MINISTRY OF PLANNING AND INVESTMENT

RESTRUCTURING TECHNOLOGICAL INNOVATION ACTIVITIES IN VIETNAM

(Sub-component of the Project 'Restructuring the economy')

(First Draft)

Ms. Vu Xuan Nguyet Hong

Mr. Hoang Van Cuong

Hanoi, May 2010

LIST OF CONTENTS

LISTS OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATION

VIETNAMESE	ENGLISH	EXPLANATION
	ASEAN	Assocation of Southeast Asian Nations
CGCN		Technology Transfer
	CIEM	Central Institute for Economic Management
CMC		High-Tech
DN		Enterprise
DNNN	SOEs	State Owned Enterprises
DNTN	POEs	Private Owned Enterprises
	GSO	General Statistics Office
FDI	FOEs	Foreign Direct Investment Foreign Owned Enterprises
GDP	GDP	Gross Domestic Product
	ICOR	
	IMF	International Monetary Fund
KH-CN	S&T	Science and Technology
KH-ĐT	MPI	Ministry of Planning and Investment
	MOST	Ministry of Science and Technology
ND-CP		Decree - Government
ODA	ODA	Official Development Assistance
	SMEs	Small and Medium Enterprises
QD-BTC		Decision – Ministry of Finance
QD-TTg		Decision – Prime Minister
	R&D	Research and Development
TT		Circular
	UK	United Kingdom
	UN	United Nations
	USD	United State Dollar
	WB	World bank
	WTO	World Trade Organization

INTRODUCTION

1. The necessity and significance of topics

Today, in the context of globalization and international economic integration, technological innovation has become one of the important factors determining the competitiveness of enterprises of all countries in general and of Vietnamese enterprises in particular. The past years of renovation, many Vietnam's enterprises have been developing incessantly; put boldly investment in technology renovation, step by step as the imported technology ownership, thence they have created good quality products that enhance competitiveness in both domestic and international market.

However, the speed of technological innovation in most enterprises is still too slow. While the percentage of using advanced technology of other countries in the region is high such as 30% in Thailand, 51% in Malaysiaand 73% in Singapore, Vietnam's percentage is only 2%, which is too low1. Investment activities for science and technology of Vietnam's enterprises are still low; very few companies put themselves to invest capital, primarily to expect the state budget, not owner mobilization from other sources.

SMEs in Vietnam1 still use out of date technology which might have been 3-4 generations in the world. Most companies have been using the technology in the 80s of the last century and the research and technology innovation capacity are very limited. The approach to advanced technology of the enterprises is very limited. Using effectiveness of technology is not matched with investment results. The investment for science and technology of SOEs is so much, but productivities and effective of technology using are lower than foreign direct investment sector. In general, the ratio of technology investment of domestic private economic sector is lower than other sectors2. Research and technological development actions in the state sector tend to decrease gradually and practical applications are low3. Moreover, the level of human resources in science and technology activities is still limited at present in Vietnam. Staffs have professional qualifications and technical are still low4. The technology market in Vietnam has not developed.

---

1. 97% Vietnam's enterprises are small and medium enterprises (SMEs), registered capital is no more than 10 billion and 300 employees scale. Number of these enterprises create jobs for about 3 million workers, contributing 40% into GDP and 29% of export turnover, reach growth rate is 18% per year.

2. Conclusions from research: "The Role of Technology, Investment and Ownership Structure in the Productivity Performance of the Manufacturing Sector in Vietnam" BSPS-CIEM project.

3. Calculated data from the GSO 2002, 2004, 2007.

4. Calculated data from the GSO 2002, 2004 and 2007.

Techmart fairs are still major sectors and regions, and in the organization problem is not often. Supply and demand market is not met. The common results of research and applications are low.

Although the current legal framework related to technological innovation and the science and technology today is relatively full, and institutionalize mechanisms and policies to encourage joint activities to innovate technology, ensuring property rights and mechanisms to implement commercialization, the policies related to technological innovation activities in recent years are revealed as inadequate:

- Policies related to mobilizing capital for technological renovation investment of the enterprises were issued relatively, but scattered, and have not created a clear change in perception and investment activities on technology in enterprises; The state budget supports for technological renovation investment is mainly focused on large enterprises, mainly state-owned enterprises. The State has no specific support programs for businesses SMEs, and while most small and medium enterprises are facing deadlock in mobilizing capital for technological innovation, policies to encourage enterprises to invest by their own capital do not any impact on business; for mechanism, supporting regulations which are not transparent, clearly shows quite clearly still in the process of implementation of State policy, business has still not approached advantage to support capital from the State; Support policies of the State are still be delayed and not implemented; investment assistant of the State for technology renovation of the State to business as imported equipment and technology is the weak, technology choice and the results of technological innovation activities have not prospered. The technology strategy selection for each sector has not been clearly defined, not maintained long-term. Level of technology, efficiency and productivity in the production are not matched with the amount of capital/investment budget. Transaction activites in the technology market is spontaneous and small.

Recently, the Ministry of Planning and Investment (MPI) has assigned to the Central Institute for Economic Management (CIEM) to implement the project "Restructuring the economy", which is related to various aspects of the macroeconomic fields.

To contribute provides the basis of general theories and separate solutions from analysis technology innovation activities in order to supplement and contribute to strengthening the institutional restructuring of the economy of Vietnam in the future, the implementation of the research project “Restructuring technological innovation activities in Vietnam” is very necessary and meaningful.

2. Research situation

There are tools and quantitative methodologies available in the world to evaluate the technology innovation, on the annual economic growth. The world-wide development trend is “to create friendly and useful technologies which will be utilized to serve human life at

later stages". There has not been any comprehensive research or study on technology innovation actions in Viet Nam. In fact, we can see two different directions in the study of this issue in Viet Nam recently, including: (1) Direct studies on technology-related policies as well as science and technology, considering this issue an essential factor for the economic development of the country; (2) Comprehensive studies on socioeconomic issues, then recommending a development policy for science and technology.

Studies in the first direction include: "Technology transfer and application to Viet Nam in the context of the market economy" (Dr. Nguyen Kim Nhung, 1994), "Technology transfer in the market economy of Viet Nam" (Dr. Le Van Hoan, 1995), and "The transfer and management of technology" (Dr. Nguyen Van Phuc, 1998).

These studies emphasize the role of technology in manufacture and business sector. The authors conclude that technology will enhance manufacturing capacity and contribute to the success of industrialization and modernization of Viet Nam. One limitation of these studies, however, is that they captured only general theoretical issues and have yet to be able to provide a common method to access the role of technology in economic growth.

Some direct studies include "Selecting appropriate technologies by industrial enterprises in Viet Nam" (Assoc. Prof. Dr. Dam Van Nhue and Dr. Nguyen Dinh Quang, 1998), "The relationship between science, technology development and socioeconomic development in the industrialization and modernization of Viet Nam" (Dr. Nguyen Danh Son, 1999), "The technology transfer in Viet Nam: current issues and solutions" (Msc. Phan Xuan Dung, 2004), "Science and technology in Viet Nam 2001 and 2003" (Ministry of Science, Technology, and Environment 2001 and 2003).

This group of studies is more advanced in the sense that they summarized results and conclusions under the form of general tables and charts and brought on initial discussions about the role of technology in socioeconomic development. These studies conveyed simple quantitative analyses; still, they did not provide a specific method to evaluate the contribution into economic growth.

Some other policy-recommendation studies such as "Science and technology toward the 21st century – Directions and Policies" (Prof. Dr. Vu Dinh Cu, 2000), "Technology management" (Nguyen Dang Dau and Nguyen Xuan Tai, 2002), "Technology renovation management" (Dr. Nguyen Van Phuc 2002), "The world's science and technology- Trends and policies during the first years of the 21st century" (Ministry of Science, Technology, and Environment in corporation with Center for National Science and Technology Information, 2004); "The draft of Viet Nam's science and technology development strategy until 2010" (The Forecast and Research Department of Science Strategy and Management, Center for

National Science, Technology, and Information, 2004); and "The world's science and technology – challenges and opportunities" (Center for National Science, Technology, and Information, 2005).

These studies focus on policy recommendation to encourage research actives on science and technology as well as the application of those technologies in manufacture. Although the policies recommended in these studies are clarified, these studies have yet to be able to mention clearly the relationship between technology and economic growth. Besides, the recommended policies are too general and do not recognize each internal element of technology policies in the enterprises.

The second direction of study is reflected in the following works and studies: "The impacts and consequences of science and technology revolution on the economic development at the threshold of 2000" (Dr. Tran Thanh Phuong, 1994): "The factors affecting the shift of economic structure in the industrialization of Viet Nam" (Dr. Bui Tat Thang, 1997); "Viet Nam's industrialization in the Asian Pacific era" (Dr. Tran Van Tho, 1997); "Renovation management and product development" (Vu Que Huong, 2001); "The quality of growth: an East Asia view" (Assoc. Prof, Dr. Tran Van Tung, 2003); "Economic competitiveness" (Assoc. Prof. Dr. Tran Van Tung, 2003).

Although these studies approach the issue under a general framework, conclusions show that technology is very important in the selection of development strategy in Viet Nam. Because the study is not an end by itself, recommended solutions are still very general such as improving infrastructure for science and technology, increasing the cooperation between the Government, research institutions and enterprises...

Some other studies attempted to approach the issue by developing a mechanisms/institution for science and technology development such as "Economic development policies of China: Experiences and Lessons" (CIEM, 2004); "The development of science and technology in Viet Nam" (CIEM, 2004); "Survey report on technological renovation in Viet Nam's industrial enterprises" (CIEM, 2004); or two recent studies by Prof Dr. Do Hoai Nam and Msc. Vo Dai Luoc, 2005, titled "The current issues of Viet Nam's economic development", and Prof. Dr. Nguyen Van Thuong, 2005, titled "Viet Nam's economic growth: obstacles to overcome" are prone to macroeconomic policies and market development. These studies mentioned the world's experiences, studied the facts of Viet Nam, compared the results, and carried out evaluations in terms of both policy recommendation and reality analysis. These studies, however, are just merely quantitative and did not provide a powerful tool in measuring the contribution of technology to the economy.

Thus, a study has calculated depth study about mechanisms and policies aimed at restructuring for innovation technology activities to supplement and provide the basis of theory and practice in the implementation of restructuring the economy Vietnam from now to 2020 is essential

3. Targets of report

From the point of view of analysis of technology innovation activities, this study could contributes some general theory basis and particular solutions which could all be good for the institutional completion for restructuring Vietnam economy in the next time.

4. Object and scale of report

- ***Object of study***: Technology innovation activities in Vietnam.

- ***Scale of study***:

+ *Time:*: From the year 2000 up to now, since the promulgation of the Law on Science and Technology.

+ *Scope*: Technology innovation activities in Vietnam.

+ *Contents*: Concentrating on analyzing mechanism, policies and the real situation of technology innovation activities recently, in which, especially emphasizes on achieved results and the shortcomings and insufficient issues since 2000. On these bases, this study suggests some solutions, mechanism and policies in order to promote and to make more strong changes in technology innovation activities which contribute to the improvement in production and business capabilities of enterprises and sectors; improving and enhancing technology standard on all 3 levels. This study also focuses on analyzing technology innovation activities from sector level, then, gives out the comparison and evaluation how the relation between sector potentials and outcomes can contribute to national economic growth.

5. Scope of the report

There are 3 chapters in the main contents of this report:

Chapter 1: Overview of policy environment and the reality of technology innovation activities recently

Chapter 2: Assessment policies and results of technology innovation activities

Chapter 3: Solution recommendations to improve the effect of technology innovation activities in the next time

CHAPTER 1: Overview of policy environment and the reality of technology innovation activities recently

1.1. Overview of policy environment for technology innovation activation

1.1.1. The general policy framework relating to technological market development

To speed up the results of scientific and technological research into life and connect the development of subjects related into the invention, deployment and use of technology, the State has created a legal system to marketization the activities of technological goods. Policies promulgated by the State to create a common legal framework for the establishment, promotion and development to technological market such as system of law, decrees, circulars, and decisions related to legal environment on science and technology in general and economic environment in particular (*See attached appendix 1*).

The texts are considered the general legal framework and create the basis for the technological market development, motivate the parties to the technology market.

1.1.2. Policies group to encourage, promote research and development, application science and technology into production by the State made by the State Budget resources

- The science programs - key technologies deployed for each five year period, carried out through projects and programs of key scientific and technological state-level, taken from the state budget.
- The research program in the ministries and localities. Many ministries and local funding for the most part from the budget for science activities annually to support activities in the area of project implementation, the project-level science and technology ministries / sectors or local areas of technology and technological innovation.
- Decree 119/1999/ND-CP of the Government on: "A number of policies and financial mechanisms to encourage businesses to invest in scientific and technological activities. In addition to the preferential enterprise income tax, import and export taxes in exchange for equipment and technology etc., enterprises with scientific and technological activities in the fields of encouraging support 30% of the funding for scientific research and to 70% of the value of technology transfer results of research and development topics of budget funding.
- Increase investment in infrastructure to stimulate research and application of science and technology, the State has invested in infrastructure in the high-tech zone Lang - Hoa Lac and Ho Chi Minh City.
- Develop and establish laboratories associated with research needs, training and application and put in universities and research institutes to serve the teaching and research.

1.1.3. Policies to support the group needs to use science and technology products

Policies group are concentrated in some aspects as follows:

- Expanding the market and other technology to promote, referral and connection between the production and provision of services to parties wishing to use. Through it, many individual businesses can access the products that they may not be common, known.

- Policy preferential credit through the establishment of funds to support research and development, technology transfer and technological innovation. As it has established a fund to support credit for business investment in technology renovation such as Locus Development Assistance (now renamed the Development Bank of Vietnam), Locus Development Assistance S&T, Locus supports technology transfer etc ... Some provinces and cities have established and actively drafting the charter of Science and Technology Locus support the local level (eg, Ho Chi Minh City).

- Particularly in the field for industrialization and modernization of rural areas focuses on three main areas:

+ Program Development and application of biotechnology in agriculture. One of the specific objectives of the program is to develop applications and technologies for the biotechnology, creating products for economic development - society, especially rural areas - forestry-fisheries;

+ Research program, development and application of advanced technology in the production of key export products. In the field of agriculture, forestry, fisheries program will perform three main contents:

(1) Research and application of advanced technologies and solutions to the economic-technical products manufacturing plant, the group of key export: rice, coffee, rubber, cashew, timber materials and objects seafood export turnover is high;

(2) Research, technology applications and synchronization solutions for the development of advanced manufacturing objects potentially large export: tea, pepper, vegetables, fruits, animals, birds, objects Fisheries economic ...;

(3) Research, applications and innovative technologies in the exploitation, preservation and processing of agricultural products-forestry-fishery group of key export.

+ Research program, application and technology development for industrialization and modernization of agriculture and rural areas. The objective of the program is by application and transfer of advanced technology and equipment relevant to agriculture, forestry and fisheries; storage and agro-forestry-fisheries and rural industries to build a commodity agriculture with high competitiveness and contribute to improving labor productivity, improving productivity and product quality, ensuring effective, sustainable development in

agricultural-forestry - fisheries; promote the restructuring of agricultural and rural economy towards increasing the proportion of industry and services, creating jobs and increasing incomes for rural people.

1.2. Technology market Situations in Vietnam

1.2.1. Goods in technology market

Technology market is a special kind of market goods and technology which is considered a form of special goods. Goods themselves, including technology products to create knowledge resources and equipment contains technology. The following goods technology transactions in the market: text patent protected and utility solutions, equipment and technology contained, pure technology, technical services, service R & D. ..

