

MINISTRY OF EDUCATION AND TRAINING

**MASTER PLAN
FOR INFORMATION TECHNOLOGY IN EDUCATION
FOR THE PERIOD 2001 – 2005**

Hanoi, 2000

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MASTER PLAN FOR INFORMATION TECHNOLOGY IN EDUCATION FOR THE PERIOD 2001 – 2005

I. INTRODUCTION

1.1. IT development policy in Vietnam

This Master Plan for Information Technology in Education and Training (hereafter refers as Mater Plan) presents the tasks should be carried out in the period 2001-2005 in order to realize the Resolution No. 49/CP and the directions for information technology (IT) development and application in education.

The development of the Mater Plan is based on the followings:

- Government Resolution No. 49/CP in 1993 on IT development in Vietnam up to 2000 has confirmed the important role of education and training in IT development.
- Government IT Techno-Economic Program up to 2005.
- Strategic Plan for Education and Training up to 2020 has identified that IT development is a key issue.
- Demand of socio-economic developments.
- The world development trends in the 21st century for information society.

1.2. IT development policies in other countries

It is noted that developed countries have paid special attention to IT development in education. Achievements in IT are immediately devoted to human resource training. A brief summary on IT developments and application in education at various countries is given below.

Singapore: In 1997, Ministry of Education of Singapore started implementation the Master Plan for IT in Education for the period 1997-2002. The main objectives are to link all schools to a network, to innovate education programs based on IT developments. There is a desire to turn Singapore to a country with innovative learning. The aim is to reach 14% hours of study in classroom with the aid of IT.

Malaysia: Prime Minister Mohamet directs the IT developments. Malaysia has began an outstanding project Multimedia Super Corridor. In education, Malaysia has a plan to build smart schools.

Canada: SchoolNet for education has been set up connecting all schools together by using fibre optic cables.

China: China began to use Internet a few years ago, but a national network for education has been set up. IT has been use as a mean for teaching music, poetry, painting ... even in primary schools.

(To be continued for other countries)

It should be noted that foreign countries use IT as a aided tool for teaching all subjects and there is no fixed curriculums for use throughout of the country. Teachers should be innovative in applying IT to their subject teaching. Concept of education technology has built on IT application.

II. PRESENT STATE OF IT IN EDUCATION IN VIETNAM

2.1. Achievements

2.1.1. IT facilities

Right at the beginning of 90th decade, Ministry of Education and Training (MOET) used its own budget to supply computers and other IT equipment to universities, schools. Although the fund was limited, but it played a vital role for introduction of IT teaching in schools and universities. In this direction, many local authorities and communities also used their own budget to set up computer rooms in schools. At present, about 80% secondary schools have computers. Many primary schools have set up computer rooms.

2.1.2. IT teachers training

Before 1990, there was no formal IT teacher training. From 1990, various IT teachers training programs including short courses, IT bachelor degree had been set up to meet the demand on IT teachers for schools. However, formal IT training for teachers teaching other subjects and for principals had not been paid enough attention.

To facilitate IT teachers training, most of teachers training colleges (pedagogical colleges) have modern computer rooms though Secondary School Teacher Training Project with a sum of 1.5 million USD in 1999.

2.1.2. Teaching IT in schools

IT has become a compulsory subject in specialised upper secondary high schools (grades 10, 11, 12). For other general (upper and lower) secondary schools, primary schools, IT teaching is optional depending on computer availability. At the beginning computers were considered as means for teaching IT only and this is a narrow understanding of the role of computers or IT in education.

2.1.3. IT in higher education

- 7 key IT faculties has been set up at Hanoi University of Technology, Hanoi National University, Ho Chi Minh City National University, Can Tho University, Da Nang University, Hue University. Good computing facilities and high qualified IT lecturers are allocated for these faculties. They have given a right to set up their own training programs. The number of IT full-time students increased gradually. There are about 100 to 200 IT graduates from each IT faculty every year, which partially meet the demand on IT human resource of the country. It is

commonly agreed that the key IT faculties have played a significant role in IT training and their graduates are highly appreciated.

