1.2 The issues of protecting software copyright in Viet Nam and the development of the software industry

The piracy of copyright in many sectors emerging as big problem in Viet Nam have made headache for officials in efficient conducting the protection copyright and intellectual property. Piracy of software in Viet Nam is not an exception.

Most specialists have a common considering that the piracy of software in Viet Nam is very serious. If the government has not done anything to prevent, it could make negative affection to the development of the software industry. The rate of pirated software in use in Viet Nam is reported at between 96 and 98%.[12] Almost of software companies have reported that their marketed software products have been pirated. However, the rate of pirated software producing to ordering and processed software is lower than the common rate.

In the side of software companies, in recent years, those companies have taken many ways to protect their software products themselves before the government does. Some common ways have been applied including hard lock, soft lock, upgrading and renovating software, watching and controlling... Even thought, these measures just have not been strong enough and their life is short.

Violations of copyright damage all software publishers regardless the big or the small. Further, it could damage the software industry in Viet Nam in the future also. There could be main negative influences to software industry listed as following:

The first, software companies could be lost because they can not recover the costs for product development. Software companies have to invest money and efforts during many years to develop the software and only then the society may have product for use. If the software publishers can not legally sell their products in the market, they will not enter the market with a high level of copyright violations.

The second, foreign software companies will not believe to the law system in the protecting copyright. They could hesitate to invest in software sector. As results, the national economy could be lost the revenue from processing software for the foreigners and the chance to get in touch with new technology in software industry. Further, this situation could make the reduction of the foreign investment in the software sector as well as in whole country.

The third, the violation of copyright upon the software creates a great obstacle for the development of the software industry in particular, and the information technology in general of one country.[13] The decrease of revenue from the sale of legal software shall negatively affect the tax collection and employment.

There could be many reasons for this situation of violation and piracy of software in Viet Nam.

First of all, the lack of understanding on the intellectual property of most software users in Viet Nam is the reason in deep to violate and to pirate copyright software. In Viet Nam, intellectual property is a new

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[12] Piracy of software: *Unawareness and irrational pricing*, Business Viet Nam, vol.11, No. 9/1999, p. 29 (English)

[13] Thai Son: *How the computer software is protected by law?* Business Viet Nam, Vol. 9 - No. 7/1997 p. 25 (English)

issue appearing in mass media and educational establishment few years ago. Many Vietnamese users have not understood it yet a major part of them have no hesitation to buy pirated products for their computers. In addition, it is easy at hand and suitable for their pockets.

Furthermore, many developing countries including Viet Nam, have considered that many international laws on intellectual property are nothing more than a lasso in hand of economic giants who are tightening developing nations faster and faster.

Secondly, the low level of revenue per capita and the limitation of financial resources in most of enterprises and organizations using software recently are another important reason. It could be the direct reason for the violation of software copyright in Viet Nam. The price of software is more and more expensive compared to the low purchasing power of the software users. While the price of personal computer and hardware has been reduced sharply, the price of software is still high and almost does not changed. Further, software publishing companies have to charge a high price for protected software related to the fee that the software companies must pay to the organization for intellectual property. Even Microsoft has conducted a "global price" policy offering soft price for big buyers.[14] Those high pricing policies has unwittingly stimulated users looking for pirated software with lower price or free of charge.

Thirdly, the weakness of system of law in protecting copyright and intellectual property is important too. The system of law related to copyright in Viet Nam not only is lacked in detail but also is not synchronous and clear. Further, the sanction is not strong enough to deter and prevent the users from violating.

Surveying 19 software companies on the reason leading to have also reflected this consideration. Half of the surveyed companies have considered that the piracy of software related to the difficulty of catching in act of violating copyright of software. A quarter of investigated enterprises have a view that the violations of software due to the weak penalty to the piracy. Most of the surveyed companies have a common consideration that the system of law has no help to them in protecting copyright of software. In fact, the use of pirated software is unhidden. Therefore, when new software was introduced, priced copies of software have been appeared in the market immediately with a cheaper price. From the real situation of protecting copyright of software, there is an urgent task that is how to complete the system of law on copyright and keep it in life.

1.3 Some main factors effecting and the trend of the development of Viet Nam software industry

The process of forming and developing of software industry has been affected by many factors that make both positive and negative effects. The below part will present about these factors and consider the trend of development of the software industry.

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[14] *Piracy of software: Unawareness and irrational pricing*, Business Viet Nam, Vol. 11, No. 9/1999, p.29 (English)

1.3.1 The factors affecting production capability of software enterprises

a. Micro level factor group

This group includes a number of internal factors of software companies. These factors have affected directly to the companies' capability in the supplying software to domestic and foreign markets. There are some main factors of this group as following.

The first, the most important things are resources including financial resource, human resource and managerial skills of software companies. In the recent conditions, resources for growth and development of software companies have been scarce and limited in providing. Among of them, the scarcity of human resources for developing software industry is the largest obstacle. Software companies have faced to the problem of the shortage of well-trained employees on both English and professional levels. Therefore, software companies must compete fiercely to hunt and scramble for new informatics engineers who have been well educated by high salary and good working conditions.

Another obstacle to production capability is the weakness in management of the software companies. It could be seen in the marketing skills such as market studying, establishing and conducting marketing strategy and so on. In addition, the difficulty in seeking financial resource has been seen as a factor obstructing the production capability of software companies. However, this problem could be solved through forming and developing capital market in Viet Nam next years.

The second, recent technology in producing software related to the use of hardware equipment and application of modern technology. Simultaneously, ability of renovating technology and equipment is an important factor to improve competitive ability, reduce cost of production and increase the productivity in each software company.

The third, accumulating in experience as well as concentrating capital in the software industry is important also to improve enterprises' capability in production and competition in the market.

b. The macro level factor group

Firstly, the role of the government in supporting software companies in improving the business conditions as well as establishing a favorable environment for business.

Secondly, the stability and development of the economy are also important external factor pushing up software companies to increase the production capability and providing software. In addition, the development of science and technology in the software sector has affected directly to the software industry's development.

1.3.2 Main factors affecting the demands for software products

In the viewpoint of the software companies, software consumers have decided role to the survival and development of software industry because the consumers not only affect by deciding how many, where, when to buy software but also decide the structure and the growth rate of software industry.

a. Main factor belonging software users

There is a group of factors as following: Number of the software users such as enterprises, government offices, social organizations, non-government organizations and individuals.

The payment capability of the software users in purchasing hardware, applying information technology in business managing and the operation of the organizations

Understanding on the role of information technology in production and management process of enterprises and organization

Managing skills of managers and head of organizations related to applying software in managing

b. Macro level factors

Macro level factors have affected indirectly to demands for software. However, in the case of Viet Nam enterprise and organizations, those factors have affected strongly because most of the enterprises and organization have no strong financial resources Further, government offices, social organizations have depended on the financial supports from the government. There are some main factors in macro level as below

Government policy in applying information technology to managing operation of organizations. It must be concretized by increasing in payment for establishing computer network and using software.

Breaking gout of the information requires enterprises and organization applying information technology to aim processing more quickly that information

The development of the educational system has also stimulated the demands for software

Promoting on macro level makes the attention of whole consumers about the role of information technology and applying it.

1.4 Competitive advantages of Viet Nam software industry in the domestic and world software market

Enterprise's competitive advantages could be seen as the superiority compared to main competitors in the satisfying the demand for similar products of the group of particular consumers. Those advantages include both absolute and relative advantages. From this point of view, competitive advantages of the Vietnamese software industry could be presented below

- The large potentials of human resources to the software industry's development are the most important. If these potentials explored well, Viet Nam will have a large number of well-trained programmers and project managers who play an important role in speeding up the development of software sector in the economy
- The low labor cost that helps to reduce the cost of product is another important advantage. In compared to other nations in area of North Eastern of Asia, Viet Nam has low minimum salary in dollar, therefore, it could make advantages in setting up a low price of software. By this way, software "made in Viet Nam" could penetrate world software market.

- Oversea Vietnamese community is an important factor helping domestic software companies in touch modern technology and managerial skills from foreign companies. Recently, there are about 3 million Vietnamese origin people living in oversea mostly in developed countries such as the United State of America, France, Germany, Canada... A part of this community has worked in software sector. For example, there are nearly 10,000 Vietnamese-American working in Silicon Valley. Some of them become famous and have a strong financial condition. From 1996 up to now, there are 430 companies of the Vietnamese oversea in Viet Nam with registered capital of 490 billion VND (1 USD = 14,500 VND in December 2000). 10% of those companies have run in software sector.
- Viet Nam software companies just are late comers in the software area. So, they can spend a little time to look for new technology as well as leaning from leading companies about managerial organizing skills. In addition, Viet Nam software companies could have no pressure to return long-term investment that they have done before.

However, in our opinion, the competitive advantages of Viet Nam software companies are not so much and not strong enough to restrict the different level in developing between domestic and foreign software companies. It must be recognized that there are so much disadvantages of Viet Nam software companies compared to major competitors in the world. Therefore, we have thought it should not be too optimistic on the considering prospects of Viet Nam software industry as well as evaluating the contribution of this industry in GDP.

Part 2 Impact of integration process to Viet Nam software industry

The Viet Nam economic integration process into regional and the global economy has been raising both opportunities and challenges. And, of course, software industry has been facing both of them. However, impact of integration process to the industry contains specific characteristics that need to be carefully analyzed.

International economic integration presently understood as a nation that carrying out the policy of economic open, taking part into international financial and economic institutions, implementing liberated and favorited trade and investment which including:

- To negotiate on taxation reduction /cut back or/and exemption in order to put 0% taxation rate on imports-exports.
- If joining WTO, Viet Nam has to committed its fixed taxation rates. This is a basic obligation for all WTO members. At present, there are a "strongly tax reduction by industries" and "harmonized taxation" models in which rates of tax on related products such as informatics technology (IT), pharmacy and health services, chemical, constructional materials, agricultural machinery, beverage and steel... have been committed at very low levels, mainly 0%.
- Concerning APEC case, expected targets for membership countries are gradually making reduction

on taxation system toward trade liberty in 2010 for developed countries, and 2020 for developing countries. Taxation rates are between 0% and 10%.

- To AFTA: Viet Nam has obligations for tax reduction since January 1, 1996 and completion in January 1, 2006 to achieve the taxation rates from 0% to 10%.
- To minimize, and then to reject, non-tariff barriers that make constrains to trading activities. The common/popular taxation measures should be standardized following general normalized by WTO, APEC and AFTA
- To minimize restrictions to service trading: to allow liberty on supplying and doing business of service forms. Currently, there about 12 service groups are in negotiation, including finance and banking, telecommunication, informatics, transportation etc...
- To readjust policy on trade and investment management following international norms and rules; especially, on issues related to trading, custom procedures, copyrights, competitive policy etc...
- To spread socio-cultural and economic collaborations for improving each nation's capability in the process of integration.

General speaking, international economic integration's is expanding to all fields that dealing with economic policy, trade and investment for a purpose of market opening to goods and services; eliminating both tangible and intangible barriers in international business exchange. Nations joining the process of integration all realize benefits it brought to; such as to be clear of market for imports-exports, receiving capital and technology throughout FDI flow in, creating more employment, contributing into process of national economy restructure to guarantee for growth, learning and absorbing advanced technology and managerial experience from region and over the world.

Being an infant industry, integration process brings to software companies of Viet Nam opportunities for directly joining into global market. Simultaneously, foreign software products are freely penetrated into Viet Nam market.

2.1 Global software market and Viet Nam's position

Due to experts' assessment, the global software market has a huge potential. It scaled at about USD 500 billion and annually grows at 10-15%. The USA and West European countries have created a large portion of software products. In 1998, the USA software industry was 1.8% its GDP.

Also, the world software export value increases rapidly. It is estimated that in 2005, the world software export valued up to USD 200 billion. Several developing countries, for examples, India and Singapore... are intensifying their capability of software export. In 1999, India has achieved software sales by USD 3.8 billion and exported by USD 2.6 billion. It is planed for the next 5 years, the Indian software sales will be USD 50 billion in which mostly for exporting. Other statistic number shows software sales of Singapore is nearly USD 1 billion. So, it can be said that the world market brings a very big chance for Viet Nam software industry!