Text patent (patents) and utility solutions are protected

Technology market development creates conditions for enterprises, cooperatives tri direct exchange within the framework of the patent license. Li xang transfer is a procedure, by which a technology can be listed as a popular and are used to price the buyer and seller agree. Although patent and utility solutions plays a central role in transactions technology transfer, but sales of technology that are associated with weak patens occurred in Vietnam.

Table 1: Number of titles of protection granted

Year	Patent protection	Protection of Utility Solutions	Protection of industrial designs	Trademark Protection
2001	783	26	376	3639
2002	743	47	377	5200
2003	774	55	468	7150
2004	698	69	647	7600
2005	668	74	726	9760
2006	669	70	1175	8840
2007	725	85	1370	15860

Source: Department of Intellectual Property, 2009

There are several reasons indicating the weak market for the patent office and utility solutions in Vietnam. Firstly, the number of degrees granted in Vietnam was not much (*Table 1*). This means that goods technology has not developed in Vietnam. Secondly, technology market Vietnam has not developed any division of labor between inventors and patent exploitation. The invention has the finance organization and technical means to carry out research for the life of invention and new technology. Meanwhile, the exploitation of an invention does not have enough experience and ability to assess the value of new

technologies that cause psychological problem for the new investment, like buying equipment available foreign contains the technology needed to avoid risks. Thirdly, the issue has not been reserved by interested parties conduct registration procedures for protection and no certainty of implementation of the provisions of law in matters of protection of inventions. In fact there are many violations relating to intellectual property rights, but financial institutions too light or no treatment control for processing.

Devices contain technology

Vietnam is a developing country, which structure is not fully complete so to develop a full, diverse industry sectors and organizations often choose to buy directly form the device was available than innovative new investment. Due to this equipment and machinery to direct product is a technology trading the most popular in our country's technology market (Table 2).

Table 2: Import of equipment, the period from 2001 to 2007

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Import value (million USD)	4949,0	5879,9	7983,7	9207,5	9285,3	11040,8	17350,0
Proportion of imports (%							
Equipment	30,6	30,5	29,8	31,6	28,8	25,3	24,6
Raw materials, fuels, materials	63,2	61,6	62,3	60,6	64,5	66,6	67,6
Consumption	6,2	7,9	7,9	7,8	6,7	8,1	7,8
Total (%)	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: General Statistics, 2009

Currently, machinery and equipment has been purchased on the market technology in Vietnam is mainly imported from abroad. This situation can be explained by: firstly, the trade relations that Vietnam enterprises involved, the foreign partner requires Vietnam enterprises to use the machinery industry is widely recognized; Seconly, due to limitations of the machine building industry in the country, the domestic enterprises is only capable of manufacturing these devices simple small scale; Thirdly, as the ability to set design systems, especially large systems is limited, the domestic companies only able to do these devices into a single time to complete system is a lack of experience and capability; Forthly, the popular psychology of foreign goods and cause other social enterprises should especially state-owned enterprises only want to buy foreign goods.

Pure technology

Pure technology including processes, know-how and technology (no degree of protection -

patents), drawings ... are subject to the sales in our country under the forms, names and conditions are very different but often referred to as technology transfer. The transfer of this technology is a transaction independently whether it comes with the device or not. This is different from the service as it is accompanied by the purchase of equipment

In the case of this transaction, the transferor will receive instructions for the process and how, know-how and information needed to get the owners can do the technology. Some examples of types of transaction technology is: selling off blending technology expands rubber powder, technology transfer preserving fresh fruit fabric. Type of technology transfer in agriculture and rural development through extension center - forestry extension kind of transaction technology. Because of the enormous benefits of technology transfer to farmers and poor farmers' costs for the transaction type of technology is taken from the State budget. Currently, the extension center or extension forestry activities being implemented in most districts in rural and mountainous areas of Vietnam

Technical services

Located in the type of transaction has its technology consulting services such as project design, installation, and adjustment based machinery and equipment, maintenance, verification samples of materials of products? In particular, the design consultancy services are a commercial unknown. In most cases, when the construction of factories, new projects and investors must hire company / personal design consultant works to ensure the effectiveness of the investment and security, gadget works.

In Vietnam, the type of transaction technology is well developed, is relatively abundant and occurs with high professionalism. It includes advice from the design of the complex process of people not to bring big projects to the national level. Forces involved in this type of transaction is very rich, may be the design consultant to independent companies, design consultants both at home and abroad. The installation service, based adjustment, bringing the system into operation equipment to stabilize and guide the operation and maintenance of system equipment and technical services are common

R & D Services

Perform R & D is in fact a type of service, whereby the unit R & D work conducted at the request of the outside. R & D services other than the sale of R & D results can be new ideas, new solutions capable applications and services for commercial purposes. R & D results if the value of public utility can sell to the State to exploit the public.

Currently in Vietnam, R & D services primarily by government agencies, research institutes perform.

These organizations use the facilities, operational costs of the state to implement the topics, the program of Science and Technology of the State. There is a state agency ordered the R & D organization, with the agencies themselves think of research topics and funding for the State. Actually two parts of the boundary is not clear, efficient R & D activities is not high. To overcome the above in recent years the government has launched a new policy to overcome.

1.2.2. Technology Demand

Technology needs of the economy are the total demand of the parties involved in technology market includes businesses, farmers and government.

Farmers

According to the Bureau of Statistics (2009), farmers account for 72.56% of the population rate of 85.1549 million people of Vietnam. On potential rural areas will have high demand for technology in 10-20 years? Song technology needs of farmers depend heavily on the level of cultivation, the speed of technology innovation cultivation, preservation and processing of agricultural products for farmers. Technology needs of farmers also depend on the operation of the market agricultural products. So can see, if markets operate good agricultural products, farmers may demand and be ready to pay for new technology, rising labor productivity.

State

State is a major customer on the technology market. Here, the State can buy technology for the State management apparatus, providing useful products for society. State can also buy technology to disseminate to all other requirements of a specific direction on the objectives of welfare and social security. Spending policies of the State is always a valuable tool for impact on the market. Increased spending and spending by the State effective technology work to promote the development of technology market in our country.

Enterprises

Enterprise Law was born in 2005 created favorable conditions for a large number of non-state enterprises were introduced.

Table 3: Number of enterprises

Table 3.1: Number of enterprises classified by Type of Business

Unit: Number of enterprises

No	TYPE OF BUSINESS	2000	2004	2007
1	Central SOEs	1.936	1.634	645
2	Local SOEs	3.664	2.210	858
3	Liability Company Central State	3.252	45	142
4	Limited Liability Company Local State	20.834	121	329
5	Stock companies, limited liability company with capital state> 50%	4	562	1.358
6	Cooperatives	10.515	5.345	6.688
7	Private enterprise	387	29.971	40.468
8	Partnerships	513	21	53
9	Limited liability private company limited liability company with capital state <= 50%	858	40.912	77.648
10	Stock companies without state capital	514	6.920	20.862
11	Company shares with the State Capital <= 50%	5	813	1.595
12	100% foreign capital enterprise	132	2.334	4.018
13	State enterprises to joint ventures with foreign	20	527	452
14	Other business ventures with foreign	-	294	491
Total		**42.634**	**91.709**	**155.607**

Table 3.2: Number of enterprises classified as Owned

Unit: Number of enterprises

No	PROPERTY TYPE	2000	2004	2007
1	State sector	29.710	5.099	3.784
2	Domestic Private Sector	12.792	83.982	147.314
3	FDI	132	2.628	4.509
	Total	**42.634**	**91.709**	**155.607**

Table 3.3: Number of enterprises classified by industry

Unit: Number of enterprises

No	INDUSTRY	2000	2004	2007
1	Agriculture - Forestry – Fisheries Industry	3.567	2.369	2.429
2	Industry - Construction	14.891	35.498	56.582
3	Trade – Services Industry	23.901	53.842	96.596
Total		**42.359**	**91.709**	**155.607**

Table 3.4: Number of enterprises classified by scale of enterprises

Unit: Number of enterprises

No	ENTERPRISES SCALE	2000	2004	2007
1	Ultra-small enterprise	22.828	48.937	30.034
2	Small and medium enterprise	17.447	39.213	55.448
3	Big enterprise	2.357	3.465	3.811
Total		**42.632**	**91.615**	**89.293**

Source: Enterprise Survey - GSO in 2001, 2005, 2008.

According to the General Statistics Office (2007), total investment in the economic sectors in 2006 was to reach 243,306 billion (in 1994 constant prices) in which investment in economic sectors accounting for 45.7% State , non-state economy - 38.1% and regional investment abroad constitute 16.2%.

According to the Foreign Investment Department - Ministry of Planning and Investment of total FDI in 2008 reached over 64 billion dollars, nearly three times than in 2007. Specific 1171 FDI projects licensed to invest in Vietnam with total registered capital reached more than 60.2 billion dollars, up 222% compared to 2007. In addition, in 2008, has 311 projects registered capital increase, the total capital increase to reach 3.74 billion. In the areas of investment and FDI focus primarily on industry and construction, including 572 projects with total registered capital of 32.62 billion USD, accounting for 48.85% of the project and 54.12 % of registered capital. The service sector has 554 projects with total registered capital of 27.4 billion USD, accounting for 47.3% of total projects and 45.4% in registered capital. Rest of agriculture-forestry-fishery. 2008, there were 50 countries and territories for investment registration in Vietnam, including 11 countries and regions registered investment capital of over $ 1 billion. Malaysia leader, with 55 projects and registered capital of 14.9 billion, Taiwan ranked second, with 132 projects and invested 8.64 billion. Japan third, with 105 projects and invested 7.28 billion.

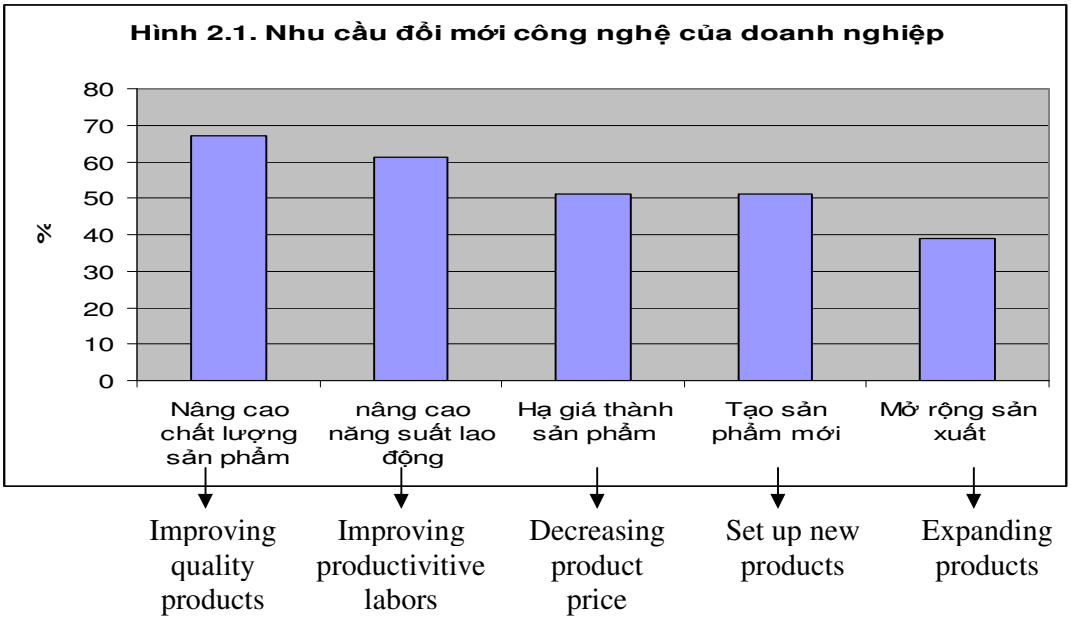
For FDI enterprises, the technology used is often the technology used in the country, based primarily on the parent company sources, is adjusted to suit the conditions of Vietnam. Current practice, the number of technology transfer between parent companies and subsidiaries officially registered lower than the numbers of FDI enterprises are operating. FDI enterprises themselves in Vietnam, most of them are enterprises producing, processing and assembly based on product design and technology was common.

On capital enterprises in the country, the majority of enterprises are small and medium enterprises (SMEs). Currently, there are many statistics on the number of SMEs in Vietnam. However, the number of SMEs that are accounted for by over 90% to 97% (Table 3.) Other

companies in the country. Most of these enterprises are in industry and trade - service. In industry, many manufacturing industries are still mainly done processing, value is not high. Technology needs of enterprises mainly focus on the complete technology, process technology, including machinery and equipment accounted central location.

Technological capacity of enterprises in Vietnam, especially the SMEs are not enough most of the SMEs use technology backward from 3-4 generations. Through evaluating the level of technology under the four components (equipment, human resources, information and organizations) of the 11 industries of Vietnam, the technology industry's most common (other than technology nitrogen fertilizer production industry - chemicals) are evaluated at the average, low average and low compared with other countries in the region and the world.

Figure 0: Demand for enterprise's innovation



Source: NISTPASS, 2006.

According to this result are 67.3% of businesses in need of technological innovation to improve product quality, 61.2% - improving labor productivity, 51% - lower product price, 51% - to create products new products, and 38.8% - to expand production.

There are many reasons for the limited capacity of the technological innovation of enterprises. Firstly, financial capacity and level of business R & D are limited, while spending for the selection and adaptation of technology most often compared to the ability of the enterprise. Secondly, skills, business management major. Thirdly, enterprises still limited in access to information. Wednesday, the State's policy has actually encouraged business investment in science and technological innovation.

1.2.3. Technology Supply

Involved in the sale and supply of technology include: organization of science and technology, independent inventors and businesses

Science and technology Organization

According to the Law of Science and Technology (SRV, 2000), organization science and technology include: (1) organization of scientific research, scientific research and technological development, (2) universities, academies and colleges, and (3) the service S& T organizations to January 1, 2007, there are about 1200 scientific and technological organizations, an increase of 2.5 times compared with 1995. Of these, approximately 60% is organizations state-owned. In recent years institutions of science and technology has also actively participated in providing goods for the technology market. However, the increase in the number of science and technology organization does not go in line with the increase of the level of technology market participants.

Ability to provide technology to the market of scientific and technological organizations depends on technology innovation capability of the organization. There are different opinions about the level of perception creative capacity of organizations S& T Products of scientific and technological institutions in the technology often incomplete and even the complete terms of technical ability to trade is also uncertain. Risk factors is an important reason for making scientific and technological organizations is hard to call for investment to improve their technology

The independent inventor

The inventor of the independent research activities and their more creative when there are new ideas, new solutions that are the result of this new technology solutions to solve problems breakthrough. In recent years, many initiatives and improved technology in our country are the result of inquiring and creative individuals. Creation initiatives and improved technology not only derived from the scientific and technological personnel has a high level but also from workers, farmers had no higher education.

Creative activities of the individual technology have served well the needs of people from urban to rural areas.

Can be said that the initiative of the comments of the independent creative potential more value and great significance for their production and life. When implementing protection of patent rights is done well, the invention can be exploited by his achievements as the economic benefits, contributing to promoting the development of quantity and quality of initiatives independently. But now, not in a study made no specific data on activities of independent innovation of technology in our country.

