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Higher Education's Role in Promoting Entrepreneurship and Innovation Ecosystems in Vietnam: An Evaluation of the Innovative Partnership Program

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1 Introduction

The world is experiencing a new industrial revolution that is changing the way in which people live, learn, work, interact, and relate to one another. An exponential growth in the availability of new technologies is disrupting existing value chains, while at the same time giving rise to new ways of meeting human needs. Intellectual and entrepreneurial talent have become indispensable to wealth creation. Indeed, as Schwab (2016)

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claims: "Talent, more than capital, will represent the [new] critical factor of production."

This new environment is posing challenges for universities. Traditional approaches to teaching are being displaced by digital technologies. Private corporations are establishing their own research and development capabilities. To remain relevant, universities must rapidly evolve.

A process of evolution is already evident across many OECD countries, where universities are reported not only to be cultivating closer relationships with the world of business (Gibb, 2017; Graham, 2002; Maskell & Robinson, 2001) but also to be redefining their role as one which involves making a contribution to local and national development (European Commission, 2003). The first mission of universities may be teaching, and their second mission may be research, but now they have a third mission, i.e., engaging with processes for wealth creation by society.

In general, universities in Vietnam have yet to embrace this third mission. Indeed, many of them have yet to commit to the second mission. Traditionally, universities in Vietnam have been valued for their teaching mission. The number of research-oriented universities remains small and linkages between universities and industry have traditionally been weak (see, for example, Nguyen, Nguyen, Doan, & Dao, 2017; Pham, 2013). In recent years, however, there is a growing realization in Vietnam that its higher education system needs to make a more direct contribution to national economic development by becoming more entrepreneurial.

It is against this background that a four-year Innovative Partnership Program (IPP) was initiated in 2014 by the Finnish Government,

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in cooperation with the Government of Vietnam. The IPP sought to identify ways in which Vietnamese universities could become more entrepreneurial. Insights from the IPP initiative are reported in this chapter.

2 Reviewing the IPP

The IPP, in addition to advising on the development of start-ups in Vietnam, sought to assist Vietnam with the development of entrepreneurial universities. As originally conceived (see, for example, Etzkowitz & Leydesdorff, 2000), entrepreneurial universities were higher education institutions that actively sought to commercialize knowledge, principally by selling patentable discoveries to industry. Subsequently, they were regarded as institutions hosting scholars whose research achievements could be licensed to industry through commercial partnerships, or even crystallized through the establishment of university-owned spin-off companies (see, for example, Hsu, 2007; Asterbro, Bazzazian, & Braguinsky, 2011). These universities were seen also as providing "an important social setting for students and faculty to exchange ideas, including ideas on commercial entrepreneurial opportunities" (Hsu, 2007).

Most recently, entrepreneurial universities have come to be regarded as institutions that contribute actively to the creation of cultures, practices, and opportunities likely to be conducive to innovation and entrepreneurship (see, for example, Gibb, 2017; Salem, 2014), while also exercising a training function (Carvalho, Costa, & Dominguinhos, 2010). Wright, Siegel, and Mustar (2017) refer to entrepreneurial universities in their most recent incarnation as entrepreneurship and innovation ecosystems, that is, as hubs actively engaged in coordinating a wide range of stakeholders, including students, faculty, alumni, businesses, and public authorities, for the purpose of advancing innovation and entrepreneurship at a local level. It is this most recent conceptualization that provided the inspiration for the IPP.

To implement its vision of an entrepreneurial university, the IPP established a University Collaboration Program, involving 11 higher education institutions from across Vietnam. These included: Hanoi University

of Science & Technology; Foreign Trade University; FPT University; HCMC University of Science & Technology; HCMC Open University; University of Finance and Marketing; Saigon Technology University; Danang University of Technology; Nha Trang University; Dalat University; and Hue Industrial College. These were institutions that were already, or had expressed an interest in becoming, entrepreneurial. Subsequently, two other institutions, Nong Lam University and Nguyen Tat Thanh University, joined the Program. The Management Training Institute of the Ministry of Science and Technology (MOST) participated throughout as an observer.

The participating institutions were provided with a range of opportunities to assist with their development as entrepreneurial entities. Important among these was an intensive training program provided for selected personnel from each of the participating institutions. This program initially required attendance at a two-week training "boot camp." The participants then undertook almost six months of supervised practice while engaging in curriculum development and in the conduct of institutionally based promotional activities focused on innovation and entrepreneurship. Having completed the program, the participants were supported informally while they proceeded to give expression within their institutions to the IPP vision.

