Information Technology, E-commerce, and the Philippine Economy

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The Role of IT in the Philippine Service Economy

The Philippine economy is undergoing a structural shift. From a predominantly agricultural based economy it had started to transform itself into an industrial one. But before one could say "Industrial Revolution", the services sector started flexing its muscles, initially on the backs of strong growth in real estate before the Asian crisis, and then in newly liberated sectors like telecommunications, financial services and transport.

Then before we knew it, the information age dawned upon us and information technology (IT) has become the next glamour industry. IT brought with it new possibilities of doing business: e-commerce with all its variants of B2B, B2C, etc. E-commerce itself will require a host of services to be provided. Thus IT promises to even further bolster the service sector's position as the engine of growth now for the Philippine economy.

In a sense, the service sector is pioneering the Philippine economy along a new growth paradigm. It used to be thought that a country normally developed first its agricultural sector, then industry, and only lastly, the services sector. Simon Kuznets of Harvard and other growth economists had posited that as the agricultural sector improved in efficiency, it would supply the excess labor and food supply that would enable industry to take off. In turn, industry would provide the market for agricultural products. As the industrial sector developed and matured it would in turn provide the excess labor for services. Moreover, the increasing incomes brought about by development would increase the demand for the products of the service sector.

Philippine industry currently faces the challenge of freer markets; brought about by deregulation and globalization. This means more competition, both domestic and imported competition. It is critical for the Philippines under such an environment to focus on its comparative advantages. The services sector plays perfectly into the country's strengths: a skilled and relatively highly educated English speaking labor force. Information technology and e-commerce, which themselves form part of the services sector, draw on these very same strengths.

The Philippines seems to have skipped the industrial phase of development. Table 1 shows how the service sector has accounted for the largest share of output (GDP) and robust growth in recent years. Quite

recently it has also taken over the top employer spot as well from Agriculture (see Table 2). To be sure, much of the current global information technology development locomotive is pulling our industry (especially manufacturing) along with it. A prime example is the fantastic growth of our exports of electronics and other electrical machinery.

Table 1 Growth Rate by Sector (%)

Year	Agriculture	Industry	Services	GDP
1996	4.1	5.5	6.4	5.6
1997	2.6	6.8	5.5	5.4
1998	-6.6	-1.9	3.5	-0.5
1999	6	0	4.1	3.3
2000H1	2.3	4	4.4	3.9

Source: Philippine Statistical Yearbook

Table 2 Sectoral Shares

Year	Agriculture		Industry		Services	
	Share of GDP (%)	Share of employment (%)	Share of GDP (%)	Share of employment (%)	Share of GDP (%)	Share of employment (%)
1996	21.2	42.8	35.4	16.3	43.4	40.9
1997	20.7	40.8	35.9	16.7	43.4	42.5
1998	19.5	39.2	35.4	16.4	45.1	44.4
1999	20.0	39.8	34.5	15.8	45.5	44.4
2000H1	20.0	37.3	34.2	16.1	45.8	46.5

Source: Philippine Statistical Yearbook and Bureau of Labor

Certainly, this does not at all imply the demise of the so-called “old economy”, as there will always be a need for its products. However, the growing application of the computer and information technology to the various areas of modern life and business activity will provide the growth for the sector. And since the Philippines is only beginning to journey down the road of the “New Economy”, the field is relatively uncultivated yet and hence, there is plenty of room for high growth rates in this initial phase. That we are only taking our initial steps in the New Economy suggests that ancillary industries providing the needed infrastructure (or “infostructure” since it supports information technology) needs to be developed and will likewise see fast growth.

This paper will survey some of the key issues that confronts the Philippines as it seeks to travel down the information superhighway and participate in global e-commerce. The first section will consider a theoretical framework of how e-commerce fits into a modern economy. As pointed out above e-commerce

requires an infostructure involving the telecommunications sector primarily but also other sectors of the economy; e.g. logistics. The paper next introduces the constraints and handicaps that the Philippines must overcome here.