Enterprises

In industrialized countries developed, medium-sized enterprises play an important role in demand is a technology focused on the important participants in providing technology to the market. Song as described in the provision of technology, business enterprises in our country act as buyers of technology, rather than provide technology. Moreover, most technology companies are buying the technologies imported from abroad. More capacity, technology and technological innovation capability of enterprises in the low investment in Science and Technology of the businesses, accounts from 0 - 0.2% per total turnover of the business. Therefore, the ability to provide technology to the market is very small.

For enterprises with foreign investment, NISTPASS (2003) said, businesses are also mainly based on technology from parent companies. Some enterprises have invested and conducted R & D is also primarily to serve the needs of innovative technology companies rather than serving the needs of the market.

Theoretically, the business is also an important medium for participation in technology has also participated in technology on the market. So need to investigate, survey research more fully the state of demand - supply technology businesses.

1.2.4. The intermediary institutions

As analyzed above, participation in markets outside of the supply - demand technology is the intermediary institutions - institutions catalyst market, contributing to mount between supply and demand. The catalytic unit market include: information technology consulting, legal services on intellectual property and technology transfer, expertise and technology, trade promotion, financial institutions and other services.

Technology Information consultant

Provide information technology services is a communication services but information that is not really commercial development in our country. Although there are now hundreds of agencies scientific and technological information in the country, but the agency scientific and technological information existed primarily to serve the superior management agencies. The business information search technology, the patent on the invention also encountered many difficulties. Organizations Information Science and Technology currently does not play a role in finding large technology enterprises.

Legal services for industrial property and technology transfer

In recent years the number of organized legal support for the operation of intellectual property and technology transfer increase rapidly but only a small number of organizations active professional and efficient. Currently, our country has a service organization of

industrial property, but most of these organizations for the purpose of operating profits, no organization by the State to establish and operate the non-profit profit.

Table 1 above also shows that the number of patents registered for protection in our country is very limited. Therefore, services related to the patent office are not protected area attractions. However, the number of registered trademark protection much greater than the registration of the invention, the service organization of industrial property can earn attractive returns from service for registration of trademark protection. Song general, these organizations also has a lot to help develop technology market in our country.

Technology Inspection

The formation of organizations inspection technology expertise and reputation as intermediary and impartial assessment will create trust between the buyer and the seller in the transaction technology. Is considered as one method of limiting inequality information ("signaling"), avoid freezing the market.

Currently, in our country these activities also underdeveloped. Recently, though the Ministry of Science and Technology has established a center for technology assessment, but the operations of the center not meet the requirements of inspection technologies for businesses. Moreover, the activities of the center still limited human resources and evaluation methods and inspection technology.

Trade Promotion

Fairs and advertising are important activities to promote trade for all commodities in general and for particular goods and technology. In recent years in the country, many tech Fair (Techmart) of both central and local levels have been held. Through the technology fair, thousands of billion transactions technology has been implemented. However, many scientists and managers doubt on this figure. Have the view that, the number of "transactions" through technology fair is the memorandum. In fact, the transaction technology through technology fairs much lower than the number of "transactions" were announced. General, the technology market still lacks a "midwife" to promote the transaction. So far, we also difficult to get a precise figure about the transactions technology in the market due to lack of information and intermediate units to this task.

Financial Services

The investment for development and technological renovation of enterprises often very large. Thus, financial service activity is indispensable in the operation technology market. While investment in technology development is an activity of high risk. With the high-risk, our country is hard to find a financial institution providing financing for innovation activities and technological development.

However, high level of risk and go with the high profit investment success. To promote the development of technology market in Vietnam, the State should have mechanisms and policies to reduce the risk burden for the transactions technology, especially high-tech transactions.

1.2.5. Legal environment and policies for market development technology

Technology to market formation and development to ensure the supply - demand, factors catalytic intermediate and legal environment. Can divide the legal environment for the development of technology market into two groups: (1) environmental policy science and technology, and (2) environment on economic policy

Policy Environment on science and technology

August 30, 2005, the Prime Minister's Decision No. 214 approving the proposal to develop technology market (hereinafter referred to as Decision 214). Decision 214 has set out three fundamental goals are: (1) Building and improving the institutional base of the technology market, a healthy competitive environment, (2) promote and support business investment technological innovation, contributing to rapid economic development and sustainability, and (3) Increase the number of fast and quality of traded technology; strive growth value traded technological Comments Army 10% per year in the period 2006-2010. Decision 214 also set out five key tasks in 2010, including establishing and organizing the implementation of the Law on Intellectual Property (IP), the Law on Technology Transfer (CGCN) and system text instructions law.

After Decision 214, Intellectual Property Law was adopted November 29, 2005. IPR system is needed to make technology market can be healthy competition and contribute to local capacity building technology students. In general, IP Law and documents guiding the law has significantly contributed to create a legal environment for the operation and a healthy development of the technology market.

November 29, 2006, Law CGCN be issued to several targets including the market development of technology to encourage and promote activities Incubate technology, create business nursery technology; promote the transfer communication research results into production and business. CGCN Law and documents guiding the law contributes to further improve the legal environment for market development and technology.

After that, the Law on Information Technology was issued on June 29, 2006, regulations on the application and development of information technology, measures to ensure the application and development of information technology, power and obligations of agencies, organizations and individuals involved in activities to develop applications and information

technology. Law-Tech was issued on November 13, 2008 regulations on high-tech activities and policies and measures to encourage, promote high-tech activities.

However, reality shows, the business has not much interested to transport goods and apply the terms in the system of law.

Environment for economic policy

Since the implementation of policy innovation, the economy our country's economy from a centrally planned economy to market-oriented, the State has issued many policies important to the economic development of economy and economic institutions-oriented market socialism. The main economic transactions have contributed significantly to promoting the development of Science and Technology in general and technology market in particular.

Implementation of the policy as a scientific and technological dynamics of development, the foundation of the process of industrialization and modernization of the country (and modernization) in the spirit of the Central Resolution 2 (Course VIII), increased investment in science and technology from the state budget on the basis of implementation of Resolution 26 of the Political science and technology in the innovation period, the State has enacted various mechanisms and policies to specific chemical sense above. Specifically, the State has spent considerable capital investment budget to develop scientific and technological potential and build the infrastructure of research institutions to implement and train staff KH & Sun In addition, the Conference Executive Board TU 6th IX set out key tasks to continue the implementation of resolutions TU 2 Course VIII, which set out targets to strive for investment in 2005 reached 1.0 Science and Technology % of GDP and by 2010 reached 1.5% of GDP. Implementing the policy of the Party, and make the development potential of Science and Technology-oriented development strategy in the period of scientific and technological modernization, the Prime Minister was the decision of the 850/QD-TTg/2000 approving the project "Construction of key laboratories.

Decree 119/ND-CP/1999 regulations on a number of policies and financial mechanisms to encourage businesses to invest in S&T activities in Corporate Income Tax Law regulated businesses with new production facilities and implement innovative technologies enjoy exemption of corporate income tax reduction; also be exempted from income tax for the implementation of contract for scientific research, technical services directly serving agriculture

Enterprise Law 2005 is a new step in the process of completing the legal framework for economic types of businesses in Vietnam. These laws further simplify procedures; reduce barriers to market entry for foreign-owned enterprises, particularly for enterprises with foreign investment. Investment Law in 2005 is thought to direct the removal of

discrimination between investors of all economic sectors, between domestic investment and foreign, to respect the freedom and the right business decide in the management of investors. 01/7/2006 since that time, Vietnam will apply only a single Investment Law; no longer distinguish between the two Foreign Investment and Law on Domestic Investment as before anymore. Investment Law 2005 State regulations protecting investors against their property, protection of intellectual property, ensuring open markets, etc. Is more making the investment environment in Vietnam became more open and equality between economic sectors.

1.3. Current situation of technology and technological innovation activities in Vietnam

In the context of globalization and international economic integration today, technological innovation has been become one of the important factors determine the competitiveness of enterprises of all countries in general, Vietnam enterprises particular. The past years of renovation, Vietnam enterprises have continuously growing, increase investment in technology renovation, step by step as the main technology imported from there has created quality products, capable competitive market both domestically and internationally. In fact the level of technology of Vietnam enterprises at present generally still very low compared with the average of the region and internationally.

Reviews and evaluates:

- Activities of technology transfer also carry self-made play, there is no specific plan. Technology transfer is mainly due to foreign technology introduction (via broker intermediaries) rather than by the business needs self-searching.
- Rate of technological innovation of most enterprises still too slow. While countries in the region such as Thailand ratio using high technology to 30%, Malaysia 51%, Singapore 73%, Vietnam is only 2% rate is too low.
- Procedure-related activities innovation technology cumbersome, sometimes longer interrupt, especially technology transfer activities from outside.
- The State also interfere too much in the technology market, making the buy-sell activities, technology transfer delay due to be implemented through the stages of assessment, license, ... the Ministry of Science and technology.
- Results of the investment in high technology and strategic objectives by developing science and technology remains slow. Here is typical of Ho Chi Minh City has a very significant achievement that has attracted investment in high-tech zone, the $ 1 billion, but the current infrastructure is still not clear. More than 2,000 billion in infrastructure investment in hi-tech parks to attract investors billions of dollars as a result, the budget for only about one tenth, is very small. According to the research budget allocation this year,

two parks and the Hoa Lac Hi-Tech City is expected to only 300 billion, so too little compared to what we want development to attract high technology.

- Foreign investment for science and technology of Vietnam enterprises is still low, very few companies put themselves where to invest capital primarily to expect the state budget, not proactive command deposits from other sources.

According to the survey results are subject solution to mobilize and use of financial resources for research in science and technology business sector in Vietnam is nearly 80% of businesses (enterprises) surveyed have no investment strategy for Science and Technology. Up to 63.45% (125/197 DN) "look forward" to the State Budget support from the State; 20.8% (41/197 DN) raised from sponsorship credit. The rest is 15.7% of enterprises operating on production and business profits.

Topics also indicate: 41% of enterprises are interested in science and technology for the effectiveness of financial resources for science and technology are not clear; 37% of companies that low efficiency and only 22% of that efficiency.

Meanwhile, according to preliminary reports the implementation of Decree 119 of the Government on enterprise support research and technological innovation for that: In the six years (2002-2007) MOST only received nearly 500 suggestions Business support funding for research and technological innovation. But only 111 enterprises have been approved by the Ministry of Science and Technology, with support for total cost of 105.819 billion (reaching 13% of plan). Specifically, of the 111 enterprises supported, only 51 enterprises of different economic ventures with non-state funding 45 billion.

Fact also shows that the company was also reviewed to support only 30% of funding research and technological innovation. While the majority of companies support the proposal by Decree 119 of which have small capacity to mobilize 70% of remaining capital difficult?

- Rank technological capacity of Vietnam near the end of the rankings Asia, Thailand stands under 49 level, Ma-lai-xi-a level 65 and Xin-ga-po level 81. The rate of export high technology in Vietnam makes up only 7% of total exports, while this figure was 30% in Thailand, China is 27%, Xin-ga-po 57%. In ASEAN, the group high-tech industry in Vietnam accounts for only 21% of the product, this figure in Thailand than 1.5 times higher than us; Ma-lai-xi-a 2.5 times, Xin-ga-po than 3.5 times...

Limited to technological innovation to product monotonous, outdated, slow consumption, poor competitiveness, is not even sold makes production stagnated. Outdated technology also leads to consuming raw materials, polluting the environment, affecting public health. To the numbers and the place is enough to see: DN is too look forward to the capital

investment in technology from the State. Even part time is not "alienate" technology. Main from a lack of strategic investment, science and technology innovation of enterprises has made this "bogged down" in the backwardness, slow progress in technology.

- The access to high-technology products (CNC) of the enterprises is very limited. The cause of this situation is because companies find information incomplete and accepted from unofficial sources, which led to effective high technology applications. In addition, the choice increasingly difficult when businesses lack the standard advice about modern technology is being applied worldwide.

Vietnam enterprises invest in science and technology only by one third compared with developed countries and 80% of enterprises do not have investment strategy for science and technology. DN our country is only 0.2 to 0.3% of sales for investment in technology renovation, while the indices in India, South Korea in turn are 5% and 10%. In the third stage of the cycle technology development, Vietnam enterprises only in the early stages, is to acquire technology but has not achieved as the main objective and innovative technology. Noteworthy, with Vietnam to 57.7% of enterprises do not want to buy technology in the country ... Psychology "foreign born" quite popular in the investment field production technology. There are many reasons for companies not to salt the technology content and technological activities, one of which is the management mechanism of state enterprises (NN) now makes the Director of "remove" to give them too less autonomy, particularly in determining the large investment, including investment in innovative technologies. Meanwhile, procedures for review and appraisal of investment projects on technological innovation in SOEs is prolonged, leading to many exciting applications do not participate or encourage them to be difficult long-term investment strategy.

While private sector companies currently almost did not participate in innovation and technology capacity building do not have enough potential to fund ... For enterprises with foreign investment, a major factor limiting this process is the joint venture partners and the Vietnam not active or not enough capacity to receive technology transfer; level employees of Vietnam still limited.

When referred to the level of technology in enterprises, many people said that the company invested abroad (foreign investment) in Vietnam will bring advanced technologies. This is true, but not enough because most technology is "better" production technology of domestic companies but also the only form of medium or weak compared with the world. Operation of foreign invested enterprises have participated in our economy over the past 20 years but produced with computer processing and assembly rate is up high, not only in manufacturing industries of automobiles, electronics, machine accuracy but also in the garment industry,

leather shoes. In the industry, to date, the localization rate in 2000-2001 compared with almost no significant progress.

Link between regional FDI to domestic enterprises is very limited, not forming the ancillary industries that still have to import and link the production supply chain of goods. Because of this constraint that the value created in Vietnam remains low, many FDI enterprises are difficult to develop large scale and intensive investment should recent trends have appeared a number of FDI projects has moved production to countries or closed, to switch to new areas of investment.

CHAPTER 2: Assessment policies and results of technology innovation activities

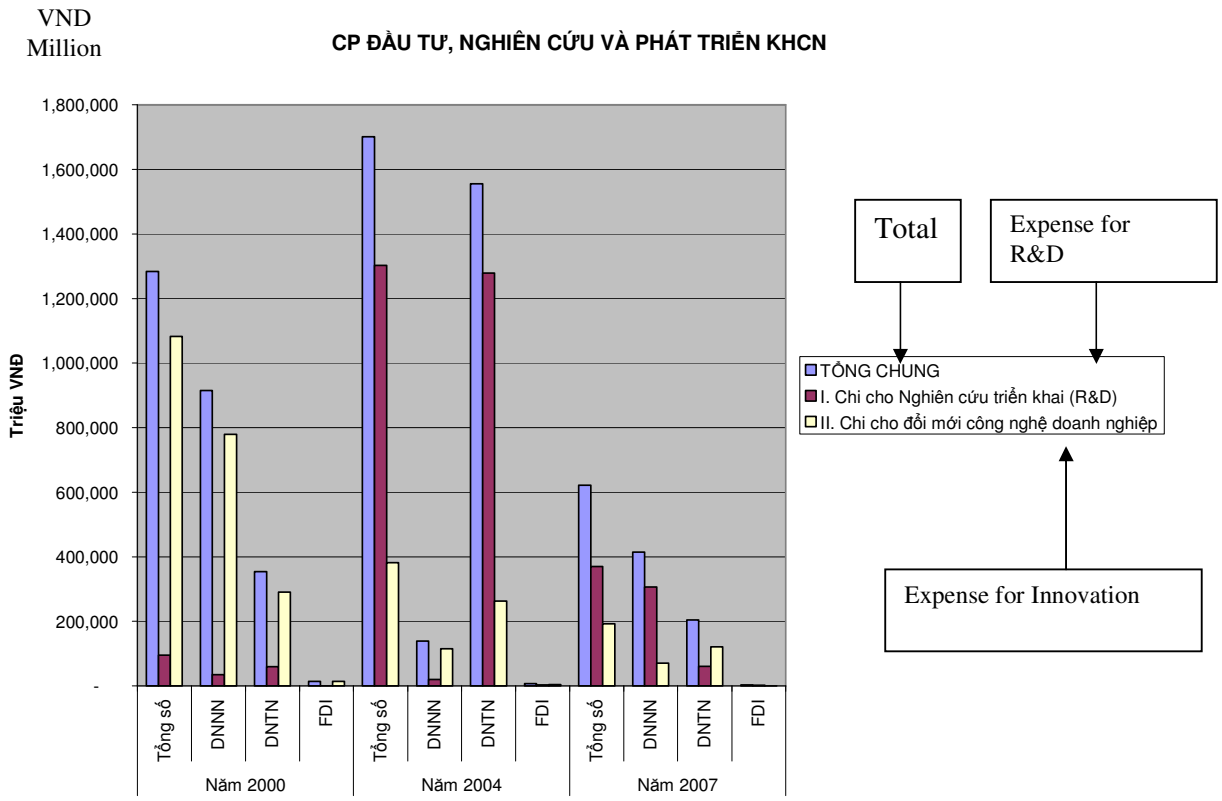
2.1. Assessment technology innovation activities of enterprises and economic sectors

- Activities technological innovation of enterprises by economic sector (classified by type of ownership).

