

# **Innovation System in Vietnam: Opportunities, challenges and recommendation**

*Dao Thanh Truong  
Department of Science and Technology Management,  
Faculty of Management Science,  
The College of Social Sciences and Humanity,  
Vietnam National University*

## **I. Introduction and the contextual back ground**

Vietnam as a developing country and the transitional economy is experiencing the double transition. At the same time, it is moving from centrally planned economy and moving from agriculture economy to industrial economy.

The economic facing multiple challenges of globalisation, with the need to increase the competitiveness of the economy in general and firms in particular. Eventual goals of the country development is the industrialisation and modernisation in about 15 years time, while joining international economic institutions and regimes such as AFTA, BTA and in the near future WTO.

In addition, the country has aimed at achieving MDG (Millennium Development Goal), to reduce poverty and pursue equitable and sustainable of economy and society (UNDP, 2003).

As such, we are witnessing several couples of issues that come hand in hand and sometimes seem to have conflict of interests. First the long-term for goals for modernisation versus immediate need for poverty reduction. Second, the process of industrialisation versus current agro-based rural development. In the face of imminent international integration, the

requirement of international regimes seem to impact strongly the need and interests of domestic productive enterprises. The new context that sees a moving closer to market orientation also requires new kind of capability and skills. The future prosperity of the country will require a new configuration of skills, abilities, and competencies. In addition, the widespread availability and use of information and communication technologies, the speed of scientific and technological advances accelerating global competition, and much shorter product life as a consequence of changing consumer demands all contribute to the new setting of the development scene. These factors emphasise that Vietnam's successful integration into the global economy and its sustained success in international competition will depend increasingly on effective process and actors for innovation.

## **II. Key features of the national system of innovation in Vietnam**

In general, the innovation system in Vietnam has some positive features:

- To build up and maintain a substantial system of S&T personnel and institutions to carry out R&D activities.
- To set up a system of supporting organisation for innovation activity such as standardisation, quality control, IPR, information and libraries, consultancy, etc.

- To have some contribution to the production activities, although the impacts is still debatable.

Next to these, the system has several key weaknesses and problems:

- S&T personnel are numerous but weak in term of qualification, structure and location. Problem of aging, waste of research capability, etc. are notable.
- Network of S&T organisation is not structured reasonably, strong imbalance and lack of linkage with each other.
- Despite some improvements lately, poor infrastructures for research
- Quality for research is poor, far from the need of production. Very weak linkage with productive area. Research and development are not initiated from within the production need and can not serve effectively the need of the enterprises.
- System of S&T services, education and training are weak
- Management system for S&T activity need improvement
- Capability of self-adjustment and respond to change is non-existed.
- Overall, the level of development of S&T is still low compared to many countries, far from international standard, even in regional context.

Some more specific observation could be made here. First of all, the personnel classified as being involved in R&D is quite numerous. The available data and research that has been carried out indicator, however, a number of difficulties, challenges and barriers. Vietnam's existing pool of scientists and engineers is on average quite old. This age distribution is

likely to present significant limitations to Vietnam's ambitions over the medium term. In addition, many Vietnamese scientists and engineers received their training in a different era under an old moulded learning system based on an assumed linearity between science and technology, on the technology of heavy industry and on state planning and control. The aptitudes, skills and technological capabilities required for competition in the international economy are in relatively short supply (Bezanson et al., 2001).

Secondly, there are a large number of established research institutes, including many in both agricultural and industrial research. There are, however, severe constraints to their impact on industry and national economic productivity. The principle difficulty appears to have less to do with the institutes themselves than with the demand side—specifically with the relative absence of dynamic firms in Vietnam that need to draw on R&D resources in order to remain competitive and to grow. In other words, the users of Vietnam's S&T bases are not effectively pulling the provider of scientific and technological resources in directions that would enhance growth and competition. This appears to be the root cause of the weak linkages between Vietnam's mainly state-sponsored S&T institutions on the one hand and firms, including SOEs, on the other. For this reason, research in the Vietnamese national innovation system is mainly "supply driven". There is also an important constraint on the supply side: what very modest financing there is for R&D via the state budget is relatively fragmented, resulting in such small amounts being available to individual research projects as to make serious research very difficult.

The Government of Vietnam is clearly aware of these problems. Several studies of national innovation revealed that shift in social and economic orientations brought on by *doi moi* had resulted in an increased demand for technological services but that the demand was not being met, especially in SOEs, due to the sharp segmentation between production, on the other hand, and S&T institutions, on the other. The studies also highlighted the almost total absence of private input in setting national R&D priorities. Government has been attempting to respond to this situation through measures aimed at closer alignment of the national S&T systems to the need of the productive sector. Some of the main measures have included:

- Granting authority to R&D institutions to enter into direct contrasts with industry and operate like an enterprise.
- According R&D institutions much increased flexibility to develop and provide, in addition to research, a full range of services, including technology transfer, consulting services, experimental and pilot manufacturing, etc.
- Diversifying the potential for the financing of R&D, including the retaining of profits and legal authority to seek bank credit.
- Privatisation of R&D activities (i.e. removal of the previous state monopoly) and a legal frame work designed to provide enhanced protection of intellectual property rights.

