DISCUSIONS ON THE ORIENTATIONS OF TECHNOLOGY IMPORTS IN VIETNAM

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Abstract:

Researches of importing technology into Vietnam focus on proactive choices concerning the basic characteristics of the technology that can enter the service of different targets, with high and low levels, many channels of technology transfer, with both breadth and depth, to take steps before and after. We were interested in importing technology and issued many policies to promote technology. However, what happens in practice is far from expectations. The analyzed and proposed orientation such as importing technologies towards to serving some important task, selecting technologies suitable for immediate development stage, diversification of channels and partners in the import of technology, simultaneously, noting important channel and strategic partners, focusing on both the breadth and depth of technology transfer, a key industry pioneer in promoting technology transfer... will improve the efficiency of use of technology in our country in the coming period.

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Technology imports have important implications for the development of the country. International studies have indicated that technology imports from the outside into the country are an essential way for developing countries to accomplish advanced and modern technologies in order to improve their competitiveness and develop new industries. In the meantime, practical experiences in the world and in Vietnam have recently revealed that technology imports are such a complicated issue that needs to be clearly identified its basic orientations as the foundations for determining specific solutions. The paper would like to discuss some of the orientations on technology imports that might be suitable for Vietnam in the coming period.

1. Technology imports serviced toward the implementation of some important tasks

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Technology imports play a decisive role in improving the level of technology capacity of the country and its competitiveness to others, which contribute to the development of the economic structure towards industrialization- modernization and are important inputs for technological learning process.

This orientation consists of the following main issues:

First, in our country, in the short run, technology imports have a number of implications:

- To improve the level of the country's technology capacity and its competitiveness to other countries. By using imported technologies, well qualified products that satisfy national and export standards would be produced with rational prices, enhancing the competitiveness of the products and the product producers in both domestic and foreign markets;
- To contribute significantly in the process of building and developing a proper economic structure for the country's economic development, on the basis of promoting all advantages and optimal usages of national resources. In Vietnam, due to conditions in which the economy is still at a low level of development with underdeveloped level of technology compared to other countries in the region and worldwide, one of the most important factors to achieve the goal of economic development with a high and consistent rate is a must to import new, high technologies that meet the requirements of industrialization and modernization of the country;
- The imported technologies are important inputs for the process of technological learning. Accessibility to foreign technological innovation sources is critical for the process of continuous learning and capturing of technologies;
- Technology imports allow overcoming the limitations of domestic technology supplies;
- One of the causes for the lag between countries is due to their failure or success in grasping the opportunities of technological learning from the outside. After a long time period of missing these opportunities, Vietnam has been lagging behind. Vietnam might be further lagged behind if the coming opportunities continued to be missed.

Second, in spite of these above implications of technology import, it also requires a number of efforts to overcome considerable challenges. These include the difficulties and challenges that have been practically exposed

during the implementation, such as the capacities of domestic enterprises on technology imports, the appropriation of imported technology level, the position in technology imports, and the level of coordination between line ministries in technology import management…

Third, the emphasis on the significance of technology imports and corresponding responses are advisable based on both international studies and actual practice in Vietnam. International experiences proved that many countries, which have succeeded on economic development, has focused on promoting the role of technology. In our country, the success and limitations of technology imports have affected all aspects of the economy. The causes to these limitations may include the lack of a clear perspective on the role of technology imports in the country's development in the period of carrying out the targeted industrialization, modernization and international integration; and the lack of high determination of involved sectors and stakeholders to overcome the difficulties and challenges hindering technology imports into the country.

2. The selection of appropriate technologies for short-run development stage

To select imported technologies suited to the specific conditions of each development stage in Vietnam. To be dynamic and proactive on upgrading technology imports on the basis of improving technology import capacities in the country and improving the position of Vietnam in technology transfer.

This orientation consists of the following basic issues:

First, there are different levels on imported technologies. These levels require corresponding conditions in different stages of development. International studies experienced that many countries' efforts are all towards the development of high technologies, however, there has been still a strong differentiation since each country has to figure out their suitable sectors and levels of technologies suited to each development stage.

