

Papers

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Improving the University-Industry Linkage: a Lesson from Universities in UK for Vietnamese Higher Education Institutions

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***Abstract:** The tertiary education system in Vietnam requires step change in the light of current challenges in the higher education sector on one hand and the fast increase on economic growth on the other. The necessity of innovation and reform is in various areas such as curriculum reform, accreditation, teacher quality and alternative ways of teaching. The goals of innovation and reform in these particular areas are to improve the competency and skills of graduates required by employers. To archive such goals, establishment of a strong linkages between universities and relevant industries are essential. Increasingly, Vietnamese universities are looking for opportunities in this field and share experiences with UK higher education institutions. This paper introduces a successful project with a number of UK universities with Vietnamese institutions to assess hurdles and opportunities between universities and industry in the two countries. The project was sponsored by the British Council Vietnam in collaboration with four universities in both North and South of Vietnam and two UK universities. The research team from both Vietnam and UK has participated in various workshops attended by Deans, academic members of staff, curriculum developing administrators. The project was to collect data and to interpret the qualitative information to compare the levels of linkages and comparative analysis between universities in both countries. From this analysis, the research team determined the drawbacks of Vietnamese universities in creating effective and mutual beneficial relationships with the industry comparing with UK higher education institutions and propose some solutions for improving the current situation.*

I. Introduction

Fast pace of technological innovation, the increasing demand for innovative ideas, transfer of expertise and technical-know-how to businesses, highlights the urgent need for effective

collaboration between the universities and industries in the 21st century. Previous studies highlight the crucial role which academic researchers play in connecting academic and technical knowledge to the industrial research and development (R&D) needs (Shea, Allen, Chevalier, & Roche, 2005; Tijssen & Lamers, 2017). Developing effective industry-university linkages face various challenges including lack of an adequate management and governance structure and framework between the universities, industries and other stakeholders (Intarakumnerd & Schiller, 2009; Tijssen & Lamers, 2017). Thus, it is important to address these barriers in the early formation phase of a partnership in order to maximise the mutual benefits in the long-term. Interaction enabled through proposed project will enable academic leaders from Vietnam and UK to discuss these challenges and devise a strategy.

Connections between universities in Hanoi and industry in activities of science and technology were studied by Pham Hong Trang (Trang, 2017). Regarding exchange of human resource, this activity is often implemented. The exchange human resource involves visiting foreign professors, sending students to foreign universities, employing students to practice and work at company, joint research team, establishing laboratory of industry at university. These activities are very popular at surveyed universities in Hanoi. The research shows that the collaboration in scientific and technological activities of the surveyed universities and domestic universities/institutes, foreign universities/institutes, domestic, and industry is quite tight by 70% supported ideas from the survey. For transfer of research products, it has been conducted with BK Holdings Co., Ltd., Ralaco, Co., Ltd., LILAMA Co., Ltd. In addition, the industry supported finance for research projects, equipment to university/institute. Technology development was also considered in the collaboration. The study shows that this activity is not much popular or very rare.

Nguyen Quynh Mai (Mai, 2014) evaluated linkages between universities in Ho Chi Minh areas and industries working in manufacture, service, and commerce field. The research investigated the linkages on the support of industry to university in education; help of university recruiting, educating, researching, and transferring technology to industry; and donation of equipment from industry to university. All the assessed linkages were shown at medium level. It also revealed that the benefit resulted from the collaboration is very high for both industry and university. The study concluded that relationship between experts, entrepreneurs are keys to encourage and strengthen the collaboration.

At Can Tho city, to prompt the research activities, transfer and application of research products, a center for application of scientific and technological innovation (TTUDCT) was established in 2013. The center is an effective connector to transfer knowledge and technology from university/institute to industry. There are three models that have been applied successfully at the center (Ngon, 2018): (1) Collaboration to complete technology. The Center has collaborated with experts from universities/institutes to complete 12 technologies in industrial manufacture, agriculture, and social living, such as supply water treatment project, ION-O2 drinking water equipment, deposit treatment equipment, and smell treatment equipment. (2) Collaboration to apply researched technology. The center has worked with experts to make researched technology into application. For examples, a research named “Study for a method managing negative insects on the dragon fruit to improve quality” has been applied at Phong Dien district, Can Tho city. Some practical researches have been continued to support to implement stage under TTUDCT. (3) Collaboration between institute-university-expert. TTUDCT has been signed on the collaborative agreement with four institutes/universities, seven experts in order to boost research, application and transfer knowledge and technology in practice.

