Financial Technology and digital innovation to modeRnise and develop cUrricula of VietnameSe and Philippines UniversiTies

Project № 610256-EPP-1-2019-1-IT-EPPKA2-CBHE-JP

DEV.N. 1.1
REPORT ON CURRENT CAPACITIES AT VIETNAMESE AND PHILIPPINES HEIs

DELIVERABLE DESCRIPTION	
Deliverable n. and name	Dev. N 1.1 REPORT ON CURRENT CAPACITIES AT VIETNAMESE AND PHILIPPINES HEIS
Due date	Month N 11
Work Package	WP1
Authors	Delia B. Senoro, Rex Aurelius C. Robielos, Rhea P. Carnate, Ariel Kelly D. Balan, Marthinson M. Villanueva, Mapua University (PH); Roberto Arguelles, Asuncion Gacayan Nazario, Cecilia Aspuria Mercado, Saint Louis University (PH); Christopher Biore, Yolanda Sayson, Ofelia G.Maña, University of Cebu (PH); Jove Tapiador, Philippines Phintech Association (PH); Pham Xuan Hung, College of Economics, Hue University (VN); Pham Ha, Ho Chi Minh Open University (VN); Dinh Thi Thanh Van, VNU – University of Economics and Business (VN).
Reviewers	Ilaria Reggiani, Susanna Correnti (Università degli Studi G. Marconi)
Language	English
Approved by	All partners
Version	N. 1

Document history

Issue date	Version	Comments
30/11/2020	1	Firstly Vietnamese and Philippines partners made different documents. In a second stage, HEIs data have been merged in this document

Disclaimer

This document contains the description of the TRUST project work and products. Certain parts of it might be under partners' Intellectual Property Right (IPR) rules therefore, prior to its use please contact the consortium leader for approval.

In case you believe that this document harms in any way IPR held by you as a person or as a representative of an entity, please do notify us immediately.

The authors of this document have taken any available measure in order for its content to be accurate, consistent and lawful. However, neither the project consortium as a whole nor the individual partners that implicitly or explicitly participated in the creation and publication of this document hold any sort of responsibility that might occur as a result of using its content.

Table of Contents

List of figures

List of tables

1. ABSTRACT

TRUST "Financial Technology and digital innovation to modeRnise and develop cUrricula of VietnameSe and Philippines UniversiTies" is an European Project co-funded by the European Commission in the framework of the Erasmus+ Programme (KA2, Capacity Building). It aims to design and develop a master on FINancial TECHnology and digital innovation (FINTECH), as well as to modernise the MBA and/or other masters of Business and Economics with specific contents on FINancial TECHnology in Vietnamese and Philippines Universities. The project partnership consists in three European universities (IT, RS, UK) and one FinTech company (IT), three Vietnamese and three Philippines universities, and one FinTech organization from the Philippines.

With reference to the project action, Philippines and Vietnamese partners carried on a very interesting study according to the scopes of Work Package 1 'Mapping the current capacities of the HEIs and of the labour market needs of the Financial Services Industry in Vietnam & Philippines' scopes. A scoping study allowed to map evidences of existing Higher Education (HE) programmes on FinTech in Vietnam and Philippines and to underline the presence of the necessaries basis for the educational programs future implementation. This research study was aimed at assessing the professors and the universities' staff training needs on FinTech and digital innovation, as well as the FinTech market labour needs in both Asian countries. The scoping study method included the following steps: identifying relevant studies; study selection; charting the data; processing, summarizing, and reporting results.

Moreover, a field work research method allowed to collect both qualitative and quantitative data (questionnaire) on the current capacities of universities in FinTech and on Higher Education actors' perception on the development of new programmes or the updating of the traditional ones on that topic (to understand professors/HEIs managers/staff in their everyday work experience). The investigation (in-depth interview) a on the Financial Services Industry in Vietnam and Philippines aimed to mapped the necessaries skills and knowledge of the labour market through qualitative interviews (based on an in-depth qualitative analysis using a critical incident interview methodology) in each partner country with representatives of the Financial Industry Services start-ups.

2. THE TRUST PROJECT

The TRUST Project represents a curriculum development initiative that is geared towards developing a new Master's degree programme in information technology (IT) related finance alongside the refinements of existing Master in Business Administration (MBA). It aims to improve the quality of the higher education in Vietnam and Philippines in financial technology and digital innovation to answer to the emergent workforce need of the financial services industry.