Second, in our country, an appropriate level of imported technologies is often discussed on two aspects: the economic, social and environmental efficiency and the desire to develop the technological level of the country. Imported technologies have to ensure to improve economic efficiency, technical and technology proficiency of the country, shortening the distance to those of the world. Once the technologies are transferred into the country, they must satisfy the requirements in both economic aspects (such as payback, increasing in profits, increasing in competitiveness, expanding markets for products...), and social efficiency (social income), as well as

effective exploitation and utilization of the country's natural resources and environmental protection. On the other hand, these technologies also need to reach at such an advanced and modern level enough to gradually upgrade the technology level of our technology to an average level of the world, preparing for higher stages of development.

It is useful to emphasize that the demand and the capabilities on technology imports would depend on the level of development. In the period from now to 2020, there might be some changes in the demand and the capabilities on technology imports of the country; however, in overall, they might not be improved fundamentally. The capabilities of technology imports are also quite diverse are differentiated by the types of businesses, industries and industrial sectors. We need to pay attention to many diversed technological levels in the economy.

Third, the improvement in the level of technology imports would depend on the process of changing the premised elements. The level of technology imports could be proactively upgraded through the efforts on improving technology import capabilities of our country. The difference between these phases of development would much depend upon these efforts. The stage in technology imports of the country is determined through a number of rationales:

- The demand and the capabilities on technology imports would depend upon the level of development. The level of development would determine the demand on importing compatible technologies, including: the type of imported technologies (high or low, license or equipment...), the purpose of usage (for production and business in practice or for technical innovations that promote the endogenous technological innovation level)... The types and levels of technology import capacities are different and correspond to different level of development. The relationships between the level of economic development, science and technology and technology import (via the demand for imported technologies and technological capacity) are quite clear. The stages of import technology policies are related the phases of technology import activities, which is governed by the level of economic development, S&T;
- Imported technologies are both appropriate to the current demand and towards the future technological capacity building. Regarding to the demand on technologies, imported technologies are applied in production and business and solve current issues; imported technologies that aim to create endogenous technological capacity are partly towards the future technological capacity building. Regarding to import

technology capacity, besides of effectively building technological capacity at present, there is also a preparation of technological capacity building for the future;

- The features of each phase in import technology policy are represented simultaneously in viewpoint, goals and solutions. It is possible and necessary because these features of phasing are quite prominent in technology imports.

Fourth, the appropriateness to the stage of development has important implications in determining the policies on technology imports in the country. If these policies are closely based on the conditions which are associated with the development stage, they would be clearer, more specific and provide better performance. Positioning on the stages of development is also a basis for policy adjustments when moving from this stage (low) to another stage (higher). This means the improvement in import technology policies could be actively created.

Fifth, there is a need to increase in importing of high technologies, core technologies and invention patents. It is necessary to focus on some key technology categories - which are the basic/important technologies that enable to create new products and industries. These basic/important technologies are milestones marking each stage of development (rather than the quantity of technologies imported in general).

It should be emphasized that the imports of high, core technologies are also consistent to the development orientation to 2020, which have been identified in a number of government documents. For example, "In terms of technology search and transfer to Vietnam, the priorities are given for core technologies and advanced technologies which are oriented by policies and strategies of development in the field of national science and technology"[2],...

3. Diversification of channels and partners, particularly important channels and strategic partners

Diversification the channels of technology imports and the partners on technology transfer; at the same time, focus on improving the efficiency of main channels of technology transfer, and actively building and strengthening strategic partnership in technology transfer.

This orientation consists of the following basic issues:

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Firstly, many channels of technology imports and partners of technology transfer exist in reality. They may be considered as opportunities that should be taken advantage of learning technologies while building relationship with foreign partners.

The diversification of technology import channels and technology transfer partners is related to the diversification of the matters and the objectives of technology transfer in the country. The diversification of technology transfer matters includes the transfer of production hardware (such as materials, products or machinery) and the transfer of documents on organization of production (i.e. the documents used for management of the production, such as regulations to run a company, construction management, human resource management and financial control); and the transfer of skills on production. The diversification of technology transfer objectives includes access to new machinery and technology; access to foreign financial resources; perspectives to increase productivity and productivity; modernization of production procedures; access to advanced skills of management; access to world markets and job creation.