II. Research method

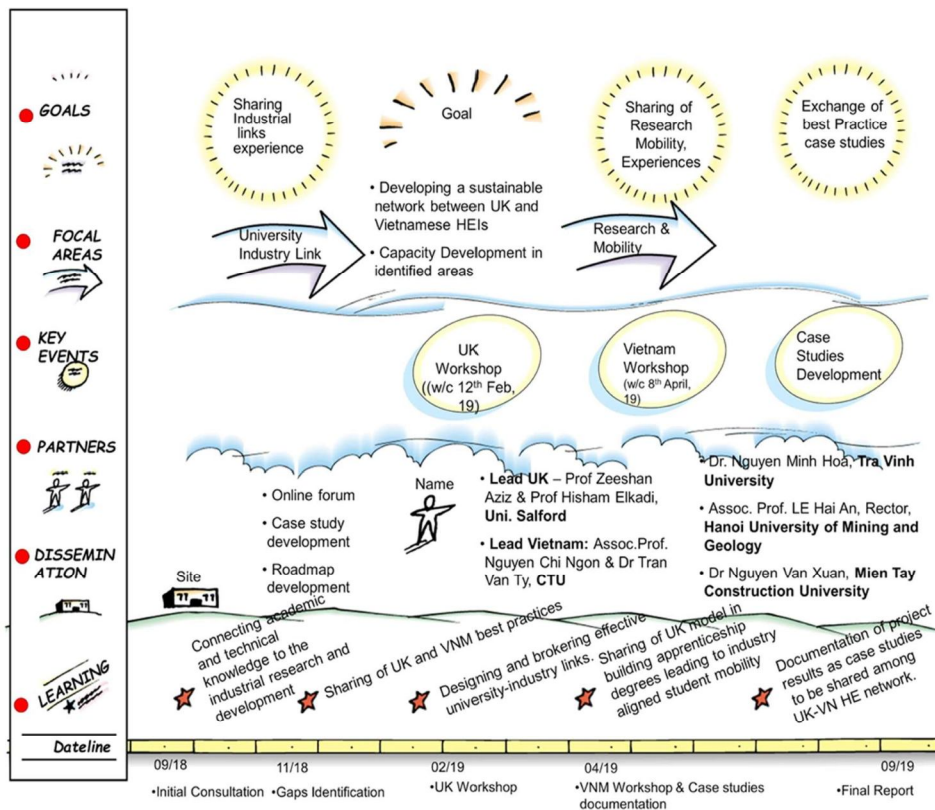
The research was implemented within a framework of a project sponsored by British Council and led by the University of Salford and Can Tho University, which aimed to enable sharing of best practices from across UK and development of case studies to facilitate wide sharing of practices across Vietnamese HEIs. With the financial support from British Council, faculty members from four different universities in Vietnam such as Can Tho University, Mien Tay Construction University, Tra Vinh University and Hanoi University of Mining and Geology have opportunities to

get experiences on linking the universities with



UK VIETNAM HIGHER EDUCATION PARTNERSHIP

Capacity Development and best practices sharing between involved UK and Vietnamese institutions in the areas of developing industry university linkages and researcher mobility



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Figure 1 Activities and objectives of the study

industry from the UK's universities such as Salford University, Manchester Metropolitan University and Cranfield University. Various models of facilitating university-industry partnership will be reviewed during workshops to be conducted in Vietnam and UK, involving collaborative research, technological support and funding and economic development (Tomas & Oein, 2014)). Project involved intense discussions during interactive workshops, to discuss Vietnamese challenges and how to adapt best practices within local operational context. This aimed to enable Vietnamese HEIs to create a R&D interface, develop supporting structures to enable knowledge transfer and research mobility (Figure 1).