For the last few year, there have been much more active attempt to reform the innovation system at the national level in adapting Vietnam's science policy and scientific research efforts to the priority tasks of Vietnam's development. The approval and preparation of S&T Strategy to 2010, the

project of reforms of S&T management mechanisms, development of technology market, international integration in S&T, etc. are some key action. This is aimed at dealing with the legacy of central planning: continuing administrative separation between teaching in university, and lack of linkage between research and industry (firms). The reform process also took place in improving the framework for innovation. Legal reforms have been undertaken in drafting many key documents such as Law on S&T, and now Law on Technology Transfer, Law on IPR, etc. Other activities in building up the national innovation system include the establishment of S&T Foundation; increasing the international cooperation and integration; sending for training young students in key areas at top international universities; and high-tech development in selected areas like ICT, BioTech, etc. with more application focus.

### **III. Opportunities, challenges and recommendations**

While acknowledging achievements in technological innovation, promoting entrepreneurship and university-institute linkages obtained during the past it must be admitted honestly that Vietnam is just at the very first stage of the process and facing many opportunities as well as challenges.

Vietnamese indicators on technological competitiveness, technological innovation ratio, technological level of product and services are very poor and slowly improved. Legal framework on technology transfer which includes regulations on technology importation, tax, and technology evaluation procedures need to be further developed to create favourable environment for businesses.

The key factor in bolstering technology innovation is to create a stable and secured business environment for firms to safely invest. Vietnamese firms

are still incompetent in market research, marketing, customer management needed to apply suitable business technology. Due to the weakness in market research, quite a few firms are vague in modernizing technology, in choosing an appropriate technology suitable for market and customers' requirement,

Among many notions of the innovation, there are several selected issues that need to be paid more attention in Vietnam

The lesson from around Asian economies is that technological learning was imperative to success and it was continuous. International factors have created numerous and quite easy opportunities for relatively low-cost industrial production sites to integrate into the world economy. The international context today is different, there has been a dramatic fall in the demand for unskilled labour and raw materials per unit of industrial production. More demand for skilled labour is increased.

An effective economic and incentive regime is also imperative to attract and retain direct foreign investment (FDI). Although FDI represented a relatively modest proportion of total investment in the newly industrialised countries, its technological effects were exceedingly large. FDI was the most important factor in opening up export markets to these economies. Research also shows that the multinationals frequently acted as demonstrators and role models for local companies. Some foreign operations were responsible for extensive training of engineers and managers, and for transferring skills. Experiences of companies like Honda Vietnam demonstrated elsewhere in this workshop reveal this. There is also evidence that local engineers trained by FDI investors left the parent firm to set up their own companies (often to supply the subsidiary with components or some kind of technical services,

thereby creating important backward linkages). As such, the learning from foreign investors begin to take place in Vietnam.

To increase competitiveness of the economy and firms, and to attract FDI, the solving problems related to IPR is critical. This could lead to a more favourable environment for doing business, not to mention about the pre-condition for entering certain institution of the international integration.

With enterprise as the centre of the innovation systems, the entrepreneurship became a crucial dimension of the competition. Demand led innovation must be the overall direction and set the tone for the whole range of activities in R&D. This is still an issue that Vietnamese innovation system need to improve.

Vietnam should also further develop financial and credit institutions which include venture capital for scientific research, new technological application investment. There must also be linkage between universities, research institutes, firms, and farmers based on government preference, support and investment. The management reform in universities and research institutes must be encouraged, realistically organized to bring out persuasive effectiveness to firms and farmers.

The linkage between science and production, between universities, research institutes and firms must be carried out more closely, publicly and effectively. This must be done in the on-going business reform as well as scientific and technological reform. Firms must be put in domestically as well as internationally competitive environment and monopolistic firms must be supervised closely by impartial criterion. Only via this method has active entrepreneurship been encouraged. The technological system must be operated via a close linkage between business, technology and reality.



Majority of Vietnamese firms are small and medium enterprises (SME), including various ownership of state, cooperative and private. Development of linkage, networking and clustering of the organisations should be able to help with increasing sustainability and competitiveness of firms via cooperation.

Related policies of “implicit” nature are at least as important as “explicit” policies. Studies in dozens of industrial countries have shown consistently that successful linkages between technological behaviour and industrial enterprises are as much determined by a country’s fiscal, trade and education policies (“implicit” S&T policies), as by the more explicit technology policies and strategies. This is even more so in the context of Vietnam where dynamic firms are the one who pull the technology, knowledge and innovation. Certainly their behaviour is decided by macro-economic setting and a range of difference implicit policies for innovation.

#### **IV. Conclusion**

Innovation system in Vietnam needs a dynamic review and adaptation to the constant and fast changes of the national and international context.

Experiences show that it takes time for the society like Vietnam to absorb the new vision and concept suggested by international experts (System of Innovation is one of such example) and turned them into own action by the local efforts. Without this slow, but firms, “policy assimilation” attempt to make changes could be short lived.

In addition, focusing only on macro innovation system probably is not enough for having a profound impact and lasting change. To turn the actions aimed at the macro level into something more concrete at the micro level with more localized and specific nature is necessary. The regional, sectoral

innovation systems seem to become more useful concept. The move toward local knowledge system with more specificity, more local content is a natural step after national innovation system.

Above all, the building and effectively operating the whole set of institutional framework is the basic for these systems. Institution building is critical in developing knowledge system, promote innovation and learning via impacting behaviour of firms managers, policy makers and investors.