Research activities more investment by enterprises through the years changes and changes markedly. Total spending on the SOE sector has tended to decrease, whereas, Private and FDI enterprises have an increase.

Proportion spent on research and development (R & D) over the years has shown: Main Trends of R & D is increased from 56.31% in 2000 to 64.27% in 2004 and 67.66% in 2007. Among them, Private sector and SOEs tend to increase markedly over the years; the area is reduced FDI enterprises.

Figure 1: Cost of investment, research and development of Science

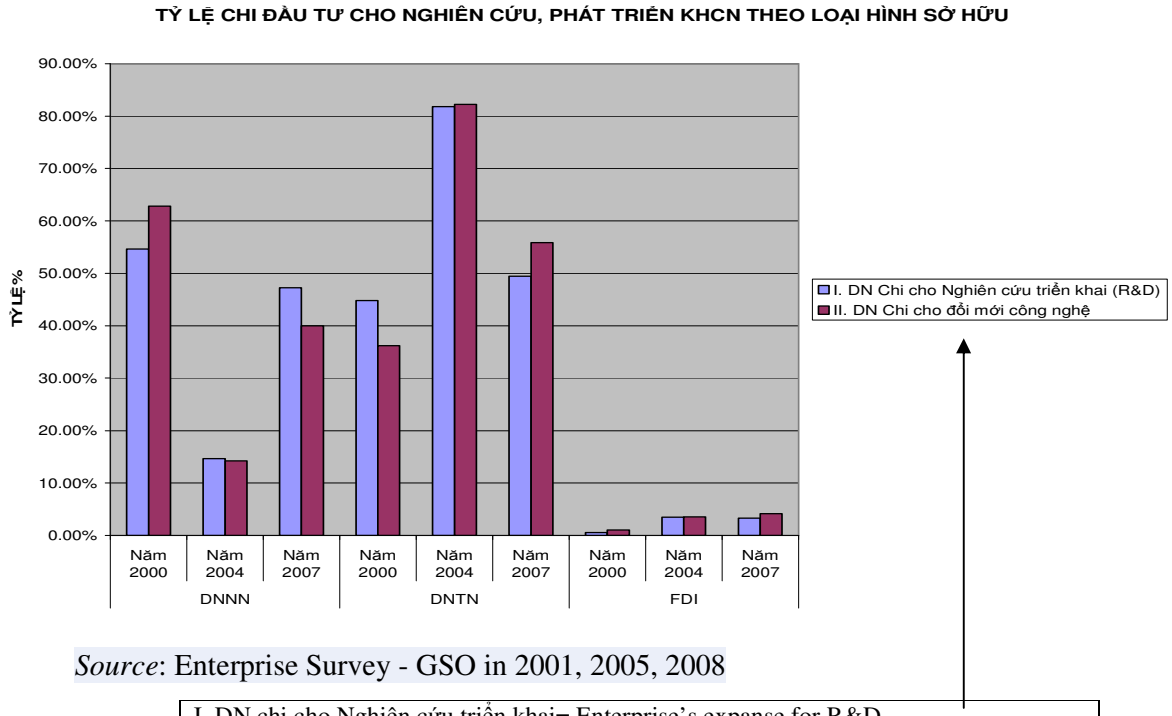


Tổng sô= Total
DNNN = SOEs
DNTN= POEs
FDI= FOEs

Source: Enterprise Survey - GSO in 2001, 2005, 2008

In addition, we see a trend in the expenditure structure Research Investment by enterprises that are more common rate of technological innovation tends to decrease, while spending on R & D tends to increase

Figure 2: The rate of investment research information, develop science and technology



Source: Enterprise Survey - GSO in 2001, 2005, 2008

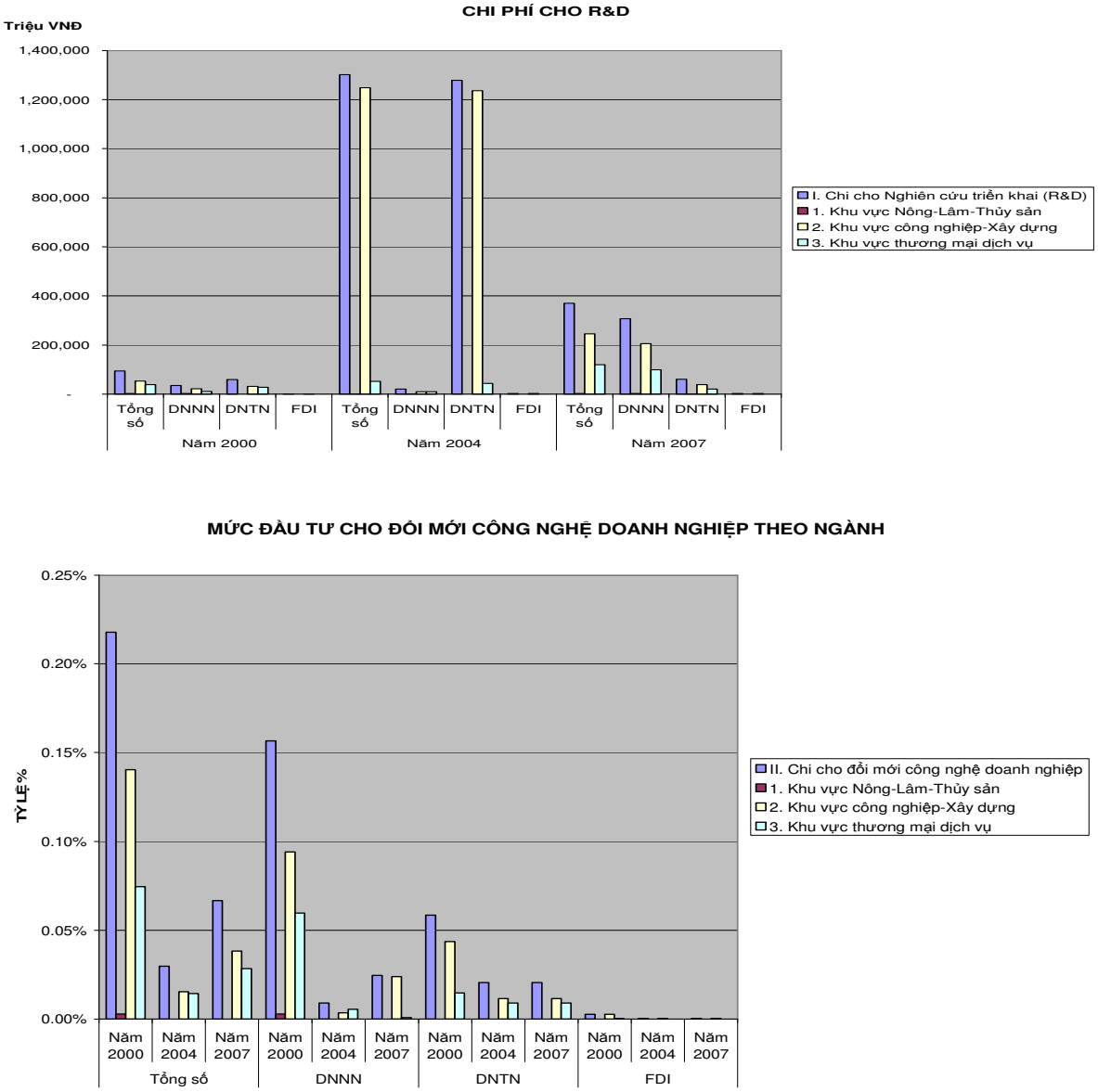
I. DN chi cho Nghiên cứu triển khai= Enterprise's expanse for R&D

II. DN Chi cho đổi mới công nghệ = Enterprise's expanse for innovation

If considered within the structure of the source pay for technological innovation, FDI enterprises constitute the majority and tend to decrease, also SOEs and Private tend to rise (see table 7 Appendix 2).

- Activities technological innovation of enterprises by economic sector Business survey results showed that the agriculture-forestry-fisheries sector rate is more R & D and technological innovation is read lowest, mainly due to SOE investment.

Figure 3: Business investment in Research in economics



Source: Enterprise Survey - GSO in 2001, 2005, 2008

I. DN chi cho Nghiên cứu triển khai= Enterprise's expanse for R&D

II. DN Chi cho đổi mới công nghệ = Enterprise's expanse for innovation

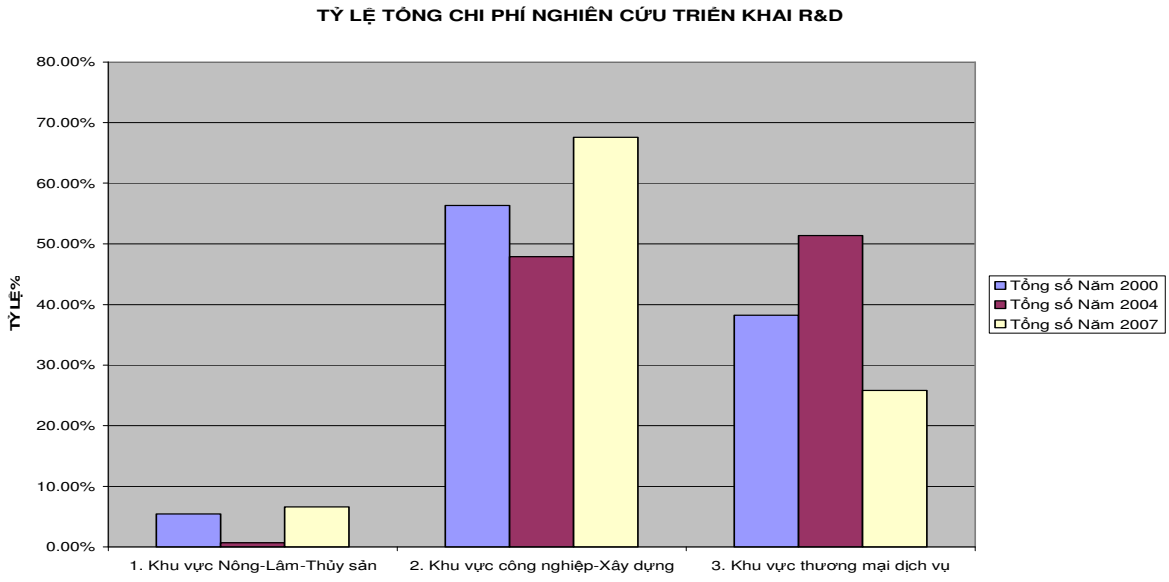
1. Khu vực Nông-Lâm-Thủy sản = Agriculture, Forestry, an Fisheries sector

2. Khu vực Công nghiệp-Xây dựng= Indsutry and construction sector

3. Khu vực Thương mại dịch vụ = Trade and service sector

Results also showed that companies spent almost FDI Research in agriculture are very low. If you consider the rate of investment, the rate of investment in industry is built-up over the years in all types of enterprises

Figure 4: The rate of total research and development costs



Source: Enterprise Survey - GSO in 2001, 2005, 2008

This data shows that the less attractive of the agricultural sector for investment activities and implement research and technological innovation. Fact also shows that this region only SOE investment budget every year, also the region, other companies seem not interested in this field.

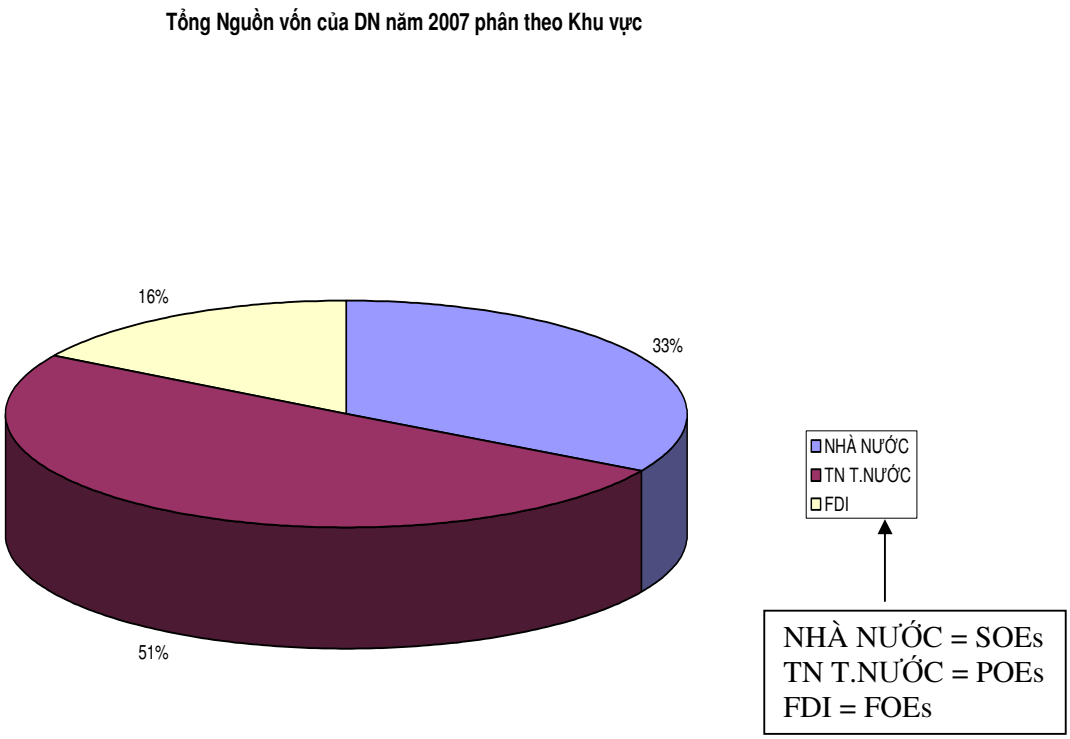
2.2. Assessment the effect of technology investment and utilization and productivity of output products

- Activities technological innovation of enterprises by economic sector (classified by type of ownership)

Overall situation at present shows that SOEs tend to decrease in number, accompanied by the total capital is reduced accordingly.

