

# Improving the Educational Human Resources of Information Technology in Vietnam

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## ABSTRACT

*From the last decade of the twentieth century a revolution of modern science and technology has taken place, a salient feature of which is the revolution in the field of information technology. Along with a number of other high-tech industries, information technology has deeply transformed economic life, culture and society throughout the world. The industrial economy is shifting to a knowledge-based economy. To make a strategic breakthrough in promoting sustainable economic growth, ensuring the role is a key economic sector of the country and contribute to Vietnam soon becoming a country strong in IT, developing high-quality human resources is imperative, and to which the Vietnamese government has been seeking to invest in the past years.*

*This paper focuses on assessing the successes and limitations in the development of human resources of high quality information technology and discussing solutions to develop this resource.*

**Keywords:** *Information Technology (IT), training, human resources, high quality, knowledge economy*

## INTRODUCTION

In this age, in the context of revolutions in science and technology, a knowledge-based economy takes an important place in the world. Countries with a modern economy identify the most decisive factor to be the human mind, that knowledge content has a decisive role superior to capital, labour and resources in products and services, creating sustainable growth. The country that has more creative energy technology, mastery of high technology and high quality human resources will rise up and succeed in the competitive development.

Therefore, to promote the industrialisation and modernisation of the country, the issue of special importance to develop high quality human resources has been organised the implementation strategy of economic development - society made since 2006 by the Vietnam's government: " Comprehensive innovation is about education and training, and developing quality human resources". This is the first time the term "high quality human resources" has been used in the strategy of Vietnam's socio-economics.

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## **SITUATION OF INFORMATION TECHNOLOGY (IT) DEVELOPMENT IN VIETNAM**

Currently, for new development with higher quality process of the country's industrialisation and modernisation, Vietnam's government has focused on the growth of high quality human resources is a breakthrough at three important levels: institutional, human resources and infrastructure belong to economic-society development strategy from 2011 to 2020: "Rapid development of human resources, especially high-quality human resources, focusing on the renovation of basic and comprehensive national education; closely linked with the development of human resources development and application of science and technology " (Communist Party of Vietnam, 2011, 106).

Vietnam is implementing restructuring of the economy, innovative models of economic growth, to develop a sustainable economy in the direction of modernisation, including technology innovation. In particular the application of high technology in a number of key economic sector is considered a very important factor, forming the axis through the process in which information technology development - an important component of the knowledge economy and as a form structural elements that serve as links and background. Vietnam's human resources development strategy in the period 2011 – 2020, which was approved by the Vietnam Prime Minister on April 04, 2011, has identified specific numbers for the fields that should have high quality human resources, of which the field of Information Technology is at the top with the highest demand. Information technology is perceived as the infrastructure of modern economies, the "infrastructure of infrastructures" of the nation, and is the most powerful driving force in efforts to develop rapid and sustainable country, is the essential content of modernisation with the specific objectives, as follows:

**Table 1: Highly qualified human resources** (Prime Minister of Vietnam 2011, Decision No.579/QD-TTg)

<i>Item</i>	<i>2015</i>	<i>2020</i>
State management, planning policy and international law	18,000	20,000
University and college lecturers	100,000	160,000
Science- technology	60,000	100,000
Health care	70,000	80,000
Finance – Banking	100,000	120,000
<b>Information Technology</b>	<b>350,000</b>	<b>550,000</b>

### **On the Gain**

Back to accelerate IT's application and development, creating the ability to leapfrog to successfully implement the industrialisation and modernisation of the

country where key decisions are meaningful human resources development, up to now, Vietnam has gained certain achievements:

Quantitatively: Human resources working in the IT sector (hardware, software and digital content) in Vietnam for 5 years from 2006 to 2010 had nearly doubled, from 150 thousand to 260 thousand people. In particular, the present high-quality human resources in IT to achieve 180,000 people (Prime Minister of Vietnam 2009, Decision No. 698/QD- TTg).

Human resources to contribute to achievement in general industry and software industry in Vietnam in particular - has become a spearhead economic sector of the country, with an average growth rate about 3 times each year times GDP growth. Currently, the application of IT in society with high-speed transmission in both width and depth with more than one-quarter of Vietnam's population use the internet (which is ranked 20th in the world), nearly half of households with landline. Many public services have been made online.

In terms of quality: In recent years there were a human resource department has made significant progress but to meet the requirements of the employer, sufficient level of working with foreign companies, either directly participation in the labour market quality of the world including Japan, Singapore, the United States, there are many positive signs from companies such as Intel, Datalogic, Nidec had recruited IT manpower Nidec Vietnam to hold the position important, particularly in the areas of research and development. In addition, Vietnam has the advantage of young population, especially young Vietnam is very passionate about IT. These are favourable conditions for development.

