

VETEC Project

# INTERVENTION MODEL OF KNOWLEDGE AND TECHNOLOGY TRANSFER AT HUE UNIVERSITY

Hue University, Vietnam

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## INTERVENTION MODEL OF KNOWLEDGE AND TECHNOLOGY TRANSFER AT HUE UNIVERSITY

### 1. Introduction

“TTOs are institutions which provide, continuously and systematically, services to publicly funded or co-funded research organizations in order to commercialize their research results and capacities” (European commission, 2004).

#### **History:**

In 2013, Center for Incubation and Technology Transfers-Hue University was established by the President of Hue University, this is unit belong direct Hue University with many functions below:

- + Research and transfer
- + Commercialization;
- + Consulting services;
- + Training course;
- + IP application

And this is a broker unit to networking between university and company to technology transfer.

- Site: 07 Ha Noi street, Vinh Ninh, Hue city, Thua Thien Hue, Vietnam. This site at another site of Hue University (03 Le Loi street, Vinh Ninh commune, Hue city, Thua Thien Hue province, Vietnam).

- The president of Hue University who initiated, with purpose to technology transfer for Hue university.

- Funding: The staff on public employee salary was support 60% from Hue University's budget. Remaining from projects; technology transfer contract and another services.

But, after restructuring; on 09/2017, Center for Incubation and Technology Transfers – Hue university was moved to become which a unit under Institute of Biotechnology, Hue University.

Currently, the Center for incubation and technology transfers is a unit directly under the Institute of Biotechnology - Hue University (not direct Hue university) with their function no change.

Now, The Center for Incubation and Technology Transfer at road 10, Ngoc Anh village, Phu Thuong Commune, Phu Vang district, Thua Thien Hue province, Vietnam.

[\[http://huib.hueuni.edu.vn/center-for-incubation-and-techonology-transfers/?lang=en\]](http://huib.hueuni.edu.vn/center-for-incubation-and-techonology-transfers/?lang=en)

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## 2. Status quo in Vietnam

### 2.1 Current system of policies and laws concerning technology transfer

Vietnam now has a great number of legal documents directly and indirectly pertaining to technology transfer, including 13 codes and laws and 311 decrees and circulars. Among these, the most important is the Law on Technology Transfer, which was enacted in 2017. Other laws containing provisions on technology transfer activities include the Law on Science and Technology, Law on Intellectual Property, Law on Enterprises, Law on Investment, Law on Standards and Technical Regulations, Law on High Technology, and Law on Efficient Use of Energy, among others.

The country's socio-economic development strategy for 2011-2020 has identified the tasks of "formulating and implementing a national program on technology renovation, adopting policies to encourage enterprises to import modern technologies, first of all in major and spearhead industries; giving priority to developing high technologies.

Prime Ministerial Decision No. 1244/QĐ-TTg dated July 25, 2011, approving the main orientations, objectives and tasks of science and technology during 2011-2015, attaches importance to the formation of a system of technology transfer service, consultancy and brokerage organizations and organizations to promote transfer and commercialization of technologies, support the protection of intellectual property rights and enhance the exploitation and use of patents in universities and research institutes. It also sets the task of improving the operation of technology and equipment markets and technology exchanges.

The national strategy on science and technology development during the 2011-2020 period also highlights the necessity to develop technology transfer service organizations and technology and equipment markets, to ensure enforcement of the law on intellectual property and effective exploitation and use of patents, and to organize exhibitions to showcase achievements in science and technology renovation and creation.