An important ingredient also, besides the physical (some of which are very high tech) infrastructure, is an old world system without which modern society would be in chaos: a legal framework. The paper will also survey the preparedness of the Philippine legal framework to cope with e-commerce. The irony is that the law is having a hard time keeping up with technology. This is not surprising since most laws were formulated by lawmakers who could hardly be expected to have envisioned the way the computer has revolutionized modern life. Indeed, it would have sounded like high science fiction to them.

A Theoretical Framework for Analyzing IT

It is helpful to start with a theory of how IT and e-commerce will impact the economy. Many studies have considered the benefits of e-commerce and the changes to the industrial landscape that it can bring. In this section we will summarize the main channels

The most obvious benefit it brings from an economic standpoint is arguably the efficiencies it promises to bring through the reduction of many transaction costs. Moreover, these transaction costs can be very varied; e.g. reduction of paperwork, faster procurement between firms, convenience of shopping online for consumers etc. The combination of the Internet and information technology can cut down greatly on the time and resources needed to carry out transactions. The Internet minimizes the obstacle of physical distance. Indeed, a World Bank study has aptly described it as “globalization on steroids.” More than ever in the history of mankind, IT can truly make the world a smaller place.

For years economic theory has held up the theoretical model of a perfectly competitive market as the ideal of market efficiency. And for years the usual hindrance to markets approaching that ideal has had its roots in barriers to entry limiting the effective number of competing suppliers. In the real world, those barriers to entry often took the form of prohibitive costs (both time and resources required) of acquiring information on the existence and product prices of alternative suppliers. Today, for more and more products, the Internet allows businesses all over the world to directly advertise their existence in a medium that is literally just a click away from prospective clients. E-commerce can move real world markets closer to that hypothetical ideal of a perfectly competitive market. However, one must also credit the generally more liberalized and open world economy for making it easier to sell across borders.

Even within domestic borders, e-commerce can render traditional barriers to entry insignificant or at least make them less insurmountable. The rise of dot-com operations, for example, illustrate the potential of e-commerce as a great leveler for small and medium scale enterprises. Internet commerce can give even small start-ups a wider reach and market that in previous generations would have required huge capital outlays for brick and mortar edifices and distribution networks. Of course, the recent crash of precisely many of these same dot-com operations casts some doubt on how significant this trend really is.

With e-commerce there is the potential for the middleman to be cut out in many transactions. In part this is what motivates the drive to develop B2B or business to business applications. The Philippines itself can boast of a few fledgling attempts to establish such B2B exchanges that will put firms in contact with their suppliers. E-commerce has great potential then, to also streamline the supply chain of firms and reduce costs of procurement. One area that would greatly benefit from this in generating efficiencies and cost savings could be government procurement.

The irony is that the explosion of easily accessible information may create a new type of middleman: the "infomediary". As we are bombarded with huge amounts of information, we are starkly reminded of a resource that is perfectly inelastically supplied: time. There are only 24 hours in a day and it doesn't look like that is going to change. It becomes critical to be able to wade through the ocean of information and narrow down to what is useful. Infomediaries may arise precisely to fulfill this function.

While we may owe the birth of the Internet largely to US government efforts to establish a network of computers for national security purposes, much of the subsequent growth is the result of spontaneous private sector activity. Perhaps this is why the Internet evokes such emotional protection from sectors seeking to keep government fingers out of it. But the only two sure things in life are taxes and death; and the former has occasioned much debate about the proper way to tax the Internet. On the one hand, governments may face erosion of tax revenue due to increasing hard-to-track electronic transactions. On the other hand, excessive taxation may nip e-commerce in the bud.

More importantly, e-commerce has blurred the geographical idea of a market. E-commerce can bring together buyers, sellers, and even resources on opposite sides of the world. The server facilitating a transaction may even be located in a third country. Employees can "virtually" work across the ocean as well, emailing their work back and forth. How then are we to account for tax liability? In whose jurisdiction is the sale considered to be consummated or the income earned? Who has the right to collect the tax? In a country like the United States where each state sets its own sales and income taxes, e-commerce can introduce a monumental headache for the tax collector.