Another important characteristic of the world software industry is dominant by several giant software companies, mostly from USA and West Europe. Such companies with their huge potentials can focus investment on big and modern software programs in mass production then they coordinate with hardware producers to monopolize over markets. They are also very good in marketing, building market relationships and distribution channels, creating reputation and well image to customers... Otherwise, industrial and developed countries are main segmentation of the world software market so that above mentioned companies, once again, can easily getting advantages when exploring market "as their own homeland".

Consequently, small software business, like Vietnamese companies and other developing countries, will face a difficulty for entering directly into such big and potential market-segmentations. In principles, they play a role as a middleman of distribution channels or to join a step of software processing... Let's take the case of Dolsoft Viet Nam as an example: when exporting its Geographic software product to European market throughout an European company, Dolsoft Viet Nam gained 10% market price only!

Because of its own technical and technological characteristics and event its method of product handing over that make software market become more and more monopoly. There are a few companies, but very big, dominate each separate field of software industry.

Accordingly, software industry has a very fast speed in changing its technique and technology. It challenges all software business, especially who lack of updated information.

Over the world, IT as a whole and software technology, in particular, has been dynamically growing so that demand for software human resources is also increasing quickly. In 1999, there were 617,000 software specialists in USA. It is estimated these number will be 1 million during the next 10 years. Obviously, there is a shortage of software specialized personnel in USA. The situation is similar to Germany (approximately, lack of 20,000 people) and France (15,000 people). China needs a million labours for IT industry. Hence, software labour market for exporting, especially high skilled people, is growing very fast. The developed countries and big software companies have policy for intellectual attraction from others. A lots of French software experts has been even leaving France, where still lack of software labour force, for USA.

For those reasons, it brings good chance for a country, which has potential for software labour exporting but also threats development of its domestic software industry.

Comparing to the world software market, it is easily realized that production capability and market size of Viet Nam software industry are very modest little one. Viet Nam software producers, software products and software labour force are all not competitiveness internationally. Further more, many software companies are seriously lack of workers. If we pushing software labour export will cause the situation become more trouble than. It can be stated that, Viet Nam has no position yet on the perspective software market. Its advantages are still potential forms only.

It is take time and sound investment orientation to develop software industry, external experiences showed.

Let's consider India as an example. The Indian software industry has been developing for at least 10 years. It based on crowded Indian-overseas and companies successfully working in USA. They also speak English as an official language. A quarter, out of their total related software export value, brought from software labour export. India encourages and stimulates free mechanism, especially for intellectual in software industry. So many people in this industry become rich. However, up to present, India has faced difficulty emerging from policies which too much oriented on labour export and software processing, but less organizational effectiveness.

Experience from Southeast Asian countries, like Singapore, Indonesia and the Philippines, has pointed out that a government should draw up a long-term strategic orientation for software industry development, stimulate private sector, strengthen IT application into the economy, create human resources. The government not only initiates but also actively implements encouraged measures such us: taxation exemption for 5 to 10 years, attracting FDI throughout lots of priorities, pushing telecommunication services and, reducing control on Internet in order to increasing connection speed...

2.2 Impact of bilateral and multilateral trading agreements' implementation to Viet Nam software industry

The process of regional and international integration has been providing many new opportunities and challenges to Viet Nam software industry.

The open door policy allows Viet Nam software companies directly to approach different information resources for quickly adding and updating new know-how to their business life. Many foreign software companies doing FDI in Viet Nam to fuel newly competitive background and lead Vietnamese companies into survival and fierce competition degree. Viet Nam software companies can learn technology, managerial experience from a big foreign company so that we can effectively receive and apply such advance technology into developing and training human resources for software industry.

The open door policy and integration process stimulate other economic industries development and it creates a need for IT and boosts demands for software products domestically. According to experts' estimation, demand of domestic market will increase about 30-50% annually. Under competitive pressure, many business and social communities have to promptly apply informatics into their work; at first, it must be telecommunication, aviation, banking and finance, insurance, petroleum... Statistical number defines reason for increasing software demand in such above-mentioned industries is caused by pressure of integration process. A series of joint ventures, 100% foreign capital companies, and private enterprises... are potential customers of domestic software suppliers.

Nevertheless, integration will speed up competitiveness on software market, especially a competition rising from foreign software providers, who directly doing business in Viet Nam, and from imported software products. Investigated numbers prove a fact that customers highly appreciate foreign software products than domestic ones. Correspondingly, a small company, which cannot stand on competition, will be bankrupt or to be forced into contracting-out a part of software processing for big companies. When tariff and non-tariff will be clearance, obviously there are no barriers to protect for domestic business like previously, so they could not compete to foreign products directly.

Due to competitive pressure and taxation exemption, price of hardware reducing and it makes a raise PC use in domestic and widens informatics application. Integrating into regional and the world market, Viet Nam software market closely links to and becomes a part of them. It leads to a situation of "internationalization" in software price; it means that international pricing system will directly influence price of software products. On the one hand, it brings advance to domestic software suppliers a good background when they pricing their product at reasonable levels. (In the past, such job has been criticized like "unbelievable" or "not suitable to real value of products" even when selling at very low prices because buyers could not understand the right value ones). On the other hand, Viet Nam software providers could not based on monopoly position to put a customer into a trouble by setting up a high price. Customers have well enough information cannot be treated.

Together with process of integration, the law on copyright protection will strongly influence to software market and business of software companies in Viet Nam.

International integration asks for completely carrying out all international standards on copyright protection what written in bilateral and multilateral trading agreements; especially it requests administrative system and legal authority to do effectively their jobs in protecting copyrights, private information secret and personal/individual database...

Strictly implementing the law on copyright requires all customers have to buy and use software products legally. So, software expenditure in IT application will be increased while Viet Nam is still a developing one with a low buying power. It causes to limitation of expanding PC use in Viet Nam because a customer must pay for both software and hardware. From this point of view, for the purpose of reducing such bad effect, the Vietnamese Government shall negotiate with multinational companies to draft a proposal of selling basic software packages at concessionary pricing policy to Viet Nam as a developing country.

Besides, by lawful implementing copyright protection, production costs in software-supplied companies will dramatically rising. Nowadays, situation of using software copy (free of charge, of course) is commodious among the industry.

Naturally, implementing copyright protection will positively impact to individuals in creating a software product with high quality and companies in doing business within legal framework fairly. The Vietnamese software market will be healthy and legalized driven; and, an image of Viet Nam in international market will be improved to be more attractive, waving to foreign software investors. So that, with accomplished legal environment, foreigners to be sure for investing into Viet Nam software industry.

2.3 Changes of Viet Nam software industry under impact of integration process

- **Favourable effects:**
  - It raises conditions to approaching and receiving scientific and technological advantages all over the world in order to faster Viet Nam software development. This is exactly an advance of a follower and an infant industry based on existed experiences. Therefore, software enterprises can economize a great deal of investment expenditure. Its infrastructure can be equipped by newest moderns, at the highest international level.
  - The market expands in both scale and structure of software demands. Domestic together with international market bring favourable opportunities to software business. New trends and prospects appeared from socio-economic fields, which increasing day-by-day, certainly ask for IT updated applications more and more... Also, changes in knowledge of people on IT have pushing demands for software. In addition, the Government recognizes a necessity to optimize encouragement to software industry. For example, process of developing E-commerce at different degrees is based on a certain development level of IT.

Anyway, agglomeration and centralization will be obviously occurred in software industry. Companies with a sound strategy will be well developed. In contrast, small companies could be merged or bankrupt. So, the industry becomes more dynamic. To be existed and developed, small companies should coordinate or associate themselves in a different form. Many types of effective organization shall appear in software industry. The coordinated scope in software production could be widened regionally and internationally.

- **Challenges to Viet Nam software industry:**
  - Vietnamese companies have to face to international competitive environment in which many big potential and experienced companies strongly compete to each other. However, competence of Viet Nam software companies in competition is too modest little one as analyzed above. Though, Viet Nam has advantages with abundant labour force at a low labour cost but they still could not bring any advance to the software industry because of its high-tech characteristic. In the other extreme, Viet Nam is lack of (or/and very weak in) important factors such as quantity and quality of software specialists, business managerial experience, strategy and approach to reach and exploit software market. Beside that, other fundamental conditions, like capital and technology, are still not good enough.
  - Integration process might put several Viet Nam software enterprises depending on giant foreign companies, or to be employed for software processing projects (contractors). Most software experts of Viet Nam will be recruited by, e.g., US companies. Consequently, the most critical and important target of "building software industry independently which has strong competitive capability and can directly export completed software products to international markets..." is very difficult to succeed. If we could not find out a right solution, a danger of falling behind is clearly existence in

this industry due to a gap in competitive competence become larger time by time.

- Viet Nam software enterprises must simultaneously to compete in variety fields: they are not only to compete for exploring "a small piece of cake"—domestic segmentations but also have to scramble for a foreign order. Furthermore, they have to look for qualified candidates who normally attracted and recruited by foreign companies where financial resources seem to be endless.

Part 3 Estimating State's policies towards the Vietnamese software industry

3.1. The policies promulgated in 1990s

3.1.1 The main contents of promulgated policies

Having known the important role of information technology, Viet Nam's Communist Party and Government have been very concerning about developing information technology for attending to the country's renovation. This was present in the policies enforced from early 1990s. The Government published the resolution № 49/CP of 4th August 1993 on developing information technology in Viet Nam.

In 7th April 1995, The Prime minister approved " the overall plan to the year 2000", which is of national program on information technology. This overall plan systematically expounded affairs needed to be done to translate the 49/CP resolution into reality.

The general task of building and developing information technology to 2000 of Viet Nam is: To build an initial firm foundation for national information infrastructure, which has ability to meet basic information demand in The State administration field and in socioeconomic activities; to grow the information technology industry become one of key industries of the country, preparing Viet Nam to have a meritorious position in Area to enter into the 21st century.

That general task was present in details as following:

Setting up computer system and communication resources, which are connected together in networking systems, with powerful software and databases, able to serve affairs in State administration and economy. Some of these networks are connected to international networks.

Widely expanding the application of information technology, participating in improving the capacity, quality and effect of production and business activities, gradually modernizing important service and production fields, as well as national defense and security. Stepping up to apply information technology into activities in fundamental investigation, environmental and natural resource survey, science research and other activities.

Universalizing "information culture", driving at provide propitious environment for building a "information society".

Establishing the ground work for an IT industry, which have capability of producing worthy informatics service and product; priority is given to developing software industry; take advantage of handing over the technology to appropriately develop establishments that produce modern informatics elements and equipment.

The overall plan of developing IT was focused on below main contents:

1) Developing potential resources and building infrastructure IT, so that the IT fields can have enough ability to computerize the economy; getting to build a powerful IT industry.

   To the year 2000, our experts in information technology are not less than 20.000 persons, of which a half is programmers, a quarter is systematic analysts and a quarter is experts of other fields.

   Making priority for developing software industry and improving service skills. The market for software product in the short term is domestic market. Step by step trying to expand toward export markets thanks to process of accumulating experiences.

   Quickly developing the making software force to meet the demand of applications and to control the domestic market of application software, meeting special demand, serve as substitute for imported software...

2) Carrying out the key computerizing projects in state administration and economy - society fields, applying information technology in the industrialization - modernization cause.

   Acceleration of applying informatics in state administration and economy - society fields will bring a potential market to information technology field in general and to software industry in particular. The national program advanced a number of projects on setting up national database systems and computerizing state administration. The main projects include:

   - Project of researching master plan and information administration system in the office of government.
   - Project of building socio-economic information system for planning and managing the economy.
   - Project of financial information system.
   - Project of modernizing banking system.
   - Project of state statistic information system.
   - Projects of building information system in the field of security and national defense.

Promulgated solutions and policies to translate the resolution No 49/CP into reality:

- The policies of standards and open systems.
- The solutions and policies for building information technology infrastructure; such as: the policy of buying information services and product of the projects financed by government budget; policy of telecommunication network development; policy of preferential telecommunication price applied for organizations and activities in the fields of education, research and implementation; policy of financial aid; policy of preferential tax; policy of encouraging training...