**Table 1.** Statistics on technology transfer contracts from 2007 to 2015

Year	Approved contracts		Registered contracts			
			Registered by the MOST		Registered by local authorities	
	FDI	Other	FDI	Other	FDI	Other
2007			82	7	2	10
2008			59	15	3	6
2009			32	3	9	25
2010			14	5	17	19
2011			14	2	15	17
2012			16	3	16	5
2013			11	3	10	12
2014			19	2	12	9
2015			14	2		
Total	0	0	252	42	84	103

(Source: Ministry of Science and Technology)[\[1\]](#)

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[\[http://vietnamlawmagazine.vn/vietnams-current-legal-system-on-technology-transfer-problems-and-solutions-5469.html\]](http://vietnamlawmagazine.vn/vietnams-current-legal-system-on-technology-transfer-problems-and-solutions-5469.html)

## 2.2. Intellectual Property

The year 2017 was a milestone in the formulation and improvement of national legislation and policies with two prominent activities: the 10 year-review of Intellectual Property Law (IP Law); and the project of the National Intellectual Property Strategy (NIPS). Regarding the 10 year-review of the IP Law, activities in 2017 include: collecting comments from ministries, state agencies, local authorities, organizations and experts on IP-related regulations and implementation in the period of 2006 - 2016; processing and evaluating those comments to adjust and finalize the Draft of Report; holding conferences in Hanoi and Ho Chi Minh City to review IP Law; formulating a detailed plan of IP Law amendment as directed by the Government Resolutions; organizing workshops among the National Office of Intellectual Property (NOIP) (under the Ministry of Science and Technology), the Copyright Office (under the Ministry of Culture, Sports and Tourism) and the Department of Plant Protection (under the Ministry of Agriculture and Rural development) on the plan to amend the IP Law.

According to National Office Intellectual Property of Vietnam (NOIP) Application receiving: As of 31 December 2017, NOIP had received 102,332 applications of all types, including: 58,877 applications regarding the establishment of industrial property rights (an increase of 1.1% compared to that of 2016), including: 5,382 invention applications; 434 utility solution applications; 2,741 industrial design applications; 43,970 national trademark applications; 6,219 international trademark applications via Madrid system; 9 geographical indication applications; two applications for layout design of integrated circuit registration; 120 international applications originating from Vietnam (10 patent applications, and 110 trademark applications); 43,455 applications of other types, including: 2,578 requests for application amendments; 1,116 applications for assignment; 1,741 requests for re-granting protection titles; 11,739 requests for renewal of protection titles; 3,862 requests for renewal of international registration; 6,867 requests for amendment of protection titles; 7,141 requests for validity maintenance of protection titles; 2,546 applications for assignment of protection titles; 611 applications for licensing industrial property rights; 329 applications for cancellation/invalidation of protection titles; 1,318 appeals; 291 search requests; 1,359 oppositions to the grant of protection titles; and 1,957 others.

**Table 2.** The correlation between GDP and invention applications/patents during 2011-2017

Year	Number of invention applications	Number of invention patents	GDP (VND trillion)
2011	3688	985	2780

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2012	3959	1025	3245
2013	4169	1262	3584
2014	4447	1368	3938
2015	5033	1388	4193
2016	5228	1423	4503
2017	5382	1745	5008

(Source: statistics on the General Statistics Office's website - <http://www.gso.gov.vn>)

**Table 3.** Industrial design applications filed and Industrial design patents granted from 2010 to 2017

Year	Filed industrial design applications			Granted industrial design patents		
	by the Vietnamese	by the Foreigner	Total	by the Vietnamese	by the Foreigner	Total
2010	1207	523	1730	832	320	1152
2011	1200	661	1861	807	338	1145
2012	1349	597	1946	681	440	1121
2013	1366	763	2129	852	510	1362
2014	1594	717	2311	984	650	1634
2015	1607	838	2445	841	545	1386
2016	1861	1007	2868	877	577	1454
2017	1583	1158	2741	1339	928	2267
Total	29492	10811	40303	18011	7401	25412

**Table 4.** National trademark applications filed and Trademark certificates granted from 2010 to 2017

Year	Filed national trademark application			Granted trademark certificates		
	by the Vietnamese	by the Foreigner	Total	by the Vietnamese	by the Foreigner	Total
2010	21204	6719	27923	12313	4207	16520
2011	22402	5835	28237	15502	5938	21440
2012	22838	6740	29578	14976	5066	20042
2013	24656	6528	31184	14503	5156	19659
2014	26587	6477	33064	15378	5201	20579
2015	30476	6807	37283	14207	4133	18340