Moreover, the unequal rate of market liberalization of different countries and differing treatment between goods and services further complicate the issue. Some countries have proposed that all transactions done over the internet not be taxed, even when the resulting goods flow crosses national borders. This could reduce customs revenue for many developing nations.

One possible role of government intervention that might be justifiable by economic theory is that of adjusting for network externalities. Standard economic theory has long seen the need for government provision (or to supplement private provision) in markets characterized by the presence of externalities (whether positive or negative). It has been argued that market failure might otherwise result (in the sense that an economically inefficient amount of the good will result). Information technology has created the concept of network externalities. Clearly, the utility of much of today's technology increases with the number of other people who also possess the same technology. Cellphones or email would be absolutely useless if you were the only one who had them. Thus, the social benefits of making information technology more accessible may exceed the private gains reflected by market prices. In some cases, government regulation may be needed to prevent abuse of network control; e.g. refusal to interconnect with other providers and to regulate the operation of critical facilities which may have features of a natural monopoly; e.g. transmission facilities in the case of power.

The information age also has important social equity questions. Many fear that there may arise a "digital divide" between the rich and the poor. Since much of the employment opportunities of the future may be generated by e-commerce, it is important to enable access to information technology to as wide a population as possible. For example, participation in e-commerce will require a minimum of education. This handicaps the poor who may not in the first place have the requisite education. In a country like the Philippines where income distribution is quite inequitable to begin with, it vital that the poor have access to information technology and the opportunities it provides.

Status of IT Development In the Philippine Economy

The preceding introduction has perhaps underscored the importance IT promises to play in the Philippine economy, especially in the services sector. In this section we survey the state of IT in the Philippines.

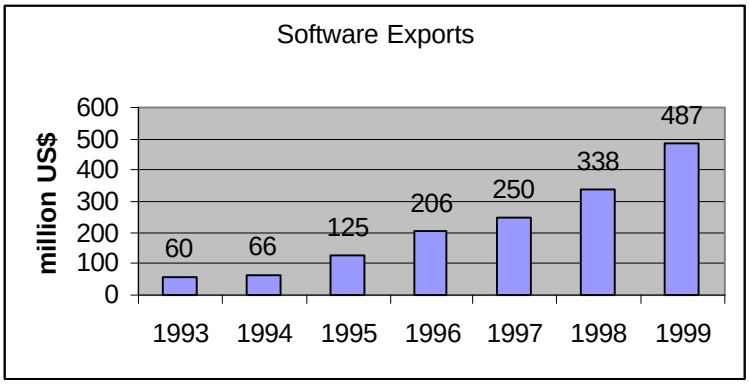
Information technology and the practice of e-commerce are not new to the Philippines. Computerworld-Philippines reported that in 1997, Filipinos bought US$1.6 million worth of goods and services over the Internet. [1] GS Research and IDC estimates that by 2005 transaction values for ASEAN countries could reach US$11 billion for Singapore, Thailand and Indonesia, $10 billion for Malaysia, and $7 billion for the Philippines. These much larger values presumably include firm to firm transactions (B2B). Nevertheless, their estimate for the Philippines is not something to sneer at, considering some of the other countries have at least twice or thrice (Thailand and Malaysia, for example) our per capita income.[2]

Meanwhile, Philippines' software exports have been growing steadily with a compounded annual growth rate of 41% between 1993 and 1999 (see figure 1). Our programmers earned some notoriety with the "love bug virus" last year which caused extensive damage world-wide. Not as well known perhaps is the fact that Filipino programmers also played a pivotal role in developing the antidote for it.[3] Other multinational companies like Andersen Consulting can also testify to the more positive and beneficial contributions of Philippine programmers. The company already subcontracts a significant amount of its project programming needs to its team of Philippine programmers.[4]