Survey results show that business year, if in 2000, the total capital of SOEs is 69%, then to 2007 only 33%. While POEs in 2000 is 30%, in 2007 is 51%.

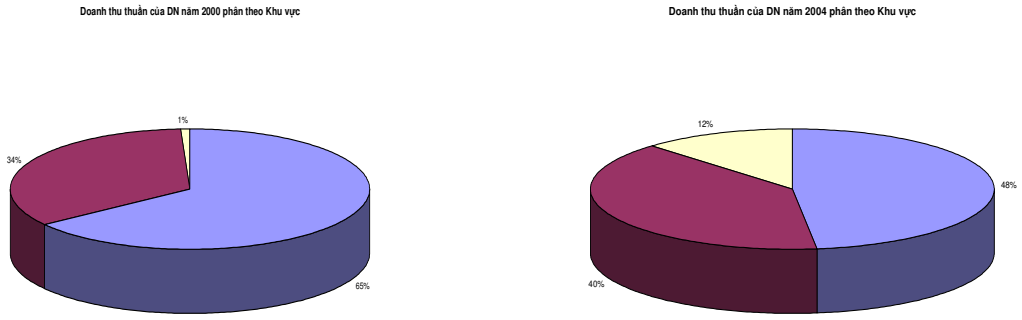
Diagram 1: The total capital of enterprises by region

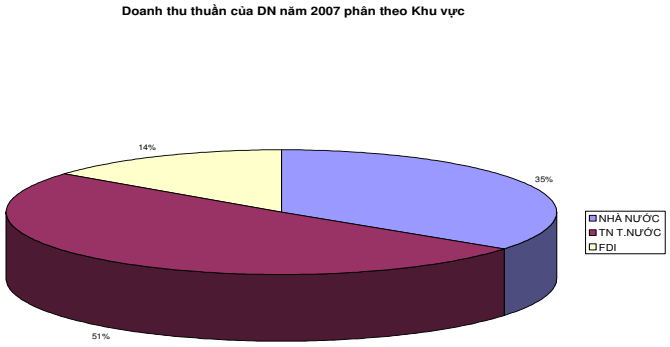


Source: Enterprise Survey - GSO in 2001, 2005, 2008

Same direction, the net revenue of the SOEs as well as the corresponding reduced diagram below.

Diagram 2: Net sales of businesses by region



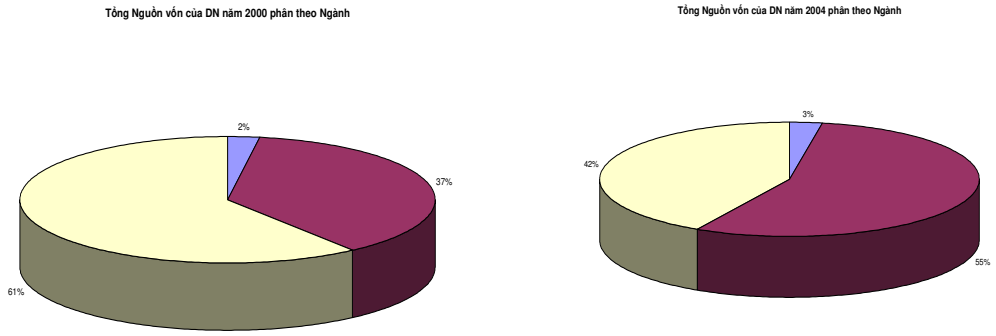


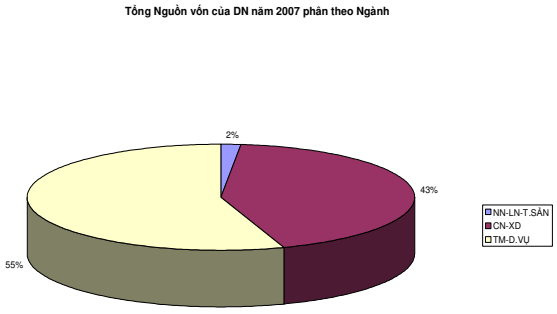
Source: Enterprise Survey - GSO in 2001, 2005, 2008

With the reduction in the number of enterprises, the Net Sales of SOEs has a negative impact, respectively; in 2000 is 65%, then in 2007 still 35%.

- Activities technological innovation of enterprises by economic sector

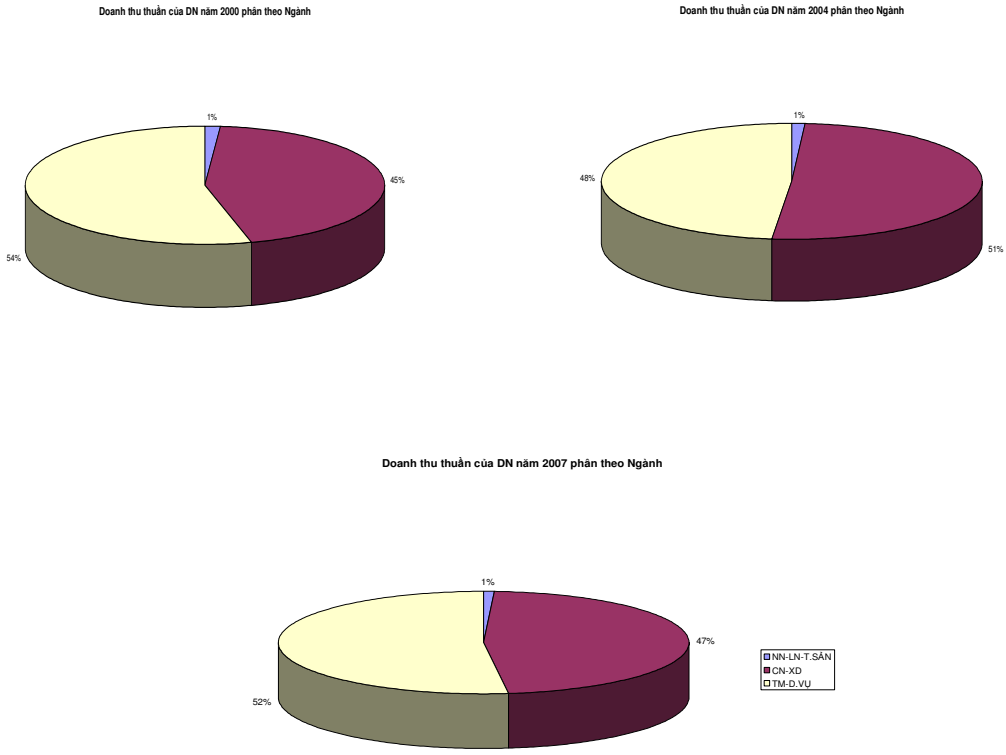
Diagram 3: The total capital of enterprises by sector





Source: Enterprise Survey - GSO in 2001, 2005, 2008

Diagram 4: Net Sales of businesses by industry



Source: Enterprise Survey - GSO in 2001, 2005, 2008

This result shows that agriculture is always less attractive sectors in the economy. Capital investment in this sector accounts for small numbers, it also corresponds to net sales is also in the economy. In 2000, total investment in 2007 will account for 2% is still only 2% of total capital. Net sales in this area in the years and the corresponding accounts are 1%.

While capital investment tends to increase in the industry-construction. In 2000, total investment for this sector accounts for 37%, to 2007 up to 43%, Net Sales in 2000 this sector accounted for 45%, in 2007, then 47%.

Since the agricultural sector without changes, the industry-construction tends to increase, the result is entirely reasonable that, the total capital of trade-service sector majority, also trend direction of reducing the total capital investment in 2000 is 67%, to 2007 is 55%. A net sale of this sector in 2000 is 54% of the time in 2007 to 52%.

General comments:

Crawls the above analysis results show that:

- Agriculture is the sector less attractive to companies in R & D investment and technological innovation, mainly through state investment budget of the state.

- The trend of investment in research and development of science and technology mainly concentrated in the industrial construction. In this area, FDI enterprises often constitute a large proportion, but the annual investment not increase.

2.3. Assessment state mechanism and policies

Overall, investment in technological renovation of enterprises Vietnam time tends to increase. Enterprises were able to reach more with capital support from the state budget through multiple channels. By pressure from competition and be aware of the role of Science and Technology, the number of enterprises has dropped own capital and actively mobilize capital sources for investment in technological innovation is increasing. Of the total business spend also increase gradually up. Capital from the formal credit system tends more plentiful due to the improvement of this system, especially the presence of more foreign banks. Thanks to the increase of capital for investment in technological innovation so many businesses have been raising their technological level, gained a certain position in the market. In particular, the level of technology of some enterprises in some industries has reached an average - compared with the advanced region and the world, for example, some enterprises in information technology, telecommunications, closed ships, etc.

In recent years, the Party and State have been very seriously the role of technological innovation, demonstrated in issuing Resolution separate science and technology (Resolution 6 TW Courses IX), which made clear road policies to promote investment in technology renovation in our country. Many different policies related to promoting investment in technology renovation of enterprises, as well as other sources of capital mobilization of society for this purpose have been promulgated and implemented the policy of raising capital budget Book direct support for enterprises and indirect policies to encourage the enterprises themselves out of capital or investment in technology renovation and mobilize social capital. The policy was initially promoted effectively, contributing not less in the process of industrialization and modernization of the country over time, help businesses conditional mobilize capital renewal machinery thiey being, improved technologies, innovative production, improve productivity and lower price, it stands on the market conditions in Vietnam is open to integration and extensive with the outside world.

The process of developing the capital market with more and more entities join this market in recent years has created conditions for Vietnam enterprises are increasingly more opportunities to access capital for investment and development in that investment in technology renovation. Besides the presence of the traditional channel of capital mobilization, a channel for mobilizing new capital or new technology enterprise also began forming in Vietnam, especially in venture capital through the venture capital funds. In fact,

this is not merely a channel of capital mobilization mechanism that funds the operation of venture capital for selected and nursery can create new ideas, research results and implementation potentially good business. This is outstanding points of this type of capital compared to the traditional sources of capital to support the State's current business. Therefore, encouraging the development of the channel to mobilize venture capital will have significant impact to investment in technological innovation economy.

Table 4: Cost of investment, research and development of Science and technology

Unit: %

Item	Classification	2000	2002	2004	2007
Total cost for scientific research and technology in the year	***Total***	**100**	***100***	***100***	***100***
	State Budget	14.47	6.20	2.65	9.26
	Enterprise capital	40.05	35.05	93.98	79.62
	Capital from State	10.61	0.08	0.31	1.48
	Other capital	34.87	58.67	3.06	9.64
1. Expenses for research and development	***Total***	**7.40**	***9.11***	***76.51***	***59.48***
	State Budget	19.20	18.05	2.10	10.67
	Enterprise capital	75.05	51.82	97.50	82.81
	Capital from State	3.59	0.41	0.07	1.91
	Other capital	2.16	29.72	0.33	4.61
2. Expenses or technological innovation	***Total***	**84.37**	***86.91***	***22.44***	***31.02***
	State Budget	7.46	4.78	3.43	5.83
	Enterprise capital	39.26	31.01	82.94	78.78
	Capital from State	12.27	0.01	1.16	0.02
	Other capital	41.01	64.20	12.47	15.37

Source: Enterprise Survey - GSO in 2001, 2005, 2008

Table 5: Activities of research and technological development

Unit: Number of subjects

Item	Classification	2000	2002	2004	2007
Programs, Research Projects	***Total***	**1440**	***1617***	***1912***	***985***
	State	74	73	476	190
	Ministries, branches	332	333	469	95
	Units	1034	1211	967	700

Number of initiatives, technical solutions are applied	***Total***	**6602**	***6815***	***8968***	***6002***
	State	76	56	78	23
	Ministries, branches	178	24	41	28
	Units	6348	6735	8849	5951

Source: Enterprise Survey - GSO in 2001, 2005, 2008

However, actual results also showed still face many difficulties in the policy of the State to Science and Technology Activities:

- Policies related to mobilize capital for investment in technology renovation of the enterprises were issued relatively more time, but scattered, not create a clear change in perception and investment activities to technological innovation of enterprises.

- The capital assistance directly from the state budget for investment in technological innovation is mainly focused for large enterprises, mainly state-owned enterprises.

- The State has no program for support of SMEs while most small and medium enterprises are facing deadlock in mobilizing capital for technological innovation.

- The policy of encouraging free enterprise fund not leaves little impact on business.

- Mechanism for - for, supporting regulations which are not transparent, clearly shows quite clearly still in the process of implementing the policy of the State.

- Business has access to capital to support the State's a convenient way.

- Policies to support the State's delay are implemented in practice.

- The investment supports technological innovation directly to the State for business investment is as imported equipment and technology is key important.

- Technology choice and the results of technological innovation activities have not prospered. The choice of technology strategy for each sector has not been clearly defined. Many also follow the movement; not including the elements developed and maintained long term.

Level of technology, efficiency and productivity in the production not matched with the amount of capital / investment budget. Activity in the market with computer technology is spontaneous and small.

The cause of the poor, inadequate if the one derived from the business as the demand for investment in technology renovation. On the other hand, the reality is the policy of the state in mobilizing capital for investment in technological renovation of enterprises is made ineffective.

Firstly, many enterprises, especially SOEs, are not really in need of self for technological

innovation by weak management capacity of the leadership or a lack of motivation for the development businesses in the long term.

Secondly, there is no specific policy to support small and medium enterprise investment in technology.renovation.

Thirdly, the support from the state budget for technological innovation of enterprises is not much in the rational, not ensure efficiency in the use of capital support.

Forthly, at present, policies to mobilize capital for technological innovation of enterprises still rely heavily on measures to support budget and the tools to encourage indirect.

The fifth, the role of state investment for the technological renovation of enterprises is not consistent with the market today.

The sixth not separate between the management of state agencies promulgating policies and implementing agency policies and, no coordination among state agencies involved in the coordination implement policies to mobilize capital for investment in technological innovation.

The seventh, the State delayed implementation monitoring, evaluation results and the effectiveness of the implementation of policy measures should be slow to adjust when appropriate economic context - society has changed.

The eighth, the propaganda and information policies of the management of state agencies but much progress and has markedly improved but they don't diversity, no time, and no basis on opinion toward the beneficiary policy.

The ninth, ideological discrimination between economic sectors still exist in the agencies implementing policies.

2.4. General Assessment

Through the evaluation results above, we can draw some received as follows:

- The rate of more investment in research and development of science and technology enterprises in Vietnam is still low. In particular, investment in information literacy RESEARCH / total revenue net of the company over the years usually at 0.2 to 0.4% and spending for technological innovation is only at 0.1 to 0.3% .

- Results also showed that area, any area of investment for research and development of science and technology, the more revenue is increasing. FDI companies mainly invest in innovative technologies, concentrated in the industry-construction. SOE, the regional spread of investment, however still ensure balance in the spending on R & D investment and technological innovation.

- Environment of Vietnam's legal problems also irrational, not to encourage enterprises in the economy put investment in technology renovation. Technology market but developed original, but still bring formality.

- Awareness of domestic companies in technological innovation is not considered mandatory and factors obstructing the development of enterprises.

- For a developing country like Vietnam, the investment model to follow in sequence from the research, implementation, testing ... put into production, conformity assessment ... is any reasonable cause waste of resources that actual results of calculations obtained from FDI enterprises is evidence for this.