Early in 2018, a review of the IPP was commissioned. To implement the review, in-depth interviews were conducted with 20 selected personnel who had played a significant role in the IPP's implementation across the 13 participating higher education institutions. Later, the interviewees contributed to two focus-group discussions about insights to emerge from their experiences. In addition, two institutional case studies were conducted, one at the FPT University and the other at the Foreign Trade University. These two institutions were selected as case studies because each has a national reputation for being strongly committed to entrepreneurship and innovation.

Two models of entrepreneurship and innovation ecosystems influenced the review. The first was Isenberg's (2010, 2011) model of an entrepreneurial ecosystem, defined as a "set of individual elements … that combine in complex ways … [to] turbocharge venture creation and growth" (2010, p. 43). The individual elements identified by Isenberg included: policy, finance, culture, support, human capital, and markets.

Universities fitted well with this model because of the importance of their role in contributing to the development of human capital. The second was Morrison's (2013) model of an innovation ecosystem, which focused more explicitly on the importance of entrepreneurial universities. According to Morrison, entrepreneurial universities not only recruit and train the skilled talent pool required to enable the establishment of start-ups, but they also become research and development partners for these start-ups once they have become profitable companies.

The review sought to focus on five criteria for the evaluation of development assistance, as identified almost 20 years ago by the OECD's Development Assistance Committee (DAC). The DAC criteria are: *relevance*, concerning the extent to which an aid activity aligns with the priorities and policies of the target group for receiving aid; *effectiveness*, concerning the extent to which an aid activity achieves its stated objectives; *efficiency*, concerning the extent to which the outcomes achieved have been cost-efficient; *impact*, concerning the extent of the changes, whether positive or negative, which have resulted from the aid intervention; and *sustainability*, concerning the likely future continuation of a flow of benefits from the initiative.

3 Findings from the Review

The following account addresses a selected number of important themes and challenges to emerge from the review. In general, the themes and challenges link to one or another of the DAC evaluation criteria.

One of the strongest themes to emerge concerned the *relevance* of the IPP both to national policy and to institutional priorities. A recent national policy statement, *Prime Ministerial Decision 844*, issued on May 18, 2016, expressed a need in Vietnam for the development of a functional national ecosystem for innovative start-ups. Ministries have subsequently been required to develop both the necessary regulations and the appropriate financial mechanisms and education policies to enable this need to be addressed. The policy statement forms part of a cluster of recent government initiatives intended to boost Vietnam's adoption of

higher value-adding forms of economic production. The IPP was recognized by all concerned as fitting well with official priorities. Across all the participating higher education institutions in the IPP's University Collaboration Program, senior academic managers were reported to have valued highly the support provided by the IPP in enabling the development of strategies for becoming more proactive in their responses to the wishes of the Government. For many of these academic managers, the notion of an entrepreneurial university appeared to be new. One interviewee reported, for example, that:

> Thanks to the IPP, the [innovation] Center has achieved the trust of the university leadership and of other faculties. From early 2018, [the University] will be opening new courses on entrepreneurship and innovation.

From another university, an interviewee reported:

> IPP helped to change the understanding of leaders. Before IPP participation, the plan of establishing a course on entrepreneurship and innovation in the Doctorate in Business Administration Program was just an 'idea', but after participating in the IPP the leaders understood more clearly [the notion of] entrepreneurship and innovation and [they] approved a proposal to establish an entrepreneurship and innovation program in the DBA.

From a third university, an interviewee reported:

> IPP also makes leaders of [this University] understand the importance of entrepreneurship and innovation. They are trying to adopt an innovation mindset in some activities in the University. They also start to research some industry linkages that can improve entrepreneurship and innovation at the University.

From yet another university, an interviewee commented:

> IPP helps leaders of [this University] to understand and form a strategy for entrepreneurship and innovation, and so that they decided to establish

> the Innovation Center. IPP also helped lecturers on entrepreneurship and innovation at [the University] to design a better entrepreneurship and innovation course curriculum.

In general, a fundamental shift at senior academic management levels was reported to have occurred within the participating institutions regarding perceptions about the potential for a university to establish and sustain an entrepreneurship and innovation ecosystem. Some universities, in fact, were said to have become so inspired by the IPP concept of an entrepreneurial university that they had begun to take bold steps in terms of establishing entrepreneurship and innovation centers. The Foreign Trade University (FTU), one of the two case-study institutions, reported, for example, that it had made a commitment to create an entrepreneurship incubator with a mission of engaging with potential investors. The importance of these developments cannot be over-stated. Vietnam's higher education sector has not traditionally accepted the view that expenditure on research, innovation, and entrepreneurial initiatives might represent investment in the future. The IPP came at a time when senior managers at higher education institutions were much more receptive to such a view.