The specific objectives are to: (1) design and develop a master academic program in financial technology and digital innovation in Vietnam and Philippines; (2) modernize relevant existing masters academic program in business and economics with specific contents on financial technology. This academic program was envisioned to prepare students in the financial services that require complicated use of technology. It targets to have graduates who would be active in participating to online banking platforms, investments and business. In addition, the master program would produce graduates who are encourage to create business start-ups using technological innovations that allow them to reach through broader market, and can cope with the rapid development of financial technology. Furthermore, the master/s program shall enable graduates to remain competitive in the information technology career and in the business.

Hence, a consortium was formed in January 2020 involving three European Higher Educational Institutions (Guglielmo Marconi University, IT; Glasgow Caledonian University, UK and University of Belgrade, RS), one European FinTech enterprise (Deus Technology, IT), three universities from Vietnam (University of Economics and Business of Vietnam National University, Hue College of Economics, Ho Chi Minh City Open University), three universities and one FinTech organization from the Philippines (Mapua University, Saint Louis University, and University of Cebu, Fintech Philippines Association). This consortium was created with project number 610256-EPP-1-2019-1-IT-EPPKA2-CBHE-JP titled "Financial Technology and Digital Innovation to ModeRnise and develop cUrricula of VietnameSe and Philippines UniversiTies (TRUST) co-funded by the European programme Erasmus Plus (Call for Proposals 2019 – EAC/AO3/2018), Key Action 2 – Cooperation for Innovation and the Exchange of Good Practices – Capacity Building in the Field of Higher Education (CBHE). This initiative is expected to develop a new master program consist of innovative pedagogy and hands-on experience to better prepare graduates in a fast evolving industry that requires competence in finance, business management equipped with tools of new technology for faster service with accuracy, and apply a new mode of thinking.

The main target output of TRUST project in the Philippines and Vietnam is the offering of Master in Financial Technology (FinTech) and Digital Innovation started in the universities

7

partner by 2022. The curriculum of master is expected to be delivered in blended modality to include both workshops and distance learning to at least 120 students each country. Apart from the target new master program in FinTech, it is also expected that the higher education partners will improve its existing relevant or related academic programs by updating its modules and include both workshops and online learning in its contents.

The TRUST project is composed of seven (7) work packages; however, this report focuses on Work Package 1 (WP1). The WP1 aims to map the current capacities of the HEIs, and the labour market needs of the financial services industry in the Philippines and Vietnam. This WP includes a scoping study and a field work research carried out to contribute vital information for institutional planning for the development of the master program. The result of the research will help the universities to figure out on what courses shall be included, tools to be used, and modality of delivery to produce academic program that has the capability and competency in providing human resources who are technologically competent to support financial services industry.

3. CURRENT CAPACITIES OF HIGHER EDUCATIONAL INSTITUTIONS TO OFFER TRAINING ON FINTECH IN THE PHILIPPINES

3.1. Overview of the Higher Educational scenario in the Philippines

The Republic of the Philippines (Figure 1) composed of 7,641 islands, the 2,000 of which are inhabited, are called home to about 110 Million Filipinos[1]. Due to the geographical nature of the country and the current COVID-19 pandemic situation, people are striving, and trying to cope with the shift of socio-economic and technological demands, and keep abreast with the neighboring countries in terms of financial technology trends. In this fast changing world, knowledge in FinTech and digital innovation becomes a necessity.

Figure 1. The Republic of the Philippines composed of three major groups (Luzon-Northern Philippines, Visayas-Central Philippines and Mindanao-Southern Philippines)

