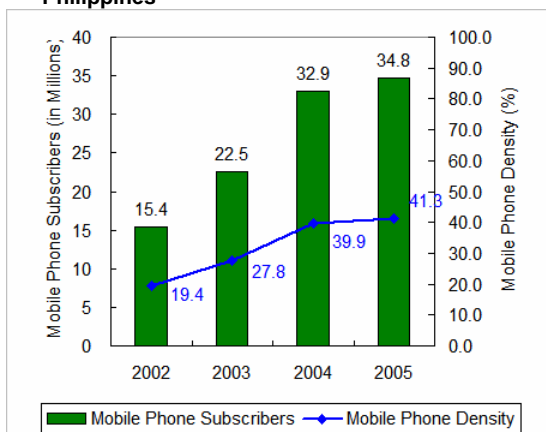


Figure 4: Trend of Mobile Phone Subscribers and Density in the Philippines¹⁵



¹⁴ Source: Data from National Statistics Coordination Board (NSCB) Philippine Statistical Yearbook 2004 and 2006
¹⁵ Source: No. of Subscribers from National Telecommunications Commission (NTC). Mobile telephone density was computed based on the number of subscribers and population data from NSCB.

Table 8: Teledensity Comparison between NCR and Outside NCR

Year	Teledensity (%) NCR		Teledensity (%) Outside NCR	
	Installed	Subscribed	Installed	Subscribed
2002	26.5	15.8	5.9	2.3
2003	25.8	15.1	5.3	2.4
2004	25.2	15.2	5.1	2.5
2005	25.2	14.4	5.1	2.4

4.3 Internet Penetration

This section presents collection of data concerning the state of internet penetration in the Philippines. First, PC penetration to household in 2006 was 8% or 1.4 million households have PC. (See Figure 5) Number of Internet users surged by 165% from 3.4 million in 2005 to 9 million in 2006. (See Figure 6) It is estimated that about the half of 9 million internet users access internet from internet cafés. Internet penetration rate for the 83 million population in the Philippines is about 11%.

Figure 5: Households with PC (Philippines)¹⁶

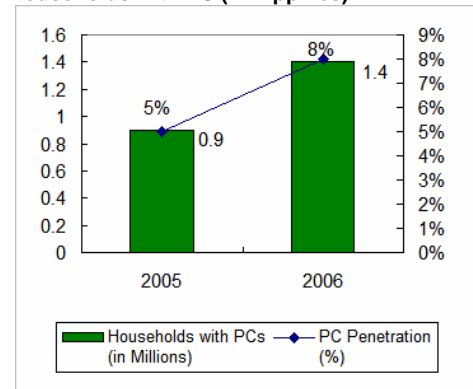
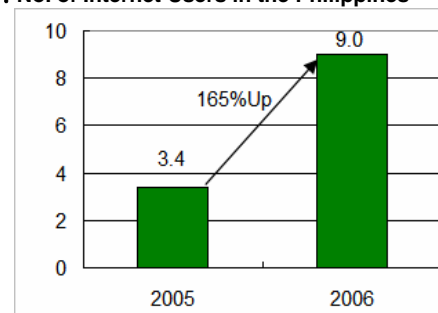


Figure 6 : No. of Internet Users in the Philippines¹⁷ (in Millions)



Regarding the number of ISPs and subscribers in the Philippines, National Telecommunications Commission (NTC) estimated that there were 177 NTC registered ISPs and 1.44 million subscribers to these ISPs in 2005. (See Figure 7)

Table 9 presents the number of broadband service subscribers of two major service providers, PLDT and GLOBE. As of the end of 2006, total number of broadband subscribers from these two major providers was 316,075. PLDT estimated that the total number of broadband service subscribers in the Philippines as of June 2007 was approximately 340,000. Further, IDC Philippines projects that Philippines' broadband

¹⁶ Source: Data from PLDT Annual Report 2006 Presentation (based on Omnibus Study by AC Nielsen in 2005 and 2006.
¹⁷ ditto

subscribers will increase from 165,000 in 2005 to 475,000 in 2010.

Figure 7: No. of ISPs and Subscribers in the Philippines¹⁸

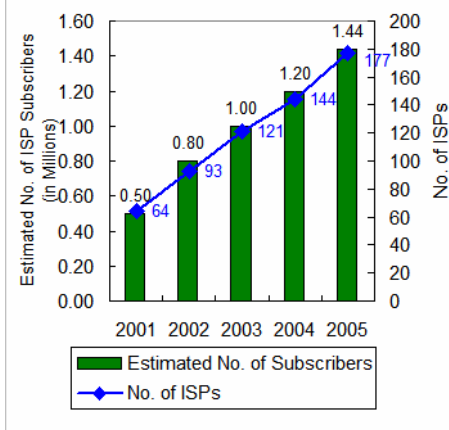


Table 9: Broadband Service Subscribers from PLDT and GLOBE¹⁹

Carrier	Broadband Service Brand	No. of Subscribers	
		2005	2006
GLOBE	Globelines Broadband	22,479	51,426
PLDT	Smart Broadband "SmartBro" (Formerly Smart WiFi)	21,750	121,867
	PLDT WeRoam	5,000	9,623
	PLDT DSL	88,811	133,159

4.4 Broadband Access Cost (Monthly)

Table 10 presents the prices of DSL broadband connection services offered by PLDT, GLOBE and DIGITEL, as of August 2007. (Prices are taken from the respective company's website.) As each service provider's service package contents (such as the number of static IP addresses, CIR, disk space and mail addresses, etc.) differ, simple comparison based only on the maximum speed may not be appropriate. It is advisable that readers treat this table as a reference.