This research focused on developing an interaction between participating Vietnamese and UK HEIs will help bridge the gap in building University-Industry partnerships by exploring the opportunities and addressing the key issues identified in the Vietnamese and UK context. As part of the proposed project, 2 workshops will be conducted in UK and Vietnam, allowing for sharing of best practices and suggesting ways forward to align global best practices to Vietnamese needs and operational context.

The project for the university-industry linkage is designed to identify the existing skills gaps and sharing of established UI models, with a focus on creating employment and regional mobility opportunities. In order to achieve the intended change, workshops in UK and Vietnam will be conducted to achieve following objectives; a) Developing baseline/skills gap identification and awareness of existing practices within Vietnamese HEIs; b) Sharing of best practices and developing a common vision for building effective UI partnerships; c) Developing a roadmap with tangible set of actions to achieve the set vision; and d) Production of case studies on the project deliverables/outputs for dissemination to HEIs in both countries.

This hinged on the theory of change which supports that effective collaboration through training/workshops are key requirements to improve capacity development through R&D, knowledge sharing. The main activities in this partnership include conduct of workshop and training, benefiting 60+ academic leaders from UK/Vietnamese universities. The output from the training and workshops will include an enhanced exposure of the Vietnamese institutions to UK and EU HE practices. It will also address the current skills gap in research, enhance the development of strategic relationship between the involved universities, sharing of best practices and adapting existing best practices to Vietnamese context.

Development and implementation of effective partnership models will benefit the UK and Vietnamese students, academics and the industry partners engaged to enhance a long-term sustainable university-industry partnership and graduate employment, as well as in developing a set of recommendation and policy briefs to the Ministry of Education and Training.

Furthermore, this partnership will enable the HEIs partners to have access to new knowledge, expertise, facilities and enhance the quality of their research, thus improving their institutional reputations in the global HEIs research environment. The UK and Vietnam government and commercial industries may also benefit through the translation of the innovation and research outputs from the participating HEIs into economic and societal benefits. This research will be sustained and continued through the involvement of commercial sectors from both countries who are the direct beneficiaries of the innovation and research outputs from the partner universities.

III. Research outcomes

a. The key outcomes

The research was implemented with interviewing and data collection in four different university in Vietnam such as Can Tho University, Tra Vinh University, Mien Tay Construction University and Hanoi University of Mining and Geology. The interviewing questionnaires and group discussions were aimed to get key findings in the four areas such as education, research, valorization, and management. The questionnaires and discussion topics can be seen in Appendix 1, 2 and 3. The interviews has been conducted to 38 persons who representatives of the industrial companies and the results of interviewing are in Figure 2. Based on the interviewing results, the key findings are as follows:

- Education: there are 7 activities between university and company/industry have been addressed with different connection levels. In general, the level of Education area is found to be at “neutral level”. Of which, the “strongest” level of connection is activity of “Mobility of students (e.g. student internships/placements)”. The weakest connection activity between university and company/industry is “curriculum co-delivery (e.g. guest lectures)”.