The Philippines with about 110 Million people, has 541 state universities and colleges (SUCs), 132 local colleges and other government schools (LCUs), and 1,721 private higher educational institutions (PHEIs) as of August 08, 2019 [2]. A total of 2,392 HEIs in the Philippines including SUCs satellite campuses. Seventy two percent (72%) of the total HEIs in the Philippines are private institutions. These Philippine Higher Education Institutions are composed of stock and non-stock capital type of institution. Figure 3 clearly describes the Philippines Higher Education Institutions scenario that is dominated by privately owned Higher Education Institutions.
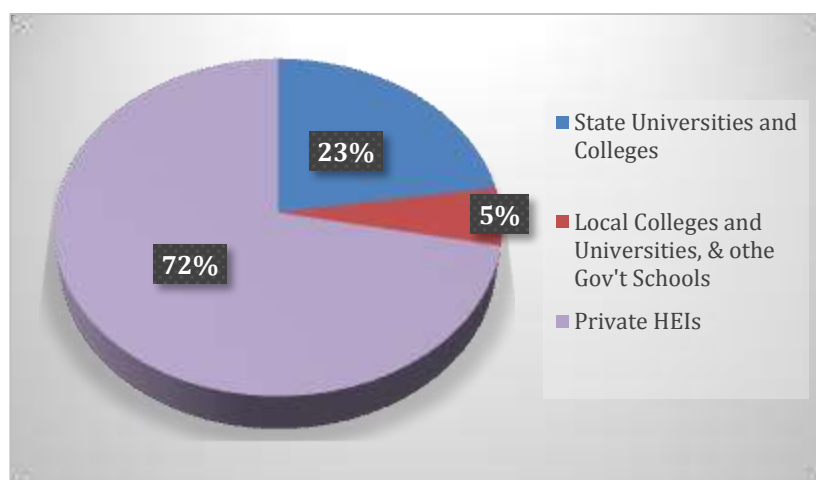
Figure 2. Types and distribution of HEIs (including SUCs Satellite Campuses) in the Philippines

Currently in the Philippines HEIs are abiding by the latest Memorandum Orders issued in 2017 by the country's regulatory agency, the Commission on Higher Education (CHED). One of the specializations being recognized in these CHED orders is Business Administration major in Financial Management the only specialization related to finance and banking outside specializations in Accountancy education. Engineering and Tech as well as Information Technology education are covered by another memorandum orders with listed courses that are understandably focused on core competencies in their respective disciplines. At present, there is no specific memorandum order to offer financial technology program for HEIs in the Philippines

In academic year 2019-2020, higher education enrollees in the Philippines totaled 3,408,425 of that figure 48.79% are in Business, IT, Engineering and Tech (Figure 3). Specifically, 878,661 (25.77%) are enrolled in Business Administration and related fields, 324,696 (10.05 %) are enrolled in IT-related disciplines, while Engineering and Tech has 442,064

(12.97%). With the current shortage of high-value skills in the areas of Engineering, Information Technology, Business and other related field, there are two apparent things that need to be addressed. First is the need on the part of the academe to re-orient and create a cross point offering where traditional business, IT, engineering and tech courses can max out its their common potentials. Another thing worth noting is the fact that this current scenario of talent shortage beams on the presence of a promising market gap that this hybrid course offering in FinTech can fill in both from the academic as well as in the industry standpoint.
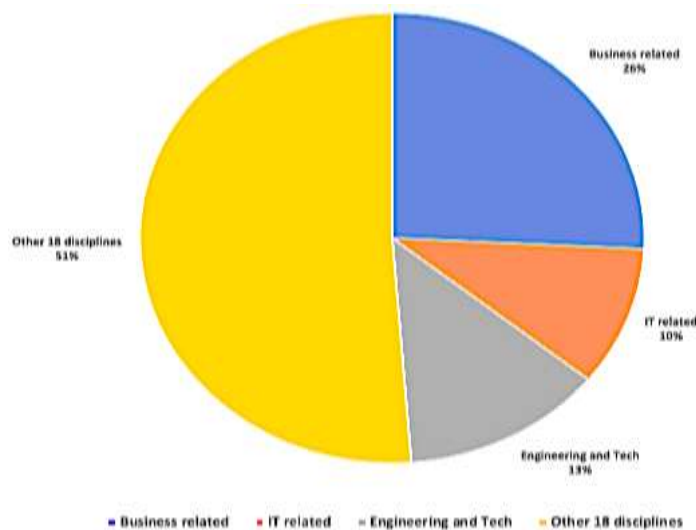
Figure 3. Enrollees by discipline during the academic calendar 2019-2020[3]

The Philippines, through the Republic Act 10533 – Enhanced Education Act of 2013, has implemented its K-12 basic education program. This program accelerates mutual recognition of Filipino graduates and professionals in other countries. This provides every Filipino the education he/she needs to compete in the global community. Hence, the CHED aims at giving Filipino students the skills, concepts and deep knowledge to compete in the global arena.