CHAPTER 3: Solution recommendations to improve the effect of technology innovation activities in the next time

3.1. The context and impact factors

The world economy under the impact of the global economic crisis now will continue to grow in coming years, but stagnated and there are many uncertainties, because:

- The level of the economic crisis, global 2008 - 2009 is very deep, because more harm in not only economic for all countries.

- The Government has to make a huge relief package rates unprecedented in history, but has stopped the momentum recession in the world, but it harms us build the economy of the country will lasted several years.

- The solution of the government mainly on monetary measures and financial and implementation has been strong, but solutions to institutional and economic structure seems not to be proposed and implemented and that is the main solutions can make the world economic recovery firm.

The global economic crisis is deforming the trend of economic development world:

- While globalization and economic integration continues to grow, but it appears the trend is protected by trade; prolonged multilateral negotiations do not see the end, nationalism increased so...

- Step process to knowledge-based economy will continue, but slow and not overpower the limitations and existence of industrial civilization on the natural resource depletion, environmental pollution, the market and social problems, etc...

- The trend of peace and development remain the mainstream, but are spreading terrorism, ethnic conflict, religion, and the consequences of global economic crises would increase poverty and make more of security and social unrest over.

- The emergence of a group of countries, especially China are leading to scenarios redrawn map of the world market, science, technology, resources, international security ... The dispute between the powers on international issues is becoming fierce.

- The global economic crisis is deforming the model-development around the state are increased measures to intervene in the market, limited market, strong economic direction to move the local market, etc. ...

- The economic crisis also is affecting the international order-the role of superpower America will be reduced relative role of China and other powers will increase, next G7 appeared G20, the cooperation between the powers will be increased to cope with global

issues, UN, IMF, WB, WTO ... to be reorganized. But so far the trends of specific changes are unknown.

Development of the world economy today is mainly based on industrial civilization to the build us serious

- The resources from oil to ore ... have been to take advantage, and being exhausted; within 100 years could end.
- Environment has been polluted seriously on water, air, etc...
- Directions to the consequences of climate change - Warming up, sea level rise, ozone being riddled disaster increasingly severe storms and floods...
- The difference between the developed and rich and poor is increasing; contradictions and conflicts of social, ethnic, religious increasing in several places; terrorism spreads, etc. ...

Vietnam's economy will enter a new period-through the entrance of low-income countries on goods imported from the average.

Development strategies for low-income countries reach a group of middle income but are also difficult, but many countries have passed, and Vietnam also did that.

However, to speed up from a middle-income country to developing countries found that the more difficult in the past century, countries do this are very few, still mostly being caught on middle-income trap.

What strategy for Vietnam to speed up can reach in developed countries is a question not easily answered. But can confirm that if Vietnam continues to implement the same point of development, even as little innovation, you can forecast that Vietnam is hard to escape "middle income trap. And technological innovation can be considered as unknowns to shorten all the development gap, empowering countries to create sustainable developments

Development trend of science and technology today increasingly rapid and widespread

Revolution in science and technology in the world continues to grow with increasingly rapid pace, ability to make breakthrough achievements, difficult to forecast and great influence to all aspects of life human society.

Science and technology is becoming a force production directly, first. The strength of each country depends largely on the ability of science and technology. Advantage of natural resources, cheap labor cost is becoming less important than. The role of human resources with high professional qualifications is capable creative, more meaningful decisions in economic life - society of all nations.

Time to research results into applied technology and life cycle increasingly shorter. Competitive advantage belongs to those companies that take advantage of new technologies to create products and services meet the needs and ever-changing variety of customers. With

the powerful potential financial and science - technology, multinational companies and multinational firms holding dominant market and advanced technologies.

To adapt to the context, developed countries have and continue to adjust economic structure towards increasing rapidly industries and services have high technology content, technology-friendly environment; push power transfer technologies to spend raw materials, energy, pollution to developing countries. Also in these countries, powerful economic groups are pushing the implementation of policies give priority to training human resources of science - technology level higher, increasing investment in research and technological innovation , is a high-tech orientation selectivity; strengthen information infrastructure; to create competitive advantage and narrowing the development gap.

Background on the impact this will have nothing to strategic planning activities innovation technology in Vietnam in 10 years.

- Vietnam to have a reasonable ability to deal with other powers, especially the United States and China to benefit the most positive factors and preventing the most effective negative impacts can, ensure environmental stability for peace and development.

- Make sure the point of technological innovation requires a change from viewing to see the number of key importance to the quality, from development to development width depth, balance between regions and sectors, among the key industries and sectors to ensure people's life, ..

- Institutional and economic capital is the most important factor to speed up the development of Vietnam in the near future must be innovation and upgrade the modern, consistent with international practices, facilitate favorable conditions for activities in technology transfer from outside into the water with various forms of business cooperation, production.

- Environmental issues / climate change will be especially bitter if Vietnam continues to industrialize towards developing strong industries processing tradition, so the conversion requirements of economic structure in line case will be a necessary step, take advantage of new technologies is a priority direction.

- The problem the market will become bitter if Vietnam continues to strongly export-oriented in recent years, so it needs a more carefully calculated market.

- All "button that" speed up the development of Vietnam's infrastructure, human resources ... must be high clearance to raise the efficiency of technological innovation.

3.2. Recommendations and solutions

To contribute to promoting and improving the performance of technology innovation in Vietnam in coming time, we need to make the solution as follows:

3.2.1. Creating mechanisms for technology market development

- To perfect the mechanism of law enforcement and legal corridors, ensuring intellectual property rights.
- To improve the institutionalized to the Law Science, Technology, Technology Transfer Law, the Law on High Technology and Intellectual Property Law operates well.
- Develop information systems, services and other support technology market.
- Develop infrastructure to facilitate investment in technology renovation.
- Renovating a management of technology transfer activities in the direction of the current formation mechanisms to suit the socialist-oriented market, with specific activities of technology transfer and require active integration international economy; enhance self-reliance, self-responsibility of organizations and individuals involved technology transfer.

3.2.2. Complete and promulgate mechanisms and policies to mobilize capital for technological innovation activities

First, the policy of raising capital budget of the State

- Change the support of the State budget for investment in technological renovation of enterprises in the direction of the State limited forms of direct financing for enterprises, should focus on policies to support indirect through infrastructure investment and create the most favorable conditions for enterprises to have access and mobilize social capital for investment in technology renovation.
- Summing up, evaluate the performance of the investment programs of the State in the areas of socio-economic national key techniques. Thereby, improve, change to the appropriate investment policies of the State in the program of this type in future.
- Review the feasibility and possibility of application of research results in the national key programs. State publicly available information on research results, technology and technological innovation in science programs - national technology and research issued policies to encourage enterprises with capital contribution to the State to deploy the application and dissemination of research results of technology capable of efficiently deliver practical for business.
- Must summarize and evaluate the results of implementation of Decree 119 of the Government on policies to support business innovation technology

Second, policies indirectly encouraged the State

- Evaluate the preferential tax policies to encourage investment in technology renovation; direct tax agency made good 24/2007/ND- CP Decree, issued specific instructions implementing Decree and simplified procedures for approval of tax incentives for

businesses investing activities R & D or technological innovation in the area enjoying tax incentives under current regulations.

- Take you to supporting the development of national S & T into operation on the actual operating regulations clear to the public.

- Establishment of Locus technological innovation and building national statute Locus of these activities.

- Ensuring the funds to support technological innovation of the State must work based on public regulations for selection, competition, without discrimination between economic sectors.

- Ensuring sufficient capital and accelerate progress completed and put into widespread use in laboratories of key countries.

- Issue new legal documents as a decree of the Government or the decision of the Prime Minister on policy development and technology incubators, business incubators and on the formation of venture capital funds in Vietnam.

- The State encourages local, especially the big city of Hanoi and Ho Chi Minh City planning and construction of central information technology and business support technological innovation; thrive Us system organizations have participation of ownership transfer of technology services, consulting brokerage technology to meet the needs of the business.

- To encourage enterprises, particularly enterprises with foreign capital investment in high technology, implement technology transfer to other enterprises; formed groups auxiliary enterprises to improve value increased product of Vietnam.

- Implementation of the right decisions about 36/2007/QD-BTC statute of the organization and operation of the Development of Science and Technology Locus of the business. Allows businesses linked together using the capital development of Science and Technology Locus her to invest in research and development projects likely to use general results or contribute capital to venture capital funds.

Third, policy mobilize social capital

- Establishment and operation Issued statute Locus venture on the basis of research models in the world and these funds are operating in Vietnam.

- Encouraging research and development organization commercializing products R & D and delivered to businesses through technology transfer contracts to encourage businesses (domestic and foreign) joint venture, the contribution capital for R & D organizations to establish new enterprises based on research results, technology and innovation in water

technology. Encourage the organization of activities to promote new ideas in technology, offer ideas on new technologies for potential investors.

- Strongly encourage all economic sectors to participate and invest in developing science and technology enterprises in Vietnam.

- To encourage corporations, large domestic corporations and foreign companies with capital contributions into the fund investors, including venture capital funds.

- Develop list of priority projects calling for ODA support (general), which should make the list of projects related to ODA support for technology transfer, capacity building support for R & D for the research on technology R & D, support small and medium enterprise investment in technology renovation.

3.2.3. Human resource development for scientific and technological activities

a. Human resources development for scientific and technological activities

* Raising awareness about the role and position of the staff of Science and Technology

Team of intellectual, scientific and technological assets of the country and is an important resource contributing to the success of the process of modernization of the country. Team includes staff in scientific and technological research organization - development, universities, staff involved technology transfer activities in enterprises, agencies and state management, and the political, social, professional. Sectors and levels of investment concerntion create favorable conditions to promote the highest creative potential of this team in the modernization of the country.

* Renovate the management of scientific and technological resources in order to release potential, develop proactive and creative staff's Science and Technology

- Each transition mode mode payroll employment contract for scientific and technological personnel, facilitate the flow of cadres, formation of labor market in scientific and technological activities.

- Implementing autonomy, self-responsibility for human resource management for the organization and operation of Science and Technology in determining recruitment, training and disposition to use, appointment, dismissal, resignation, for only work, classified salaries, bonuses and other treatment regimes for officials and employees.

* Develop policies to motivate the material and spiritual individuals' strong scientific and technological activities:

- To promote patriotism, socialist ideals, ambition and heart charm scientific spirit of cooperation in research in staff's Science and Technology

- Implement mechanisms healthy competition, gradually eliminate the average mode distribution, enforcement regime adequate treatment with dedication of the KH &CN;

unlimited income for staff transfer activities technology, tax exemption or reduction of personal income from activities of science and technology, transfer of technology. Effective protection of intellectual property rights to encouraging innovation and bringing research results into widely used.

- The policy rewards for individuals with scientific and technological achievements valuable scientific and practical high; personnel policies to encourage technology transfer activities to work in areas with economic conditions, social Assembly difficult.

* Functions and training of personnel policies Science and Technology

- Promote the recruitment and sending pupils, students, scientific and technological personnel training as a whole at country level scientific and technological advanced in the immediate area of the national key technology.

- To attach importance to training and fostering talented people, scientists, the general engineer, chief engineer, skilled technicians; formation of collective scientific and technological power, enough resolution activities transfer important technology of production, life, defense and security setting.

- Adjusting the structure of training towards increased training technical workers (especially skilled workers) for the sector is attracting foreign investment and other economic sectors - social key.

- To mobilize and support maximum economic sectors directly involved in the process of training human resources for technology transfer activities, especially the economic sector and private sector capital investment of out.

- Prioritize the use of financial resources from the partnership, including international donor of ODA for human resource training for technology transfer activities, particularly in the areas of key technologies.

- Encouraging open universities, research institutes or international technology sector in Vietnam, create many opportunities for research and training science and technology staff resources to Vietnam.

b. Develop national information system on scientific and technological activities

- The state should increase investment and upgrading and modernizing facilities information on technology transfer activities and achievements application of Science and Technology is, construction and development of information systems National Science and Technology related international, effective exploitation of sources of information about the activities of technology transfer and foreign, to overcome the backwardness of current information of our country.

Building and developing the national data bank on technology transfer, intellectual property, basic survey data on natural resources and potential Science and Technology

- Promote the dissemination of information about the application of new technologies to users, focused business information services, rural development, areas far.

c. Focus on building an organization of technology transfer activities and infrastructure of technology transfer of advanced level in the area for a number of key technology directions

Focused investment in building an organization of technology transfer activities in a number of key technology directions, ensuring that these agencies are fully equipped research, experiments, information materials, staff level science advanced in the region.

Building a lab key national advanced level of the area serves navigation technology transfer to key countries.

Set up standards of measurement quality level of contrast with the region and internationally. Promote the development of research institutions and high technology applications.

d. Mobilization and improve efficiency of financial resources for technology transfer activities

Mechanisms and policies to diversify sources of investment for technology transfer activities, encourage enterprises to invest in technological innovation, attracting foreign capital investment, use of development aid formula (ODA) for development investment KH &CN; encouraged to establish scientific and technological development funds and venture capital funds with which the state budget; ensure speed up scientific and technological information for the state budget every year.

Concentrated investment in key technology directions; for appropriate investment for basic research-oriented applications in science; make investment between the constructions of facilities - technical to train for staffs.

Build a system of criteria and methods of assessing the efficiency of investment for technology transfer activities, particularly economic efficiency - and social.

3.2.4. Creating mechanisms to the direction of policy priorities to import technology

An important factor for the development of a computer speeds up a country - it is the development of science - technology. No country entered the contingent in the developed countries do not have modern developments the picture of science - technology. Actual history has shown there are two paths to develop to science - technology. The sequential development and advocacy. According to the path of this country have gone from basic research, invention patents to research and development, application and go into business processes. The National opening for the development of mankind is to follow this path from

Europe to America. This road requires a large investment for both basic research, application and implementation, for a time invented the life and creative applications in life long, and must have an institutional liberal enough for the inquiring, creative, and only succeeded in ethnic identity has advantages superior innovation. That means that not every country followed this path can be successful, but only a few - some European countries - (UK, France, and Germany) and the United States ..., also most other countries have not followed this path.

The second path - imported scientific research - technology, innovation, application and development. The move follows what is not wild start from basic research to deployment to the invention Now the bicycle, automobile, ... Which is wise to import the prototype bike, car, innovation, innovation design, import of invention patent applications in research and implementation (imported here should not be simply to buy, easy to buy because the new technology that in many ways: investors Foreigners brought in, people overseas to Vietnam on ...) East Asia, from Japan to South Korea have followed this path and succeeded for a shorter period of time.

Vietnam sure to take the second route development strategy of science and technology. Unfortunately, the strategy and policy development of science technology in Vietnam so far this direction but has been mentioned, but no way be considered mainstream science and technology development in Vietnam. Time to come here, work on new technologies needs to be emphasized in this direction, this is the key to restructuring activities of technology innovation.

The policy recommendations proposed:

a. Use policies to attract key talent and abroad

To want to attract talent from abroad, first to use critical talent in the country. Once the talent is not important domestic use, then the foreign talents are not on, because they know they will not be in the right. Today's financial market world market is a relatively free one. All developed countries have policies in the right talent, discovering talents from small, focused training from schools; the regime has created favorable conditions for their research and development, creative and treatment special. The least developed countries and not have a consistent policy of talents should have a flow of talent from these countries to developed countries, especially the flow of America. Millions of talented students from developing countries were studying in developed countries and successful, but not return to the country. This situation made the shortage of talent in developing countries has increasingly serious and more serious.

Vietnam is in the situation like other developing countries - lack of a policy in the right talent attractive enough.