To continue making headway in such markets requires a continuing supply of educated manpower. We have already mentioned the Philippine edge in educated manpower. The World Bank shares the same assessment although they warn that the edge here is not an insurmountable one for our competitors.[5] This same edge has also enabled the Philippines to transform the structure of its exports from agricultural commodity based to manufactured and high technology exports. In fact another WB study has also ranked the Philippines among the countries whose exports are the most "high tech".[6]

Figure 1. Philippine Software Exports (1993 – 1999)

[1] "RP Internet Users: 217,000 and Rising" *Computerworld-Philippines* Oct. 15, 1998, page 1.
[2] Far Eastern Economic Review, Aug. 24, 2000
[3] Dennis Arroyo, "Believe it or not, RP is an emerging hi-tech power", Philippine Daily Inquirer, November 22, 2000.
[4] "White Collar Gold Mine: AOL, other giants ship jobs to Asia," *Far Eastern Economic Review*, September 2, 1999.
[5] Poverty Reduction and Economic Management Sector Unit, "Philippines: Managing Global Integration" vol. II, World Bank Report No. 17024-PH, Washington DC, Nov. 17, 1997.
[6] Poverty Reduction and Economic Management Sector Unit, "Philippines, Growth with Equity: The Remaining Agenda." World Bank Report No. 20066-PH, Washington DC, May 3, 2000, pp. 18-19.



Source: Bureau of Exports, Trade and Promotion

The Filipinos' facility with English has also been advantageous in luring many multinationals to set up call centers in the country. Call centers or customer service operations entail manning computers or telephones to answer and service customer inquiries. By setting up shop in the Philippines, these companies can employ a Filipino at a fraction of the cost of an American in the United States for example. The Filipino can also mimic the American accent more easily, having been exposed to American culture through movies, tv, and other media from an early age.

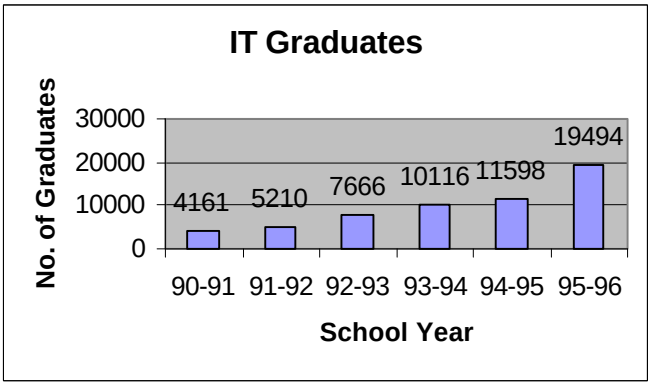
Maintaining our edge in the labor force requires that the quantity and quality of the labor supply be at least maintained if not improved. In this regard the number of IT graduates has been steadily growing as well (see figure 2), at a compounded annual growth rate of 36%. In stark contrast, the total number of college graduates had been steadily declining from 355,469 in schoolyear 1992-93 to only 286,545 in schoolyear 1995-96.

Perhaps the concern though, should be at the primary and secondary educational levels. Recent tests show that Filipino youngsters score near the bottom in math and science when compared with their peers in neighboring countries. Good English may suffice to enable us to break into call center and customer service type e-commerce ventures. However, if we want to move on to higher value-added activities such as software programming and even hardware design, then we need to improve our math and science education.

Developing the Info-structure

For IT to prosper, there are certain necessary ingredients, a so-called basic "info-structure": telephone lines, electricity, literacy, and an enabling legal framework. The Philippines may have a lead in the third factor but lags in the first two. And it has only begun to address the last one.

