

ENHANCEMENT OF EFFECTIVENESS OF POLICIES TO PROMOTE THE TECHNOLOGICAL INNOVATION BY BUSINESSES

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Abstract:

Technological innovation has become a leading priority and decisive factor for success of businesses in market economy and prosperous development of the nation. In practice, however, for successful technological innovation, in addition to their own capabilities, businesses need State support to reduce risks in innovation process. Through qualitative and quantitative studies and use of primary and secondary data, this study is to show clearly: (i) Overview of effectiveness of policies to promote technological innovation by businesses, (ii) Assessment of effectiveness of policies to promote technological innovation by businesses through feedbacks from Hanoi businesses as beneficiaries of these policies, and (iii) Proposal of solutions to enhance effectiveness of policies to promote technological innovation in conformity to Vietnam context.

Keywords: Effectiveness of policies; Technological innovation.

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1. Overview of studies on policies and effectiveness of policies to promote technological innovation by businesses

Actually there exist numerous studies on policies to promote technological innovation by businesses in general and the effectiveness of policies in particular which are based on different research methodologies and approaches [2,3,5,7,8,9,10,12,13,14]. These research works give important and active contributions to theories and practice for improvement of policies to promote technological innovation by businesses during recent time. In this study, the authors provide proposals and assessments of indicators which reflect the effectiveness of policies to promote technological innovation by businesses on basis of policy targets and feedbacks from

businesses (using *Liker 5 scale*), assessment by experts in field of technological innovation for State issued policies to promote technological innovation by businesses, and then provide proposals for solutions to enhance the effectiveness of policies to promote technological innovation by businesses.

Policies for technological innovation are, in fact, the State intervention to impact the process of technological innovation, and at the same time they are related to R&D activities for technologies [16]. By this way, the State makes impacts to technological innovation by businesses to create favorable environment and/or eventual supports for businesses to conduct fast activities of technological innovation on basis of orientations compatible to global objectives of the country. In this study, *“Policies to promote technological innovation by businesses are understood as the global set of concepts, principles, norms, targets, solutions and tools used by the State to promote the technological innovation by businesses in order to enhance effective activities of production and business and contribution for the national development”*.

Policies to promote technological innovation by businesses do not exist as a single policy but as a system of policies. In fact, there exist many approaches for classification of policies (in terms of time-based impacts, issuing institutions, tools, administration level and etc.). In this study, policies are classified by tools of policies. According to it, in order to achieve the targets to promote technological innovation by businesses, the State usually uses three groups of main policies, namely: (1) policies for creation of institutional environment, (2) economic policies, and (3) policies for training, information and propaganda.

- Policies for creation of institutional environment to promote technological innovation by businesses are understood as the way the State makes direct impacts through the systems of documents, legal regulations, organizational mechanisms and staffs to promote technological innovation by businesses, and to contribute to conduct the State administration for technological innovation in certain time periods;
- Economic policies to promote technological innovation by businesses are the way the State makes impacts on basis of economic benefits to promote investment for technological innovation by businesses and to contribute to conduct the State administration for technological innovation in certain time periods such as incentive policies of taxation, policies for credits and direct supports, and etc;

- Policies for training, information and propaganda to promote technological innovation by businesses are understood as the way the State makes impacts to awareness of businesses. Businesses would come to realize the urgent needs of technological innovation. At the same time, the State offers supports for training of human resources, information and consultation for realization of technological innovation. On this basis, businesses would be aware and pro-active for investment for technological innovation.

In order to achieve the targets of enhancement of effectiveness of policies to promote technological innovation by businesses, this study proposes the theoretical framework for study of policies to promote technological innovation by businesses on basis of overview of studies