In terms of *impact*, the IPP was reported to have been especially successful in the area of capacity building. According to nearly all interviewees, it had resulted in the creation of a vibrant network of lecturers, consultants, coaches, and even investors who were highly committed to the idea of creating institutionally-based entrepreneurship and innovation ecosystems, with a particular emphasis on nurturing start-up developments. An interviewee from one university reported, for example, that:

> The most important impact of IPP is the creation a network of 500 brothers across the country that we can tap into … it is not just at the individual level. It is even at the institutional level. This is very useful for our work.

Another interviewee shared the same sense of excitement about the development of a community of interest regarding entrepreneurship and innovation ecosystems, commenting that:

> IPP has created for us a network of people who share the same passion and vision. I already knew some of the people who were working on innovation and start-ups, but by joining the IPP program, we feel we are bonded together for a common cause.

The IPP's contribution to capacity building was also reported to have been significant for the individual faculty members who had undergone the intensive training program. When interviewed, these participants reported in glowing terms about the extent to which their skills in delivering workshops and programs had been sharpened, and their self-confidence boosted. One of many comments along these lines came from an interviewee who remarked that:

> IPP also helps us to know how to conduct workshop on entrepreneurship and innovation for students, [and on] how to develop the educational curriculum. As the result, the DBA now has its own curriculum on "innovation and entrepreneurship."

From another university, an interviewee commented:

> There are a number of activities in the [University] being implemented thanks to our participation in IPP. We have developed an entrepreneurship and innovation educational program, and conducted activities for raising awareness, and media. We organized a number of workshops on entrepreneurship and innovation for both lecturers and students. The feedback showing these workshops highly relevant is over 80%.

This interviewee's tone was one of excitement and pride in personal achievement. The interviewee was elated that the IPP had provided the skill-base, confidence and positive attitudes required to implement successfully an institution-wide program of workshops on entrepreneurship and innovation, not only for faculty members but also for students.

This reaction was not uncommon. Across a majority of the 13 participating higher education institutions, new curriculum streams related to entrepreneurship and innovation had been introduced as new, or as an element within existing, training programs, and these developments were greeted with enormous excitement.

Another aspect of the IPP's contribution to capacity building was the perceived value of the materials provided for participants in the intensive training program. As one interviewee reported: "*[The] entrepreneurship and innovation training is now implemented by the lecturers who were trained through the IPP. We also used materials and textbooks that IPP provided*."

Though evidence of the *sustainability* of the impact of the IPP may take longer to identify, it was reported by more than one-third of the interviewees that their institutions had embarked on long-term commitments to entrepreneurship and innovation by establishing and funding business incubators of one kind or another. An example here is the Foreign Trade University's commitment to establish an innovation hub and start-up incubation space, giving it operational and financial autonomy, which is unusual in the context of a public higher education institution in Vietnam. For most interviewees, these developments provided a basis for optimism that the impact of the IPP would be long lasting, especially because of the extent of the complementarity between Government priorities and the IPP's vision of entrepreneurial universities.

The two case-study universities selected for inclusion in the review, that is, the Foreign Trade University and the FPT University, provided further insights. The Foreign Trade University is an established public university in Vietnam with a strong reputation for offering professionally relevant training programs, mostly in business-related areas. The University is highly responsive to employer needs in terms of how it designs and delivers its curriculum. Not surprisingly, therefore, it achieves a high graduate employability rate and is strongly selective in terms of student admissions. In 2018, it had an enrollment of approximately 25,000 students.

In contrast, the FPT University is a private university specializing in information technology and telecommunications. It was established in

2006 by the FPT Corporation, the largest telecommunication provider in Vietnam. Employability rates for graduates from FPT University are also very high and starting incomes for graduates from this institution are among the highest for graduates in Vietnam. In 2018, it had an enrollment of 18,000 students.

Rice, Fetters, and Greene (2014), drawing upon data collected in six countries, three located in the United States and one located in each of Latin America, Europe, and Asia, identified seven factors affecting the success of university-based entrepreneurship ecosystems. These were: vision, engagement, and leadership by senior academic managers; strong academic and administrative leadership at every level within the institution; the attainment of a critical mass; the development of an appropriate, robust and effective organizational infrastructure; a commitment to continuing innovation in the elements of the entrepreneurship ecosystem; the commitment of substantial financial resources; and a sustained commitment over a long period of time.