Figure 2: Number of IT Graduates by Schoolyear



Source: Commission on Higher Education (CHED) and Department of Education, Culture and Sports (DECS)

There is much to be thankful for in the deregulation of the telecommunications industry. Prior to deregulation, PLDT was a monopoly that had trouble rolling out phone lines. Subsequent to deregulation, there has been significant increase in the number of players and telephone lines. Whereas one could wait years for a phone then, now it is conceivable to get a phone in a month or two, or even faster. Nevertheless, Table 5 later shows that we still lag behind close neighbors like Thailand and Malaysia in phone lines. If it's any consolation however, India displays even worse statistics than does the Philippines in these areas yet it has managed to become the "Silicon Valley" of the east. In short, the poor infrastructure is not an insurmountable obstacle. If India has done it, then the Philippines should be able to do so too.

The size of the market in e-commerce depends on the number of people connected to the Internet. The number of personal computers and Internet hosts can thus serve as indicators of an economy's connectivity. Here again we lag behind our neighbors Thailand and Malaysia. In terms of internet subscribers, there were an estimated 150,000 subscribers in 1998, which did not compare too unfavorably with some other countries. (see table 3)

The rate of growth of Internet Service Providers or ISPs is one bright spot on the information technology landscape. From 19 ISPs in 1995, that number quadrupled to 88 in 1996 and to over 160 by the end of 1997. It is estimated that 25 (in early 1997) of these providers had a primary connection to the global internet. This small ratio of primary connection again is a reflection of the deficient telecommunications infrastructure. Nevertheless, the growth in the number of ISPs itself is an indication of the potential demand.

Cable internet was also introduced recently in the country. The three main providers here are Destiny Cable, Home Cable, and Sky Internet. All three offer the service with regular cable tv programming.

Table 3: Cross Country Comparison of Number of Internet Subscribers

Country	Number of Internet Subscribers (1998)
Japan	5,100,000
Taiwan	800,000
Hong Kong	400,000
China	320,000
South Korea	200,000
Philippines	150,000
India	100,000
Singapore	100,000
Thailand	100,000
Malaysia	60,000
Indonesia	30,000

Source: Connally (1999)

Paul Budde Communications, an industry consulting company, estimates that the average number of users per account in the country is three, which would put the total of users at potentially 450,000. In general, Budde Communications expected Asia's internet subscriber rate of growth to be much faster than the United States or Australia's as a greater proportion of Asia's population is under 25 as compared to these countries. About 50% of the Asia/Pacific population is under 25 while that proportion is only 26% and 28% respectively for the U.S. and Australia.

However, poor telecommunications infrastructure once again rears its ugly head. In a survey on internet usage conducted by the Philippine Communications Satellite Corporation (Philcomsat), it found that most subscribers were unhappy with their current service due to frequent disconnections, difficulty in accessing (busy signals), and slow downloading times.

As for usage pattern, most of the internet usage in the Philippines is accounted for by electronic mail (88%) Web surfing is second (60%), followed by internet chatting (29%) and newsgroups (17%).

Results from an Internet Domain Survey sponsored by the Internet Software Consortium showed that the number of hosts in the Philippines domain is still a relatively small number. (see table 4)

Table 4

Domain	.ph domain
Number of Hosts	9,942
All Hosts	10,019
Duplicate Names	77
Level 2 Domains	9
Level 3 Domains	344

Source: Connally (1999)

The bottomline here is that since the Philippines lags behind its neighbors in the requisite IT and telecoms infrastructure, these sectors will also have to be developed as the Philippines' New Economy takes off.

We should speak also of payment infrastructures as they are vital to the success of e-commerce. Even in the U.S. it seems that an initial stumbling block for consumers to buy online is a distrust of the security in sending their credit card information over the internet. Here in the Philippines, another problem precedes even that. In a conversation with some iAyala executives for example, the complaint was that credit card penetration was low to begin with in the Philippines. The number of persons with credit cards were low and so limited the number of potential buyers since credit card payment is the main facility employed in e-commerce at the moment. On the bright side though, the situation has prompted firms to explore other forms of electronic cash.