The most important policies in the key talent that is used to create the most favorable conditions so they can work, can be creative, can see the creativity to be applied in life, is ... Investment to recognize the talent in the right direction is the most profitable investment. Thus leading corporations spent millions to find talent hunt all over the world and to use their paid salaries, bonuses for the million people this year. Very simply invest in this will be the least risk, would most profitable.

Policy in the right talent in Vietnam have access to important policy use of talents in the world, to see them in the right talent how to we can learn, from experience and implement a policy of critical use advantages over superior talent. No policy in the right talent is true science - technology developed, and so the country can not be carried over. Policy in the right talent is not only a top national policy, but also policies of any business.

Vietnam is a country are limited to developing talent, so have the policies to attract foreign talents attractive enough to turn our country's future is the convergence of scientific talent -- Technology International. This is an important premise development of the country. Talent recruitment policy at the national level is most important. Most underdeveloped countries have no policy of selective high-level talents appropriately, should not ts head of the country even less financial and faith, and is the most important reason for their underdeveloped. Actual world that selection mechanisms that competes and is a highly effective mechanism.

b. Creating incentive mechanisms, to encourage active import ideas developed

The idea of developing a diversified, but the idea may be to develop strategic, at the macro, but there are ideas developed in the micro; have ideas for economic development, science and technology, also developed ideas on planning, design, market, ...

The underdeveloped countries are the lack of ideas to develop one, and one of the most important reasons for their underdevelopment. Vietnam, too, is a lack of ideas to develop. The cause of this situation has much, mainly due to lack of institutions necessary to travel in, select and implement the idea in Vietnam. In these institutions, the institutions for tests, taking actual results to convince deployed widely than is essential. The idea of developing a modern market economy that humanity is now time to accumulate a lot, Vietnam is only a fraction applies certain. The idea of business planning, design ... extremely rich, diverse, Vietnam has not reached much.

Practice in some developed countries that they have successfully applied the method of the consulting firm hired leading consultants, planning, design, Reviewer ... This is a method of

selecting ideas effective national economy. The form of international conferences, organize study groups to survey and make abroad ... forms are also commonly applied. Therefore, mechanisms and policies need time to this strong support for infrastructure, laboratories and venture capital for these activities.

c. Promote the activities of importing patent inventions and modern technology

In the list of importers of Vietnam so far has no items imported patents, inventions, which means that Vietnam could not import the patent invention in practice. List of machinery and equipment in relatively large 20-30% of the total import turnover, but the draft is outdated machinery; simple reason is that countries generally sell the machinery that they can not use more effectively. The invention patent by key programs for the State to provide annual is too little, poor. This is a warning; because Vietnam does not own creative inventions are not importing the invention patents, only import of machinery and equipment obsolete, how economic development can be effective, shorten the development gap. One indicator shows that the actual ICOR index of Vietnam in the last decades has only increased not decreased, and the highest level in the area.

Why Vietnam does not import with invention patent? The answer is certainly in economic institutions has encouraged Vietnam to import patent inventions, applied research and implementation. Too few corporations, corporations have research centers and deploy applications. But they can be centers of business and real estate securities. Corporations and the State Corporation have enough potential new capital, the people to establish centers of research and implementation, but they have no need. Their needs as "money" rather than development.

Most of the world centers of research and development of corporations, companies. They were fiercely competitive pressures have arisen in applying the technology, so they have set up research centers implemented to enter the patent applications of inventions to create new products, new productivity.

The conditions above, Vietnam is able to act as:

- Research institutions issued a new incentive to import patent inventions, research and application in Vietnam in the direction of tax exemption, credit and support necessary premises, etc...
- State investment in a research center applications to import an invention patent, application and commercialization.
- To encourage corporations to establish centers of research and application of new technologies in Vietnam.

d. Continue to promote the adjustment of the whole system of science and technology towards Vietnam imported science - the application of foreign technology into Vietnam

- Transfer direction of basic research, not only for basic research but the research base for the applications of technology import.

- Orientation of research institutes, schools must also be adjusted in this direction.

- Capital investment in science and technology and higher concentration adjusted this direction.

Highly concentrated, high priority for the direction of scientific import, advanced technology abroad may have lasted about two decades a new science and technology enough to turn Vietnam into foreign-domestic resources, innovation system of Vietnam , shorten the period of science and technology with developing countries.

3.2.5. Increased awareness and capacity of enterprises for technological renovation

In the current development trend and requirements to improve business capabilities to realize innovative technology here does not mean training, teaching business knows why technological innovation, which in This should help companies determine the requirements as follows:

- Must-oriented business development and long-term clear;
- Be wary of the information technology related to each area, the area of the business;
- To mobilize the resources to invest in technology development;
- Must accept risk;
- Create network cooperation within and among departments and outside good;
- Must raise and flexible to absorb the technology;
- Ensure flexibility in management;
- Strengthen and diversify the skills and adapt to new conditions.

CONCLUSION

REFERENCES

APPENDIX

APPENDIX 1: Legal System

- Decree on 175/CP in April 29, 1981 agreement on economic collaboration and implementation techniques;

- Decision No. 134-HDBT in August 31, 1987 the Council of Ministers on a number of measures to encourage science and technology;

- Law on Foreign Investment in Vietnam in 1987 and the Decree, the text, the Law amending related, including provisions on ensuring industrial property rights, ensuring the legitimate interests of the foreign investors in technology transfer activities;

Documents on the management of Science and Technology:

- Law on high Tech in November 13, 2008 regulations on high-tech activities, policies and measures to encourage, promote high-tech activities.

- Law on Information Technology in June 29, 2006 regulations on the application and development of information technology, measures to ensure the application and development of information technology, rights and obligations of agencies, organizations and individuals involved in activities to develop applications and information technology.

- Intellectual Property Law issued in November 29, 2005 regulations on copyright and related rights to authors and industrial property, rights to plant varieties and the protection of those rights.

- Law on Science and Technology 2000 defined scientific and technological organizations, individuals operating KH &CN; to organize the sciencific and technological activities.

- Circular No. 02/2007/TT-BKHCN in March 12, 2007 of Ministry of Science and guiding the implementation of some articles of Decree No. 127/2004/ND-CP of the Government in May 31, 2004 regulations administrative violations in the sciencific and technological operation.

- Decision No. 03/2007/QD-BKHCN in March 16, 2007 the Minister of Science and Technology, promulgating the Regulation on registration, storage and use of results of sciencific and technological tasks.

- 04/2007/QD-BKHCN in March 19, 2007 Decision of the Minister of Science and Technology amending and supplementing some articles of the Regulation evaluate acceptance test subject for the State Science and Technology ", issued together with Decision No. 13/2004/QD-BKHCN on May 25, 2004 the Minister of S & T.

- Circular No. 29/2007/TTLT-BTC-BKHCN on 03/4/2007 by the Ministry of Finance - Ministry of Science and guiding the financial management of the Program of Science and Technology of key state-level 2006-2010.

- Decision No. 08/2007/QD-BKHCN on 06/4/2007 by the Minister of Science and Technology, promulgating the Regulation on Criteria for determining the organization of Science and Technology basic research, research strategies and policies for management state.

- Decision No 61/2007/QD-TTg on 07/5/2007 by the Prime Minister on the approval of "the scientific and technological research of national key scientific and technological development of pharmaceutical 2020.

- Decision No. 36/2007/QD-BTC in May 16, 2007 the Minister of Finance promulgating the Regulation on organization and operation of the Development Fund of Science and Technology of organizations, individuals and businesses.

- Decision No. 37/2007/QD-BTC in May 17, 2007 the Minister of Finance promulgating the code list of Science and Technology program of key state-level.

- Decree No. 80/2007/ND-CP dated May 19, 2007 the Government on science and technology enterprises.

- Decision No. 13/2007/QD-BKHCN on June 12, 2007 the Minister of Science and Technology, promulgating the Regulation on the technology and equipment.

- Decision No. 115/2007/QD-TTg in July 23, 2007 of the Prime Minister promulgating the Regulation on security of radioactive sources.

- Circular No. 96/2007/TTLT-BTC-BNN on 08/8/2007 by the Ministry of Finance - Ministry of Agriculture and Rural Development guiding the management regime, using the state budget more Program the key for development and application of biotechnology in agriculture and rural development by 2020.

- Circular No. 129/2007/TTLT/BTC-BKHCN in February 11, 2007 of Ministry of Finance - Ministry of Science and Technology guiding the implementation of financial management regime for Science and Technology Development Fund countries.

- Circular No. 152/2007/TTLT/BTC-BKHCN 17/12/2007 of the Ministry of Finance - Ministry of Science and guidelines for financial management activities organized for technology and equipment (Techmart).

- Decision No. 272/2003/QD-TTg in December 31, 2003 by the Prime Minister on Strategic Development of Science and Technology Vietnam in 2010.

- Decision of the Prime Minister in November 27, 1998 No. 229/1998/QD-TTg on the addition of Article 2 of Decision No. 782/TTg of placement agencies and research and development S & T.

- Circular instructions xa 2345/1998/TT-BKHCNMT on April 12, 1998 to recognize businesses and high-tech industries operating under the Law on Foreign Investment in Vietnam.

- Circular No. 57/1999/TTLT-BTC-BKHCNMT in May 14, 1999 guiding the financial management program build models of scientific and technological applications for economic development - social and rural domain Mount period 1998-2002.

- Decision of the Minister of Industry 26/1999/BCN in May 18, 1999 on the establishment of Research Center experiments on technology transfer to food.

- Decree No. 51/1999/ND-CP dated 08/7/1999 of the Government detailing the implementation of Regulation Law on Promotion of Domestic Investment (Amendment) No. 03/1998/QH10.

- Decree No. 119/1999/ND-CP in September 18, 1999 on a number of government policies and financial mechanisms to encourage businesses to invest in S&T activities.

- Circular 1817/1999/TT-BKHCNMT in October 21, 1999 of Ministry of Science, CN and Environment guiding the implementation of special projects to encourage investment provisions of paragraph 7 of List I, Appendix 1, Decree 10/1998/ND-CP.

- Circular No. 1818/1999/TT-BKHCNMT in October 21, 1999 of Ministry of Science, CN & MT guidance on identifying and recognizing the special projects to encourage investment provisions of paragraph 5 of List I, Appendix 1, Decree 10/1998/ND-CP.

- Decision No 2043/1999/QD-BKHCNMT in November 24, 1999 the Minister of Science, Technology and Environment promulgating the Regulation on organization and operations inspectors of Ministry of Science, Technology and Environment.

- Decision No. 2265/1999/QD-BKHCNMT in December 30, 1999 the Minister of Science, Technology and Environment promulgating the Regulation on democracy in the activities of S&T agencies.

- Decision No. 10/2000/QD-TTg in January 18, 2000 on the establishment of the Management Board of Hoa Lac Hi-tech Park under the Ministry of Science, Technology and Environment.

- Decree No. 02/2000/ND-CP of the Government on February 3, 2000 business registration.

- Decree No. 03/2000/ND-CP dated March 2, 2000 the Government guidance on some of the Enterprise Law.

- Decision No 19/2000/QD-TTg in March 2, 2000 by the Prime Minister on cancellation of permits contrary to the provisions of the Enterprise Law.

- Decision No. 332/2000/QD-BGTVT in February 17, 2000 promulgating the Regulation on the temporary management, exploitation, ensuring road traffic safety Lang-Hoa Lac.

- Circular No. 03/2000/TT on 02/3/2000 by the Ministry of Planning and Investment guiding the order and procedures for business registration in accordance with the provisions of Nghji No. 02/2000/ND-CP dated 03 / February 2000 the Government on business registration.

- Decree No. 06/2000/ND-CP on 06/3/2000 of the Government on investment cooperation with foreign countries in the field of medical treatment, education and training, scientific research.

- Decision No. 199/2000/QD-TTg on 07/3/2000 by the Prime Minister on the establishment of the Steering Committee proposal to build a new life management mechanism S&T.

- Decision No. 38/2000/TTg in March 24, 2000 Prime Minister's amendment and supplement certain provisions of Decision No. 551/TTg on 08/8/1996 by the Prime Minister on the management of national target programs.

- Decree No. 12/2000/ND-CP dated 05/5/2000 on amendment and supplement some articles of the regulation on management of investment construction promulgated Decree No. 52/1999/ND-CP on 08/7/1999 by the Government.

- Resolution No. 07/2000/NQ-CP on 05/6/2000 by the Government to construct and develop the software industry 2000-2005.

Documents on transfer of technology:

- Government Decree No. 45/1998/ND-CP dated 01/7/1998 detailed regulations on technology transfer.

- Circular No. 139/1998/TTLT-BTC-BKHCNMT on October 23, 1998 guiding the regime of collection, management and use of appraisal fees and fees for registration of contracts of technology transfer.

- Government Decree No. 12/1999/ND-CP dated 06/3/1999 on sanctions against administrative violations in industrial property.

- Circular No. 1254/1999/TT-BKHCNMT in July 12, 1999 guiding the implementation of Decree No. 45/1998/ND-CP dated 01/7/1998 detailed regulations on technology transfer.

- Decision No. 1693/1999/QD-BKHCNMT in January 10, 1999 the Minister of Science, Technology and Environment promulgating the Regulation on the evaluation of technology transfer contracts.

- Circular No. 825/2000/TT-BKHCNMT on 03/5/2000 by the Minister of Science, Technology and Environment guiding the implementation of Decree No. 12/1999/ND-CP dated 06/3/1999 on sanctioning administrative violations in industrial property.
- Decree No. 16/2000/ND-CP in May 10, 2000 of the Government on handling administrative violations in the field of State management of technology transfer.
- Technology Transfer Act promulgated in 2006, the Law on Intellectual Property issued in 2006.