- IT training has also been carried out at other state universities and normally at faculty of mathematics and informatics. Private universities have also set up their own IT faculties and offered variety of IT training programs. However, due to lack of high qualified lecturers and low investment to computing facilities, training programs mostly are more theoretical oriented and have not enough practical training.
- One of the most successful programs is IT training program for graduated students holding already bachelor degree in other disciplines. After two years training, these people receive a second bachelor degree in IT. This provides considerable increase in IT human resource in shorter time.
- Combined programs such as IT – building engineering, mathematics – informatics, physics – informatics have been offered to facilitate IT application to specialisation.
- Training programs for IT technologists have also carried out at some universities and colleges. However, these programs also are more theoretically oriented, inadequate practical training and over intake number leading to low quality training and difficult in job finding.
- General IT teaching, about 45 to 75 hours for all students are carried out at all universities and colleges.
- IT in specialisation teaching have also carried out at departments where computers are important tools for computing, process modeling, controlling and research.

2.1.4. IT in vocational training:

Training programs for IT technicians have been set up at various vocational training schools.

2.1.5. IT network infrastructure:

- At present, local networks (LAN) are developed mainly for separate departments, faculties or for university.
- Internet is still not widely used even at university due to very high cost access.
- A network for education called EduNet, is expanding slowly due to low investment. This educational network is designed to link all universities, colleges, provincial departments for education and MOET departments.

2.1.6. IT in educational management:

IT applications to educational management are still limited and has been given not enough attention. An educational information system with sharing databases and resources has not been fully developed. There are some databases such as database for personnel management, for postgraduate training management but they are just for office use only. IT training for educational management officials is carried out routinely to improve knowledge and skills in IT application to educational management.

2.1.7. International cooperation:

International cooperation in IT education with foreign research and educational institutions is improved:

- Foreign governments such as Canada, Australia, Japan... have given assistance to improve IT facilities in Vietnam universities, scholarship for Vietnamese students.
- Foreign universities offer places for Vietnamese students at IT departments. Institute for Francophone Informatics (French) offers a Masters program in IT in Vietnam, which intakes 25 students every year.
- Some IT foreign companies have set up IT training centers in Vietnam.
- Big IT companies such as Apple, MicroSun System, HP, IBM, COMPAG ... and CocaCola offered assistance to Vietnam education.
- Ministry of Education and Training uses loans from different international banks and financial institutions (WB, ADB) to improve IT facilities in universities, colleges and provincial educational departments. However, due to lack of coordination between these projects, low efficiency in investment is resulted.

2.2. Shortcoming and drawbacks

- Lack of consistency in direction of curriculum and dimension of different levels of study.
- Training quality at different levels including university level is an issue which should be further considered and strengthened.
- Although IT facilities are still limited, they are not being effectively used in general teaching and training process and in educational management.
- Access to Internet for education is very limited due to high cost access.

(This section has not to be finalised)

III. MASTER PLAN FOR IT IN EDUCATION FOR THE PERIOD 2001-2005

3.1. Objectives

3.1.1. Long-term objectives

The long term objectives of IT in education development up to 2020 are

- a) to meet demand on IT human resource development to serve building IT industry as a key industry in Vietnam and wide IT application to promote socio-economic development of the country.
- b) to meet demand of educational reform on both aspects such as:
 - Innovation in contents, teaching and learning methods, and study mode.
 - Innovation in educational management.