One popular form of electronic cash is actually pre-paid cards. Customers pay in advance to their account and the firm deducts the cost of services as the customer consumes them. Pre-paid cards have caught on in a large way with cellular phone users. Pre-paid users seem to favor doing away with the monthly bills that this arrangement makes unnecessary. They have also started to proliferate for internet access and even the usual landline telephone subscribers.

The power sector is another sector that bears watching in the New Economy. All of the machinery that the New Economy uses runs on electricity; e.g. computers, servers, fax etc. Thus, the supply of reliable electricity may be more important in this new world than say, the price of gasoline. In the Philippines, all eyes are focused on the passage (hopefully soon) of the power sector restructuring bill. This would pave the way for more reliable and cheaper electricity rates in the long run. Coincidentally, it will be information technology that will enable the old economy power sector to achieve efficiency and low prices by running the power pools and exchanges (where electricity supply is bid out) that will drive the electricity rates down.

The last component of infostructure has to do with legislation. In order to transact business smoothly, there needs to be a legal framework that would extend the traditional legal force accorded paper documents into the electronic arena. Fortunately, the recent passing of the e-commerce act should further pave the way for the country to get started transacting over the Internet. This and other government policies will be dealt with in more length below.

Table 5 Infostructure of Selected Economies

Economy	Telephone main lines	Mobile Telephones	Personal Computers	Internet Hosts	Fax Machines
		per 1000 people		Per 10,000 people	per 1000 people
	1998	**1998**	**1998**	**Jul-99**	**1995**
Newly Industrialized Economies					
Hong Kong	558	475	254.2	142.8	46
Korea	433	302	156.8	55.5	
Singapore	562	346	458.4	322.3	
Taiwan	526	216	---	---	
PRC	70	19	8.9	0.5	0.2
Southeast Asia					
Indonesia	27	5	8.2	0.8	
Malaysia	198	99	58.6	23.5	5
Philippines	37	22	15.1	1.3	0.7
Thailand	84	32	21.6	4.5	1.7
Vietnam	26	2	6.4	0	0.2
South Asia					
India	22	1	2.7	0.2	

Source: Asian Development Outlook 2000 Update, ADB
World Bank

Government Policies and Telecommunications Infrastructure

Much of the current problems of the Philippine telecommunications structure can be appreciated better with a brief historical sketch of its recent development. Like many countries that believed the telecommunications industry to be a natural monopoly, the Philippines allowed the industry to be

monopolized by the Philippine Long Distance Telephone Company, a privately owned company which owned as much as 95% of the telephone service in the Philippines until 1993.[7] Not surprisingly, the poor quality of service was legendary. Telephone density remained very low as additions to lines were slow and long waits of as much as five years to get a phone were not unusual. In 1991, there were only about 700,000 telephone lines; equivalent to about 1.1 phone lines per 100 persons. Since liberalization, the number of lines have increased and teledensities have accelerated as shown in the following table, although there is clearly a lot of ground to make up vis-à-vis some of our neighbors like Malaysia and Korea.

Table 6: Comparative Telephone Densities (Telephones per 100 persons), Philippines and Other Asian Countries

Country	1992	1993	1994	1995	1996	1997	1998
Philippines	1.2	1.2	1.7	2.0	5.2	8.1	9.1
Indonesia	1.0	1.2	1.8	1.1	1.6	2.1	2.5
Korea	41.8	45.9	42.3	39.7	41.5	43.0	44.4
Malaysia	11.2	12.7	11.8	15.8	15.8	17.8	19.6
Thailand	3.1	3.7	4.5	5.9	7.4	7.0	8.0

Unit: In Per 100 Persons
Last Update: October 30, 2000
Source: National Telecommunication Commision

Under then Pres. Fidel Ramos, liberalization initially proceeded with the issuance of two executive orders in 1993. The first one, E.O. 59, mandated compulsory interconnection of all telecommunications carriers. The second one, E.O. 109, was issued in July 1993 and required recipients of CMTS and IGF licenses to install 400,000 and 300,000 landlines respectively within a specified time frame. E.O. 109 also implemented the SAS or Service Area Scheme, whereby the country was divided into 11 service areas with assigned servicing telecoms companies.