Aspects of each of these elements may to a greater of lesser extent be seen to be present in the approach taken by both the Foreign Trade University and the FPT University. Each has an institutional vision, which embraces entrepreneurialism and innovation; each strives to implement an internal management and administrative system capable of giving expression to the institutional vision; each demonstrates a strong commitment to innovation; and each expresses a long-term commitment to being entrepreneurial. A significant difference between the two universities, however, is that FPT University is generously funded by its owner, the FPT Corporation, whereas the Foreign Trade University must ultimately rely on the more limited resources provided by the State.

The faculty members interviewed as part of the review of the IPP also reported a number of challenges encountered during the implementation of the University Collaboration Program. One of these, which related to *sustainability*, as well as to *impact*, concerned the fact that the notion of an entrepreneurship and innovation ecosystem was difficult for policymakers and academic managers to understand because there is no easy way of expressing the concept in Vietnamese. The closest translation is one involving a *national innovation and start-up ecosystem*, or a *national*

innovative start-up ecosystem, which are exactly the terms employed in *Prime Ministerial Decision No. 844*.

In fact, however, the notion of an entrepreneurship and innovation ecosystem is broader in scope than either of these translations implies. Even the interviewees themselves were mostly inclined to refer only to start-ups. There is a risk here is that, by interpreting entrepreneurship and innovation ecosystems as being solely concerned with start-ups, the academic community will perceive these ecosystems as having a focus that is too narrow and too specific. Given that research-based innovation in Vietnam tends more to be concerned with technological re-customization than with the creation of "new to the market" goods and services, a related risk is that these ecosystems will not be expected to provide a culture for genuine creativity in the design and development of completely new products and processes.

Another challenge, also relating to *impact*, and potentially to *sustainability*, concerns the limited amount of time faculty members had to devote to the establishment of institution-based entrepreneurship and innovation systems. The interviewees frequently reported one of the main obstacles to progress in achieving a stronger institutional commitment to entrepreneurialism and innovation was that faculty members felt overwhelmed by the scale of their day-to-day workload commitments, leaving them with little time for engagement with the commercialization of their research, or even for attending to their research responsibilities. Individual universities were reported to have introduced financial incentives to encourage quality research, but these incentives were generally considered not to be of sufficient value when compared with the additional earnings possible from accepting extra teaching responsibilities.

Curiously, therefore, some of the most enthusiastic adopters of the notion of entrepreneurship and innovation ecosystems within individual institutions were reported by the participants to be students, rather than faculty members. Most participants in innovation and start-up competitions, for example, were students, and not faculty members.

Yet another challenge concerns the difficulties public universities in particular face in seeking to establish themselves as entrepreneurial universities, as envisioned by the IPP. Ten of the 13 participating higher education institutions were line-managed by government ministries

and related instrumentalities and so were required to obtain official approval from within the state bureaucracy before engaging in significant curriculum reforms. Though opportunities for many of these institutions to raise income from student fees have improved over recent years, all public higher education institutions in Vietnam remain reliant upon the state for critical financial support. These institutions cannot, therefore, act freely in deciding on a long-term investment in the establishment of business incubators. The supply of public funds available to them is unreliable and senior academic managers are in a position of being personally accountable for any institutionally-incurred financial losses.

A further challenge for *impact* and *sustainability* was reported to be that, although the legal framework for doing business in Vietnam has improved significantly over recent years, it remains the case that there is a lack of clear guidance regarding the ownership of inventions, technological know-how and patents. Laws and regulations in Vietnam concerning intellectual property are not nearly as well-developed as is the case in most advanced economies.

Finally, concerning *efficiency* and *effectiveness*, there was a challenge associated with the general lack of quality control concerning the various training programs on entrepreneurship and innovation being conducted within the participating higher education institutions. These programs had not been officially recognized by the Ministry of Education and Training, and so could not be said to have been securely embedded as approved training programs leading to a higher education qualification. Furthermore, the ways in which they were being introduced within existing programs were highly variable, meaning that there was no standardized form of training being provided with respect to entrepreneurship and innovation education.

4 Implications for Policy and Practice

There are many policy and practice lessons to be learned from the experience of the IPP. These are now addressed at three levels, including national, faculty development, and senior academic management.