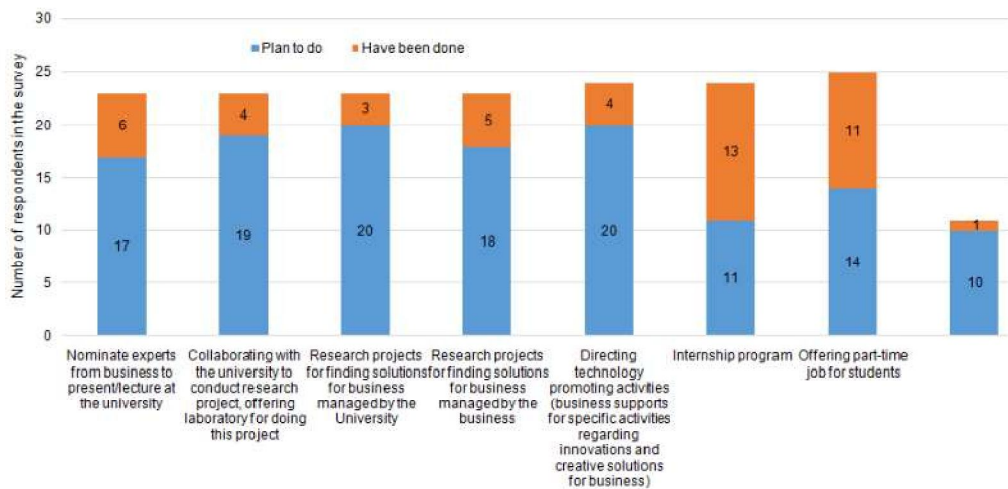


Figure 2 Interviews for industrial partners

- Research: there are 5 activities between university and business/industry have been addressed. All 5 activities of research area are addressed to be fairly good in the cooperation between university and company/industry. They are Joint R&D (incl. joint funded research), consulting to business (e.g. contract research), mobility of staff (i.e. temporary mobility of academics to business and of business people to university), Assistant supervision for students in their research projects, and Organizing annual career workshop for students (or participating in career events for students at the university).
- Valorisation: Three activities between university and business/industry have been addressed, including commercialisation of R&D results (licensing/patenting), Academic entrepreneurship and student entrepreneurship (start-ups). All activities in this area are addressed by interviewees to be low, especially the “academic entrepreneurship” seen not to be started while start-ups programmes of student have been just started recently.
- Management: Four activities between university and business/industry have been addressed, of which business people participation in universities board have been started at some universities in the preparation for autonomous progress under the

suggestion from the ministry; while the participation of academics on business boards have not been carried out. Shared resources (infrastructure, personnel, equipment) and sponsorship/scholarships supports have started since last decade.

In general, the first two categories (education and research) are the primary areas that university and companies/industries have cooperated recently. Cooperation in doing research such as organizing annual career workshop for students (or participating in career events for students at the university) and mobility of staff (i.e. temporary mobility of academics to business and of business people to universities) is the most prevalent University-Industry Cooperation in the South of Vietnam. Following by Education area, of which mobility of students (student internships/placements) is the most prevalent. In addition, the university and industry also cooperate in the areas of valorisation such as commercialisation of R&D results and student entrepreneurship, and in the area of management such as providing scholarships from company or alumni. However, they are at low level.

b. Advantages of University - Industry link under industry and university perspective

Analysing of the interviewing with industrial partners and universities' faculty members, it is possible to define a number of advantages on development of effective relations between the universities and industry in Vietnam. The list of advantages points are as follows:

Establishment of UI relationship through the alumni's system: It is easy to establish the relation between the companies/industries with the universities because of alumni links. It is from the needs of both sides where the companies/industries have practical experiences and universities have knowledge and experiences of science, technology and solutions. The connection between university and industry is very convenient, including the reason for the human resources at the industry trained by the university professors.

Preparing the employability and the readiness of graduates to the industry: Thanks to very tight connection and sharing between universities and industry, students are able to get industrial working experience through training, practicing and internships program. This improved the employability of graduates because the students are quite familiar with the working condition and environment in the industry. When students graduate, they can do a good job.

High rate of economic growth and demand for technology innovation within the industry: The demand for cooperation on scientific research and high-tech resources of industry is increasing. The trend of cooperation between industry and university will increase gradually in the future.

Hugh demands for further education: University has created good conditions for industry in part-time training for workers. In addition, university has created good conditions for industry to participate in coordinating scientific research projects/student projects co-adviser to exchange knowledge and experiences.

c. Disadvantages of University - Industry link under industry and university perspective

Big gap between the capability of university and demands of the industry: The most challenge is still the willingness of the business leader to cooperate with universities because they might not see the benefits. This is the gap between the research in the universities and the requirements for this from the industry. Sometimes, it is matter of truths. The companies are more relied on the import technologies and know-how because they do not believe in the capabilities of the universities in resolving their problems. Conversely, the level of development of industry in Vietnam are not always very high so they do not really need the technological supports from the universities.

The legal issues on the copyright and intellectual properties: The current cooperation mechanisms are not clear. Many shortcomings lead to enterprises not interested in cooperation. This is legal problem of who own the right of a technologies, universities or faculty members. Because there is still a shortage of laws and regulations on copyrights and intellectual property in Vietnam so sometimes the faculty members are more interested in setting up their own cooperation with the industry and the universities cannot take the benefits of these relations.