3.1.2 Estimating the result of implementing policy line, national program of information technology

Evaluation of the situation of Viet Nam's information technology in general and software industry in particular reveals that a number of tasks aren't effectuated, as mentioned in Part I, including:

Application of information technology into socio - economic fields is still limited, do not achieve the proposed objects. A number of computerizing projects are not effectuated, or are effectuated in formalism only. Although quantity of computers has been increased considerably, sphere of application is limited. In many offices, computers function as compiling documents as the main task.

The domestic markets of information technology in general and software industry in particular are small, because most of customers have not realized the necessary of applying information technology.

The software industry is small and slowly develops. Quantity of software enterprises has increased but most of them have small scales and unsteadily business. Turnovers are low and increasing slowly. Viet Nam's potentiality in this field isn't translated into reality yet.

There are a lot of reasons for limited development of the software industry, including both subjective causes of software enterprises and objective factors of state's policies. Among them, the main cause is of planning and implementing state's policies.

Generally estimation of promulgated policies:

A number of policies on developing information technology and software industry are halted at resolution, not concretized into sub-legal official text and specific measures, therefore they haven't been translated into reality yet.

The policies are slowly promulgated, not in close contact with the real. They have not reflected the distinct characteristics, diversification and complication of software industry. Specific characteristics of the product, the field and the market are not adequately concerned.

The policies are not synchronous and not consistent with each other, hence they abolish development force and obstruct the software industry's development. For example, most of software enterprises have considered that the cost of Internet dial-up access in Viet Nam is too high, due to the monopoly authority of the postal and telecommunication field, that restrains enterprises to exchange information with each other and with their customers.

Concretely estimation of promulgated policies:

a. Preferential policies on land, capital, tax haven't been concretized to carry into effect yet.

Based on the figures gathering from the survey, 100% enterprises have put out the considering that a system of development support policies for the software industry has been existed, but these policies are not sufficient and have not been implemented yet. Most of the enterprises have considered that they receive a little support from the state. 90% of the software business enterprises have not borrowed the capital, including preferential capital, due to the burdensome procedures of borrowing capital.

There are few software enterprises that are benefited incentive of remission on the cost of using, renting land and land tax. As a matter of fact, policies of land have no much effect to the software enterprises, which need not much land surface.

Most of the enterprises suppose that the tax policy is not reasonable. The tax for assemblage components is too high to reduce the Viet Nam trademark computer. That does not encourage using computers. In a long period of time, the software service is arranged into the group of other simple services and it has been treated the same tax policy with them.

The matter of supporting the capital for software enterprises was proposed in the policies, but it has not promoted the efficiency in the real, due to the burdensome procedures of borrowing capital. Projects of investing in building the software industry center site are slowly implemented, for example, the Saigon Software Park came into activity after 4 years (4/2000).

b. Policies and projects of training the human resource for the information technology and software industry

The human resource is the key factor that assures the development of the software industry. But the fact has shown that the policy of training human resource isn't put into effect faithfully. We attached special importance to training engineers of information technology, but not to training technical workers and technicians. The policy concentrates on training only the quantity but not on the quality. The teachers are not completely trained; then have not meet the requirement yet. The engineers for information technology incline toward the theory, they have not updated the modern knowledge yet. They are lack of practical skills. The training activity that mainly centered to some information technology faculties. These faculties have not provided enough quantity of IT engineer.

Investment for training information technology talents at grade levels is limited, hence not promotes the intelligent essence and competence for mathematics of Vietnamese.

The whole resources of society for developing information technology have not been adequately mobilized yet. There are a few businesses participating in training the human resource. There are not clear policies on certificates for this training type yet in Viet Nam.

Coaching the informatics knowledge for the administration staffs, which is in order to change their thought, making a break through on applying informatics, is not appropriately concerned yet. The training forms and training programs have not been diversified yet, still follow common patterns; so that trained workers are lack of creativity, and specially, of industrial working style—a very important factor in the informatics field. Choosing people to be trained abroad is slowly implemented. Many activities on information exchange, expert cooperation, short classes... are formalized, not coming into depth. There are some projects of building centers of advance training and updating information technology knowledge, but they have not been effectuated. There has no any policy that encourages co-operation among informatics companies, universities and research institutes for relating the theory and the practice.

Viet Nam has not have the policy on managing the software workers that ensures the rights of workers and businesses in personnel recruitment and working place changing activities.

c. ***Policies of building information technology infrastructure***

Viet Nam has been concerning to investment on developing, modernizing the telecommunication industry to reach the Area and international level. The achievement is noticeable and is the condition for development of other fields. The information technology infrastructure, however, do not meet the requirement of the information technology in general, and of the software industry in particular. Transmission rate is low, which in turn loses opportunities of information exchange and increases the cost. The policy of managing the information system is discriminatory and one-sided toward the partial benefit of the telecommunication industry, making difficult for informatics enterprises. The postal charge is many times as high as that of the average level of the South Eat Asian region.

The policy of restraining internet gate ways also makes difficult for businesses when they want to update the information from other businesses of the same field over the world.

d. ***Policies of developing the market***

There has no national policy of developing the software market. So far we haven't had any complete research of software markets, both domestic and foreign. Viet Nam hasn't got and hasn't effectuated the measures that encourage using software of domestic enterprises. There are not organizations that asses, control, examine and revise the quality of software for arbitrating selling and buying activities. Having known a little about the software market, Viet Nam have not had a sound development line for it. We do not have effective policies of managing the software market for encouraging fair business activities and limiting unfair competition behavior.

Policies of supporting trade promotion of the domestic software products haven't been effectuated. There is no any agency that promoting the software products of domestic enterprises.

e. ***Law of copyright protection***

Vietnamese Law of copyright protection isn't sufficient and, if exists, isn't strictly executed. Besides that we have no any other sublegal document that define the violation activities and the methods to treat them. There aren't sufficient regulations that adjust software selling-buying contacts and software exchange activities. The executive offices have weak effect and do not concern much about implementing the law of copyright protection. Law training affair isn't fully effectuated, so the law awareness of software users is limited. The low intellectual standard of people is one of the reasons of violation.

3.1.3 The policies just promulgated in 2000

To further the information technology in general and software industry in particular, the Government promulgated the resolution № 07/2000/NQ-CP of 5th June 2000 on building and developing the software industry in period 2000-2005. The resolution affirms: The software industry is a modern industry that has high added value and potential power. The state creates good conditions to encourage organizations and personals of all kinds of economic class affiliations to participate investing and developing this industry. The state favors and stimulates developing software industry. The first step is to attach special importance to exportation through processing and supplying products and services to foreign companies, to expand the domestic market. In the next period, to focus on developing software in some fields that have powerful social-economic effect, gradually supersede imported software products. Quickly export software labor and package software products, in order to conduct Vietnamese software industry to reach position on the international market.

The resolution also shows the contents, methods for building and developing software industry, in which the center is:

- Training the human resource: developing all kinds of training and re-training forms, so that by the year 2005 there will be about 25.000 skilled experts and professional programmers, who are quite conversant with English.
- Setting up a favorable investment environment: The state applies the most preferential levels to the software enterprises, especially on tax. Establishing and publishing regulations on arrangement, administration and activities of risk investment fund for developing high technology, especially software technology. Researching to set up the gate way to global internet system in HoaLac industry zone and in Quangtrung software Park, so that let software enterprises can easily and sufficiently use internet services that have high quality and competitive price in compare with other countries in the area. Setting up the investment projects that develop software industry, attract the foreign direct investment.
- Enhancing the effect of the law, implementing protecting copyright.
- Expanding the market: promoting and making good conditions for domestic software enterprises to set up their branches and representative offices inner and outer the country, invest abroad and export software labor.

Following that, on the day 17th October 2000, The politburo enforced the instructions №58/CTTW on intensifying and developing information technology for supporting industrialization and modernization. The politburo conducts that: putting the list of expenditures for information technology in the index of state budget. Stimulating to use information technology products and services that are made in domestic. The organizations that make use of the state budget have to use domestic information technology products and services that are recognized on quality standard suitable to Viet Nam's conditions. Information technology products and services that are made in domestic are not subject to value added tax (VAT) taxation. The enterprises receive the most preferential level of company income tax, the preferential system for credit and for using land. Setting up the export support programs, in the short time is to process software and export labor. Stepping up training and using the human resource for developing information technology. To the year 2005, training 50,000 extra experts of information technology at different levels, meeting the established goals of quantity (per 10,000 common people) and quality equal average level of other countries in the area.

On the day 20th November 2000, The Prime Minister promulgated the resolution № 128/2000/Q § - TTg of a number of policies and software investment and development encouraging methods. The content concretizes the following policies and methods:

- Vietnamese software enterprises and foreign software enterprises (carrying on business in Vietnamese territory) that are not objects of the foreign investment law enjoy the company income taxation at following rate: 25%, 20%, 15%, depending on socioeconomic conditions of the region. Software enterprises that are objects of the foreign investment law enjoy the company income tax rate of 10%. Foreign investors that invest in software field enjoy the tax on transfer of income abroad at preferential rate.
- Software enterprises enjoy company income tax exemption in 4 years, as from having taxable income.
- Vietnamese skilled workers who directly take part in software activities are applied the taxable start point the same as people having high income, the progressive rate the same as foreigners.
- Software products and services enjoy the most preferential level of value added tax.
- Exempting import tax for working materials directly supplying for producing software, that can not be made in domestic yet.
- Vietnamese enterprises that take part in producing and serving software are applied investment supporting forms by the state's development support fund.

Vietnamese software enterprises are exempt or diminished the cost of using and renting land as well as the using land tax, comply with the rules in the decree № 51/1999/N § -CP promulgated in 8th July 1999 by the Government.

Checking current legal documents to enforce in jurisdiction or propose to offices that have right to judge the matters the legal documents concerning with copyright protection for software products; intensifying the power and effect of executive offices for copyright towards software.

Stimulating training human resource for software industry.

Establishing favorable telecommunication infrastructure. Supplying telecommunication and Internet services sufficiently and comfortably at high quality and high speed, with the lower or equal fee in compare with other countries in the area. Allowing software industry zones to dial up to the Internet through its own gateway.

We can say that macroeconomic policies are heading to make very good conditions for developing software industry. But the problem is that how these policies are concretized through sublegal documents and how these policies are translated into reality by ministries and fields.

With the cumbersome and bureaucratic administration system, a number of policies are not carried out or slowly implemented.

Part 4 Recommendation to develop the Viet Nam software industry

4.1 Development model or orientation of Viet Nam software industry

Policy to develop software industry is fully appropriate to Viet Nam because it requires low capital investment, and appropriate to analyzing and modeling capability of Vietnamese people. However, the right development strategy need to be chosen:

First, training high quality programmers and IT experts to able to produce software products and services to domestic organizations. The objective of training 20,000 programmers in 2005 calls for a great efforts. This objective is not only to develop software industry; it also helps to develop socio-economy in general by the application of information technology in all sectors of the economy. We do not leave Viet Nam to be dependent on foreign information technology and software programs especially, in important sectors such as national security and defense. Beside normal software, we need to invest to produce specific software.

Focusing on training high quality programmers and experts, English literacy appropriation to export. Exporting software labor is an important source of foreign currency to Viet Nam. It is necessary to have incentive policies to attract foreign software companies, especially Vietnamese-original companies in the United States to invest in Viet Nam. These companies could both to produce, employ labors and training labors to Viet Nam. Capital sources from labor export need to be used rationally. The policy of attracting high skill labor to stay domestically to research and development of Viet Nam software technology is also needed.

Third, invest in improving production capability of Viet Nam enterprises in order to meet the requirement of software subcontracting for foreign companies. This orientation is feasible. But the efficiency of subcontracting is low, but we partly take the advantage of low labor cost. The co-ordination between domestic enterprises, marketing policy with foreign software companies will be very necessary.

Fourth, invest in producing software packages for export. This is a long-term objective of domestic software enterprises when they have sufficient capability because at present software market is control over by large companies, so we have not adequate reputation to sell software products to foreign market. Concentration on producing software at current conditions such as low market capability is irrational. Enterprises that invest in this orientation need to co-ordinate and study software market carefully and also need to be assured by foreign partner.

The stage of development of software industry is from small scale though accumulation and concentration to large scale. First, software enterprises specialize in some specific fields, after that expands to other fields and diversification. Promote the development of software industry could be better by indirect measures than direct support from government.

