

# **DISCUSSION PAPER**

## **Industry links for higher education in Vietnam: Discussion for solutions**

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**Abstract:** Industry links or university-industry cooperation is a must for university's education in general and particularly for higher education due to mutual benefits for both universities and industry/companies. In recent years, industry link is considered as one of criteria to evaluate a training program in university. Vietnam, as a less developed country with a low level of university education needs to innovate university training, especially higher education to shorten the distance with regional countries. Fostering industry links between university and industry is a strategic way to boost up the effective development of Vietnam's university education. This discussion paper is designed to discuss several issues and possible solutions to develop industry links in university's higher education.

**Key word:** Industry link, higher education, university-industry cooperation, technology management

### **1.Introduction**

Vietnam is less developed country with low level of education, especially postgraduate level and higher education. Until 2020, Vietnam has 224 universities and 236 colleges in which there are 5 foreign direct investment universities. However, due to low level of education, majority of postgraduates' students do not meet practical requirements from enterprises and the number of jobless students after graduation is rather high. As surveyed of 500 enterprises in Hochiminh City by 2011,

94% of new students after graduation must be re-trained by enterprises after recruitment which increases social cost (VNU, 2011).

Several reasons leading to above weaknesses in which there would be lack of industry links in university education, especially higher education. Industry links or university-industry cooperation in general is referred to the process of sharing/transferring the knowledge/technology between university and enterprises so that both sides can benefit from this process, exploring advantages of each side to generate synergy. This paper is designed to discuss several issues of industry links for higher education in university such as benefits from university-industry cooperation, solutions to boost up these cooperation in sustainable manner.

## **2.Literature review in brief**

As summarized by Carla Mascarenhas (2018), there are four research strands relating to industry links or univ-industry cooperation including (1) Absorption Capacity, Knowledge and Competitiveness in University–Industry Relations, (2) Impact of Knowledge Spill-overs on University–Industry Relations, (3) Strategic Alliances for Industry Innovation, and (4) University–Industry Cooperation.

Specifically, the researches from Leydesdorff and Meyer (2006), Enkel et al. (2009); Freitas et al. (2013a) referred knowledge transfer, production of new knowledge and technology between universities and industry through collaborative research, research contracts, or scientific consultancy, etc. Academic researches of univ-industry cooperation can be categorized into four main topics: (1) Innovation research & development (R&D); (2) Strategic alliances and technology transfer; (3) Knowledge transfer and intellectual property; (4) Entrepreneurial universities and the triple helix.

The univ-industry cooperation has made positive impacts on both sides. Ladislav Cerych (1989) indicated two main impacts of univ-industry cooperation such as (1) basic and applied researches become closer; (2) some interested fields of industry shall be encouraged such as engineering, business management, new technology as

recently while social science and humanities seems to be less developed. Therefore, it makes the imbalances within the universities and as result; some faculties were expanded while another seems to be downsized. In general, the cooperation between university community and industry or companies focuses on the knowledge transfer, technology –engineering, product development which are strongly concerned by the companies. Thank to this cooperation, both sides can have several key benefits in which, the companies can be more competitive as they may be advanced in new technology development and university can learn practical knowledge which is useful for both professors and student trainings. The key benefits of univ-industry cooperation can be illustrated by below table.

**Table 1:Benefits of motivations for university-industry-government cooperation.**

<b>Benefits</b>	<b>University</b>	<b>Industry</b>	<b>Government</b>
<b>Financial</b>	New financial sources: salary, research and programmes; Obtaining public grant.	Reducing costs; Obtaining public grants; Financial benefits; Sharing risks.	Easier to justify budgets for big science centers as ‘hidden’ benefits are obtained.
<b>Technological</b>	Access to the firm’s equipment and materials; Access to firm’s employment, scientific and technological experience.	Access to the university’s resources; Upgrading of competencies; Spin-offs from contact work; Technological advances/radical innovations; R&D collaboration projects.	Exploitation of technological spill-over
<b>Strategic</b>	Scientific breakthroughs and progress; Access to managerial experience.	Generating a database of potential employees (university students); Creating strategic alliances; More flexibility; Maintaining/Improving competitive advantage.	Possibility for the emergence of new technology-based industries; Strengthening of the regional innovation system; Increasing economic development.
<b>Motivations</b>			

<b>Educational</b>	More practical training: industrial scientists teach at the university; Contribution to knowledge diffusion; Teachers and pupils have access to new subjects with influence in the firm.	Access to the new knowledge and skills in the university laboratories.	Enhancement of the national educational system.
<b>Political</b>	Enhancement of reputation/institutional prestige; Responsiveness to government initiatives.	Enhancement of reputation; Increase in the level of national competitiveness; Responsiveness to government initiatives.	Integrated science, technology, and industrial policy.
<b>Epistemological</b>	Testing existing theories; Formulating new hypotheses; Increasing science's predictive power; Generating new paradigms; Citations/PhD theses/publications.	Access to innovative scientists; Reduced uncertainty about technological trajectories; Solving scientific problems.	Upgrading the skills base; Improving national self-esteem and consciousness; Updating the science base.