The executive orders were reinforced with the passage of R.A. 7925 or the Public Telecommunications Policy Act of 1995. The Act reiterated the importance of telecommunications and the policy obligation of the government to develop the industry. It also set out the responsibilities of the National Telecommunications Commission (NTC) and the Department of Transportation and Communications. The NTC is also further mandated to establish rates and tariffs.

Table 7: Cellular Mobile Telephone Service Subscribers

Year	**No. of Subscribers**	**Growth Rate**
1992	56,044	(%)

[7] World Bank, "Philippines: Country Framework Report for Private Participation in Infrastructure", Washington DC 2000, p. 37.

1993	102,400	83%
1994	171,903	68%
1995	493,862	187%
1996	959,024	94%
1997	1,343,620	40%
1998	1,733,652	29%
1999	2,849,880	64%
May-00	4,298,000	51%

Government Programs

Pres. Ramos also approved in July 1994 the National Information Technology Plan and created the National Information Technology Council (NITC) to oversee the implementation of the plan. The Plan was subsequently renamed the IT Action Agenda for the 21st Century (IT21). IT21 was approved on October 28, 1997 as the country's guide for IT development. It set down an agenda for the following:

- Develop the information infrastructure for linking the country
- Turn the Philippines into a regional hub for software development and training
- Adopt IT in government's task of governance
- Develop and adopt IT in education and training institutions in order to create a critical mass of IT professionals and an IT-literate workforce.
- Upgrade available IT resources in the local R&D sector

The country also enacted an Intellectual Property Rights Code on June 6, 1997, which took effect on January 1, 1998. The Code imposes penalties and fines for the manufacture, distribution and use of unlicensed software.

The Information Technology Agreement (ITA) reduced tariffs to 3% on selected information technology products in a bid to make them more affordable. The final goal of the agreement is a uniform tariff of 5% on all products by the year 2004.

House Resolution 890 proposed the interconnection of all local Internet Service Providers in a single internet exchange to be called RPWEB. Then President Ramos had also directed all government agencies to interconnect through the internet. This was reiterated again in the e-commerce act.

Other Legislation

The landmark legislation so far as E-commerce is concerned is clearly the E-commerce Act. The e-commerce act, otherwise known as "An Act Providing for the Recognition and Use of Electronic Commercial and Non-Commercial Transactions, Penalties for Unlawful Use Thereof, and Other Purposes", was passed on June 8, 2000. Perhaps its main importance is the according of legal weight to electronic documents. However, the Act is only a start and still doesn't address some issues like taxation. Among some of its salient provisions and objectives are:

- To facilitate transactions by recognizing authenticity of electronic documents; giving electronic documents the same "legal effect, validity or enforceability as any other document or legal writing"
- Sec. 27 Requires all government offices within two years to accept and issue electronic documents
- Sec. 28 RPWeb - Government to install an electronic online network of government offices
- Sec. 29 Puts electronic commerce under Dept of Trade and Industry
- Sec. 31 & 32 Safeguards access and confidentiality
- Sec. 33 Provides for penalties against computer crimes

With the respect to the Sec. 33, the irony is that a 'cybercrime' may have hastened the passing of the Act. It will be recalled that in the first half of 2000, a Filipino computer student had unleashed the famous "Love Bug" virus that inflicted millions of dollars of damage to computer files worldwide. While the suspect student was apprehended rather quickly, Philippine authorities were at a loss as to what crime to charge him with. The problem was that computer crimes had not been provided for in existing laws. The closest that authorities could come to pinning down the culprit was a credit card fraud law. The connection was tenuous at best and the authorities had no choice but to release the culprit. The incident underscored the need for a bill that would punish computer crimes like hacking, fraud etc.

We should also mention that the country has another law addressing consumer protection, RA 7394 or the Consumer Act of the Philippines. The e-commerce act in fact affirms the full force of the said act with respect to violations of consumer rights.