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2016	34968	7880	42848	13672	4368	18040
2017	35520	8450	43970	15172	4229	19401
Total	361662	129236	490898	201785	92176	293961

**Table 5.** Licensing contracts by holders about transfer of industrial property

Year	Number of requests for registration of licensing contracts				Number of registered licensing contracts			
	Contracting party				Contracting party			
	VN-VN	VN-NN	NN-NN	Total	VN-VN	VN-NN	NN-NN	Total
2011	84 (102)	56 (205)	30 (193)	170 (500)	64 (73)	54 (281)	25 (156)	143 (510)
2012	136 (309)	60 (320)	16 (148)	212 (777)	89 (198)	45 (169)	8 (208)	142 (575)
2013	90 (146)	93 (369)	21 (122)	204 (637)	109 (152)	46 (144)	9 (45)	164 (341)
2014	110 (257)	73 (455)	24 (104)	206 (816)	90 (188)	104 (461)	22 (166)	216 (815)
2015	135 (315)	92 (714)	28 (400)	255 (1429)	95 (251)	85 (612)	23 (106)	203 (969)
2016	112 (200)	89 (361)	14 (84)	215 (645)	118 (240)	89 (455)	18 (362)	225 (1057)
2017	150 (292)	75 (283)	14 (35)	239 (610)	107 (191)	61 (337)	10 (59)	178 (587)

*VN-VN : Licensing contract between the Vietnamese and the Vietnamese*

*VN-NN : Licensing contract between the Vietnamese and the foreigner*

*NN-NN: Licensing contract between the foreigner and the foreigner*

*(Figures in blanket are the numbers of licensed subject matters)*

### 2.3. Economic improve at Thua Thien Hue province

According to the General Statistics Office, GDP in the fourth quarter of 2018 is estimated to increase by 7.31% compared to the same period last year, of which the agriculture, forestry and fishery sector increased by 3.90%; industry and construction sector increased by 8.65% and service sector increased by 7.61%. Growth in the fourth quarter of 2018 was lower than that of the fourth quarter of 2017 but higher than the fourth quarter of 2011-2016 growth. From the perspective of using GDP in the fourth quarter of 2018, final consumption increased by 7.51% over the same period last year; asset accumulation increased by 9.06%; export of goods and services by 10.69%; import of goods and services by 9.50%.

GDP of 2018 increased by 7.08%, the highest increase since 2008 onwards, affirming the timeliness and efficiency of the solutions issued and directed by the Government drastically at all levels and sectors, the localities made efforts. In the overall growth of the economy, the agriculture, forestry and fishery sector increased by 3.76%, contributing 8.7% to The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

the overall growth rate; industry and construction sector increased by 8.85%, contributing 48.6%; service sector increased 7.03%, contributing 42.7%.

[Source: <https://stc.thuathienhue.gov.vn/?gd=7&cn=258&tc=2907>]

### References:

OECD/TheWorld Bank (2014), *Science, Technology and Innovation in Viet Nam*, OECD Publishing

The World Bank (IBRD). (June 2018). Taking Stock: an Update on Vietnam's recent economic developments. Washington : The World Bank Group.

<http://www5.worldbank.org/mapvietnam/>

Ministry of science and technology national office of intellectual property of vietnam, 2017, Annual report intelintellectual property activitieslec tual property activities.