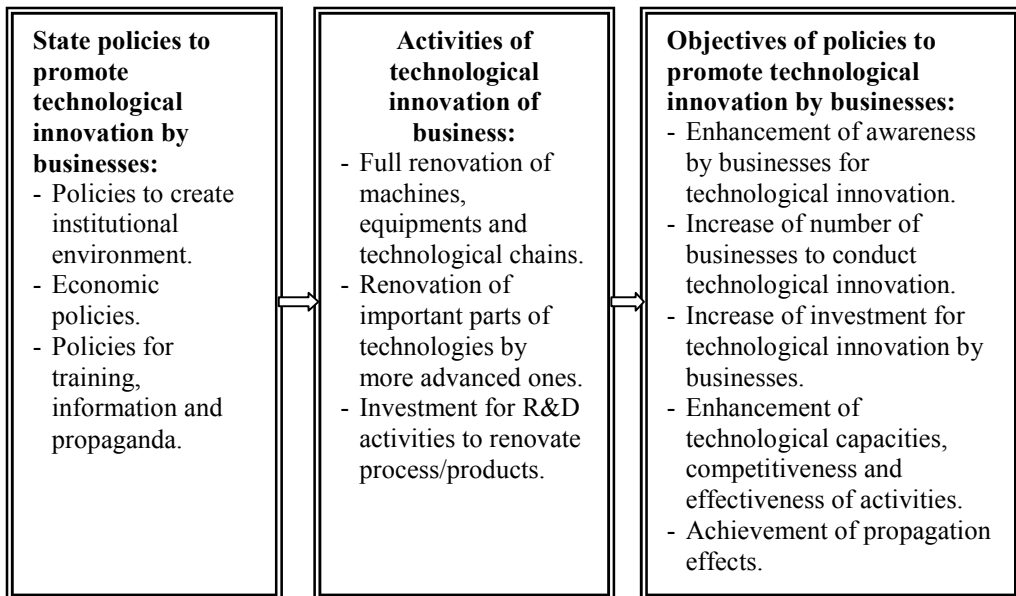


Figure 1: Framework of studies on policies to promote technological innovation by businesses.

Effectiveness of policies is the comparison of inputs and outcomes of policies. The effectiveness of policies is measured by:

$$\text{Effectiveness} = \text{Outcomes/Inputs}$$

Therefore, the effectiveness of policies to promote technological innovation by businesses is evaluated by the comparison of actual outcomes achieved by policies to promote technological innovation by businesses in comparison to inputs of policies. It is a complicated work to evaluate the effectiveness of

policies because it is difficult to measure directly or to quantify inputs of as well as outcomes from policies for businesses. In practice, it is impossible to get exact figures of costs and outcomes of policies. Therefore, the effectiveness of policies to promote technological innovation by businesses are evaluated through 4 indicators, namely: (1) knowledge of businesses about State policies to promote technological innovation by businesses; (2) awareness of businesses about necessity of investment for technological innovation in order to enhance the competitiveness of businesses, (3) investment rate of businesses and the number of businesses doing technological innovation; and (4) global evaluation of the effectiveness of policies to promote technological innovation by businesses.

2. Evaluation of the effectiveness of policies to promote technological innovation by businesses

The objectives of the evaluation work are to identify strong and weak points and remaining things to do with existing policies related to technological innovation. Then proposals will be made for revision, completion and improvement of existing policies or for issue of new policies for a better promotion of technological innovation by businesses.

The evaluation work of policies to promote technological innovation by businesses can be carried out by various organizations and individuals with different indicators of reference. This study provides an assessment based on knowledge and feedbacks from businesses towards policies to promote technological innovation by businesses which were issued from 2000 to 2012. In this, the effectiveness of policies to promote technological innovation by businesses is evaluated through the following 4 indicators.

First, Knowledge by businesses of State policies to promote technological innovation by businesses. Surveys were made for 119 Hanoi based businesses and the results were assessed by SPSS 16 software, namely:

- 90.8% of surveyed businesses have certain knowledge of legal and regulatory documents through various channels (52.1% from websites of the Government, central and local organizations/agencies, 47.9% from media, 34.5% from conference/workshop/exhibition, 39.1% from legal/information aid organizations/agencies, 35.5% from other channel such as professional associations/agencies). The average score of time of access to information is 2.96 where 17.6% have very fast access, 30.3% have fast access, 15.1% have middle access time, 13.4% have low access and 14.3% have a very low access;
- Though there is a high number of businesses to know about legal and regulatory documents (90.8%), but there are also limitations in

interpreting and applying their contents. 4.2% of businesses do not know contents, 24.4% know contents but do not clearly understand them, 47.9% know clearly contents but fail to use them, 15.1% know clearly contents and use them moderately. Only 8.4% know well contents and use them regularly (average score 2.99).

Second, Awareness by businesses about the necessity of investment for technological innovation to enhance competitiveness of businesses. Survey outcomes show high level of awareness of the 119 Hanoi businesses (see Table 1). The highest score is for the necessity of quality of human resources for technological innovation (average score 4.118) and the lowest score is for organizational structure for technological innovation (average score 3.672).