4.1 National Level

The significance of the contribution made by the IPP notwithstanding, it remains the case that institutionally based entrepreneurship and innovation ecosystems in Vietnam remain largely underdeveloped. Largely missing from policy discussions about the topic is an appreciation of the need for a coordinated plan to bring together each of the elements in Isenberg's (2010) model in such a way as to "turbocharge venture creation and growth" (p. 43). In particular, public universities are not being fully appreciated for their potential role as catalysts for the mobilization of other elements in Isenberg's model. In Vietnam, universities continue to be regarded as being primarily responsible for teaching, and the need to become more entrepreneurial in a way that is consistent with the concept of an entrepreneurship and innovation ecosystem has to date received little focused attention at a national policy level.

A significant constraint for public universities is that they continue to lack sufficient institutional autonomy. Traditionally, public universities in Vietnam have been line-managed and tightly controlled by State Ministries and instrumentalities. Recently, a total of 23 public universities out of 163 public universities in Vietnam have opted to become financially independent of the state in exchange for having much more institutional autonomy than has previously been acceptable to the Government.

Even these universities, however, remain tied to the state in multiple ways, including: the need to comply with national higher education policies issued by the Ministry of Education and Training; the need to comply with financial regulations issued by the Ministry of Finance; the need to comply with employment regulations issued by the Ministry of Internal Affairs; and so on. These regulations, though typically outmoded, are rigidly applied, leaving limited opportunities for the emergence of entrepreneurial policies and practices at an institutional level.

According to Clark (2001), an entrepreneurial university is one that can succeed in the face of complex and uncertain environmental conditions. Public universities in Vietnam, even the small number of them with enhanced levels of institutional autonomy on account of being

financially self-reliant, simply do not have the level of freedom required to be able to address the kinds of conditions referred to by Clark.

It is worth noting that FPT University, one of the two case-study institutions for this review, is a well-resourced private university. The Foreign Trade University, the other case-study university, is a self-financing public university, constrained in ways similar to those mentioned above, though it has had a tradition of being entrepreneurial, which has enabled it to exercise more institutional autonomy than nearly all other public higher education institutions in Vietnam.

In addition to a lack of institutional autonomy, most public universities in Vietnam are also affected by a lack of financial autonomy. Except for the 23 public universities now accepted to be financially self-reliant, the funds provided to them by the state are never sufficient to meet their needs, and the conditions attached to how they may spend the funds they receive from the state are invariably restrictive.

Even the 23 public universities now able to raise their own budgets from student fees and commercial activities face a ceiling on the level of tuition fees they are permitted to charge, and there are also legal obstacles to being able to channel funds into institutional investment funds, or public-private partnerships capable of generating the capital required for significant business ventures. In this regard, the Foreign Trade University has been a notable exception.

A further matter requiring attention is the need for universities in Vietnam to have incentives to engage in entrepreneurial activities. These incentives might take a variety of forms, including recognition in the form of national ranking or accreditation, or even the provision of additional funding based on demonstrated entrepreneurial performance. Universities in Vietnam, as elsewhere, are acutely sensitive to their placement in rankings systems. A high rank is regarded by them as being desirable for its reputational value and subsequent marketing success. There is currently no official university ranking system for higher education institutions in Vietnam. It should not, however, be difficult to establish one that is focused on entrepreneurship and innovation. Relevant indicators might include: the extent of concentration on collaborations with industry; the success of university alumni in terms of entrepreneurial engagements; the number of patents registered; the

value of revenue obtained from consulting with industry and from the commercialization of research; the percentage of income derived from non-public sources; the extent of participation of industry in university governance, curriculum development and teaching; the number of entrepreneurship and innovation training programs provided; and the extent of the support provided for innovation, such as through the establishment of innovation incubation centers. In short, the extent of the contributions made by higher education institutions to entrepreneurship and innovation ecosystem development should be measured and recognized as an additional indicator of quality.

4.2 Faculty Development

For the long-term sustainability of entrepreneurship and innovation education, a focus on capacity building is needed. Firstly, priority should be given to training university teachers and researchers. As a focus on entrepreneurship and innovation becomes more firmly embedded in the higher education curriculum, there will be a significant demand for appropriately qualified faculty members. The need should be anticipated soon and programs to equip lecturers with relevant skills and knowledge for teaching about entrepreneurship and innovation developed as a matter of priority.

Undergraduate and postgraduate degree programs in entrepreneurship and innovation should be in place for preparing core teaching and research staffs, who will be expected to deliver future entrepreneurship and innovation programs in higher education institutions. The IPP approach of selecting faculty members for intensive training, who then train other faculty members, should be adopted here because of its evident success, as reported widely by the interviewees. Scholarships might be provided competitively on a merit basis to ensure that the most active and motivated learners become the core personnel for entrepreneurship and innovation education development. In the long run, Vietnam needs to have a critical mass of scholars whose expertise includes the latest global developments concerning entrepreneurship and

innovation ecosystems. International collaboration will be essential to the attainment of this goal.