### 3. Status quo at focal University

**Over view:** Hue university is a two-level university; which was established in march 1957 with four departments in Hue City, North Central Coast of Vietnam, known as The University of Hue. The birth of the University of Hue, the first higher education institution in Central Vietnam, 60 years ago marked a new step forward in the higher education system of Vietnam. Built upon the long-standing tradition of studiousness of the Central Vietnam residents, generations of lecturers and students have further highlighted historical landmarks in the ancient former capital. In 1975, after the unification of the country, independent universities were established in Hue on the basis of the existing faculties of The University of Hue. In April 1994, according to the Government Decree No. 30/ND-CP, Hue University was re-established by reorganizing all Hue-based universities.

**Mission:** The mission of Hue University is to promote the development of Vietnam, especially the Central Vietnam by providing qualified labor forces and advanced and efficient technological - scientific solutions.

**Vision:** At Hue University, our 2030 vision is to be among the top-tier research universities in Southeast Asia, operating under the national and regional quality standards; and a pioneer and key training base in the system of regional universities.

**Core value system:** Hue University has been rewarded with many state awards for its remarkable achievements, including:

- Embrace Creativity, Standards, Responsibility and Friendliness, Hue University is committed to:

- Encourage and respect progressive ideas and creativity by Hue University staff and students;

- Adhere strictly standards of higher education; establish, nurture and develop an exemplary teaching and research environment;

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- Value the sense of responsibility of the university towards the target groups in particular and social community in general;
- Foster democracy, solidarity, mutual respect, and respect honesty and compassion in Hue University.

**Strategic goals:** The overall development goals of Hue University to 2020 and orientations to 2030 are: Hue University to become a research university; a center for high quality training, science and technology; with a focus on HU's spearhead areas in the fields of health sciences, agro-forestry-fisheries, environment, biotechnology, basic sciences, education, arts; HU's graduates to possess strong political and ethical qualities, to obtain adequate knowledge and professional skills, to have the capability to do research and to apply scientific and technological advances and to actively integrate themselves into the dynamic international workplace environment.

[Source: <http://hueuni.edu.vn/portal/en/index.php/News/mission-vision-awards-1.html>]

#### **Organizational structure:**

- \* Location: Hue city, Middle of Viet Nam
- \* Founding: March 1957
- \* Website: <http://hueuni.edu.vn>
- \* Organizational structure of HU: 8 member universities, 2 faculties, one branch, 3 institutes, 7 centers; 1 Journal of Science and 1 publishing house.
- \* Education programs: 19 undergraduate programs, 82 Master-degree programs, 52 Doctoral degree
- \* Average number of students per year: 13.000

#### **Training:**

- 132 Engineer and Bachelor training programs
- 20 special training and international cooperation programs:
- 82 Master's training program;
- 1 International Master's programs (university of science, Hue University);
- 49 Doctoral training programs;
- 16 Joint training programs;
- 4 Training programs instructed in foreign languages (Doctoral program in Animal Husbandry; Bachelor's program in Agricultural Economics – Finance (Sydney University, Australia); Advanced Bachelor's program in Physics (Virginia University, US); Philosophy in Biology).