One of the most recent and noticeable developments in business transactions is the acceptance and confidence by consumer in online and mobile banking, electronic paymets, money transfers and electronic settlements. The good technological indications are the exploration of institutions and startups on other areas such as Blockchain technology, artificial intelligence, cryptocurrencies and other advanced technologies in the financial services sector. These movements in the financial sector demand a new generation of workforce with new set of skills. Hence, HEIs shall act fast to produce human capital and

---

support the labour needs of the rapid growth of FinTech industry. FinTech education could be a good precursor to a more technologically laden business atmosphere that liberates market participants from going through the rigorous formal financial market system. At the grassroots level, FinTech, in substance, promotes inclusiveness considering the fact that 99% of all businesses in the Philippines are composed of MSMEs. Many of these businesses are into the formal financial sector however 71% (51.2 million) of Filipino adults do not have bank accounts. This 51.2 million are consumers who would easily prefer convenience over financial formalities in their daily transactions. Advancement and access to financial technology by this market speeds up transactions, increases business volume and output averages which in turn improve business conditions and will eventually redound to the benefit of the overall economy.

Financial education is a paramount challenge in the Philippines. Based on the rating of Standard and Poor's (S&P), there were only 25% of Filipinos who were financially literate and less than 1% who has knowledge in investing. This situation posed threats to the living standards of Filipino families. Based on the initial information of Fintech Philippines Association, the Fintech industry needs are as follows: improved digital infrastructure, finding the right technology talent, and improved foundational education in mathematics/engineering. Hence, according to the Commission on Higher Education (CHED), collaboration between industries and higher education stakeholders will strengthen an education sandbox infrastructure, a working directory or a test server. Having written the above, it is seen that master program with financial technology will strengthen the financial competency/literacy among Filipinos. With the integration of digital innovation such as business analytics in the program would facilitate a more efficient way in solving analytical problems in the financial sector. HEIs would be better prepared to produce Talents who could provide the required services of Fintech industry.

A Master in Financial Technology will strengthen the financial competency/literacy among Filipinos. With the integration of digital innovation such as business analytics in the program would facilitate a more efficient way in solving analytical problems in the financial sector. Higher Education Institutions would be better prepared to produce Talents who could provide the required services of FinTech industry.

3.2. Research methodology and data collection

The WP1 includes a scoping study conducted in the Philippines aimed to assess professors and the universities' staff training needs on FinTech and digital innovation. This was carried out by Mapua University (Manila), Saint Louis University (Baguio), University of Cebu (Cebu), and the FinTech Association of the Philippines - FAP.

The study utilized the descriptive, and qualitative research design. The descriptive method describes the characteristics of the population being studied. This methodology focuses

more on the 'what' of the research subject than the 'why'. It describes the nature of a demographic segment, without focusing on 'why' a particular phenomenon occurs.

Moreover, a qualitative research involves collecting and analyzing non-numerical data to understand concepts, opinions, or experiences. It was used to gather in-depth insights into a problem or generate new ideas for research. Two types of survey instruments were utilized in this research. One focused on the mapping of Philippine HEIs in terms its capability to deliver the courses, the choices of the respondents on the kind of teaching modality at their convenience. This is due to most master students are working. The other survey instrument involved the FinTech Association of the Philippines (FAP). Hence, two sectors were involved in the study (Education and Financial industry) as shown in Figure 4, that illustrates the conceptual framework of the study. The research instruments that were employed for this research contained both close and open ended questions. The universities survey target respondents were the senior university managers and faculty members. The other set of questions yielded quantitative data were tested and analyzed using frequency counts, percentages and one of the measures of central tendency which is median. Frequency is simply counting the number of observed values. Percentage, on the other hand, is a descriptive analysis demonstrating the comparison between sizes of the population and sample in a particular area. While median is the value which occupies the middle position when all the observations are arranged in an ascending/descending order. Median was used to treat the data since it is not affected by outliers; hence, giving more meaning to the described data. Data gathering was done during May to September 2020.
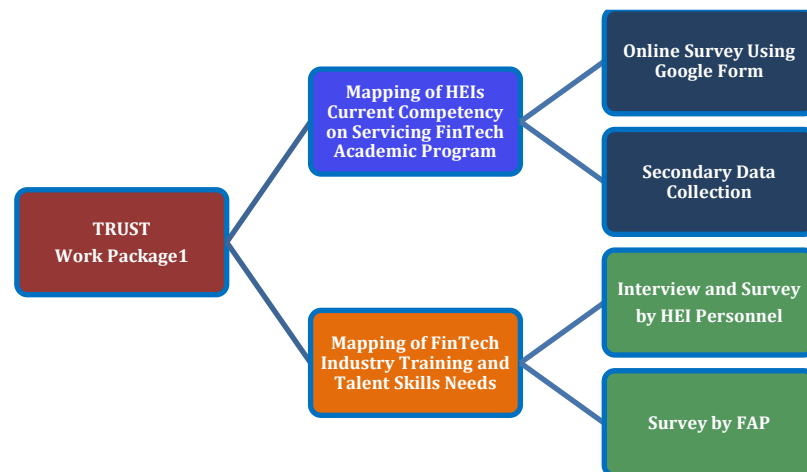
Figure 4. Conceptual framework for the mapping of HEI current competency and the FinTech industry training needs