Secondly, there needs to be a strong research base regarding entrepreneurship and innovation education. The concept of an entrepreneurial university, as envisioned by the IPP, is new in Vietnam. Matters needing to be investigated include the appropriateness and effectiveness of different formats for entrepreneurship and innovation education in Vietnam. The Isenberg (2011) model of an entrepreneurship ecosystem suggests the importance of local context to be understood, including its legal, market, and human resource circumstances. Knowledge of how these factors operate and are related to one another in a local context is fundamental for entrepreneurship and innovation education, as well as for entrepreneurship and innovation ecosystem development. These were unanswered questions during implementation of the IPP.

A typical challenge of entrepreneurship and innovation development is a poor quality of relationship between universities and industries. There is a need for more action research on this matter, for instance, by studying success stories and by sharing experiences among peers. State grants and special mechanisms for access should be in place for the promotion of this type of research. As suggested by the experiences of IPP participating universities, a guidebook would be the first step to equip academic managers and faculty members with basic knowledge and information needed for planning and implementing entrepreneurship and innovation initiatives.

Thirdly, entrepreneurship and innovation education should ideally involve experiential training, ideally in the form of work-integrated learning activities conducted under the guidance of an experienced professional coach or mentor. In this regard, an effectively functioning university-based entrepreneurship and innovation ecosystem (consisting of service units, science and technology enterprises attached to the university, start-up firms, university venture capitals, institutional strategies and policies, and linkages between universities, investors, industries and the government) will have a significant impact on the development of entrepreneurship and innovation culture within universities. IPP interventions did not include direct supports for participating universities, either for establishing or for operating these interventions,

except where funding was provided for some activities delivered by the institutions themselves.

The problem for entrepreneurship and innovation supporting units, however, is their sustainability. Their operational costs are based often upon obtaining external grants or projects. When funded in this way, they must adhere to specific agendas. It is also possible to raise additional revenue by hosting events such as contests, festivals, and competitions for the best entrepreneurship ideas. These kinds of projects do not, however, generate much additional revenue. Given the fact that institutionally based entrepreneurship and innovation units can play a vital role in providing a platform for initiatives for faculty members and students, an initial investment in their establishment should be considered, as should support for relevant project-based activities. This support should be seen as a form of training expenditure. In the long run, public-private partnerships may be considered as a possible financing model for these units.

Another approach would be to combine units that have a high possibility in generating revenue with supporting units for which the major function is the provision of entrepreneurship and innovation education. This model is adopted by the VNU-HCM Information Technology Park (ITP), which also includes an Innovation and Entrepreneurship Centre (IEC). Leadership provision, including the empowerment of authorities to delegate, is also needed. Tuition fees for most training formats should be applied to ensure sustainability when the entrepreneurship and innovation course/programs are seen to be highly helpful to learners. In the long term, such entrepreneurship and innovation supporting units within universities must connect with businesses and investors for sustainable development.

4.3 University Leaders

One of the most important success factors in entrepreneurship and innovation development within higher education institutions is the extent of the support provided by academic managers. As reported earlier, a strong commitment by university leadership is a prerequisite for success

in entrepreneurship and innovation development within higher education institutions. Entrepreneurship and innovation education can take various forms. The type of programs to be delivered should be decided at the institutional level, so that it can be consistent with university strategies. Similarly, the financing model for entrepreneurship and innovation supporting units is also dependent upon a particular context, i.e., resources available and purposes of the schools. Individual schools need to set their specific goals for entrepreneurship and innovation education depending on their mission, resources, and commitment to entrepreneurship and innovation development.

At present, the innovation capacity of faculty and staff in Vietnam remains limited. There is also a lack of faculty trainers within universities due to the lack of adequately trained and experienced professional personnel. Most staff members are co-functional because they have other major responsibilities. There are two problems concerning the issue of ownership issue: first, the origin of technology and innovation, and second, who owns the IP when the research has been conducted in the university using institutional/state/private funds.

The experiences of the Saigon Innovation Hub (SIHUB) in addressing this matter are noteworthy. SIHUB reported that they rendered (outsourced?) this task to a third party with expertise in analyzing the contributions of each partner and each element (resources, academics labor, associate contributions, etc.) and in determining the proportion of ownership. It is recommended that this experience be applied more widely.