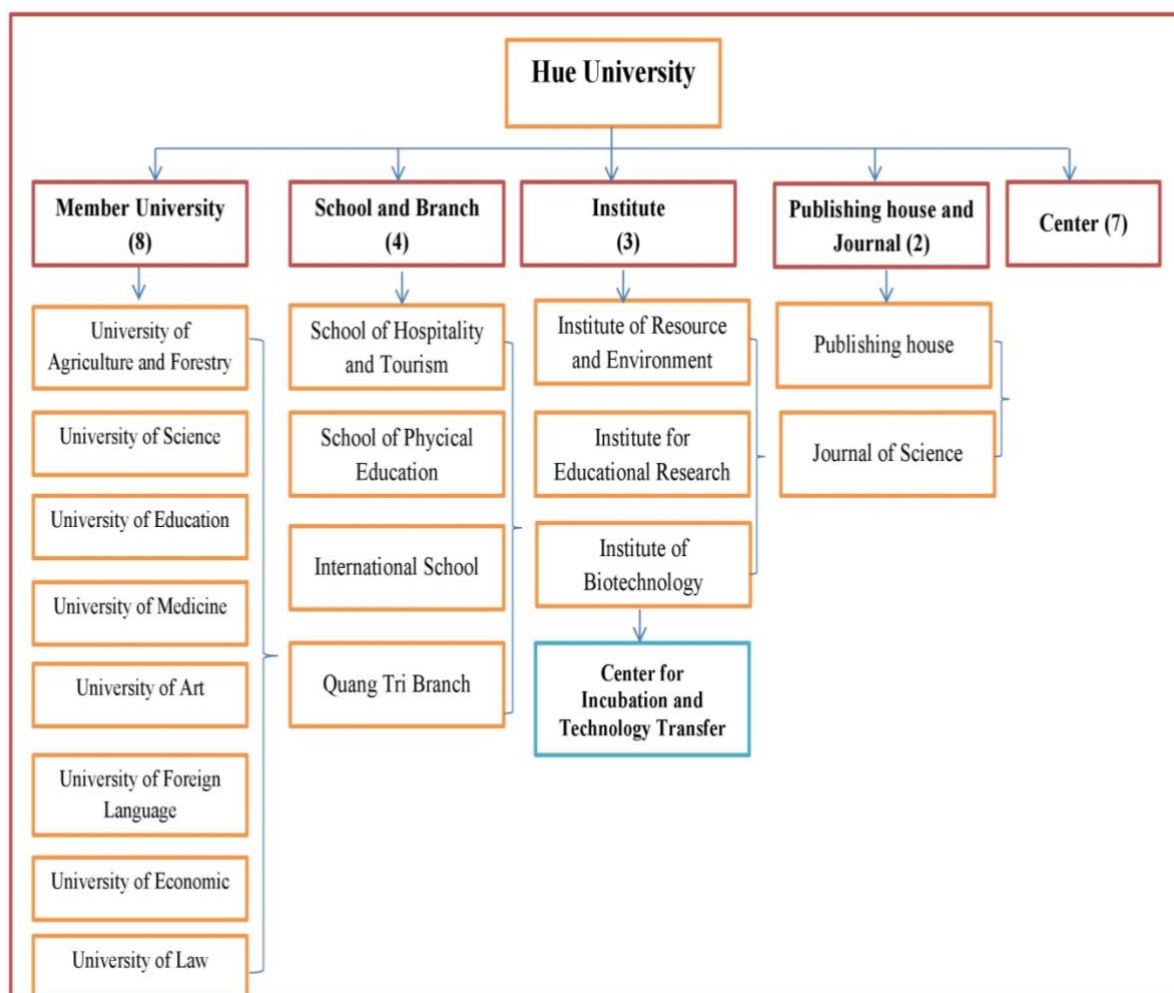
#### **a. General (Research, Teaching, Focus)**

As of March 2019, Hue University had 4.086 officials and employees, including 3.050 officials. The number of lecturers is 2.619, including 510 main lecturers and senior lecturers.

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Hue University has 16 Professors and 255 Associate Professors (of which 13 professors, 224 Associate Professors are regular lecturers) and 31 foreign honorary professors; 751 PhD and 14 Specialists 2 (in which incumbent: 643 doctors); 1.616 masters and specialists 1. Overall ratio of lecturers with postgraduate qualifications is over 90%.



**Table 4.** Orgazitional structure at present

### Multidisciplinary research strengths

Hue University have more than 132 Engineer and Bachelor training programs, but in which there are many majors that have make products potential and ability commercialization. beside that we have research unit which was funded good quality equipment to research to support for KTT.

Center for Information and Communications, Hue University is unit can be support KTT: website, apps store and advertisement.