Awareness of the requirements and innovation of higher education programs: Training programs are sometimes outdated compared to technological advances being used in industries. This is problem of quality of lecturers and technical staffs, the practicing environment in the universities due to the lack of proper investments and the inactiveness of the faculty members.

Research and development environment for technologies and know-how transferring: There are difficulties to transfer research results to apply in industry. The environment and condition for technological maturing is not at the required level so most of the research in the universities are

stuck in the ideas and laboratory testing rather than being available for application in the practical industry. The universities lack of financial resources as well as technology applicability hunting team to incubate the research results to make it transferable.

University management issues: Management mechanism with many constraints can bring risks to those who propose innovative ideas and or related to the level of marketing and determination of university leaders.

d. University - Industry link comparisons between Vietnam and UK

The Workshops revealed that Universities across the two countries realise the importance and the speed of change in the higher education sector. There is realization that such changes require major structural, cultural, and pedagogical transformation within each university. While UK universities, in the case of UoS and KU, have made structural changes to face the demand by the industrial sectors, Vietnamese universities continue with the traditional disciplinary silos model. Partnerships with the industry remains, in the Vietnamese case, add on activities rather than an inherent objective within the University strategy that stretch across teaching as well as research. Vietnamese universities have not therefore put in place a management structure to promote, negotiate, support, and assess partnerships agreement with relevant industries. Assessments of partnerships were however lacking in both UK and Vietnamese Universities. As an outcome of the workshop, efforts are now underway to develop a credible assessment methodology that would not only benefit the Universities but also the industry.

Issues	UK	Vietnam
Willingness of cooperation between U and I	Yes	Yes
Legal basis for technology transferring and intellectual property	Yes	Not clear
Updating of educational contents in universities to industry	Yes	No
Financial resources and incubating mechanism	Partially Yes	No
Management mechanism to stimulate U-I links	Yes (UoS)	No

e. Proposals for improving the University - Industry link

In order to improve the current situation, the project revealed the need to address UI partnerships in a two main levels; the National Level and the University Level

National Level:

The innovation framework within a country plays a major role in clarifying the industrial needs and provides clarity to higher education institutions and research organisations. The publication of the UK Industrial Strategy for example, provides UK HE institutions as well as the industries with the important sectors that would support the country competitiveness. The UK Industrial Strategy was then translated into a set of sector deals and research calls that were carried out by the UK Research Institute and other research organisations. Despite the existence of the Vietnam National Innovation, such hierarchy of national objectives were not clear. In fact, very few participants have knowledge of the national priorities as expressed in the Vietnam 2030 strategy. The current Vietnam innovation framework is fragmented and needs further development to make it more visible and more relevant.

University level:

Universities need to provide a more visibility to their expertise and better market their skills and capacities. This could not only be achieved through ad hoc marketing strategies but through proper management structure that would enhance multidisciplinary approach and proper assessment tools for industrial activities. A number of UK Universities have started to look into this direction. The Industrial Collaboration Zone at the University of Salford provides a good example. Accountability, however, remains a problem in universities in both countries. Despite the structural changes at the University of Salford and Keele University for example, management of partnerships remain fragmented across Universities in UK and almost non-existence at Vietnamese Universities. Accountability requires a proper management tool, embedding the assessment not only in the feasibility of the proposed partnership but also in staff development review and promotion criteria.

IV. Conclusions

This article presents a research on the current status of university-industry links based on investigation and surveying in four universities in both South and North Vietnam. From various workshops with the deans of faculties, curriculum developing administrators, managing staffs from universities in UK and Vietnam, and the data collected, a qualitative analysis to compare the levels of linkages between the case study universities in both countries was implemented. From this analysis, the research team determined five main disadvantages of Vietnamese universities in creating effective and mutual beneficial relationships with the industry comparing with UK higher education institutions such as the lack of the willingness for cooperation between U and I, the lack of a strong legal basis for intellectual property for research within the universities, the backward of universities curriculum, unfriendly incubating environment for technology development in the universities and an ineffective mechanism for technology development. From that context, a few solutions were proposed for changing the situation at both national and university level.

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