However, through the common assessment from the business side, the quality of IT workers in Vietnam in general is not high. Specifically, most graduate students do not meet the IT skills needed to serve the specific IT areas such as reading, understanding the software and the project's foreign partners with foreign language, presentation ability, communication, thinking, working independently, and in groups.

In Vietnam, the statistical results of the Strategy Institute of IT when interviewing new graduate students are 72% there is no practical experience, 42% lack of teamwork skills, 100% do not know which field they can work in, and 77.2% the best businesses to retrain new employees in at least 3 months. 70% are not fluent in foreign languages.

Recently, Intel Corp. in Vietnam needed to recruit 1,000 engineers mainly in the fields of electrical, electronics, IT, automation. Check last year nearly 2,000 students, has 320 students on average and only 90 students qualified to recruit and train more sent to Malaysia from 1-1 ½ years could undertake the job.

**Table 2: Ranking countries for outsourcing of a.t. group kearney 2011**

Rank	Country	Financial attractiveness	People skills and availability	Business environment	Total score
1	India	3.11	2.76	1.14	7.01
2	China	2.62	2.55	1.31	6.49
3	Malaysia	2.78	1.38	1.83	5.99
4	Egypt	3.10	1.36	1.35	5.81
5	Indonesia	3.24	1.53	1.01	5.78
6	Mexico	2.68	1.60	1.44	5.72
7	Thailand	3.05	1.38	1.29	5.72
8	Vietnam	3.27	1.19	1.24	5.69
9	Philippines	3.18	1.31	1.16	5.65
10	Chile	2.44	1.27	1.82	5.52
11	Estonia	2.31	0.95	2.24	5.51
12	Brazil	2.02	2.07	1.38	5.48
13	Latvia	2.56	0.93	1.96	5.46
14	Lithuania	2.48	0.93	2.02	5.43
15	United Arab Emirates	2.41	0.94	2.05	5.41
16	United Kingdom	0.91	2.26	2.23	5.41

(Ministry of Information and Communications 2012, 102)

### On the Issue of Training Human Resources

The problem of training human resources: According to the Ministry of Education and Training, the number of base formal training in IT has increased rapidly in recent years. If in 1995, the country has only 7 IT department is key to 2010 there were 133 universities, 153 colleges, 351 schools have professional IT training. Postgraduate training, there are 13 training institutions graduate in IT with target enrolment increased by 30% annually (Ministry of Information and Communications 2012, 20). If enrolment targets registration IT in 2006 was 40 thousand students in 2010 was 70 thousand, an increase of 1.75 times .

**Table 3: Number of ict –related students**

		2010	2011
1	Actual number of ICT-related students enrolled	56.338	55.197
2	Number of ICT-related students studying	169.156	173.107
3	Number of ICT-related students graduates	34.498	41.908

(Ministry of Information and Communications 2012, 74)

In recent years, the socialisation of human resources training was encouraged to expand. Many international training programs have been introduced into Vietnam

in the form of links, cooperation in training, the type of training has been diversified.

## **On the Issue of Using Human Resources**

Since 2007, Vietnam has made the top 30 countries of the world's most attractive outsourcing. In 2009, Vietnam's IT position strengthened significantly with Vietnam ranks top 10 outsourcing destination attractions, are successful examples of broadband development and application IT.

In 2010, though still difficult, but Vietnam's IT industry manpower has contributed to the IT sector achieved remarkable results, contributing significantly to the development of socio-economic, national defence, security and export. Total turnover in the IT sector reached \$ 7.4 billion, the growth rate reached 20%. Meanwhile, the GDP of Vietnam in 2010 reached 6.78%. Thus, as the results obtained were nearly 3 times GDP growth (Ministry of Information and Communications, 2012, 18).

Vietnam officially joined the World Trade Organization (WTO) with strong commitments on opening up the IT market, receiving a wave of IT investment to an unprecedented scale. The leading corporations in the IT world such as Intel, Renesas, Compal, Samsung, Foxconn have invested more than \$ 10 billion in the IT industry in Vietnam but mostly in the production of microchips, computers, cell phones and the telecommunications equipment, which opens a new wave of investment into our country for the production, export and supply of high quality services in IT.

In addition, not only the domestic labour market, human resource development in many countries like USA, Japan and the European Union is severely lacking. This is a potential environment for Vietnam's IT staff can reach foreign markets. Therefore, human resources quality and will be in huge demand.