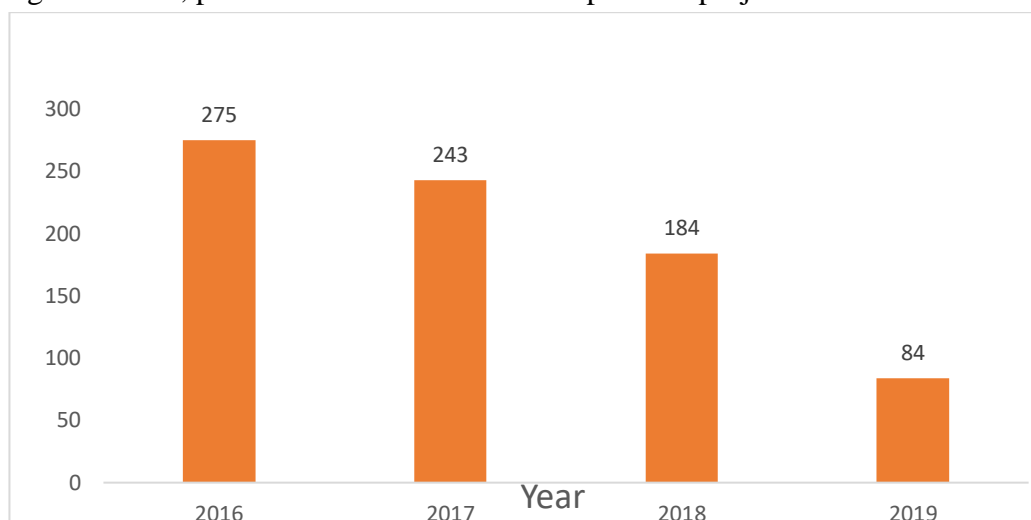
Institute of Biotechnology: can be biotechnology application to make products

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University of medicine: Can be good research about medicine field

University of Agriculture and Forestry: more than 24 field in agriculture common, including aquaculture even. These are importance field can make products to transfer and apply in fact.

**Project:** Hue University have many projects which was approved from different sources: government, province and international cooperation project even.



**Fig 3.** Projects numbers of Hue University from 2016-2019

### Strength about staff

Unit	Honorary professor	Professor	Asso. Professor	PhD	Masters	Lecturers	Researchers
<b>Total</b>	34	22	280	817	1,309	2,140	93

**Table 5.** Hue university research's staff

[Source: <http://csdlkhoahoc.hueuni.edu.vn/index.php/statistic/scientist/type/total>]

## 2.2 TT-based

We have project from government every year. So from result of project we have technology process and products. From there. We find out company to technology transfer and commercialization.

And we have maker space and incubator to research and make some products which have potential products. This is base to technology transfer. Beside; Center for Entrepreneurship and Innovation, Hue university. These are many activities to connect with company to technology transfer.

### 1. Office staff (2 people)

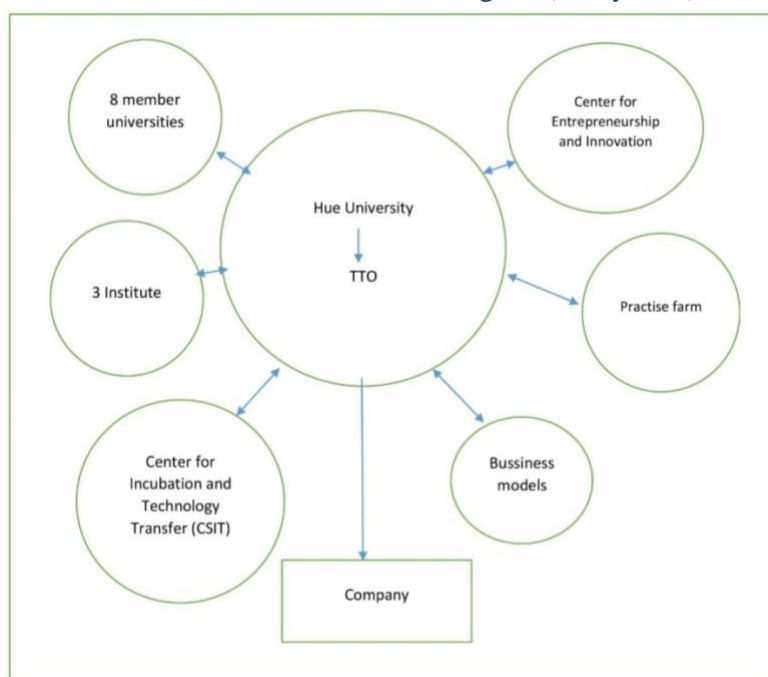
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- Receptionist: Consultancy about technology transfer policy for Director and many thing: Prepare contract,... : (1 person) ;
- 1 person: Accountant
- 2. **Intellectual property:** IP application for HU (1)
- 3. **Technology transferor** (2): Production of products, commercialization, TT.
- 4. **Start up** (5) Incubation, Innovation,...
- 5. **Partner:** Belong to project.