The development of software industry calls for a great effort both by software enterprises and government. Favorable conditions for software enterprises to develop will be necessary.

Policies and macro-economic management need to concentrate on indirect measures in order to stimulate software enterprises and also employers in software industry. Management policies need to create favorable conditions to enterprises and worker in software industry. The policies must stimulate the initiatives of software enterprises in doing business. In the beginning period, due to restricted and small resources of software enterprises, government needs to invest but stands on the basis of economic efficiency. The policies also need to stand on the basis of inter-disciplinary efficiency.

4.2 Recommendations of software enterprises

The development of software industry firstly depends on the efforts of software enterprises. First of all, software enterprises must take the initiative of doing business. On the basis of reviewing and analyzing the current conditions of software enterprises, we realize that software enterprises need to:

- Improve skill and capacity of enterprise managers. The survey shows that in almost of small enterprises, management skills still poor. We not only lack of high quality programmers but more important, lack of high skilled managers. Therefore, training high skilled manager of software enterprise will be necessary. Enterprises need to stable their organization, build a long-term strategy, and plan their investment.
- Most of software enterprises are small scale to the contrary with many large software projects (software products). The implementation of these projects calls for numerous experts in many fields, so that the co-operation between software enterprises will be necessary. Thus, it is needed to establish software production and software export association as soon as possible.
- Virtual corporation models need to be studied and completed. This co-ordination model between software enterprises is consistent with information technology characteristics, economical, allowing for utilize available information and knowledge most efficiently and improving market exploitation performance. Software enterprises participate into virtual corporation will supplement together to build up common capacity to meet the requirement of high technology and competitiveness.
- Some large software enterprises, especially overseas Vietnamese investment enterprises, could subcontract the implementation of large projects they have to domestic software enterprises. This co-operation is consistent with the initial stages of domestic software enterprises because small enterprises could find it difficult to have order directly from foreign market.
- Enterprises need to have modern administration policies, reasonable salary policy, training, and research, market penetration and expansion. Beside salary policy, they need to convince labor to

become their stockholder in order to create closely and long-term relationship between labor and enterprise.

4.3 Improvement policies in order to stimulate the application of information more widely in the economy

The policies of market creation to software industry through stimulate the application rate of information in national economy and social activities need to be improved.

The policies to stimulate the development of software industry could not be isolated from economic development policies in general especially the policy of stimulate domestic resources, direct all resources to economic development in which focus on key industries. Non-state sector plays an essential role to the development of this infantile industry. Therefore, the consistency between promulgation and implementation of policies stimulating the development of non-state sector creates equal environment for all sectors in the economy will be necessary. Preferential in land policy, credit policy and others for non-state sector would not be enough for the development of this sector if prejudice against this sector and bureaucracy could not be eliminated. New Enterprise Law has created favorable conditions for enterprise in all industries to develop. The development of non-state sector in all industries has widened market for domestic software products.

4.4 Policies for software industry

4.4.1 Building infrastructure for information policy

- Software enterprises need way and channel to exchange, to buy and to sell information, thus telecommunication technology infrastructure very important to these enterprises to operate. Therefore, Viet Nam needs continuing invest to modernize technology information infrastructure to ensures thoroughly channel with large capacity.
- Negative effects of monopoly of post and telecommunication Industry need to be eliminated by establish competitive mechanism in this industry. Government needs to reinforce the control over operation of this industry in order to eliminate negative effects to national benefits. In the short term, it is necessary to reduce cost of accessing Internet equal to or lower than other neighboring countries. Cost of accessing Internet for training human resources in software industry need to be reduced or free of charge.
- The information control mechanism needs to be changed in order to open more accessing gates to Internet. The domestic restriction of communication needs to be eliminated.

With good information infrastructure, there is no need to build a concentration software industry zone, but still ensures the connection between software enterprises.

4.4.2 Training and improving human resource policy

To ensure quantity and quintile human resources, socialize the training of information technology human resources will be necessary. Training information technology needs to be diversified. The training policy must include training resource for information technology in general and also for software industry in particular, training programmer, project manager, business administration.

To build and implement training plan and improve information technology knowledge of manager, leader in all industries in order to stimulate the application of information technology in all aspects.

Training users of information technology in enterprises, government, and social organizations. These users will increase the role of information technology in social activities, thus increase demand for software products. Large enterprises and organization should take care for training staffs specialization in their software.

Invest to information technology faculty of universities to reform program and method of education to update with new requirements from labor market. Focus on training programmers with good knowledge basic, logical thinking and creative. These programmers have approach to modern information technology knowledge. For that purpose, training and improving the quality of lecturers will be very necessary. In order to use state budget more efficiency, the supportive programs for training need to have specific objectives, complete plan. Part of these budget is invest in the training programmer of universities, training organizations, the remainder is invest in specialist training programs.

To encourage enterprises in all economic sector invest in training software programmers and informatics experts as the training activities of Saigon CTT with CISCO SYSTEM in network institute. The stipulation of enterprise specializes in training that adjusts by Enterprise Law need to be concretized. Beside that, kinds of training certifications also need to be concretized. Government needs support to programs, subjects that could not be bought by enterprises. Building up co-ordination training model between informatics companies, research institutes and universities. Government needs to support expenses to training key staff for enterprises through training program of foreigner, after that these staff could transfer the knowledge they have trained to other staffs.

Through Ministry of Science, Technology and Environment, government can organizes training courses to improve skills for project managers to have adequate capacity building product structure, and dividing job to programmers. At present, experts that have adequate capability are very little, so they could not obtain big order or be able to producing software packages for export.

Should not be focus on training engineer that have ability to participate into value added technologies, we also need focus on training worker needed for value added technologies. Technical staffs could improve information application ability and capacity production of software industry.

Issue legal and policy in using, moving software experts between businesses as every business have to invest heavy budget for training and retraining employees for match to the new development technologies.

They also gain a lot of experiences and know-how of real business. There are exist a big difficult for many businesses when good experts move from business to business, so they make a big shortage of employee for their employer. That why it is very important to issue some legal framework to protect employer when they have invest a lot for training employee but after have trained, employee move to better company or move to another higher salary. Obviously, when company does not have to train their employee they can pay some higher salary. In fact, small company can not keep their good employee because all of experts tend to work for foreign companies as they can make more money.

It is not be pass the policy for training expert in Information technology in developed countries to close the gap between Viet Nam and other countries. Give more budget for training information technology expert and have policy to protect brain for Viet Nam software development.

Last but not least, joint with world well-know companies, centers for training inside Viet Nam tend to online to have knowledge engineers with international accepted certificate.

4.4.3 Policy for domestic market development

It is very important for consider both demand and supply side in order to expand domestic market.

a. Some measures to motivate demand for software product:

First, find the way to inform to all of Vietnamese companies, organizations about the important of applying the information technology in their operation. When top manager full recognize the imperative of improve the effective based on using information technology, organizations and corporations will invest more into this industry. Demand for software will be raising. At the same time, enrich and enlarge experience and knowledge for employees to fulfill their skill in using IT in their work. When having qualified employees, the potential for software industry will be real demand.

Motivate to reform state companies; simplify the management system to improve the effective and efficiency, the competitive advantage of state own companies. Opening policy and integrate of Viet Nam make higher level of competition, it do force domestic companies find the way to innovate in order to exist and develop. Obviously, many state own companies doe not recognize the threat of fierce competition when we are do integrating to global environment.

For more than thousand non-states own small and medium size companies, to reinforce apply information technology, beside the force of competition, the management skill is a leading factor. So it is very important to provide enough information about application of information technology and its effective to all non-state own companies.

It is last but not least, must be performance in consistency the policy for every company using the investment in information technology from state budget have to use the domestic developed software program.

b. Some recommendation for the supply side:

All of software producers have to continuously improve their knowledge in economics, social and managerial, especially in practice problem of Viet Nam to able to produce software appropriate for the requirement of domestics companies first. Based on that, software producer will ensure the target market with enough potential customers for them. In fact, a lot of domestic software producers only sold very simple program but not appropriate software meet the particular requirement for customer needs. Software producers have to improve their product for even quality but also quantity of their human resource, especially on manager who can manage and organize project in the best way to perform, to convince and service customer in effective and efficiency strategy.

Build the new and put more trial on marketing strategy in order to increase demand for software product, persuade customers apply information technology in their operation.

4.4.4 International market development strategy

Establish trade promotion organization for software labor and software product in foreign countries to help software producer find foreign customers. Software producer should pay high permission for those agents.

Exploiting the capability of Vietnamese oversee to find market, build relationship and represent for domestic software producers at those market. This is a low cost approach to penetrate and that is cheaper than establishing representative offices for Vietnamese companies at those markets.

Invest for promote of Viet Nam software companies' image around the world. Vietnamese software companies should go into group to go to exhibition, reference, open web-site by using their own software and information technology to introduce their capability and product to global market.

Coordinate with each other even sate own companies to establish software export Association to exploit each other and reduce the promotion cost in the global market.

Go hand in with foreign companies through business agreements or export, so introduce Vietnamese products through those foreign companies.

4.4.5 Complete legal environment

Immediately issue the legal framework to protect the copy right for software product, clarify all behavior can be consider as over that legal. At the same time, try to complete the anti-monopoly policy, keep the price for software appropriate to customer payment ability.

Building the system of measuring, controlling and examining for software quality. Establish organization to measure and evaluate software quality to help the process of selling and buying software.

Ask for people to implement the copyright policy for software programs. Every people, special for implementers, that the most important factor for software companies existing and developing is able to protect the copyright for their developed soft wares. To do it, it can not be lack of coordination between universities, information centers, state organization and so on.

Strictly mange and have penalty policy for any one who make any violation activities such as computer shop, information companies. Their bad actions are tending to make money so it is enough through permitted by money only.

Complete the regulation, law and sub-law to help the officers in solving the problem of violation in using software without payment. It is very effective to take some foreign experiences in the same situation.

Training and retraining for soft ware protection copyright officers at the same time as market monitor.

Government must promulgate the policy which force all state own organization buy the appropriate software, do not use the illegal software.

4.4.6 Taxing policies

Government should particularly favorable and priority taxing policy to software producers. At recent time, tax is not very affecting factor to investment of software producers. But in long term favorable taxing policy will be motivation for software companies to expand their operation. Labor in this industry will be raise at very high rate.

Through reduce the component tax, the price for computer will down, so customer for software will raising. This is very effective and considerable method to generous computerizing Viet Nam social.

Reduce the income tax also be good way to encourage company re-invest to expand their operation.

4.4.7 Complete the investment, construction and management the adventure budget

Consistency implementing the favorable policy for investment in soft ware not only for domestic but also foreign development.

Innovate the procedure for leasing and using the infrastructure; try to build the acceleration environment for organization in general.

This is youth industry, most of participator have very short capital and other resource, do not have equity, so government should have some priority and policy to invest, to build information technology industry zone. The key for investment is to have the appropriate infrastructure for software companies, especial for newly introduced company. It is not had to invest too much without efficient, but government should choose the best and appropriate strategy for investment, for communication background for information technology development.

Build the adventure investment budget with very low interest rate. Insurance policy for investment in this sector also needed.

For heavy project of software development, the long-term policy is prior.

Conclusion

Viet Nam software industry is an infant one but plays a crucial role for the country's industrialization and modernization. Its development is brought not only direct economic effectiveness but also creating general impact to a whole socio-economy because of its competence to change productivity in all fields of any industry.

Analyzing the reality of Viet Nam software industry shows its development has completely not corresponding to our potential and expectation. The industry's capability is too small and dispersed. Most of software enterprises are small and have no long-tern development strategy. Business effectiveness of the whole industry is low at both sales and profit index. Speed of its development is slowly. Reality if IT application into fields and industries of socio-economic life is even lower than.

The process of integration into region and global economy has been strongly influencing to Viet Nam software industry; and, it provides opportunities but also brings challenges. Having said that, a competitive degree will be consequently increasing in both domestic and international markets. It requires for more advanced technologies, higher skills of human resources and better management level. There should be a huge effort from business community and the Government for improving the current situation of Viet Nam software industry in order to stand on and compete successfully in the global market.

Viet Nam has issued many policies for pushing software industry however a majority of such policies have not been realistic yet. The main reasons are those policies have not completely concretized and carried out yet.