APPENDIX 2: LIST OF TABLES

***Table1*: Investment Expenditure for Science and technology research and development**

Unit: VND million

Indicators	2000				2004				2007			
	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs
Investment Expenditure for Science and technology research	**1.283.781**	**914.701**	**354.639**	**14.441**	**1.701.298**	**138.785**	**1.555.519**	**6.994**	**621.616**	**414.277**	**204.193**	**3.146**
I. Investment expenditure for research and development	**95.078**	**35.256**	**59.072**	**750**	**1.301.991**	**20.130**	**1.278.767**	**3.094**	**369.752**	**306.966**	**60.347**	**2.439**
1. Agriculture, Forestry, an Fisheries sector	**1.937**	1.937	-	-	**764**	764	-	-	**2.925**	2.207	588	130
2. Indsutry and construction sector	**53.900**	21.816	31.334	750	**1.248.556**	10.094	1.235.508	2.954	**246.324**	205.295	38.720	2.309
- Mining industry	**2.702**	*725*	*1.977*	-	**180**	*150*	*30*	-	**53.282**	*53.242*	*40*	-
- Manufacturing industry	**22.138**	*10.159*	*11.229*	*750*	**31.665**	*8.491*	*20.220*	*2.954*	**179.995**	*139.058*	*38.628*	*2.309*
+ Processing industry	**5.031**	*2.118*	*2.913*	-	**12.122**	*5.017*	*6.370*	*735*	**18.543**	*11.140*	*7.403*	-
3. Trade and service sector	**39.241**	11.503	27.738	-	**52.671**	9.272	43.259	140	**120.503**	99.464	21.039	-
II. Investment expenditure for innovation	**1.082.986**	778.839	290.456	13.691	**381.804**	115.465	262.674	3.665	**192.827**	71.183	120.964	680
1. Agriculture, Forestry, an Fisheries sector	**13.894**	13.894	-	-	**197**	197	-	-	**33**	-	33	-
2. Indsutry and construction sector	**698.263**	467.940	217.237	13.086	**196.942**	45.495	147.854	3.593	**110.470**	68.963	40.827	680

- Mining industry	**167.792**	*166.531*	*1.261*	-	**-**	-	-	-	**28.567**	*23.523*	*5.044*	-
- Manufacturing industry	**415.230**	*220.084*	*182.060*	*13.086*	**73.496**	*1.546*	*68.357*	*3.593*	**79.849**	*43.465*	*35.704*	*680*
+ Processing industry	**152.440**	*93.583*	*45.866*	*12.991*	**36.153**	*486*	*35.067*	*600*	**7.477**	*1.258*	*6.019*	*200*
3. Trade and service sector	**370.829**	297.005	73.219	605	**184.665**	69.773	114.820	72	**82.324**	2.220	80.104	-

Table 2: TOTAL OF SCIENCE AND TECHNOLOGY STAFF

Unit: person

Indicators	2000				2004				2007			
	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs
TOTAL	**286.243**	**149.292**	**131.556**	**5.395**	**557.119**	**243.223**	**253.416**	**60.480**	**16.955**	**5.861**	**10.474**	**620**
1. Agriculture, Forestry, an Fisheries sector	**10.482**	9.977	497	8	**19.251**	16.123	1.970	1.158	**569**	457	99	13
2. Indsutry and construction sector	**160.276**	84.979	71.389	3.908	**281.299**	125.812	107.478	48.009	**9.358**	4.268	4.608	482
- Mining industry	**5.674**	*4.389*	*1.250*	*35*	**9.348**	*6.419*	*2.663*	*266*	**523**	*480*	*43*	-
- Manufacturing industry	**108.454**	*51.111*	*54.011*	*3.332*	**180.685**	*72.598*	*61.740*	*46.347*	**7.227**	*3.183*	*3.571*	*473*
+ Processing industry	**19.978**	*9.649*	*9.923*	*406*	**23.047**	*10.365*	*9.193*	*3.489*	**807**	*256*	*528*	*23*
3. Trade and service sector	**115.485**	54.336	59.670	1.479	**256.569**	101.288	143.968	11.313	**7.028**	1.136	5.767	125

Table 3: NUMBER OF PROGRAMS, RESEARCH THEMES

Unit: Number of subjects

Indicators	2000				2004				2007			
	Total	**SOEs**	**POEs**	**FOEs**	**Total**	**SOEs**	**POEs**	**FOEs**	**Total**	**SOEs**	**POEs**	**FOEs**
TOTAL	**1.439**	**806**	**626**	**7**	**1.889**	**555**	**1.185**	**149**	**985**	**405**	**491**	**89**
1. Agriculture, Forestry, an Fisheries sector	**98**	98	-	-	**4**	4	-	-	**89**	84	2	3
2. Indsutry and construction sector	**986**	534	445	7	**1.064**	500	418	146	**626**	305	235	86
- Mining industry	**14**	*14*	-	-	**8**	*6*	*2*	-	**40**	*40*	-	-
- Manufacturing industry	**566**	*219*	*340*	*7*	**553**	*134*	*273*	*146*	**563**	*244*	*233*	*86*
+ Processing industry	**162**	*38*	*124*	-	**268**	*108*	*91*	*69*	**90**	*30*	*58*	*2*
3. Trade and service sector	**355**	174	181	-	**821**	51	767	3	**270**	16	254	-

Table 4: number of initiatives are applied

Unit: Number of works

Indicators	2000				2004				2007			
	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs
TOTAL	**6.597**	**4.791**	**1.731**	**75**	**8.926**	**1.097**	**7.722**	**107**	**6.002**	**5.279**	**649**	**74**
1. Agriculture, Forestry, an Fisheries sector	**808**	808	-	-	**11**	11	-	-	**18**	13	5	-
2. Indsutry and construction sector	**4.316**	2.983	1.258	75	**3.192**	438	2.693	61	**5.261**	4.746	441	74
- Mining industry	**122**	*92*	*30*	-	**33**	*6*	*27*	-	**2.174**	*2.170*	*4*	-
- Manufacturing industry	**2.575**	*1.539*	*961*	*75*	**2.159**	*199*	*1.899*	*61*	**3.027**	*2.519*	*434*	*74*
+ Processing industry	**624**	*341*	*213*	*70*	**1.705**	*164*	*1.541*	-	**198**	*73*	*124*	*1*
3. Trade and service sector	**1.473**	1.000	473	-	**5.723**	648	5.029	46	**723**	520	203	-

Table 5: Revenue of enterprise

Unit: VND million

Indicators	2000				2004				2007			
	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs
TOTAL	**312.995.964**	**186.649.582**	**121.585.325**	**4.761.058**	**728.610.655**	**414.535.420**	**234.858.033**	**79.217.203**	**257.672.612**	**203.137.789**	**39.301.826**	**15.232.997**
1. Agriculture, Forestry, an Fisheries sector	**5.499.927**	4.973.839	526.088	-	**2.430.159**	2.043.749	197.146	189.264	**2.145.424**	2.084.622	53.988	6.814
2. Indsutry and construction sector	**185.710.351**	89.678.675	91.565.541	4.466.136	**371.606.802**	224.346.030	82.799.033	64.461.739	**208.303.308**	165.674.091	27.752.222	14.876.994
- Mining industry	**6.334.269**	5.856.792	471.276	6.201	**12.561.404**	12.038.130	479.100	44.174	**100.221.831**	100.113.447	108.384	-
- Manufacturing industry	**152.419.258**	61.183.335	87.320.844	3.915.079	**295.449.363**	168.679.105	64.960.204	61.810.054	**100.896.975**	60.692.247	25.365.707	14.839.021
+Processing industry	**42.561.728**	21.049.277	21.096.704	415.746	**68.153.243**	40.717.584	17.895.635	9.540.024	**12.132.273**	6.250.272	5.767.983	114.018
3. Trade and service sector	**121.785.686**	91.997.068	29.493.696	294.922	**354.573.695**	188.145.641	151.861.854	14.566.200	**47.223.880**	35.379.076	11.495.61	349.189

Table 6: NUMBER OF ENTERPRISE ENPENSE FOR SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT (R & D)

Unit: Number of Enterprise

Indicators	2000				2004				2007			
	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs
TOTAL	**618**	**378**	**235**	**5**	**445**	**64**	**367**	**14**	**269**	**122**	**137**	**10**
I. Investment expenditure for research and development	**348**	**190**	**156**	**2**	**286**	**42**	**234**	**10**	**182**	**86**	**90**	**6**
1. Agriculture, Forestry, an Fisheries sector	**19**	19	-	-	**2**	2			**12**	8	3	1
2. Indsutry and construction sector	**196**	101	93	2	**137**	24	104	9	**123**	68	50	5
- Mining industry	**7**	*5*	*2*	-	**3**	*1*	*2*		**7**	*6*	*1*	
- Manufacturing industry	**129**	*64*	*63*	*2*	**91**	*17*	*65*	*9*	**109**	*56*	*48*	*5*
+ Processing industry	**32**	*18*	*14*	-	**32**	*9*	*20*	*3*	**16**	*6*	*10*	
3. Trade and service sector	**133**	70	63	-	**147**	16	130	1	**47**	10	37	
II. Investment expenditure for innovation	**398**	**250**	**144**	**4**	**197**	**28**	**162**	**7**	**120**	48	67	5
1. Agriculture, Forestry, an Fisheries sector	**20**	20	-	-	**1**	1			**2**		2	
2. Indsutry and construction sector	**232**	138	91	3	**79**	11	63	5	**82**	40	37	5
- Mining industry	**8**	*6*	*2*	-	**-**				**10**	*8*	*2*	
- Manufacturing industry	**155**	*88*	*64*	*3*	**47**	*4*	*38*	*5*	**67**	*29*	*33*	*5*

+ Processing industry	**40**	*23*	*16*	*1*	**13**	*2*	*10*	*1*	**14**	*6*	*7*	*1*
3. Trade and service sector	**146**	92	53	1	**117**	16	99	2	**36**	8	28	

Table 7: RATIO ENTERPRISE IN INVESTMENT FOR SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT(R & D)

Unit: %

Indicators	2000				2004				2007			
	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs
TOTAL	**100,00%**	**61,17%**	**38,03%**	**0,81%**	**100,00%**	**14,38%**	**82,47%**	**3,15%**	**100,00%**	**45,35%**	**50,93%**	**3,72%**
I. Investment expenditure for research and development	**56,31%**	**50,26%**	**66,38%**	**40,00%**	**64,27%**	**65,63%**	**63,76%**	**71,43%**	**67,66%**	**70,49%**	**65,69%**	**60,00%**
1. Agriculture, Forestry, an Fisheries sector	**3,07%**	**5,03%**	**0,00%**	**0,00%**	**0,45%**	**3,13%**	**0,00%**	**0,00%**	**4,46%**	**6,56%**	**2,19%**	**10,00%**
2. Indsutry and construction sector	**31,72%**	**26,72%**	**39,57%**	**40,00%**	**30,79%**	**37,50%**	**28,34%**	**64,29%**	**45,72%**	**55,74%**	**36,50%**	**50,00%**
- Mining industry	**1,13%**	**1,32%**	**0,85%**	**0,00%**	**0,67%**	**1,56%**	**0,54%**	**0,00%**	**2,60%**	**4,92%**	**0,73%**	**0,00%**
- Manufacturing industry	**20,87%**	**16,93%**	**26,81%**	**40,00%**	**20,45%**	**26,56%**	**17,71%**	**64,29%**	**40,52%**	**45,90%**	**35,04%**	**50,00%**
+ Processing industry	**5,18%**	**4,76%**	**5,96%**	**0,00%**	**7,19%**	**14,06%**	**5,45%**	**21,43%**	**5,95%**	**4,92%**	**7,30%**	**0,00%**
3. Trade and service sector	**21,52%**	**18,52%**	**26,81%**	**0,00%**	**33,03%**	**25,00%**	**35,42%**	**7,14%**	**17,47%**	**8,20%**	**27,01%**	**0,00%**
II. Investment expenditure for innovation	**64,40%**	**66,14%**	**61,28%**	**80,00%**	**44,27%**	**43,75%**	**44,14%**	**50,00%**	**44,61%**	**39,34%**	**48,91%**	**50,00%**
1. Agriculture, Forestry, an Fisheries sector	**3,24%**	**5,29%**	**0,00%**	**0,00%**	**0,22%**	**1,56%**	**0,00%**	**0,00%**	**0,74%**	**0,00%**	**1,46%**	**0,00%**
2. Indsutry and construction sector	**37,54%**	**36,51%**	**38,72%**	**60,00%**	**17,75%**	**17,19%**	**17,17%**	**35,71%**	**30,48%**	**32,79%**	**27,01%**	**50,00%**

- Mining industry	**1,29%**	**1,59%**	**0,85%**	**0,00%**	**0,00%**	**0,00%**	**0,00%**	**0,00%**	**3,72%**	**6,56%**	**1,46%**	**0,00%**
- Manufacturing industry	**25,08%**	**23,28%**	**27,23%**	**60,00%**	**10,56%**	**6,25%**	**10,35%**	**35,71%**	**24,91%**	**23,77%**	**24,09%**	**50,00%**
+ Processing industry	**6,47%**	**6,08%**	**6,81%**	**20,00%**	**2,92%**	**3,13%**	**2,72%**	**7,14%**	**5,20%**	**4,92%**	**5,11%**	**10,00%**
3. Trade and service sector	**23,62%**	**24,34%**	**22,55%**	**20,00%**	**26,29%**	**25,00%**	**26,98%**	**14,29%**	**13,38%**	**6,56%**	**20,44%**	**0,00%**

Table 8: RATIO OF INVESTMENT FOR SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT OF ENTERPRISE'S EXPENDITURE (R & D)

Unit: %

Indicators	2000				2004				2007			
	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs	Total	SOEs	POEs	FOEs
TOTAL	**0,41%**	**0,49%**	**0,29%**	**0,30%**	**0,23%**	**0,03%**	**0,66%**	**0,01%**	**0,24%**	**0,20%**	**0,52%**	**0,02%**
I. Investment expenditure for research and development	**0,03%**	**0,02%**	**0,05%**	**0,02%**	**0,18%**	**0,00%**	**0,54%**	**0,00%**	**0,14%**	**0,15%**	**0,15%**	**0,02%**
1. Agriculture, Forestry, an Fisheries sector	**0,04%**	**0,04%**	**0,00%**	**#DIV/0!**	**0,03%**	**0,04%**	**0,00%**	**0,00%**	**0,14%**	**0,11%**	**1,09%**	**1,91%**
2. Indsutry and construction sector	**0,03%**	**0,02%**	**0,03%**	**0,02%**	**0,34%**	**0,00%**	**1,49%**	**0,00%**	**0,12%**	**0,12%**	**0,14%**	**0,02%**
- Mining industry	**0,04%**	**0,01%**	**0,42%**	**0,00%**	**0,00%**	**0,00%**	**0,01%**	**0,00%**	**0,05%**	**0,05%**	**0,04%**	**#DIV/0!**
- Manufacturing industry	**0,01%**	**0,02%**	**0,01%**	**0,02%**	**0,01%**	**0,01%**	**0,03%**	**0,00%**	**0,18%**	**0,23%**	**0,15%**	**0,02%**
+ Processing industry	**0,01%**	**0,01%**	**0,01%**	**0,00%**	**0,02%**	**0,01%**	**0,04%**	**0,01%**	**0,15%**	**0,18%**	**0,13%**	**0,00%**
3. Trade and service sector	**0,03%**	**0,01%**	**0,09%**	**0,00%**	**0,01%**	**0,00%**	**0,03%**	**0,00%**	**0,26%**	**0,28%**	**0,18%**	**0,00%**
II. Investment expenditure for innovation	**0,35%**	**0,42%**	**0,24%**	**0,29%**	**0,05%**	**0,03%**	**0,11%**	**0,00%**	**0,07%**	**0,04%**	**0,31%**	**0,00%**

1. Agriculture, Forestry, an Fisheries sector	**0,25%**	**0,28%**	**0,00%**	**#DIV/0!**	**0,01%**	**0,01%**	**0,00%**	**0,00%**	**0,00%**	**0,00%**	**0,06%**	**0,00%**
2. Indsutry and construction sector	**0,38%**	**0,52%**	**0,24%**	**0,29%**	**0,05%**	**0,02%**	**0,18%**	**0,01%**	**0,05%**	**0,04%**	**0,15%**	**0,00%**
- Mining industry	**2,65%**	**2,84%**	**0,27%**	**0,00%**	**0,00%**	**0,00%**	**0,00%**	**0,00%**	**0,03%**	**0,02%**	**4,65%**	**#DIV/0!**
- Manufacturing industry	**0,27%**	**0,36%**	**0,21%**	**0,33%**	**0,02%**	**0,00%**	**0,11%**	**0,01%**	**0,08%**	**0,07%**	**0,14%**	**0,00%**
+ Processing industry	**0,36%**	**0,44%**	**0,22%**	**3,12%**	**0,05%**	**0,00%**	**0,20%**	**0,01%**	**0,06%**	**0,02%**	**0,10%**	**0,18%**
3. Trade and service sector	**0,30%**	**0,32%**	**0,25%**	**0,21%**	**0,05%**	**0,04%**	**0,08%**	**0,00%**	**0,17%**	**0,01%**	**0,70%**	**0,00%**