Secondly, besides of diversification, it is necessary to increase the activeness in choosing appropriate technology import channels and technology transfer partners. Channel selection depends on the nature of the technology, the strategies of the transferring partners, the strategies and capacities of the transferee. The newer and more advanced the technologies are, the higher the power of monopolistic supply increases and the higher the value of ownership is. The transfer of technologies depends on how subjective the transferring partners are; in many cases, the technology is only in the form of direct investment. The diversification must be coupled with the selection; a good selection of potential partners will lead to optimal results. This will only be achieved based on understandings of the strengths and weaknesses on technology of individual industrial countries and multinational corporations, their attitudes on economic and political relations with Vietnam and their intentions in technology transfer for Vietnam.

Third, focus on improving the efficiency of some main channels (especially the technology import channels via foreign investments and trade relations) and building strategic partnerships have currently been not only the requirements of practice in the country, but also consistent to the policy of promoting intensive integration in the coming period. The improvement of the efficiency of some important technology import channels and actively build strategic partnerships in technology transfer is the highlighted feature,

which created new developments in the technology import policies into the country.

Fourth, it should be emphasized that these issues are also compatible with the viewpoints that were expressed in a number of issued orientations of development. For example, "To diversify export markets" and "To develop and strengthen the strategic cooperation partners" (viewpoints stated in the Decision No. 2471/QD-TTg dated on 28/12/2011 of the Prime Minister *on the approval of the Strategy on exports in the period of 2011-2020, towards 2030*).

4. Extensively and intensively focus on technology transfer

To promote the expansion of technology import scales, as well as (gradually) facilitate technological innovation for the development of endogenous technological capacities.

This orientation has the following basic content:

First, the increase in the quantity of imported technologies directly meets the growing demand of the enterprises on the use of technologies in their business and production. The increase in the amount and the scale of technologies can be measured by the following indicators, such as:

- The rate of increase in the value of imported technologies compared to the previous period. Although the imports in general need to be reduced for balancing of export-import[3], technology imports still need to be maintained at a high growth rate in the coming period;
- The proportion of technology imports' value in the total value of imported goods in general. The proportion of technologies should be increased in the total imports into the country. This share has currently been very modest (about 20%). The share of machinery, equipment, facilities and technologies was targeted at 36% of total imports (in the "Strategy for the development of exports and imports in the period of 2001-2010"); however, this share was actually ranged between 17-18% in the period of 2007-2010.

The increase in the scale of technology import in the country over the next period would be associated with the increase in demand for technology imports from the domestic economy, which is linked to the promotion for

[3] The objectives stated in Decision No 2471/2011/QD-TTg dated on 28th December 2011 of the Prime Minister on the approval of the *Strategy on exports and imports of commercial goods in the period of 2011-2020, towards 2030* are that "The growth rate of exports is aimed to be lower than that of imports; the average growth rate of imports of goods targets to be 10-11% /year in the period 2011-2020, that rate in the period of 2011-2015 targets to be under 11% /year; and less than 10%/year in the period of 2016-2020".

industrialization and modernization process. Experiences have proved that there is a certain proportion between the increase in technology imports and economic development in the direction of industrialization and modernization. In our country, industrial development have been promoted with the objectives identified in the Decision No. 879/QD-TTg dated on 09th June 2014 of the Prime Minister on the approval of the Strategy on Industrial Development of Vietnam towards 2025 with a vision to 2035, and the Decision No. 880/QD-TTg dated on 09th June 2014 of the Prime Minister on the approval of the Master Plan on the development of Vietnam's industrial sectors towards 2020 with a vision to 2030.

Another evidence demonstrated the needs of technology imports is the rate of technological innovation and equipment, which reached about 20% /year during the period of 2015-2020, according to the objectives of the Resolution No. 20-NQ/TW dated on 31st October 2012 of the 6th National Congress of the Communist Party session XI on the development of science and technology to serve for the process of industrialization and modernization in conditions of socialist-oriented market economy and international integration, and the Decision No. 418/QD-TTg dated on 04th November 2012 of the Prime Minister on the approval of the Strategy on the Development of Science and Technology in the period of 2011-2020. In addition, the increase in the scale of technology imports in the country is also due to the increase in technology import capacities, the development of the economy and experiences accumulated through practices, as well as the expansion in integration of Vietnam to the world,...