This paper initially proposes a series of recommendations at both micro and macro levels with expectation to sustainable development for Viet Nam software industry.

To be more scientific and realistic base for building sound policies and creating suitable measures to speed up Viet Nam software industry, in our opinion, another adequate study is needed for gathering more database about companies, markets and the industry's policy... because, this time, the collected sample was not representative for the whole industry. Hence, this paper could not avoid any mistakes and shortcomings. Any concerns, discussions and contributions from readers are always welcome.

Many thanks!

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Appendix

The Questionnaire on survey of software industry of Viet Nam

(for the informatics companies)

Dear Sir/Madam,

The purpose of this survey is to investigate the current situation of the Vietnamese software industry and to build up policy options for the industry promotion in the new context. We would like ask you a few short questions about these issues. We are very happy to receive your answers on these. Please let us know your opinion on these issues. Everyone's comment is important to suggest some recommended solution for that situation. We are very interested in your comments that helps us to successfully conduct the survey.

Thank you very much for your cooperation and your helps.

---

1. The name of enterprise : ....
2. The address : .... Tel : ....
3. Year of establishment:
4. The your company is:

   State owned

   Joint stock

   Limited

   Joint venture
5. The sum up of business capital recently : ....
   - The number of PC .... and Servers : ....
6. The number of laborers:
   - Programmers:
   - Project managers:
   - Managers:
7. The educational level of programmers:

   Postgraduate : (%)

   Graduated: (%)

   Middle ranking cadre: (%)
8. Please give your evaluating the English ability of programmers and project managers related to the requirement of works

   Very good: %

   Good: %

Fair: %

Poor: %

9. Revenue (in million VND)

	1997	1998	1999	2000	2001-2005 (expected)
Hardware					
Software					
Others					
Total					

10. Revenue of software (in million VND)

The category of software	1997		1998		1999		2000 - 2005 (expected)	
	domestic	Export	domestic	export	Domestic	Export	Domestic	export
Package								
Processed								
Ordering								
Others								

11. Income per capita recently (*VND/month*)............................

    In such: income per capita of programmer............................

12. Total profits (or loss) of the company (*million VND*): 1997.... 1998.... 1999............

    in such profits (or loss) from software sales (*million VND*): 1997.... 1998.... 1999...........

13. Total of tax (million VND): 1997.... 1998.... 1999............

14. The major customers of the company:

    - State-owned enterprises: %
    - Joint venture: %
    - Joint stock: %
    - State organizations: %
    - Social organizations: %
    - Foreign customers: %
    - Other (please specify): %

15. The competitive advantages of the company in compared to other (*circle that apply*):

    - Labor cost is low
    - Good programmers
    - Strong supports from government
    - Relationship with customers
    - Strong capital
    - Experiences
    - Prestige and image of the company
    - Other (please specify)

16. In your opinion, the competitive capability of the company is (*circle one answer*):

- In the domestic software market:

  1. Very strong 2. Strong 3. Somewhat strong 4.slightly weak 5.not at all weak

- in the foreign market (*circle one answer*):

  1. Very strong 2. Strong 3. Somewhat strong 4.slightly weak 5.not at all weak

17. Please give your estimation on the size and the rate of increase of the software market(using the 5 degree measurement scale: 1. Highest and 5. Lowest) (*circle one answer*):

- The size: big 1 2 3 4 5 small
- Rate of increase: fast 1 2 3 4 5 slow

18. Please put your evaluating the level of the domestic software companies in satisfying customer's demands for the software (using the 5 degree measurement scale: 1. Highest and 5. Lowest) (*circle one answer*):

Absolutely satisfy 1 2 3 4 5 absolutely unsatisfied

19. Please give your identifying the major competitors for the company is (*circle that apply*):

  1. Other domestic software companies
  2. Imported software
  3. Joint venture software
  4. Others (please specify)

20. Please indicate your considering on the effectiveness of the recent legal system to protect the copyright (*please mark one alternative below*):

  1. Not yet exist
  2. Existing but not synchronous enough
  3. Existing but it does not work
  4. Existing, synchronous and completely strong

21. Please give your comment on the policies of the government in the conducting of development strategy of software industry (*circle one answer*):

  1. Not yet exist
  2. Exists but not yet completed
  3. Exists but not yet worked
  4. Existing, synchronous and well done

22. please give your considering on the supports of the government to software development specified by (*circle one answer*):

	The level of completeness				
	1	2	3	4	5
The support on capitals	1	2	3	4	5
Tax policies	1	2	3	4	5
Human resource development	1	2	3	4	5
Building infrastructure	1	2	3	4	5
Market development	1	2	3	4	5

23. Please give your considering on the disadvantages to the developing software business in your company specified by below factors (*please rank order your choice*)

Capitals

Tax policies

Human resource development

Building infrastructure

Market development

24. Which market should be selected in the market strategy of the company? (*circle one answer*):

- Domestic market
- Foreign market
- Both of them
- Oriented-domestic market and export to the foreign markets also
- Oriented-foreign markets and supplying domestic customers also

25. The strengths of your company in the supplying some kinds of software (*please rank order*)

- Package
- Processed
- Ordering from customers
- Competitive

26. The company will be improved by (*circle that apply*):

- Increasing the number of labor
- Increasing the capitals
- Increasing the trained programmers
- Training more the project managers

27. The major ways of competition of the company will be (*circle that apply*):

1. Pricing
2. Software quality
3. Promotion
4. Sale services
5. Others (please specify)

28. Finally, could you please give any recommendation to complete the macro-level policies to develop the software industry

....

....

Thank you so much for your co-operation again.

The Questionnaire on survey of software industry of Viet Nam

(for the customers of the software companies)

Dear Sir/Madam,

The purpose of this survey is to investigate the current situation of the Vietnamese software industry and to build up policy options for the industry promotion in the new context. We would like ask you a few short questions about these issues. We are very happy to receive your answers on these. Please let us know your opinion on these issues. Everyone's comment is important to suggest some recommended solution for that situation. We are very interested in your comments that helps us to successfully conduct the survey.

Thank you very much for your cooperation and your helps.

---

1. The name of organization ....
2. The address : .... Tel : ....
3. Year of establishment:
4. The area of business:
5. The current numbers of the computers:
   - Number of PC:
   - Number of servers:
   - Network: 1. Intranet 2. Internet 3. Not yet
6. Has your organisation been using any software in works?

   Yes (*if yes, please move to question 9 immediately*)

   No (*if no, please move to question 7 below*)
7. The reasons for no using the software (*circle that apply*) :
   1. Absolutely not necessary
   2. Limitation of funding
   3. Not enough good officials to use and explore
   4. Have no right way to distribute human resource
   5. Others (please specify)
8. However, your organisation has planned to use software in (*circle one answer*):
   1. Next year
   2. Next 5 years
   3. Next 10 years
   4. Unidentified

   (*After finishing this question, please move to question 19 below*)

9. These software have been used for (*circle that apply*):

    1. Product design
    2. Management
    3. Accounting
    4. Office
    5. Controlling production
    6. Other (please specify)

10. The value of purchasing software (*million VND*):

    1997........... 1998........... 1999........... 2000........... estimated next 5 years...........

11. The software were distributed by (*circle that apply*):

    1. Foreign suppliers
    2. Domestic suppliers
    3. Others (please specify)

12. Please list the name of the companies which you know:.......................................

13. The criteria that you have based to choose the supplier of software (*please use the 5 level scale to indicate in which: 1-most important 5- most unimportant*)

Criteria	1	2	3	4	5
1. Software quality	1	2	3	4	5
2. Sale services	1	2	3	4	5
3. Price	1	2	3	4	5
4. Prestige and image of the supplier	1	2	3	4	5
5. Selling policies	1	2	3	4	5
6. Other (*please specify*)	1	2	3	4	5

14. Please indicate the satisfaction of the domestic software and the domestic software company based on these criteria below: (*please use the 5 level scale to indicate in which: 1-most important 5- most unimportant, please circle one level for each*)

Criteria	1	2	3	4	5
1. Software quality	1	2	3	4	5
2. Sale services	1	2	3	4	5
3. Price	1	2	3	4	5
4. Understanding buyers	1	2	3	4	5
5. Relationship with customers	1	2	3	4	5
6. Other (*please specify*)	1	2	3	4	5

15. Please indicate the satisfaction of the foreign software and the foreign software company based on these criteria below: (*please use the 5 level scale to indicate in which: 1-most important 5- most unimportant, please circle one level for each*)

Criteria	1	2	3	4	5
1. Software quality	1	2	3	4	5
2. Sale services	1	2	3	4	5
3. Price	1	2	3	4	5
4. Understanding buyers	1	2	3	4	5
5. Relationship with customers	1	2	3	4	5
6. Other (*please specify*)	1	2	3	4	5

16. However, there are some weaknesses of the domestic software (*circle that apply*):

- The suitability with the using conditions of the domestic customers
- The using direction
- Controlling and treating happened troubles
- The upgrade
- Other (*please specify*)

17. Please indicate your level of satisfaction with the domestic and foreign software (*circle one*)

- Domestic software:

  1. Very satisfied 2. Satisfied 3. Fairly wee satisfied

  4. Dissatisfied 5. Completely dissatisfied

- Foreign software:

  1. Very satisfied 2. Satisfied 3. Fairly wee satisfied

  4. Dissatisfied 5. Completely dissatisfied

18. Please give your appreciation on the efficient of the using software (*please use the 5 level scale to indicate, in which: 1-highest, 5-lowest, please circle one level for each*)

Criteria	1	2	3	4	5
1. Increasing productivity	1	2	3	4	5
2. Management	1	2	3	4	5
3. Labor substitution	1	2	3	4	5
4. Rationalizing production	1	2	3	4	5
5. Other (*please specify*)	1	2	3	4	5

19. In your opinion, what are the restrictions of the applying information technology in Viet Nam (*circle that apply*)

1. The capital is too low
2. The managers are not good enough to explore and use efficiently
3. The macro-level policies
4. Have no right way to redistribute redundant labors
5. Other (*please specify*)

20. In order to use software in the management in your organisation, which measure that listed below are needed ? (*please use the 5 level scale to indicate, in which : 1 most necessary and 5 : most unnecessary*) *please circle one level for each*)

Criteria	1	2	3	4	5
1. The capital investment	1	2	3	4	5
2. Training managers and user	1	2	3	4	5
3. Redistribute the human resource	1	2	3	4	5
4. Improving managerial ability	1	2	3	4	5
5. Other (*please specify*)	1	2	3	4	5

21. In your opinion, which measure should be conducted to develop the software industry (*please use the 5 level scale to indicate in which: 1-most important 5- most unimportant*)

Criteria	1	2	3	4	5
Developing human resources	1	2	3	4	5
Building infrastructure	1	2	3	4	5
Establishing the completely legal system	1	2	3	4	5
Financial supports	1	2	3	4	5
Protecting the domestic software market	1	2	3	4	5

23. Finally, could you recommend any important measure to quickly develop the software industry?

....

....

Thank you so much for your answers and cooperation again.