Source: Eva María Mora Valentín (2000)

### **3.Univ-Industry Cooperation in Practices**

By nature, a company is profit maximizing organization and thus, they are always looking for profits either in short/medium or long term. In order to do so, through the univ-industry cooperation, they need to focus on: (1) employing talent students and training specialized and practical knowledge for newly recruited employees, as well as re-training; (2) invest in new technology-engineering to keep their company/product competitive. Therefore, the below are typical univ-industry cooperation in practices.

#### **3.1 Exchange of lecturers/experts for professional training.**

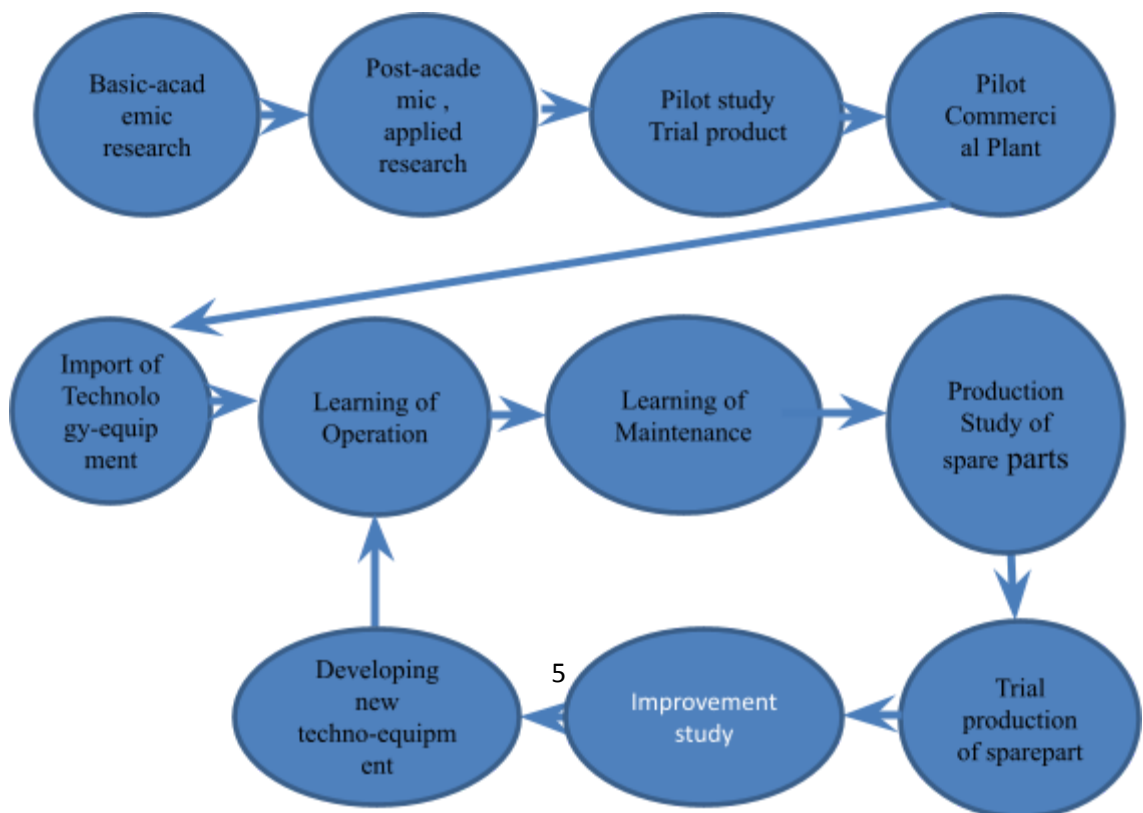
This cooperation is popular in business/management and engineering field in which both sides can set up training center to provide practical and executive training to newly recruited staff of companies. In these training, both lecturers of universities and experts from companies will work together to build shared curriculum and carry

out practical training in short time. They may cooperate to re-design the new courses to train executive/senior staff for new changes in the market/business requirement. This form of cooperation is simple and easy to develop and terminate in short time, if necessary. Both sides do not have to invest in long term and can utilize their current facilities. Lecturers and experts can learn each other and thus benefits to both. Participation of professional experts can be from the very beginning of training design work such as program and curriculum design, lecturing and training as well as student guidance in internship.

### 3.2 Cooperation in research and development (Patent/Licenses).

In order to develop new product development (NPD), companies may need to set up large R&D department with permanent experienced staff which could be more suitable for large companies because NPD contains considerable risk and consume a lot of investment capital and operating cost. The better way is to cooperate with the university and they can share research facilities and staff. The below is the general process for their technology/engineering development of NDP in which both sides can participate and synergy their efforts/resources.