3.1.2. Short-term objectives

The short-term objectives for the period 2001-2005 are

- a) to build IT infrastructure for education and training. This consists of computer networks (local networks, intranets, Internet), computer rooms in schools. Computers in all educational institutions (schools, colleges, universities, provincial departments, MOET departments) link together providing access to various databases and resources for teaching and learning activities and for educational management.
- b) to develop IT human resource for IT industry for reaching to 25000 or 30000 IT trained specialists at all levels of qualification. Specialised IT training programs for other disciplines are developed to promote IT applications to all different fields. Flexible training modes are encouraged. Quality training management should be paid much attention to avoid quantity chasing.
- c) To use IT as a aided tool to teaching and learning for promoting innovative thinking, initiatives, communication, independent problem solving skills, information searching and processing skills to facilitate life-long learning for all people. To develop IT application to any subject, at any schools, at any levels through use of educational software (software for teaching, learning, testing and evaluation). To build suitable curriculum, teaching method and students evaluation in rich information environment, teachers' training programs.
- d) To renovate educational management through students databases, teachers databases, databases for educational institutions, legal and regulation documents. This information system will make policy decision making process speedy, realistic and efficient.

3.2. Prior directions

3.2.1. Building IT infrastructure for education and training

Aims:

- Develop computers based information network system for education called educational Network (EduNet).
- Improving computer facilities at educational institutions: Every school have at least a classroom with 5 computers.

Measures:

- Providing link to Internet to all general and vocational schools, colleges, universities, educational management authorities. Typical address of all educational institutions and management authorities is xxx.edu.vn, where xxx is the name of institutions and authorities. Every university will have one lease line at 64 kb at the first step and in the future 1000-2000 users (students and lecturers) per one 64 kb lease line.
- University and colleges build their own network. Multimedia classrooms, high performance computing centers should be set up at big universities.
- Building a MOET's center for network (EduNet) coordination and management, database and web sites management.

- MOET will work with Director General of Post and Telecommunication (DGPT) to build mirror sites at various provinces to speed up network access, reduce the cost, and come up with low communication fees for education.
- Building web sites with educational databases, teachers' and students' resources.
- Using EduNet as a mean for distance education.

3.2.2. Developing IT human resources

Specialists needed for IT development commonly come from computer science, electronics, and telecommunication at all levels of qualification ranging from technicians, technologists, engineers, bachelors, masters, Ph.D.

Aim: up to 2005 training **more than 25000 IT specialists**
(figure should be broken up to all levels of qualification)

Measures:

- Strengthen training quality at all IT faculties (state and private). Increase technical and practical works. IT faculties regularly revise and update their programs. Programs should provide fundamental, updated, not too narrow knowledge, meet the need of society. Keep balance between quality and quantity.
- Set up new IT faculties at other state universities to increase students intake.
- Increase number of intake into 2 years training programs for technicians and technologists with more emphasis on practical skills.
- Encourage second degree training in IT for graduates having bachelor degrees in other disciplines.
- Creating Quality Accreditation Committee for reviewing programs at IT faculties and at other IT training levels.
- Set up joint training programs with foreign universities. Encourage foreign universities to provided imported programs in Vietnam.
- Send students, lecturers and researchers to study in developed countries.

3.2.3. IT teaching and application in schools

Perception:

It should emphasized that the entire understanding of the role of computers in schools is limited to computer learning. By the time, it is clear that computers more and more become important tools for improving and learning methods. With the use of educational software, computer aided teaching and learning become more realistic.

Aims:

- Provide general knowledge about computers and IT for all school teachers and students.
- Use computers for teaching and learning other subjects.
- Use computers for schools management.

Directions:

- In primary and lower secondary schools: computers are mainly use for teaching and learning, for school management.
- In upper secondary schools: Same as other schools but there may be additional IT training for development of programming skills in some specialised schools.
- Access to Internet, EduNet.

Measures:

- Provide computers to all schools using any available fund (state, province, school and even by parent sharing). In the next step, local network is set up to connect all computers in the school together for more effective use. The following step is Internet link. At the beginning, computers can be use to teach mathematics, foreign languages, music, drawing and painting, typing and editing documents in Vietnamese....., and of course for school management.
- IT training for all teachers. This is a key factor in using computers for teaching and learning all subjects in schools.
- Develop and supply educational software: This is also a key factor. Educational software include software for teaching, learning, testing and assessment. Software based on multimedia technology can make teaching and learning process more exciting and effective. MOET should assigned an institution the task of collecting, assessing and guiding the use of available educational software. MOET should set up policy on encouraging production of educational software for use in the country and for export. This should be considered as a first step in helping to create IT industry in Vietnam.
- Building suitable IT subject teaching program for schools: The idea of designing a fixed IT teaching program for every grade has failed due to the fact that this can not reflect the fast changing trend in IT technology, both in computers and in software. The program should be designed in modules. Each module describes knowledge and skills. The school will select from the list appropriate modules to create their own program suitable to available to them facilities.