#### FUNDING:

- HU support
- From products and project
- From broker for technology transfer contract and commercialization

### 2.3 Embeddedness in the region (ecosystem).

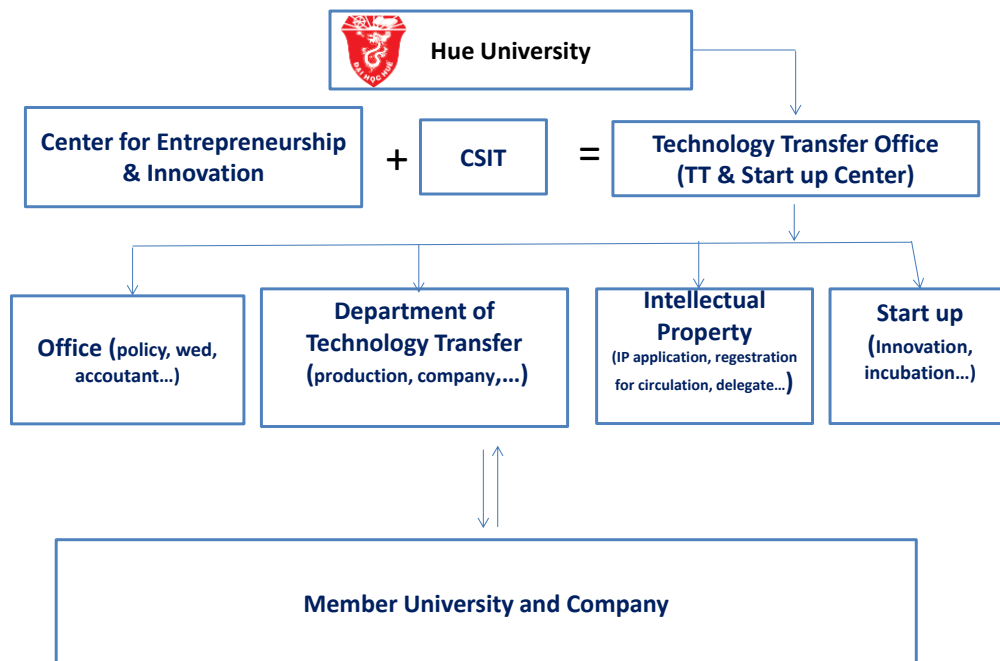


#### 4. Development of focal KTT Aspect (TTO Structure)

##### Restructure:

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### INTERVENTION TTO MODELS IN HU



This contribution aims to provide an analysis of the two main set up options for a TTO based on comprehensive literature for Hue University in Hue/Vietnam. Established in March 1957 with only four departments it was reorganized in 1994 by merging eight universities into Hue University under a large non profit higher education institution. [footnote possible to internet based sources] With over 45.000 students and over 5.000 postgraduates it is one of the largest universities in Vietnam. Hue university seeks for consulting advice in form of an academic literature based analysis for setting up/restructuring a TTO in Hue.