Table 1: Awareness of Hanoi businesses on necessity of investment for technological innovation

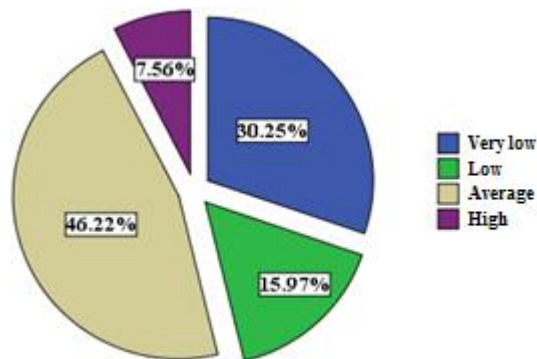
No.	Awareness of businesses on necessity of investment for technological innovation	Average score	Deviation
1	Improvement/new investment for existing technological lines	3.832	0.8059
2	Research and development of new products/procedures	4.109	0.8212
3	Enhanced capacity of human resources for technological innovation	4.118	0.8354
4	Organizational structure for technological innovation	3.672	0.9752
5	Global view of awareness of businesses for activities of technological innovation	3.790	0.6873

Source: Outcomes of surveys conducted by the authors

Third, Investment rate by businesses and the number of businesses doing technological innovation. Survey outcomes about investment rate for the last three years show that 87% of interviewed businesses confirm the increasing trend of investment for technological innovation such as improvement of technological lines, research and development of new procedures/products, organizational re-structuring and information updating works for technological innovation and intellectual property rights. However, the investment/turnover rate remains limited. Only 9.24% made investment for technological innovation more than 2% of turnover, 12.61% made investment from 1 to 2% of turnover, 31.09% made investment from 0.5 to 1% of turnover and 47.06% made investment lower than 0.5% of

turnover for technological innovation. It is a modest figure for national scale (e.g. 5% for India and 10% for South Korea).

Fourth, Global assessment by businesses on the effectiveness of policies to promote technological innovation by businesses which is seen through enhanced technological capacities, competitiveness and effectiveness of activities of businesses as well as propagation effects of technological innovation. Survey outcomes (Figure 2) show that 30.25% of businesses give a very low score for effectiveness of policies to promote technological innovation by businesses issued by the State from 2000 to 2012, 15.97% give a low score, 46.22% give a medium score and only 7.56% give a high score (average score 2.311 and deviation 0.989).



Source: Survey Results

Figure 2: Effectiveness of policies to promote technological innovation by businesses

The effectiveness of policies to promote technological innovation by businesses, therefore, is evaluated as low middle level. The causes may be listed as follows:

First, Policies to improve the institutional environment remain limited. Namely, (1) Low level of coordination in issue, enforcement and evaluation of policies for technological innovation (42.9% of Hanoi based businesses agree with this remark). There is no coordination mechanism between Ministry of Science and Technology (MOST) and line ministries and local administration in agreement of contents for science-technology (S&T) activities and, as result, proved budgets were not used fully by local administrations. Particularly since the promulgation (2002) of the Budget Law, MOST guidelines have no deciding value for local administrations but the decisions by the Province/City People's Council and People's

Committee prevail for the budget allocation for S&T activities at localities; (2) State management structure has certain shortcomings and limited capacities of local administrators for matters of technological innovation. (43.7% of Hanoi based businesses agree with this remark). At the same time, the State does not have strong enough regulatory measures for application of S&T results by State budgeted businesses for their activities of technological innovation; (3) Rules are not set up for activities and exploitation of technological infrastructure for technological innovation, particularly for national key laboratories. At the same time the road map for technological innovation was not set up on basis of technological forecasts and there are no rules to oblige to carry out scheduled activities for technological innovation applied to those businesses which still use out-dated technologies; (4) There is now mechanism for supervision and assessment of businesses which get incentive priorities. Also, there is no commonly applied regulatory documents for evaluation of technological level. This type of documents would be backgrounds to rule out gradually those businesses who still use out-dated technologies and cannot meet requirements for products and environment protection.