International experience in this matter should also be considered. Aalto University of Finland has a functional unit that connects university faculty members with industries for the purposes of creating new products, as well as providing technical or business solutions. Experts then assess the possibility of commercialization of the research results, support patenting, and suggest a division of revenue generated from knowledge transfer or the granting of licenses. This approach remains unfamiliar in Vietnam, where faculty members must deal with research commercialization on their own and mostly outside of their university.

Innovation advancement concerns a wide range of diversified stakeholders. It results in a strong need for new approaches facilitated

by partnerships across various sectors, including government, university, industry, and various forms of institutions related to promoting entrepreneurship and innovation. More attention needs to be given to fostering interactions and spillovers at all levels through the promotion of networking and clustering.

Networks are also needed due to the increasing interdisciplinary of technical advancement (Mok, 2012). Networking is perceived as one of the major outcomes of IPP that was highly appreciated by the participating higher education institutions. Though establishing and maintaining relevant professional communities may go beyond the scope of responsibilities of individual universities, university leaders need to actively stimulate those connections.

Entrepreneurship and innovation lecturers/researchers also need an academic environment that supports the exchange ideas and knowledge, allowing them to learn from one another. This need is especially great in the context of Vietnam, where higher education institutions have been recently adopted entrepreneurship and innovation education. Even more important is the connection between university researchers and the business community, the entrepreneurs, the investors, the government officers, and other practitioners in entrepreneurship and innovation ecosystem, both at home and abroad. Such an engagement triggers collaboration opportunity and enables universities to move forward in Triple Helix directions. University leaders should be providing a platform for the development of these networks, as well as the conditions to make these networks productive.

The two case-study institutions, the Foreign Trade University and the FPT University, indicated clearly that a strong connection with industry is a success factor for entrepreneurship and innovation development within higher education institutions. It is recommended that linkages between universities and business community should be encouraged. Relevant initiatives here could include increasing business community participation in entrepreneurship and innovation education, for example, through the use of guest speakers from industry. These guest speakers could be business leaders, entrepreneurs, innovators, scientists, and alumni who are able to inspire people and share practical knowledge and

experience. Guest speakers should include local, national, and international practitioners with a view to providing students with a wide range of perspectives and experiences.

Additionally there might be: a focus on enabling co-supervision of graduate theses by faculty members and practitioners from the business world; encouragement given to faculty members to work closely with industries by participating in industry governing bodies, providing consultancy services, and collaborating in research; and the promotion of an entrepreneurship and innovation culture within universities by rewarding relevant initiatives in teaching and learning, and by emphasizing the importance of mentoring students and of encouraging faculty members to become more involved with the business world.

University-based start-ups should ideally be cross-institutional endeavors. Innovation hubs can take full advantage of each institution's strengths in contributing to an overall outcome. The Foreign Trade University was a showcase in this regard, having established its own successful Innovation Hub. Ideally, though, innovation hubs in Vietnam should be cross- institutional and inter-disciplinary, especially as mono-disciplinary higher education institutions remain relatively common in Vietnam.

5 Conclusion

This review was framed by the five DAC criteria of effectiveness, impact, sustainability, and so on. Whereas effectiveness focuses on the intended outcomes of an intervention, impact is a measure of the broader consequences of the intervention, such as its economic, social, and even political, effects. Therefore, when seeking to identify the outcomes beyond IPP, the impact of the initiative is being addressed. A related concern is sustainability, which is a measure of the effects of the IPP intervention over the longer term. In particular, the question is whether the benefits and impact of IPP support for university entrepreneurship and innovation ecosystems are likely to continue after the IPP support has been withdrawn. Sustainability is in many ways a higher-level test of whether or not the IPP project intervention has been a success.

Vietnam may be said to be a "latecomer" to innovation because many other Asian countries have already had to rely heavily upon public policies to drive innovation promotion. In Singapore, South Korea, Taiwan, and Japan, governments have been active in steering the development of research and development, as well as in promoting innovation, especially during its inception phase. In Vietnam, policy developments to date have focused mainly on science and technology, rather than on entrepreneurship and innovation. Little attention has been given, therefore, to technology development, the creation of new products, the development of markets for new products, and entrepreneurial education. In Vietnam, then, the disconnection between what universities do and what society needs remains large.

The IPP provided a valuable opportunity for Vietnam to generate ideas for entrepreneurship and innovation ecosystem development. It allowed entrepreneurship and innovation education programs for university lecturers to be tested; it raised awareness of the notion of entrepreneurship and innovation among university leaders; and it contributed to the establishment of networks with a focus on the transferal of entrepreneurship and innovation knowledge to lecturers engaged in delivering entrepreneurship and innovation courses/programs.