#### 4.1. Aim / Task/ Subject

We want to have TTO to advantage in networking between company with member university. As you know HU is two-level university, so to develop and transfer products into maket, we need have TTO to do these work. Because TTO's role is very importance in is midle unit to commercialization and technology transfer. Now, HU have 8 member universities and many another units belong HU, In case, HU have got not TTO, These units can find out commany and technology transfer by themselves. These will lead to difficulty in managing for Hue University. In addition, TTO's aims to training on technology transfer knowledge, intellectual property and entrepreneurship even for both students and staffs.

#### 4.2. Learning results:

The first results, Researchers in HU will find come TTO which can support, help them about IP application, technology transfer. Beside that, through TTO every body will be improve capaclity about KTT. Other ways, TTO model was suggested by comebine between center for Incubation & Technology Transfer (CSIT) and center for Entrepreneurship and The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Innovation (CEI), so every body not only are trained to improve their knowledge of technology transfer but they are also trained to improve the about starting a business (start up) for student who they can become bussinesmen in the furture.

#### 4.3 Specific conditions

To develop KTT in Hue University. The first, the president of Hue university has decided to restructure TTO which unit under direct Hue University; by combine Center Entrepreneurship and Innovation and Center for Incubation and Technology Transfer to become TTO model.

Therefore, TTO can networking with member university and others institute to find out potential products or innovative technology to transfer.

Center for Incubation and Technology Transfer which unit managed apply products from project's results to look for a chance to technology transfer.

## SWOT

<b>Strengths</b>	<b>Weakness</b>
<p>Many applied product; Good researchers educated from developed countries; Good connection with enterprises Many profersors and good researchers; Many project evry year; Leader surpost for technology; Good facility and modern.</p>	<p>Autonomous funding Lack of innovative technology; Lack of networking between member university and TTO; Lack of networking between TTO and company; Many policies; Lack of TT's staff who has experiences and knowledge. TTO not under direct HU, so it very difficulte to activities.</p>
<b>Opportunities</b>	<b>Threats</b>
<p>Funding from other sources (844, BIPP, IPP, MOET programs) CBHE EU projects (VETEC, NutriSEA...)</p>	<p>Natural disasters (flood; storm) often occur in the central region; It is difficult to compete with products of businesses; Technology is difficult to apply in region which often has climate change.</p>

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#### 4.4 Envisioned changes

At present, Center for E&I have many activities about start up, in which we trained courses to supply knowledge for students with the aim of helping students experience business models by start-up professionals. After graduation, students can confidently search for jobs in big company or can develop ideas for starting a business. beside that, HU need change about TTO restructure from unit which under direct Insitute of Biotechnology to be come the unit under direct HU to fit of technology transfer mission for HU. Additon, TTO will manage application products and innovative technologies which from project result that have funding from budget, and delegate of ownership rights even. From there, TTO will find out company to technology transfer and commercialization. So, TTO must be under direct Hue University and which was supported by HU.

#### 4.5 Future status + development (possibility for evaluation, time horizon)

I hope that we will have a new TTO in the next time, after perfect processing to TTO can effective activities. Early or late time to have TTO was depended on HU decicion. I knowed, HU have plan to fouding TTO to organization training course for staffs who advisory about technology transfer and conneting to between TTO and Universities;

#### 5. Conclusions

The most importance now, TTO restrcuture must accepted by HU president. HU will be fouding TTO which under direct Hue University in the next time. Although, HU had Center for Incubation and Technology (CSIT), Insitute of Biotechnology, Because, This center that unit not under direct HU, so this center is not effective activities. When TTO was founded, everything will be easilly. These fore TTO look like broker (midle unit) to transfer and networking company to commercialization. I suggest to HU that TTO can be founding base on combine between CSIT and Center for Entrepreneurship & Innovation.

The all most TTO models are very effective activities in Europe. Because their TTO is an intermediate unit belong the university. So researchers want to technology transfer to company through the TTO. On the other hand, often the results from scientific research use government budget, after the project finish, the university has the right to own the technology.