With respect to intellectual property, the Intellectual Property Code took effect on January 1, 1998. An Intellectual Property Office was also organized and created to replace the Bureau of Patents, Trademarks and Technology Transfer. Among other functions, the office examines applications for patents and registration of marks etc. The significant features of the intellectual property law are:

- Grant period of 20 years from filing for inventions
- Grant period of five years with renewals of five years for industrial designs
- First to file rather than first to invent

The government also recognizes very clearly the need to attract more domestic and foreign investment in information technology if it is to address the deficient infrastructure. Towards this end, it has put together a package of incentives in a bid to entice investments in the sector. The Philippine Economic Zone Authority (PEZA) for example, lists the following benefits for IT projects locating in its so-called IT zones or "cyberparks":

- exemption from import duties on imported machinery, equipment, and raw materials
- tax deductions in training expenses
- local sales allowances
- permanent residence status to foreign investors
- employment of non resident aliens

Among the IT activities that are covered or can avail of these benefits are:

- software development and application
- IT-enabled services; e.g. call centers
- content development for multi-media or internet purposes
- knowledge-based and computer enabled support services
- business process outsourcing using e-commerce
- IT research and development

There are over 200 hectares of PEZA accredited (or application in process) IT Zones with some of the major ones being:

- Eastwood City Cyberpark
- Fort Bonifacio Silicon Valley IT Park
- Northgate Cyber Zone
- Bonifacio Information Special Technology Zone
- RCBC Plaza IT Park
- ASEANA Intelligent Technologies Plaza
- PBCom Tower
- CCTC IT Park
- Cebu Cybertown IT Park

Specific details on each of these parks are listed in the annex.

Lastly, we should say a few words about convergence. It is mentioned here in the section on legislation because in the Philippines, the obvious obstacles to convergence are found in existing legislation. Unfortunately, some of it is in the basic law of the land, the constitution, which means that it will be much more difficult to remove these obstacles. The Telecommunications Act actually also prohibits a single company from engaging in both telecommunications and broadcasting (whether through airwaves or cable) under a single franchise.

As the basic law of the land, the Philippine Constitution can both be supportive and a constraint on the development of information technology. On the one hand, it enshrines the importance of communication. Article XVI of the country's constitution provides that:

Sec. 10 The State shall provide the policy environment for the full development of Filipino capability and the emergence of communication structures suitable to the needs and aspirations of the nation and the balanced flow of information into, out of, and across the country, in accordance with a policy that respects the freedom of speech and of the press.

On the other hand, the constitutional barriers against foreign ownership of public utilities (which includes telecommunications) and mass media, present hurdles to the increased inflow of foreign capital into the telecommunications sector. In the same Article XVI, section 11 provides that:

Sec. 11

1. The ownership and management of mass media shall be limited to citizens of the Philippines, or to corporations, cooperatives or associations, wholly-owned and managed by such citizens.

   The Congress shall regulate or prohibit monopolies in commercial mass media when the public interest so requires. No combinations in restraint of trade or unfair competition therein shall be allowed.

2. The advertising industry is impressed with public interest, and shall be regulated by law for the protection of consumers and the promotion of the general welfare.

   Only Filipino citizens or corporations or associations at least seventy per centum of the capital of which is owned by such citizens shall be allowed to engage in the advertising industry.

   The participation of foreign investors in the governing boy of entities in such industry shall be limited to their proportionate share in the capital thereof, and all the executive and managing officers of such entities must be citizens of the Philippines.

Technology is developing rapidly and the trend is that in the future, telecommunications, broadcasting, and other forms of media can and may well all be delivered through the same medium, most likely the internet. Restrictions on firms from engaging in these activities simultaneously unnecessarily impose costs of doing these activities separately and prevent them from exploiting the synergies in these activities. This will likely mean less efficient Filipino companies who will be handicapped in competing with their counterparts in other countries and prevent them from fully participating in the e-commerce phenomenon.