3.2.4. IT teaching and application at vocational schools**Aims:**

- Increase training capacities for IT technicians and technologists. This facilitates rational use in human resource fit to the work force structure.
- Increase the use of IT as a tool in teaching and training process for training technicians and technologists in other disciplines. This will facilitate the faster IT application to other specialisation.
- Increase IT use in school management

Measures:

- More investment to IT, automation and control equipment's.
- Develop application soft ware for all specialisation.
- Develop curriculums and programs.

- IT training for all teachers. Teachers are capable to use software in teaching subject in specialisation.
- Create local network with Internet access.

3.2.5. IT teaching and application at universities and colleges

Aims:

- Increase the use of IT in teaching other subjects. IT application to specialisation should be paid more attention. Use of computers for modeling for natural sciences, computer aided analysis and design for engineering, data processing and statistics for humanities are encouraged.
- Use computers in research works.
- Use computers in university/college management.

Measures:

- Buy more IT equipment. Local, Intranet, Internet access are needed for sharing teaching, learning and research resources. Free Internet access for all students and lecturers using university/college network.
- Develop and buy application software.
- IT training for all lecturers and researchers.
- Building electronic libraries, educational resources and databases for teaching, learning and management.
- Send lecturers overseas to do research in their field using IT application.

3.2.6. General IT teaching for all

Aims:

- Provide basic knowledge and skills on using of computer software to their every day work.
- Rising the education baseline.

Measures:

- Building the IT teaching program for all (called ABC IT applied program) which give guideline on contents and skills at every levels. This will keep reasonable standard on IT continuing education.
- Carrying quality accreditation and review on programs offered by all training centers.

3.2.7. IT in educational management

Aims:

- Develop databases for school, vocational and higher education such as student records, and allocated on network for public use.

- Financial, salary, tuition fee, awards, certificate and office management for at Ministerial, provincial, school / college / university levels.

Measures:

- Develop EduNet.
- Create educational web sites for MOET, provincial departments, every school, college, university.
- IT training for all personnel.

IV. IMPLEMENTING CONDITIONS

The following conditions are very important for successful implementation of the identified issues in Mater Plan:

4.1. Perception and understanding of government authorities:

Perception and understanding of IT role in education of government authorities are very important factor for successful implementation of the identified issues in Master Plan. Experience shows that where authorities clearly understand the role of IT, have fairly knowledge of IT, and after all, really care about the use of IT in education, there will be efficient use of IT in education. IT really becomes a tool for innovation in education, in teaching and learning methods, in educational management.

4.2. Financial issues:

- Government budget will support key implementation projects. Educational institutions will allocate 3 to 5% of their own annual budget for IT application.
- Free or discount cost Internet access for education use.
- Share investment by community and parents.
- Assistance from domestic and overseas organizations and donors.

4.1. English proficiency:

English is a language of international trade, technology and becomes a mean of communication with outside IT community. English training should be paid more attention.

V. KEY IMPLEMENTATION PROJECTS

5.1. Building information network for education (EduNet).

5.2. Developing, collecting and adopting educational software.

5.3. Building databases for educational management.

5.4. IT training programs for teachers.

5.5. Creating schools with good IT application in teaching and management.

5.6. High qualified training programs for IT lecturers and researchers.

5.7. Building joint IT school or colleges (including 100% foreign investment) for IT training.

VI. CONCLUSIONS

IT in education will make big changes in teaching and learning method, in educational management. These, in turn, will strengthen quality of education, create better human resources development for the country in general, and for software industry in particular.