Second, economic policies, in general, are not strong enough to promote businesses to carry out technological innovation. Namely, (1) in order to get direct support from the State according to Resolution No. 119/1999/ND-CP dated 18 September 1999 by the Government, businesses need to pass a long lasting (about one year) process of consideration and approval. Then, only after completion of the project of technological innovation, they would get the financial support designated for implementation of the completion. Therefore, there exists certain delay of policies behind the needs of businesses for technological innovation. Policies, in fact, do not create driving forces for businesses when they submit applications for supports. At the same time, the support volume is not evaluated as high by businesses; (2) Criteria and indicators are not yet set up for assessment of incentives advantages such as support measures by taxation, credits, direct supports. There is no also clear regulation of maximal rates of expenditures by businesses for technological innovation.

Third, policies for training, information and propaganda to promote technological innovation by businesses remain still very modest. Namely, (1) Coordination between central and local organizations is not good in terms of training and propaganda in order to enhance qualification and awareness about benefits from activities of technological innovation for environment and development of the country; (2) The network of

organizations which can provide services of consulting, training and information about technologies remains underdeveloped. So businesses may lack information about technologies which impact decisions of businesses for technological innovation.

3. Solutions for enhancing the effectiveness of policies to promote technological innovation by businesses

In close future time, the State should have more suitable solutions to enhance the effectiveness of policies to promote technological innovation by businesses. Namely:

3.1. Group of institutional solutions

Revising regulatory documents related to activities of technological innovation then to set up the road map of technological innovation for businesses on basis of foresight of technologies. It is necessary also to force businesses to carry out technological innovation if businesses actually in use cannot meet requirements of environment, product quality and cause impacts to common interests of the society.

Consolidating coordination links between ministries, sectors and local governments in promotion of technological innovation by businesses which would secure the legal conformity of businesses in activities of technological innovation.

Improving the State management mechanisms for technological innovation by businesses in two directions. *First*, Improvement of the existing State management mechanisms, and *Second*, Setting-up of a State management structure for technological innovation in future in order to issue policies of technological innovation by businesses on basis of a S&T Committee or a Committee for Technological Innovation under the Government.

Enhancing capacities to control those businesses which get benefits for technological innovation and, at the same time, to build up criteria and indicators to evaluate impacts of policies of technological innovation to businesses after three years of implementation. Then the State would make amendment and revisions to meet in time concrete conditions of businesses, fields, localities, socio-economic development conditions and international cooperation trends.

3.2. Group of economic solutions

Establishing a two-direction permanent information channel between taxation offices and businesses through which businesses can give fast

feedbacks, troubles and problems as well as proposals related to procedures for getting incentive advantages for technological innovation. From another side, taxation offices would provide supports and consulting services as well as improvements to meet expectations of businesses. However, the State needs to set up indicators to measure the effectiveness of taxation incentives for technological innovation to avoid doubling supports.

Encouraging to set up independent appraisal organizations of projects including investment projects for technological innovation. They would provide banks and credit organizations with necessary information on projects of technological innovation as well as provide consulting service for access to procedures, volumes, terms and interest rate of loans. This move would help to settle the relations between technological innovation as loan users and financial organizations as loan providers.

Improving institutional frameworks and encouraging the establishment of S&T development funds, venture investment funds to create chances for businesses to mobilize capitals from these funds for technological innovation. Also, administrative procedures of selection and approval of projects for incentive credits should be revised and amended to be simpler, more extended and encouraging participation of non-Government organizations. Mortgages, credits and financial guarantees should be renovated for businesses.

State sponsored supports should be provided (up to 80%) to stimulate the promotion of technological capacities of businesses in technological R&D projects which are proposed by businesses and which cannot be realized in Vietnam for technological innovation. In these efforts, the authority agencies should control well targets to be achieved, schedule of implementation, schedule of released budgets, organization of implement, management and monitoring activities.

3.3. Group of solutions for training, information and propaganda

Supporting, from the State side, to organize training courses to enhance awareness of the communities of businesses about activities of technological innovation by businesses, particularly for managers, directors and leaders of businesses. These courses should be conducted by experts in fields of technologies, environment, technological policy makers, State management agencies and, as results, businesses should have a higher awareness for technological innovation and may change their minds for future investments for technological innovation.

Constructing publicly accessible databases (Internet based) on activities of businesses where the focus should be made for the actual technological status and successful activities of businesses in technological innovation. Then, State will commend or criticize and have sanctions to deal with businesses using backward technology which lead to bad impact to environment and social benefit./.

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