On the other hand, the development of science and technology in the country will increase the sources of technology supplies and reduce the demand for technology from external sources. The experiences in many countries have shown that the tendency in increased usages of technologies, which are created domestic, over the imported technologies. This is the process to reduce the country's dependence on external technologies. In Vietnam, in the coming period, a part of endogenous technologies would increase to replace the corresponding part of imported technologies. It was demonstrated partly in the objectives, such as: "The trading value of S&T market is targeted to increase by an average of 15%/year"[4], "The trading value of S&T market is targeted to increase on an average of 15-17% /year"[5]; "To increase the annual value of S&T products and services traded

[4] Resolution No. 20-NQ/TW dated on 31st October 2012 of the 6th National Congress of the Communist Party session XI-th on the S&T development to serve for the process of industrialization and modernization in conditions of socialist-oriented market economy and international integration.

[5] Decision No. 418/QD-TTg dated on 04th November 2012 of the Prime Minister on the approval of the Strategy on the Development of S&T in the period of 2011-2020

on the market with an average of not less than 15% and of not less than 20% for some high prioritized technologies"[6],...

Second, in addition to direct use in the operation of production and business, imported technologies have significant meanings as subjects for innovation and technological improvement, contributing to the development of endogenous technologies. This aspect could be considered as intensive development of technology imports, improving the efficiency of capital investment of technology imports.

In our country, the viewpoints such as: "acquisition of S&T achievements in the world, at the same time, while promoting endogenous S&T capacities"[7], "taking advantage of external resources to effectively leverage internal resources. Internal resources must become core and dominated while external resources play important role"[8]... should be further thoroughly followed in order to achieve these results in practice.

Third, the facilitation on innovation, technological innovation and development of endogenous technologies from the imported technologies has been reflected in the number of imported technologies that are further improved and innovated, and the number of endogenous technologies generated from imported technologies.

The followers usually carry out the development of imported technologies in these sequential steps: purchasing of the technology, step by step to gradually improving and mastering the technology, mastering the technology on the basis of research and development. Through these steps, the improvement and technological innovation from the imported technologies and the development of endogenous technologies could be visualized. Endogenous technologies are also understood as the technologies which are created through R&D activities in the country.

The dominant factors include:

- The demand and the ability to absorb the imported technologies, which has gradually improved and increased in the process of promoting industrialization and modernization. The demand for technological innovation of the imported technologies would not only meet current

[6] Decision No. 2075/QD-TTg dated on 11th August 2013 of the Prime Minister on the approval of the Program on the Development of S&T Market to 2020.

[7] The Strategy on the Development of S&T in Vietnam until 2010 (which was issued in the Decision No. 272/2003/QD-TTg dated on 31st December 2003 of the Prime Minister.

[8] The Directive No. 07/CT-BBCVT dated on 07th July 2007 of the Minister of Post and Telecommunications on the Strategic Orientation on the Development of Information Technology and Communications of Vietnam for the period of 2011-2020 (referred to as "Take-off Strategy").

requirements, but also prepare in advance for the next periods. The facilitation of technological improvements of the imported technologies and the gradual development of endogenous technologies from these imported technologies in our country must be consistent with the development level of the country in the coming period;

- The capacity on technological innovation of the imported technologies and the development of endogenous technologies from the imported technologies would increase hand in hand with the development of the industries. Specifically, the relevant policies are the goals targeted in the Project on international S&T integration by 2020, which was approved by the Prime Minister in the Decision No. 735/QD-TTg dated on 18th May 2011, which states that: "By 2020, the S&T organizations and enterprises in a number of key prioritized areas are capable of cooperation with foreign partners and capable of acquisition, mastering and technological innovation; some of the R&D results in key, prioritized areas in Vietnam established positions in the regional and world market";
- The technology import capacity should be strengthened to be able to import the technologies to facilitate the improvement and renewal (negotiation capacity, financial capacity,...). Between imported technologies for use in the manufacture and import of technology to improve, innovation may have certain differences from the selection of imported technologies identified, negotiations on the rights to import technology,...

5. The pioneering spearhead industries in promoting technology transfer into Vietnam

Importing technology in spearhead industries should be take one step forward and play a pioneering role in enticing the development of technology imports of other sectors.