The output of Questionnaire 1

Forms of businesses

		Frequency	Percent	Valid percent	Cumulative percent
Valid	State-owned enterprises	5	26.32	26.32	26.32
	Joint stock	5	26.32	26.32	52.63
	Limited	8	42.11	42.11	94.74
	100% foreign capital	1	5.26	5.26	100.00
	Total	19	100.00	100.00	
Total		19	100.00		

The competitive advantage of labor cost

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	15	78.95	78.95	78.95
	Yes	4	21.05	21.05	100.00
	Total	19	100.00	100.00	
Total		19	100.00		

The competitive advantage of well trained programmers

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	6	31.58	31.58	31.58
	Yes	13	68.42	68.42	100.00
	Total	19	100.00	100.00	
Total		19	100.00		

The competitive advantage of relationships with customers

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	7	36.84	36.84	36.84
	Yes	12	63.16	63.16	100.00
	Total	19	100.00	100.00	
Total		19	100.00		

The competitive advantage of prestige and image of the company

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	10	52.63	52.63	52.63
	Yes	9	47.37	47.37	100.00
	Total	19	100.00	100.00	
Total		19	100.00		

Recent legal system for protecting the copyright

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Not yet exist	1	5.26	5.56	5.56
	Existing but not synchronous enough	2	10.53	11.11	16.67
	Existing but isn't effectuated	15	78.95	83.33	100.00
	Total	18	94.74	100.00	
Missing	System Missing	1	5.26		
	Total	1	5.26		
Total		19	100.00		

Government's policies on developing the software industry

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Exists but not yet completed	7	36.84	38.89	38.89
	Existing but isn't effectuated	11	57.89	61.11	100.00
	Total	18	94.74	100.00	
Missing	System Missing	1	5.26		
	Total	1	5.26		
Total		19	100.00		

The disadvantage of capital in developing software business

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Very difficult	3	15.79	27.27	27.27
	Difficult	2	10.53	18.18	45.45
	Normal	1	5.26	9.09	54.55
	Not difficult	2	10.53	18.18	72.73
	Easy	3	15.79	27.27	100.00
	Total	11	57.89	100.00	
Missing	System Missing	8	42.11		
	Total	8	42.11		
Total		19	100.00		

The disadvantage of tax policy in developing software business

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Very difficult	3	15.79	30.00	30.00
	Difficult	3	15.79	30.00	60.00
	Normal	2	10.53	20.00	80.00
	Not difficult	2	10.53	20.00	100.00
	Total	10	52.63	100.00	
Missing	System Missing	9	47.37		
	Total	9	47.37		
Total		19	100.00		

The disadvantage of human resource in developing software business

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Very difficult	5	26.32	35.71	35.71
	Difficult	3	15.79	21.43	57.14
	Not difficult	2	10.53	14.29	71.43
	Easy	4	21.05	28.57	100.00
	Total	14	73.68	100.00	
Missing	System Missing	5	26.32		
	Total	5	26.32		
Total		19	100.00		

The disadvantage of infrastructure in developing software business

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Very difficult	2	10.53	14.29	14.29
	Difficult	4	21.05	28.57	42.86
	Normal	6	31.58	42.86	85.71
	Not difficult	1	5.26	7.14	92.86
	Easy	1	5.26	7.14	100.00
	Total	14	73.68	100.00	
Missing	System Missing	5	26.32		
	Total	5	26.32		
Total		19	100.00		

The disadvantage of expanding market in developing software business

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Very difficult	3	15.79	25.00	25.00
	Difficult	2	10.53	16.67	41.67
	Normal	3	15.79	25.00	66.67
	Not difficult	2	10.53	16.67	83.33
	Easy	2	10.53	16.67	100.00
	Total	12	63.16	100.00	
Missing	System Missing	7	36.84		
	Total	7	36.84		
Total		19	100.00		

Market orientation

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Domestic market	7	36.84	38.89	38.89
	Foreign market	1	5.26	5.56	44.44
	Both of them	2	10.53	11.11	55.56
	Oriented-domestic market and export to the foreign market also	7	36.84	38.89	94.44
	Oriented- foreign market and supplying for the domestic customers also	1	5.26	5.56	100.00
	Total	18	94.74	100.00	
Missing	System Missing	1	5.26		
	Total	1	5.26		
Total		19	100.00		

The possibility of supporting the package software products

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Priority 1	6	31.58	35.29	35.29
	Priority 2	3	15.79	17.65	52.94
	Priority 3	4	21.05	23.53	76.47
	Priority 4	4	21.05	23.53	100.00
	Total	17	89.47	100.00	
Missing	System Missing	2	10.53		
	Total	2	10.53		
Total		19	100.00		

The possibility of supporting the processed software products

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Priority 1	2	10.53	12.50	12.50
	Priority 2	6	31.58	37.50	50.00
	Priority 3	7	36.84	43.75	93.75
	Priority 4	1	5.26	6.25	100.00
	Total	16	84.21	100.00	
Missing	System Missing	3	15.79		
	Total	3	15.79		
Total		19	100.00		

The possibility of supporting the supplement software products

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Priority 1	4	21.05	28.57	28.57
	Priority 2	4	21.05	28.57	57.14
	Priority 3	2	10.53	14.29	71.43
	Priority 4	4	21.05	28.57	100.00
	Total	14	73.68	100.00	
Missing	System Missing	5	26.32		
	Total	5	26.32		
Total		19	100.00		

The major competitors

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Other domestic software companies (1)	2	10.53	11.76	11.76
	Imported software (2)	1	5.26	5.88	17.65
	Joint venture companies (3)	3	15.79	17.65	35.29
	12	2	10.53	11.76	47.06
	13	4	21.05	23.53	70.59
	23	2	10.53	11.76	82.35
	123	3	15.79	17.65	100.00
	Total	17	89.47	100.00	
Missing	System Missing	2	10.53		
	Total	2	10.53		
Total		19	100.00		

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The company's competitive ability in domestic software market.	16	1	3.00	2.06	0.85
The company's competitive ability in foreign software market.	13	2	4.00	2.69	0.63
Current domestic software market scale	18	1	5.00	3.06	1.30
The growth rate of domestic software market	18	1	5.00	2.94	1.06
The capacity of domestic software companies	18	1	4.00	2.56	0.86
The state's policies for supporting on capital	18	2	5.00	4.17	0.92
The state's policies for supporting on tax	18	3	5.00	3.94	0.80
The state's policies for supporting on labor resource	18	2	5.00	3.67	0.91
The state's policies for supporting on infrastructure	18	2	5.00	4.28	0.83
The state's policies for supporting on developing the market	18	3	5.00	4.61	0.61
Valid N (list-wise)	13				

The SPSS output of Questionnaire 2
Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. deviation
Evaluation of the quality of sale services	11	1.00	4.00	2.2727	1.0090
Evaluation of the price	11	1.00	3.00	2.1818	0.6030
Evaluation of the prestige and the image of suppliers	10	1.00	4.00	2.6000	1.0750
Evaluation of selling policies	10	1.00	5.00	3.2000	1.1353
Valid N (list-wise)	10				

	N	Minimum	Maximum	Mean	Std. deviation
Evaluation of the quality of sale services	11	1.00	4.00	2.2727	1.0090
Evaluation of the price	11	1.00	3.00	2.1818	0.6030
Evaluation of the prestige and the image	10	1.00	4.00	2.6000	1.0750
of suppliers	10	1.00	5.00	3.2000	1.1353
Evaluation of selling policies	11	1.00	2.00	1.0909	0.3015
Evaluation of software quality					
Valid N (list-wise)	10				

	N	Minimum	Maximum	Mean	Std. deviation
Evaluation of the price of domestic software	10	1.00	5.00	2.3000	1.2517
Evaluation of the sale services of domestic software	9	1.00	4.00	2.889	1.0541
Evaluation of the capacity for understanding buyers of domestic software companies	10	1.00	5.00	3.1000	1.1005
Evaluation of the quality of domestic software	9	1.00	4.00	2.3333	1.0000
Evaluation of the relationship with customers of domestic software companies	9	1.00	4.00	2.8889	1.0541
Valid N (list-wise)	9				

	N	Minimum	Maximum	Mean	Std. deviation
Evaluation of the price of foreign software	9	1.00	5.00	2.6667	1.5811
Evaluation of the sale services of foreign software	8	1.00	3.00	1.6250	0.9161
Evaluation of the capacity for understanding buyers of foreign software companies	8	1.00	5.00	2.6250	1.6850
Evaluation of the quality of foreign software	9	1.00	3.00	1.4444	0.7265
Evaluation of the relationship with customers of foreign software companies	8	1.00	4.00	2.5000	0.9258
Valid N (list-wise)	8				

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation
Evaluation of capacity for raising productivity	10	1.00	5.00	2.0000	1.2472
Evaluation of capacity for enhancing the effectiveness of management	10	1.00	3.00	1.8000	0.9189
Evaluation of capacity for labor substitution	11	1.00	5.00	2.5455	1.2136
Evaluation of capacity for rationalizing production	8	1.00	4.00	2.2500	1.0351
Valid N (list-wise)	8				

	N	Minimum	Maximum	Mean	Std. deviation
Satisfaction level of domestic software	10	2.00	5.00	3.0000	0.8165
Satisfaction level of foreign software	8	1.00	3.00	2.0000	0.5345
Valid N (list-wise)	8				

	N	Minimum	Maximum	Mean	Std. deviation
The necessary of capital	10	1.00	3.00	1.6000	0.6992
The necessary of training managers and users	11	1.00	3.00	1.7273	0.6467
The necessary of redistributing the human resource	10	1.00	4.00	2.3000	1.1362
The necessary of improving managerial ability	9	1.00	3.00	1.5556	0.7165
Valid N (list-wise)	9				

	N	Minimum	Maximum	Mean	Std. deviation
The importance of developing human resources	11	1.00	5.00	1.5455	1.2933
The importance of building infrastructure	11	1.00	5.00	1.5455	1.2136
The importance of establishing the completely legal system	11	1.00	4.00	2.0909	1.1362
The importance of supporting finance	11	1.00	3.00	1.6364	0.0890
The importance of protecting the domestic software market	11	1.00	5.00	1.9091	1.3751
Valid N (list-wise)	11				

Number of main PC

		Frequency	Percent	Valid percent	Cumulative percent
Valid	.00	1	9.1	9.1	9.1
	1.00	4	36.4	36.4	45.5
	2.00	1	9.1	9.1	54.5
	3.00	1	9.1	9.1	63.6
	8.00	1	9.1	9.1	72.7
	30.00	1	9.1	9.1	81.8
	70.00	1	9.1	9.1	90.9
	200.00	1	9.1	9.1	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

Network connecting

		Frequency	Percent	Valid percent	Cumulative percent
Valid	LAN	7	63.6	63.6	63.6
	Intranet	3	27.3	27.3	90.9
	3.00	1	9.1	9.1	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

Number of employees in charge IT

		Frequency	Percent	Valid percent	Cumulative percent
Valid	.00	2	18.2	20.0	20.0
	1.00	2	18.2	20.0	40.0
	5.00	2	18.2	20.0	54.5
	15.00	1	9.1	10.0	60.0
	100.00	1	9.1	10.0	70.0
	120.00	1	9.1	10.0	80.0
	1800.00	1	9.1	100.0	90.0
	Total	10	90.1		100.0
Missing	System Missing	1	9.1		
	Total	1	9.1		
Total		11	100.0		

Situation of PC use in business

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Co	9	81.1	100.0	100.0
	Total	9	81.1	100.0	
	Total				
Missing	System Missing	2	18.2		
	Total	2	18.2		
Total		11	100.0		

The rate of software from foreign suppliers

		Frequency	Percent	Valid percent	Cumulative percent
Valid	.00	5	45.5	45.5	45.5
	50.00	2	18.2	18.2	63.6
	60.00	1	9.1	9.1	72.7
	70.00	1	9.1	9.1	81.8
	80.00	1	9.1	9.1	90.9
	100.00	1	9.1	9.1	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

The rate of software from domestic suppliers

		Frequency	Percent	Valid percent	Cumulative percent
Valid	.00	3	27.3	27.3	27.3
	5.00	2	18.2	18.2	45.5
	20.00	2	18.2	18.2	63.6
	50.00	1	9.1	9.1	72.7
	100.00	3	27.3	27.3	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

The rate of software from other sources

		Frequency	Percent	Valid percent	Cumulative percent
Valid	.00	6	54.5	54.5	54.5
	20.00	1	9.1	9.1	63.6
	25.00	1	9.1	9.1	72.7
	50.00	1	9.1	9.1	81.8
	95.00	1	9.1	9.1	90.9
	100.00	1	9.1	9.1	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

The limitation of domestic software on adaptability

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	6	54.5	54.5	54.5
	Yes	5	45.5	45.5	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

The limitation of domestic software on using guideline

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	7	63.6	63.6	63.6
	Yes	4	36.4	36.4	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

The limitation of domestic software on trouble controlling and processing

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	2	18.2	18.2	18.2
	Yes	9	81.8	81.8	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

The limitation of domestic software on updating ability

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	3	27.3	27.3	27.3
	Yes	8	72.7	72.7	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

Obstacles related capital investment

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	1	9.1	9.1	9.1
	Yes	10	90.9	90.9	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

Obstacles related to low skilled personnel

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	3	27.3	27.3	27.3
	Yes	8	72.7	72.7	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

Obstacles due to the state policies

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	4	36.4	36.4	36.4
	Yes	7	63.6	63.6	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