## **Limitations and Reasons**

Overall, so far, high quality human resources in Vietnam is in a state of "supply" does not keep up "demand", due to some reasons as follows:

- The training of human resources sector is still the nature of training capabilities available on demand, rather than developing their economic integration.
- The updated content, training goals later than changes in technology and training programs lack practicality.
- There is no standard for assessing the quality of IT students from school, did not meet the requirements of some foreign companies.
- The coordination between the training institutions with businesses in training IT human resources is not good, but also to distinguish between

tasks that IT training is the training of university knowledge base, not the type of vocational training.

- Inputs of the IT industry in some high schools do not: There are many candidates tend to turn to good financial sectors - banking, business management ... the IT industry that reduce both the quantity and quality inputs.
- Ability to self-study, self-training, practical approach of a large number of undergraduate students. The IT industry changes rapidly over time, if not foster self what was then training will not meet the job immediately after graduation.
- There are many limitations in training facilities such as teaching staff in IT are not currently meet the requirements; training content is not really consistent with the fact, not meet the development needs of the application software specialised facilities system for missing and outdated IT equipment of the laboratory training facilities in many schools are still not keep up with rapidly changing IT field.
- The State management in the field of IT training is focused in three sets at the same time: the Ministry of Education - Training, Ministry of Labour, Invalids and Social Affairs, Ministry of Information and Communications, along with three laws that govern (Education Law, Law on Vocational Training, IT Law) has limited the management and support for development.

## **SOME MEASURES TO DEVELOP HIGH QUALITY HUMAN RESOURCES IN VIETNAM**

In order to improve both quality and quantity of Vietnam's IT manpower to meet the urgent requirements of 2015 human resources quality and reach 350,000 to 550,000 by 2020 (Prime Minister of Vietnam 2009, Decision No. 698/QĐ- TTg), there should be the following solution:

First, innovate from comprehensive training program, content, methods, processes and training IT staff with a specific mechanism to meet the training needs of IT human resources quality:

- To implement the entrance of the IT industry with three exam subjects are math, physics and foreign language rather than mathematics, physics, chemistry students to choose accordingly.
- Need lecture update rapidly changing IT, there are innovative measures in the import of cooperation and training programs of the university leading advanced, the enhancement of English language training, teaching taught directly in English. Target date of 2015, with at least 30% of the students involved specialised courses in IT at major universities are trained in English. The IT students to get loans to attend English training courses at

training institutions prestigious teaching by foreigners and second degree in English.

- Quickly develop a joint program of national standards for IT education and training level, as well as relevant information to help Vietnam with international human resource when making Vietnam the world market.
- Improving the quality of faculty, enhance physical facilities in the IT human resource training. Expand joint training programs for IT human resource quality in some countries in the world.

Second, the active form strong links between businesses and schools in the process of training and human resources to use high quality:

- About the business: For a better quality of labour, businesses must be more investment for human resources development. In addition, businesses must actively develop policies to keep the IT staff from thinking, "All students are trained to be ready for use."
- To the school: the close link with the direction the business is a top priority for many forms of execution. In addition, strengthening relationships and information exchange between training institutions and enterprises, with business representatives in school councils, strengthen inviting lecturers from the business is actively training created by business needs, of the market.

Third, improve the efficiency of using human resources in terms of developing the IT labour market, building the IT group. Mobilisation of resources overseas:

- Enhance the operation of information systems forecast demand for real social IT manpower demand in the domestic market and international orientation and human resources of Vietnam.
- Develop IT corporations reaching out to all international countries, a leader in IT branding Vietnam. There should be incentives to attract the contribution of overseas staff, particularly professionals and IT entrepreneurs in the country with an advanced IT - This will be a bridge to development domestic IT integration with the world.

Fourth, strengthen the management of the state to develop human resources quality: raising awareness of the industry, all levels, education and training, socialisation and dissemination of IT and improving policy, legal environment in Vietnam.

- Increase investment in promoting the development of human resources with high qualifications. Specifically, the Government plans to invest 2,347 billion VND from the State budget to realise the objectives set out in the "Project soon brought Vietnam into a country strong in IT" period 2015-2020.

- The solution must be made uniform to complement and support each other, promote the work to develop human resources quality in Vietnam.

## CONCLUSION

Today, no industry, no sector development without relying on the support of information technology. To become one of the innovative strategy to promote sustainable economic growth, ensuring the role is a key economic sector of the country and contribute quickly bringing Vietnam into a country strong in IT, the development human resources of high quality, international standards is a critical issue arises, the whole society requires attention and resolve to contribute actively with other sectors to create the foundation for Vietnam by 2020 and basically become an industrialised country toward modernisation.

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