This orientation has the following basic content:

Firstly, while the import of technology in our country is basically limited, technology imports in key industries should go ahead, make a difference in the level of technology imports, the level of improvement and innovation of imported technologies,...

Going ahead of importing technologies in the sector is necessary and possible because requirements of development goals of key industries - the sectors are considered as going straight to the advanced and modern. Maybe key industries often reveal the demand for importing advanced, modern

technology and open up an opportunity for improvement, innovation imported technologies. At the same time, this is a sector which is facilitated to invest resources for development, including the resources for importing technology, improvement and innovation imported technology.

International experience shows that technologies imports depend on the characteristics of the economic sector and the subjective intentions of the State. Thus, in a country, at a time, imported technologies differ across sectors. Spearhead industries often have outstanding results in importing technology and is a pioneer of other sectors in attracting technologies from outside, as the main technology from the outside,... because of following reasons:

- As the leading industry in the industrialization and modernization, therefore, they have more demand and capacity to absorb new, high-tech technologies. These demand and capacity have the effect of promoting technology imports;
- Connect closely between new technology and high technology - which is the technology sector is growing strongly, the spearhead industry has the opportunity to improve imported technologies, from imported technologies develops endogenous technologies...
- Spearhead industries have ability to strongly develop and export for earning foreign currency. It facilitates resources to import through foreign investment channels,...
- Spearhead industries are developed by with policies to encourage and support including policies related directly and indirectly to imported technology.

Secondly, import of technology in key industries plays pioneered role to induce to import technology in other sectors. The content of importing technology in key industries are exploring new avenues and creating new model of technology imports for industrialization - modernization in our country; creating faith in the ability to apply the new method of importing technology; the others spread among importing technologies in key industries and economies.

Thirdly, leading and pioneered role of technology imports in spearhead industries will face to many difficulties, challenges and need great efforts from relevant parties. It is necessary to specify the content and meaning of going ahead and pioneering role of technology imports in spearhead industries to unify and coordinate action with the corresponding policy solutions.

In fact, importing technologies have not been as expected due to lack of appropriate policies[9]. There is no consistent policies because of lack of the anticipated perspectives of technology imports in spearhead industries. This is some matters need to overcome in the near future.

The important role of technology imports associated with the complexity of the operations of technology, there are many different types depending on the different orientations... From the lessons dearly in recent years, we need to pay attention to the orientation as importing technologies towards to serving some important task, selecting technologies suitable for immediate development stage, diversification of channels and partners, while attach importance to the key channel and strategic partners, focusing on both the breadth and depth of technology transfer, the spearhead industry leading in technology transfer. Five orientations of technology imports are selected in accordance with the requirements of Vietnam. That is the important bases to develop specific policies on importing technologies in our country./.

REFERENCES

In Vietnamese:

1. Phan Xuan Dung. (2004) *Transfer of technology-Reality and Solutions*. Hanoi, National Political Publishing House.
2. Ngo Ha. (2013) *Technology transfer from foreign investment projects: Wait step spurt effective and practical*. Journal of Finance, No. 3/2013.
3. Nguyen Thi Tue Anh. (2015) *Technology transfer at the enterprise level in Vietnam*. Journal of Science and Technology of Vietnam, No. 9/2015.
4. Tran Dinh Thien. (2015) *The work of industrialization, modernization and development of science and technology in Vietnam: the relationship and the problems posed*. Policy Council National Science and Technology. Gather Bulletin reports on Development Policy of Science and Technology, No. 1/2015.
5. Hoang Xuan Long. (2014) *Overcoming technological dependence*. Journal of Science and Technology of Vietnam, No. 15/2014.

In English:

6. Juan Blydem. (2004) *Maurice Kugler and Ernesto Stein, Exporting vs Outsourcing by MNC subsidaries: Which determines spillovers?* Southampton University.

[9] There are some orientations such as "Developing mechanism, policies to encourage enterprises to import modern technologies, key industries, fields foremost, to quickly apply into production, business for generating new products with high add value" (Decision No 418/QD-TTg dated 11th April 2012 by Prime Minister on approving S&T development Strategy, 2011 – 2020 period), however, the concretization seems to face many challenges…

7. Conference Summary. (2005) *Science, technology and globalization: Challenges and opportunities for international cooperation. International Conference on Globalization of Research and Development*. Grado, Italy, 9/2005.