**Figure 1: General process of technology/engineering development**



Source: Authors' practical experiences.

Both sides can cooperate to develop applied research, pilot study and trial production. Then, they can apply for patent/licenses and the companies normally buy it and pay to the universities. This form of cooperation takes longer time than the case of Section 3.1 and both sides can have specific benefits such as income, experiences and knowledge transfer among research team members. In addition, if they can succeed in patent application, the university may have considerable income.

However, the larger income as final result of above process is normally came from successful launching of NPD or new technology which is rooted from research cooperation. Therefore, this form is not so interested by the universities as they also expect profits in long-run. In addition, lecturers of universities also hesitates as they normally do not have right to publish their research works under research program with companies. Therefore, this form does not encourage theme enough.

### **3.3 Innovation and start-up**

This is the latest form of cooperation in which both sides set up the joint venture company which may be in the form of special purpose company (SPC) and key staff of research and innovation process can be shareholders. This company normally does NPD and would sell partial or whole company at the specific time in near future by which the NDP is deemed to be successful. Lecturer as research y and staff in this company could gain much benefits and thus they are self-motivated for the success of NPD and joint-venture company.

One of special characteristic of this company form is the high level of staff's education. Almost of staff must be high qualified technician, PhD student and

candidate and their supervisors which are normally came from both university and industry. During the process of applied research, pilot study and trial production, PhD student can be learned under supervision of both experts from industry and university professors to pursued applied researches which may not be allowed to published and the university agree to grant PhD degree under this special research process. By accepting this form of PhD training, university can attract the considerable number of high qualified staff as PhD students for joint-venture SPC.

#### **4. Recent trend in university's higher education**

Several decades recently has been watched the movement of higher education toward the more requirements of practical teaching from students and employers. The birth of business school and less-academic, but more professional training form shows this trend. Most of students prefers practical training which are closer to practice requirements of business communities so that they could have better chance in job seeking and higher income. Many master programs are designed toward problem-oriented study instead of theory-oriented one as before. Business schools have started to employed consultant experts and businessman to work with traditional professors to be involved training process from curriculum/syllabus design, lecturing, capstone/thesis guiding and evaluation, etc. For short, as **Jason Belland (2021), top five trends in higher education could be including** (1) Supporting Student and Staff Wellbeing is Critical; (2) Flexible Learning and Working Options Are Here to Stay; (3) **Student Career Pathways are Top of Mind**; (4) **Universities Explore New Business Models**; (5) **Learner and Institution Success Requires Innovation**. We could see that majority of students in higher education pays much attention on practical program that is closer to practical work which could secure them higher job opportunities and higher income.

Therefore, the university-industry cooperation should be strongly encouraged and entrepreneurial university model could be good example to follow. In such view, the industry link is critical way to forward and different

**cooperation models can be established based on actual requirements and conditions of both sides. The model of Innovation start-up with participation from university, lecturers, students and company/company's experts, and other potential investors seems to be interesting topic to be followed.**

## **5. Conclusion and Recommendations for Vietnam's higher education and university in general.**

Vietnam as less developed country with low income should be innovative in designing suitable policies which allow universities to be more proactive in form up and implement strategy toward industry links for better higher education and university education in general. Key re-design should be focused the below issue.

### **5.1 Diversifying lecture/researcher as tenure position in the University**

So far, Vietnamese universities only recruit permanent lecturer with the main duty of teaching work while requirement researching work is considered as subordinate function. It must be legally allowed the university to recruit tenure lecturers with the main duty of researching, especially post-academic research including applied, pilot and trial production toward the patent/license in specific fields which require considerable professional knowledge and experimental work. By this newly developed policy relating tenure recruitment must be innovated to encourage professional lecturer/professors to be involved teaching and researching work in the frame of univ-industry cooperation.

### **5.2 Diversifying of master/doctoral training toward professional work**

In the professional fields such as business administration, technology-engineering development, the new form of training of professional master/PhD should be accepted legally to attract high educated students to follow this track. By accepting this form of training, the market will be supplied new kind of high educated labour to boost up R&D in companies and economic development in general.



### **5.3 Legally allowing universities to form the joint venture companies**

This could be very new policies in Vietnam's university system giving the special bridge to closely keep university's education and industry development. So far, Vietnam do not prohibit the university to open the company, however, it is still unclear and thus do not encourage leaders in university to follow.

### **5.4 Policies to force companies for salaried student internship**

Internship requirements for students in Vietnam become very simple and not realistic due to lack of supportive regulations from the government. By forcing companies to recruits students and pays them legally, companies must seriously select, train them and later on, students will have better chance to expose themselves to companies and having their job. In addition, universities shall have to be active in training their students to be better fit with demand from business community.

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