Obstacles related labour surplus

		Frequency	Percent	Valid percent	Cumulative percent
Valid	No	7	63.6	63.6	63.6
	Yes	4	36.4	36.4	100.0
	Total	11	100.0	100.0	
Total		11	100.0		

The list of the surveyed software companies

Or-di-nal	Name of enterprise	Location	Year of estab-lish-ment	Owner-ship	Total operating capitals (billion VND)	Number of PCs	Number of employees (person)		Revenue from software sales		Income per person in average (million VND/ month)
							Program-mers	Project managers	1999	2000 (estimated)	
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*
1	Global Cyber Soft	HCMC	2000	Foreigners	400 000 USD	70	30	5	-	200 000 USD	
2	Information System Center, FPT	Hanoi	1989	State-owned	-	40	20	10	1.2	1.5	1.5
3	Electronics, informatics and chemical Co. Military of Defense	Hanoi	1988	State-owned	3.32	35	20	14	1	1.2	2.5
4	Branch of the Haiphong Communication and Computer Company in Hanoi	Hanoi	1999	State-owned	1.3	4	2	1	0.2	0.3	2
5	Accounting software company	Hanoi	1997	State-owned	1	40	25	2	1.25	2	2
6	HongNam computer and communication company	Hanoi	1999	Limited	0.6	10	8	3	0.2	0.6	1.2
7	DuyViet Electronics and Informatics Co. Ltd	HCMC	1993	Joint stock	15	70	72	-	25	28	3
8	Lac Viet informatics joint stock company	HCMC	1994	Joint stock	10	120	-	-	3	4	5
9	Dolsoft	HCMC	1995	Limited	1	65	35	4	1.2	1.5	2.5-3
10	Communication and computer company	Hanoi	1995	Limited	-	-	50	5	26	30	-
11	Construction Informatics Company	Hanoi	1990	State-owned	5	70	-	-	3	7	3
12	Business Software Company	Hanoi	1997	Limited	4.82	56	42	6	0.43	0.58	3.5
13	Khai Tri industrial and commercial company	HCMC	1998	Joint stock	1	20	16	2	2	4	3
14	Software Development Company	Hanoi	2000	State-owned	-	-	-	-	-	6	-
15	Huong Sen Company	HCMC	2000	Joint stock	2	20	15	3	-	0.5	-
16	Financial and Banking Solution Co. Ltd	HCMC	1998	Limited	0.5	15	10	2	2	2.5	2
17	Saigon CIT	HCMC	2000	Limited	0.7	25	2	2	-	0.2	2-3
18	Nam Viet electronics and Informatics Co.Ltd	HCMC	2000	Limited	0.5	8	5	1	-	1.2	1.5
19	**Hai hoa Company**	Hanoi	1994	Limited	4	100	26	4	3	4	3

The total surveyed software supplying enterprises: 19

The list of the software publishing enterprises in Viet Nam, 2000

Ordinal	Name of enterprise	Location	Year of establishing	Number of employees (person)	The revenue in 1999 (million VND)	The estimated revenue in 2000 (million VND)
1.	Computer-Communication-Control Inc.	Hanoi	1989	112	68000	72000
2.	Consulting Firm- ACCOM	Danang city	1997	10	500	700
3.	Brand of Advanced Information technology Corporation	HCM city	1997	20	4000	4000
4.	Electronics Computer Pte. ALPHA	Khanh hoa	1994	12	1400	2000
5.	Technology and Trade development Company	HCM city	1995	30	31000	40000
6.	Quantic Ltd.	HCM city	1991	70	-	-
7.	Application Informatics Corporation and Company Ltd.	Hanoi	1989	65	10000	50000
8.	Asian Development Link Co. Ltd.	Hanoi	1995	20	10000	112000
9.	Computer Trade - Technology- Services Co.Ltd.	HCM city	1995	34	3500	-
10.	Banmai Engineering and Trading Co.Ltd	Hanoi	1997	25	-	-
11.	BATIN Business and Information Network	Hanoi	1995	15	-	-
12.	BACTH Corporation	HCM city	1999	25	-	-
13.	Business Information Technology Co. Ltd.	Hanoi	1995	32	-	-
14.	Business Software Co. Ltd.	Hanoi	1999	17	650	15000
15.	Electronics and Information Company, Viet Nam News Agency	Hanoi	1982	40	10000	12000
16.	CAD Software Company	Hanoi	1998	10	-	-
17.	Industrial Electronics Company- South Viet Nam Branch	HCM city	1997	30	15000	20000
18.	Construction Informatics Company	Hanoi	1990	70	4000	10000
19.	CIAT Co. Ltd.	Hanoi	1998	20	800	2000
20.	CISCO SYSTEM VIET NAM Ltd.	Hanoi	1993	-	-	-
21.	Computer Communication	Hanoi	1995	225	260000	300000
22.	COMPAQ COMPUTER VIET NAM Ltd.	Hanoi	1993	30	-	-
23.	Computech JSC	HCM city	1993	80	-	-
24.	CONSULTEC LTD.	HCM city	1998	10	-	-
25.	CSA AUTOMATED PTE Ltd., Representative Office	HCM city	1996	3	-	-
26.	Computer & Telephone Company	Hanoi	1999	7	-	-
27.	Development of Hitech and Trading CO. Ltd.	Hanoi	1997	20	-	-
28.	DIGINET Technologies Inc.	HCM city	1995	65	10000	30000
29.	DOLOSFT Co. LTD	HCM city	1994	67	-	-
30.	Dongnam Associated Ltd.	HCM city	1994	-	-	-
31.	Dynamic Solutions Viet Nam Co. Ltd.	Hanoi	1998	19	500	1500

32.	VINATEC LTD	HCM city	1995	20	-	-
33.	Technology Co. Ltd.	Hanoi	1998	14	7000	10000
34.	Electronics and Information System Co. Ltd.	HCM city	1995	50	11392	-
35.	Viet Nam Electronics Communication Technology development Co.—ELCOM	Hanoi	1995	90	20000	25000
36.	Namdinh Electronics—Informatics Co.	Namdinh	1995	20	-	-
37.	The Accounting software Company—FAST	Hanoi	1997	30	2000	2500
38.	Finical and Banking Solutions Co. Ltd.,	HCM city	1998	15	1500	2500
39.	The Corporation of Financing Industry Technology Commerce, Joint Stock	Hanoi	1995	40	-	-
40.	FOLEC COMMUNICATION VIET NAM LTD	HCM city	1998	12	14500	72000
41.	The Corporation for Financing and Promoting Technology , FPT	Hanoi	1988	700	600000	800000
42.	Fjitsu Computer System of Viet Nam LTD	Hanoi	1999	14	-	-
43.	GEPACIFIC COMPANY	HCM city	-	-	70000	100000
44.	General Technology Company	Hanoi	1993	-	-	-
45.	GIANGNAM ISC CO LTD	Hanoi	1997	30	4000	5000
46.	Ha Thang Computer company	Hanoi	1995	36	3000	3500
47.	Hamorny Ltd.	Hanoi	1994	70	10000	15000
48.	HEWLET PACKARD VIET NAM LTD.	HCM city	1995	30	-	-
49.	Hoang Tuan Co. Ltd	Hanoi	1994	120	170000	200000
50.	High Performance Technology—HiPT	HCM city	1995	60	60000	-
51.	IBM Viet Nam Company	Hanoi	1993	35	-	-
52.	Industry and Engineering Development Investment Inc.	Danang	1992	42	16000	20000
53.	INFOCOM LTD.	Hanoi	1996	25	-	10000
54.	Informatics Development Co.	Hanoi	1994	30	-	-
55.	INTEL SEMICONDUCTOR LTD, The Resident Preventive Office	HCM city	1997	5	-	-
56.	Indochina Network	HCM city	1998	25	5000	7000
57.	Informatics Technology Co. Ltd—ISA	Hanoi	1998	48	11000	20000
58.	Informatics and Commercial Joint stock company	Hanoi	1999	-	500	1700
59.	Information Solution Provide Co Ltd	Hanoi	1998	18	-	-
60.	ITC CO LTD	Hanoi	1997	29	15000	40000
61.	Information Telecom Colsultancy and Technology Transfer Co Ltd	Hanoi	1995	25	14000	20000
62.	Khai Tri Trading Services CO LTD	HCM city	1998	18	12000	18000
63.	LAM PHUONG CO LTD	Hanoi	1995	12	28000	30000
64.	Informatics and Equipment Manufacturing Joint stock Company—MEKONG GREEN	HCM city	1998	18	12500	20000
65.	Microsoft Representative Office	Hanoi	1996	8	-	-
66.	Microtech PTE LTD Branch Office	Hanoi	1993	15	-	-
67.	MINH HA CO LTD	HCM City	1997	20	7000	10000
68.	Moste's Innovation technology Corporation	Hanoi	1992	70	25000	35000
69.	MK Technology Group	Hanoi	1999	20	-	-

70.	NETCOM COLTD	Hanoi	1999	25	10000	30000
71.	NHAT VINH CO LTD	Hanoi	1995	40	15000	20000
72.	ORACLE VIET NAM PTE LTD	Hanoi	1996	30	-	-
73.	PARAGON SOLUTION VIET NAM	HCM City	1998	130	-	-
74.	FIBI CO LTD	HCM City	1992	40	7000	12000
75.	Promotion for High Technology Co Ltd	HCM City	1997	-	3000	4000
76.	BEST COMPUTER CO LTD	HCM City	1993	58	7000	8500
77.	Phu Minh Industrial Commercial Co Ltd	Hanoi	1999	13	-	-
78.	SCC TECHNOLOGY CO	HCM City	1996	31	-	-
79.	QUOC THAI CO LTD	HCM City	1997	18	5820	10000
80.	MICROSTAR COMPUTER CO LTD	HCM City	1994	20	12300	17000
81.	THE SOUTHERN STAR OFFICE EQUIPMENT CO	HCM City	1997	65	-	-
82.	SCHOOL@NET TECHNOLOGY CO	Hanoi	1999	20	1000	5000
83.	The Scientific and Technology Corporation Co	HCM City	1989	70	-	-
84.	SIEMENS AG REPRESENTATIVE VIET NAM	Hanoi	1993	200	-	-
85.	SILICOM CO	Hanoi	1998	50	18000	24000
86.	Sinh Minh Trading Co	HCM City	1998	25	11500	20000
87.	TECHNIQUE SERVICE AND TRADE CO	HCM City	1992	10	3000	5000
88.	STAR CO LTD	HCMC	1996	26	-	-
89.	Silicon Valley Computer	HCMC	1993	32	-	-
90.	T & H COMPUTER	HCMC	1992	48	29000	-
91.	T & V CO LTD	Hanoi	1993	40	14000	15000
92.	TCT CO LTD	HCMC	1994	36	14000	20000
93.	Tan quang Computer and Trading Co Ltd	Hanoi	1999	15	-	-
94.	Tan Duc Technical Development and Trading Co Ltd	HCMC	1992	84	14000	16000
95.	Trading and Development Technology Informatics Company	Hanoi	1994	15	8000	12000
96.	TDT	HCMC	1999	20	-	-
97.	Technological Application and Production Company	Hanoi	1989	200	62000	70000
98.	TECH CRAFT ENGINEERING PTE LTD, Hanoi representative Office	Hanoi	1999	5	-	-
99.	Branch of Viet Nam National Technique Import Export Corp.	HCMC	1991	40	120000	150000
100.	Technology Resources Viet Nam Ltd	HCMC	1997	35	7747	10000
101.	THAKRAL BROTHER PTE LTD representative Office	HCMC	1994	18	-	-
102.	THANH VINH TRADING CO LTD	Hanoi	1996	16	10000	15000
103.	Thang Thien Commercial & Services Co. Ltd	Hanoi	1999	10	-	-
104.	Thiennam Promoting Production & Export Import Corporation	Hanoi	1995	110	22000	40000
105.	THIEN VIET CO LTD	Hanoi	1997	30	-	-
106.	THINH LOC CO LTD	HCMC	1995	15	-	-