Through the University Collaborations Program, the IPP attracted the attention of university leaders concerning the importance of the "third mission" of universities. Lecturers participating in IPP activities were equipped with knowledge, skills, and teaching methodologies for delivering entrepreneurship and innovation programs. Mid-level managers, including heads of supporting units and of centers for entrepreneurship, realized new opportunities for adding value to university services.

The curriculum design and teaching methodologies for entrepreneurship and innovation programs that IPP has made available proved to be capable of being contextualized to meet local conditions and needs. This insight is important because *Project 1665* requests that entrepreneurship and innovation education be offered by all universities and colleges in Vietnam. The IPP materials provide invaluable input for further development in research and teaching entrepreneurship and innovation courses or programs across the higher education system in Vietnam.

Entrepreneurship and innovation education should not rely solely on taught courses, even where the course content seems ideal. The quality of entrepreneurship and innovation education requires not only lecturing but also immersion in an engaging learning environment that involves academics and industry partners. University-based entrepreneurship and innovation systems should include science and technology entrepreneurship attached to universities; co-working spaces; support units (start-up center, incubation centers, and the like); and social events (for example, Techfests, competitions for entrepreneurship ideas); and linkages with industries and investors.

A set of criteria for measuring and recognizing the attributes of entrepreneurial universities should be included in Vietnam's university rankings system, when developed, and in other forms of assessment or accreditation. The criteria should be designed to measure engagement with industries, entrepreneurship and innovation course and program initiatives and their outcomes, and the extent of institutionalization of entrepreneurship and innovation education commitments.

Establishing an entrepreneurship and innovation culture within Vietnam's higher education sector will require effort to minimize the extent of cultural resistance arising from a sense of entrepreneurship and innovation education perceived as being "different," or to entail risk and the possibility of failure. A national campaign might support the nurturing of the entrepreneurship and innovation spirit but might also be risky if it creates a movement that cannot point to concrete results.

Government clearly has an important role to play concerning the future of business incubators within universities in Vietnam. Public funding in the form of seeding grants to support the establishment of entrepreneurship and innovation centers will be required. Equally important, however, will be the value universities place on these centers. To this end, the intrinsic motivation of learners and institutions is important. The level of this intrinsic motivation will be higher if higher education institutions in Vietnam are given genuine autonomy and empowerment through the delegation of academic departments.

The literature on innovation policy interventions often distinguishes between supply-side instruments (influencing innovation generation) and demand-side instruments (influencing the demand for innovation)

(Edler, Cunningham, Gök, & Shapira, 2013). The IPP may be characterized as a supply-side instrument. Its impact was clearly significant, but the sustainability of that impact will now depend upon demand-side conditions, particularly a commitment by businesses in Vietnam to enter into partnerships with entrepreneurial universities for the purposes of creating wealth through innovation.

There is a long way to go before Vietnam's higher education sector might be said to be entrepreneurially- focused. Many obstacles remain to be overcome. The lesson learned from the IPP, however, is that the Vietnam's universities will be more relevant to society and will play a more important role in national socio-economic development, when they engage fully with the development of institutionally based entrepreneurship and innovation ecosystems.

First, for system management in entrepreneurship and innovation education and development, data must be collected and analyzed to provide a basis for the comprehensive evaluation of the performance of universities concerning the development of entrepreneurship and innovation services. The evaluative data must be linked to measurable performance criteria.

Secondly, because the notion of entrepreneurship and innovation education and development is new for Vietnamese universities, exploring experiences and best practices in entrepreneurship and innovation education and development around the world would be most helpful for institutional initiatives. The academic community in Vietnam should be supported to conduct research on those practices, concerning not only their own initiatives and achievements, but also the philosophical foundations of entrepreneurship and innovation education and its relevance to the state of higher education in Vietnam.

Thirdly, research should explore the potentials and the opportunities for entrepreneurship and innovation education and development at specific kinds of universities in Vietnam with a high level of potential for developing university-based entrepreneurship and innovation ecosystems because of the extent to which they have an intensive concentration of talent in technology development. Entrepreneurship and innovation development in research institutes is also worthy of close investigation.

Fourthly, cooperation between industry and universities is at the core of the notion of an entrepreneurship and innovation ecosystem and especially entrepreneurship and innovation education. The topic attracts general interest in Vietnam, but actual empirical data related to the factors that underpin successful cooperative ventures are relatively scarce. More research is needed for the purposes of identifying challenges and mechanisms or platforms for strengthening these linkages.

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