Table 10: Broadband Access Prices from Major Providers in the Philippines²⁰

Max Speed (Downstream)	PLDT	GLOBE	DIGITEL
384Kbps	N/A	N/A	N/A
512Kbps	N/A	N/A	1,964
640Kbps	N/A	N/A	2,946
768Kbps	N/A	888	3,929
1Mbps	N/A	N/A	4,911
1.2Mbps	N/A	N/A	N/A
1.5Mbps	N/A	N/A	7,857
1.6Mbps	N/A	2,228	N/A
2Mbps	3,000	3,121	19,643
2.2Mbps	4,000	N/A	N/A
2.7Mbps	8,000	N/A	N/A
3Mbps	14,500	5,353	N/A

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¹⁸ Source: Data from National Telecommunications Commission (NTC)

¹⁹ Source: Data from 2005 and 2006 Annual Report of PLDT and GLOBE.

²⁰ This table was created based on the price information on respective company's website as of August 1, 2007. Prices are exclusive of VAT.

APPENDIX: Companies based in the Philippines that are providing software development services to the Japanese market, or are interested in providing such services to the Japanese market

Name of Company (In alphabetical order) <i>Blue Font</i> indicates companies featured in this report	Ownership	Type	With Japanese Market Experience	Website Address	Specialized Software Field					
					Embedded	Office Applications	Utilities	eCommerce	EAI	Others
Advanced World Systems	J	T	X	www.awsys-i.com	X	X	X	X		
Advanced Synergies Philippines	F	T	X	www.asp.com.ph		X				
Allied Telesys Labs (Phils.)	J	S	X	www.alliedtelesyn.com.ph		X				X
Astra Philippines	J	T	X	www.astra.ph		X	X	X		
<i>Ayala System Technology, Inc.</i>	F	T	X	www.ayalasytems.com		X		X		X
BlastAsia	F	T	X	www.blastasia.com						
Blue Eyed Dragon Technology	F	T	X	www.bluedragon.ph		X		X		X
Canon Information Technologies	J	S	X		X					
Denso Techno	J	S	X							
E-HIME System Corporation	J	T	X	www.e-hime.ph		X				
Esperant System Philippines	J	T		www.esp.ph		X				
Exist Global	F	T		www.exist.com		X	X	X		
Fujitsu Ten Solutions	J	S	X	www.fujitsu-ten.co.jp	X	X				
<i>Geo Spatial Solutions, Inc.</i>	F	T		www.gsi.com.ph		X				X
Headstrong	A	T	X	www.headstrong.com	X	X			X	
<i>IMI Design & Engineering (formerly EAZIX)</i>	F	T		www.imphil.com	X					
Imperium Technology	F	T	X	www.imperium.ph		X		X	X	X
IT-Tera Philippines, Inc.	J	T	X	www.it-tera.com						
J-SYS	J	T	X	www.jpi.com.ph		X			X	
Jupiter Systems	F	T		www.jupitersystems.com		X				
NEC Telecom Software	J	S	X							X
Nihon Software Outsourcing Vision	J	T	X	www.nsov.net		X				
Pointwest Technologies	F	T		www.pointwest.com.ph		X	X	X	X	
Software Venture International (SVI)	F	T	X	www.svi.com.ph		X				
SQL*Wizard	F	T		www.sqlwizard.com		X				X
System Renovation, Inc.	J	T	X			X				X
System For Information Technology	J	T	X	www.sfit.com.ph		X				
Systema Computer Solutions	F	T	X	www.systemacorp.com		X		X	X	
Trinity Software Philippines	J	S	X	www.tsp.com.ph		X				
Tsukiden Software Group Philippines	J	T	X	www.tspi.com.ph	X	X	X	X		X
<i>Ubiquitous Technologies Philippines, Inc.</i>	J	T	X	www.ubiquitous-tech.co.jp	X	X	X			
WeServ	J	T	X	www.weserv.com.ph		X	X	X	X	
Advanced World Systems	J	T	X	www.awsys-i.com	X	X	X	X		
Alliance Software	F	T	X	www.alliance.com.ph	X	X		X	X	
Cybertech	J	S	X	www.cybertech.co.jp		X	X	X	X	
Designex	F	T		www.dsnx.com		X		X	X	
EPSON Software Development Center	J	S	X		X	X				
Exist Global	F	T		www.exist.com		X	X	X		
iCatchIT	A	T	X	www.icatchit.com		X				
NEC Telecom Software	J	S	X		X					X
N-Pax	J	T	X	www.n-pax.com	X	X				

Legend: **Type:** S: Shared Services, Development Center T: Outsourced Services Provider **Ownership:** J: Japanese, F: Filipino, A: American