107.	THUAN MY CO LTD	HCMC	-	-	-	-
108.	TIEN PHONG CO LTD	Hanoi	1994	50	50000	54000
109.	TINH VAN CO LTD	Hanoi	1997	20	2000	3000
110.	TLC CO LTD	Hanoi	1997	19	1000	2000
111.	TRI DUC COMPUTER	HCMC	1994	9	-	-
112.	Truong giang Computing Trading and Service Co Ltd	Hanoi	1999	14	1000	2000
113.	TRADING TECHNICAAL CO LTD	Hanoi	1993	60	140630	281260
114.	UNISYS Representative Office	Hanoi	-	-	-	-
115.	Viet Nam Advertising equipment Co Ltd	HCMC	1999	7	4000	6000
116.	VIET NAM DATA COMMUNICATION COMPANY	Hanoi	1989	400	-	-
117.	Viet Nam Electronics and Informatics Corporation	Hanoi	1995	2700	1103037	1058061
118.	VIETCAD CO LTD	HCMC	1999	20	-	-
119.	Viet Khanh Trading and Technology Service Co Ltd	HCMC	1999	28	-	-
120.	AUSSI VINA CO LTD	HCMC	1993	9	1800	-
121.	VIET NAM INFORMATICS COMPANY	Hanoi	1986	110	45000	40000
122.	INFORMATION TEHNOLOGY INVESMENT CO LTD	Hanoi	1993	40	7035	7500
123.	Vinh Phu Trading Service & software Pte company	HCMC	2000	10	-	500
124.	WIN TECHNOLOGIES CO LTD	HCMC	1996	40	-	-
125.	VINHTRINH CO LTD	Hanoi	1997	40	30000	35000
126.	INFORMATION TECHNOLOGY & ELECTRONICS ENTERPRISE	Hanoi	1996	36	-	-
127.	MANAGEMENT BOARD OF I.TPROJECT—General Department of Land Administration	Hanoi	-	-	-	-
128.	Faculty of Economics Informatics, The National Economics University	Hanoi	-	-	-	-
129.	Center for Assistance and Development of Information Technology	Hanoi	1995	15	-	-
130.	TECHNICAL TEACHER'S TRAINING COLLEGE NO 1	Hung yen	-	160		
131.	CDC CENTER	Hanoi	1996	25	10000	15000
132.	Center for Transfer technology Viet Nam Informatics Company—Ministry of Industry	Hanoi	-	26	-	-
133.	Mechanics - Electronics & Informatics Enterprise	HCMC	1998	63	14000	16000
134.	PROGRAMME FOR ASSISTING BUSINESS MANAGEMENT	Hanoi	1999	30	1500	3000
135.	GAME CENTER	Hanoi	1995	10	3000	4000
136.	Institute of Applied Physic and Scientific Instrument	Hanoi	1988	103	-	-
137.	Institute of Microelectronics and Information Technology (MoSTE)	Hanoi	1986	100	-	-
138.	Center for Information technology Application—Institute of Military Science	Hanoi	1999	5	-	1000
139.	INFORMAITCS TECHNOLOGY DEPARTMENT OF THE BANK—HCMC	HCMC	1996	8	250	350
140.	Faculty of Information technology, DongDo Hanoi University	Hanoi	1991	25	-	-
141.	Information Technology Department, Phuongdong University	Hanoi	1994	9	-	-
142.	Faculty of Information Technology, Viet Nam Maritime University	Haiphong	1994	16	-	-
143.	Faculty of Information Technology, The In stitute of Military Science	Hanoi	1992		-	-

144.	Maritime Information Center	Haiphong	1995	-	-	-
145.	Department of pattern recognition and knowledge Technology, The Institute of Information Technology	Hanoi	1982	15	-	-
146.	CAD/CAM TECNOLOGY CENTER, The University of Transport	Hanoi	1996	12	-	-
147.	Center of Information Technology, MOET	Hanoi	1996	-	-	-
148.	DATABASE & TECHNOLOGY INFORMATION CENTER, Government Committee on Organization and Personnel	Hanoi	-	-	-	-
149.	Informatics Technology Training and transfer Center	Hanoi	1997	17	1000	1500
150.	Training support Center, Hoalac Hi-Tech Park	Hanoi		8	-	-
151.	Kha Thi Center	HCM C	2000	18	450	850
152.	Center for science and Technology Information—HCMC Department for Science, Technology and Environment	HCMC	1995	50	-	-
153.	National Center for Scientific and Technological Information and Documentation	Hanoi	1983	160	-	-
154.	Informatics Center, Hanoi Post & Telecommunication	Hanoi	1990	-	-	-
155.	Computer Science Center, The University of Natural Science	Hanoi	1996	56	-	-
156.	Informatics Center, Van lang University	HCMC	1996	-	-	-
157.	I. T Center, Office of the Government	Hanoi	1992	13	-	-
158.	Information Technology Center of Binh dinh Province	Binhdinh	1992	16	1524	1400
159.	Dong nai Informatics and Foreign Language Center	Bien Hoa	1994	24	1300	1400
160.	Applied Information technology Center, Hanoi Architectural University	Hanoi	1997	12	-	-
161.	Dongnai Computer Center	Bien Hoa	1991	16	1400	1500
162.	Science Technology Union for Informatics Application	Hanoi	1993	100	8400	8400
163.	The Institute of Information Technology	Hanoi	1976	200	-	-
164.	ABS Computer Services	HCMC	1994	7	-	-
165.	Computer Warranty maintaining Repairing Center	HCMC	1996	5	-	-
166.	Computer Service 2000	HCMC	1995	17	730	1095
167.	Microcomputer service and automaton Center	HCMC	1994	6	-	-
168.	MICROCOM	HCMC	1990	8	-	-
169.	Quang minh Computer Center	HCMC	1997	10	-	-
170.	Saigon Freelane	HCMC	1998	7	200	300
171.	Thai son Computer	HCMC	1996	20	-	-

Source: Viet Nam Information Technology Directory 2000, Hochiminh city, 2000

Analysis of collected database from survey on informatic companies and software customers

We investigated 19 informatic companies and 12 big software customers with purposes to evaluate the current capability of software industry, scale of domestic software market and effectiveness of present policy of State on software industry.

Followings are main results drawing from the survey:

1. Result of informatic companies' investigation

- Details of the sample, there 27.8% are SOEs, but only 5.6% are companies with 100% foreign capital and the last portion is private enterprises and limited companies. So that informative companies are mainly non-state owned.

- Most of them have a small side at both labour and capital levels. Many of them owned capital about 1 VND billion only. At average, they recruit from 20 to 50 software writers and together with about 2-4 project managers.

- Concerning competitive advantages of software companies in market:

22% of them pointed out that they have advantage in low labour cost but other 77.8% did not agree.

72.2% showed that they having advantage with good quality of software writers' employment; the last share (27.8) answering not.

83.3% replied that they do not getting any support from the State while other 16.7% of them have received competitive advantage from such support.

66.7% creating a good relationship with their customers but the last 33.3% saying opposite.

However, all the investigated companies strongly stated that they have not competitive advantage in term of capital.

And, there 66.7% of total sample are lack of business experience. This is reasonable fact because most of them have been newly established in some years.

A half of companies recognized themselves with business reputation thereby other half responded in contrast.

- Concerning the law on copyright protection in Viet Nam: 83.3% said that we have issuing the law but it has not been carried out in the reality; 11.1% stated that we have this law but it is not systematically worked; the last 5.6% viewed that there is actually no such law.

- Evaluating the State policy on software industry: 38.9% agreed that we have had such policy but not yet completely while other 61.1% thought that the policy is existed on the paper only but, in fact, it does not work.

- Examining difficulties which impact on business of software companies:

About capital: 16.7% have facing it *very difficult*; 11.1% having it *difficult*; therefore 16.7% have feeling that *not difficult*.

About taxation policy: 33.4% answered that it makes a trouble to them in doing business; however, 44.4% believed that taxation policy raises a little influence to software business.

About human resources: 44.5% showed that they have facing a problem of human resources for software business development when 33.3% had no trouble on it.

About IT infrastructure: 33.3% viewed it is an obstacle to software company however other 33.3% felt it is contemporary serving their requirement.

About consumption market: 27.8% companies explained that it is limited for their output while other 22.2% doing selling well.

- Development orientation of software companies: 38.9% are focused on both domestic market and international market; other 38.9% are mainly paid attention on domestic market and the last portion (5.6%) are concentrated on international market only.

- Production capability of software companies: 61.1% set up the first priority on customized-software products; 33.3 focused on packaged-software products; 11.1% took precedence of software processing project for foreign customers; and, 22.2% concentrated on adding-software products as the first priority.

- Estimating production capability for the coming years: all of surveyed companies have a plan for expanding their production for next years with average growth expectedly from 50% to 100% in terms of both capital investment and personnel as well.

- About competitive measures: 100% companies confirmed the most important is product quality. In addition, 50% still persuaded pricing policy as a big tool.

General assessment:

In the domestic market, competitive ability of companies has been defined relatively high, average rate at 2.0625

In international market, competitive ability is at average level, rated at 2.6923

Currently, scale of domestic software market is small, rated at 3.0556

Growth rate of domestic software market also measured at average level: 2.9444

Production capability of software companies is at average level: 2.5556

The State's supporting policy on capital and investment has been considered as very less effectiveness, rated at 4.1667

Taxation system is not favorable, rated at 3.9444

The State's policy on human resources development has also been considered as less effectiveness, rated at 3.6667

Supporting policy throughout infrastructure event defined as very less effective, rated at 4.2778

The State has no supporting policy on market development yet; at 4.6111 rate.

2. Result of software market-customers' investigation

Number of PC is definitely varied from each customer to others. However, general speaking, all of them has been relatively enough equipped with PC and main server for their purpose of IT specialized application and normal use.

63.6% of sample having LAN (mang cuc bo??), 27% co mang toan nganh.
But the informatic staff currently shows weakness in quality and not enough in quantity.

81.8% interviewed attendants have been applied PC into their business and management activities.

- With business companies and administrative authorities when choosing a software-supplier, the most important standards are price, service quality; and then, in turn of supplier's reputation and selling policy.

- Assessment on domestic software companies and their products: most of interviewees replied that standards of such companies and products are at average degree. On the other hand, product quality and sales services of foreign suppliers are much better though price is higher.

- All customers completely appreciated an effectiveness causes from using software products such as increasing labour productivity, raising management result, reasoning technology process, optimizing personnel use...

- Low satisfactory degree to domestic software products, average rate at 3.00 compares to this indication of foreign is much more higher at 2.00.

- The problems that obstruct to informatics application at the interviewed group are following:
  - capital shortage, rated at 1.5455
  - lack of informatic staff whose have suitable skills, rated at 1.7273
  - due to limitation of managers' background
  - because of employment issue: redundant personnel if applying informatics.

- The order of important solutions for pushing software application into work is: increasing recruitment of IT personnel, building IT infrastructure, financial support, protecting domestic software market, accomplishing legal framework.

3. Opinions from discussing with leaders and experts:

All of them have defined that software industry plays an important role in Viet Nam economy and there must be sound policy and measure for speeding up the industry.

Current reality of Viet Nam software industry is so small, there is no clearly orientation for developing, it contains many problems and conflicts that need to be solved. Viet Nam informatic companies have newly established and too small so that it clearly exists together with limitation on business capability and low business effectiveness etc..

A low speed of informatics application in other socio-economic industries and fields leads to limited impact of software industry to the whole economy. Therefore, the domestic software market is still potential form.

The Vietnamese Government has been issuing a series of policy in order pushing software industry. However, those policies are not concretized suitably to business life; and, the most important thing is that they have not been implemented well. So, those policies' impact is very limited although many of them show absolutely preferential attention to the industry.

For examples, policies on land using, taxation and capital investment have consisted of many priorities but their implementation are too insufficient so that informatic companies still could not exploit such concession specifically.

The policy on human resources development has issued together with a huge investment has been carried out but expected outcome is still far away. Up to date, Viet Nam software industry still lack of personnel both quantity and quality; especially, personnel at high quality and skill.

The policy on IT infrastructure building and its exploiting management show many obstacles. Also, IT infrastructure is constructed relatively at high level but the biggest limitation that restrains development of software industry is very low speed of connection. And others related to the limitation of Internet connection gate and too high (unreasonable) rates/prices.

To develop Viet Nam software industry, it is strongly requested systematic solutions, from business community itself to macro policy of the State.

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