As mentioned above, scope of the study covers the whole country with a minimum target of 50 respondents from Higher Education Institutions, and 10 interviews from FinTech industry. This is to address the minimum sample size requirement of 99% confidence level for data

assessment. The scoping study included the following steps: (a) identifying relevant studies; (b) study selection; (c) data collection; (d) data curation (i.e., data tabulation, summarizing), (e) creation of figures; (f) interpretation, and (g) analysis. Some modalities were applied to gather the data.

Online survey to HEIs using google forms were structured questions. The survey questions (Annex B) to HEIs were composed of the following: (a) information about the affiliation of respondent; (b) perception to the planned master financial technology academic program; (c) FinTech related academic program/s currently offered by their university/college; (d) important factors for prospective students of master in financial technology and digital innovation program, (e) use of information technology, software and obstacles for the implementation of master FinTech, (f) the pedagogical practices, (g) FinTech related research areas, (h) potential academic courses for master in FinTech , and (i) prepared and competency of lecturers/professors.

Some enumerators sent the survey instruments through email and respondents were kindly asked to fill out the survey questionnaire by providing information on behalf of their institutions. However, majority of the enumerators responded to the questionnaire using the google form. The instruments for HEIs and industry were developed by the consortium members. The three (3) higher Education institutions partners in the Philippines submitted the list of its target respondents to the International Coordinator in Italy. This is to avoid conflict and duplication of respondents. Networks and connections through Facebook, and several university group chat were also used as strategy for the survey as the scoping study was carried out during the COVID-19 pandemic period.

3.3. Characteristics of Philippines participating HEIs and respondents profile

A total of 73 respondents from 50 Higher Education Institutions (HEIs) over the country (Philippines) participated to the survey. This is about 21% of the 2,392 HEIs in the country. The Philippines has Luzon as the biggest island of the country. The HEIs located in Luzon are described as Northern, Central and Southern Luzon, and CALABARZON. The CALABARZON is composed of five provinces (Cavite, Laguna, Batangas, Rizal and Quezon) outskirt of National Capital Region (NCR). The NCR is also located in Luzon, too. This is where the country's prime university belt located. Luzon island is located at the northern part of the Philippines. In addition, another area off Luzon is termed as MIMAROPA which is composed of five island provinces such as Mindoro (Occidental and Oriental), Marinduque, Romblon and Palawan. Other parts of the country are termed as 'Central Philippines, and Southern Philippines" for Visayas and Mindanao areas, respectively. Table 1 enumerates the names and location of the participated HEIs. Based on record, there were 63% (46) and 37% (27) respondents from private and public universities, respectively.

N.	Name of the HEI	Location	N.	Name of the HEI	Location
1	Asian College of Technology – International Educational Foundation	Central Philippines	26	Malayan Colleges Mindanao – A Mapua School	Southern Philippines
2	Agusan Del Sur State College of Agriculture and Technology	Southern Philippines	27	Mapua University	NCR
3	Aklan State University	Central Philippines	28	Marinduque State College	MIMAROPA
4	Apayao State College	Northern Philippines	29	Miriam College	NCR
5	Ateneo de Naga University	Southern Luzon	30	Mountain Province State Polytechnic College	Northern Philippines
6	Ateneo Graduate School of Business	NCR	31	Mindanao State University – Iligan Institute of Technology	Southern Philippines
7	Baliwag Polytechnic College	Central Luzon	32	Pangasinan State University	Central Philippines
8	Bicol State College of Applied Sciences and Technology	Southern Luzon	33	Philippine Normal University	NCR
9	Bicol University Polangui Campus	Southern Luzon	34	Romblon State University	MIMAROPA
10	Biliran Province State University	Central Philippines	35	Saint Louis College – La Union	Northern Philippines
11	Bohol Island State University	Central Philippines	36	Saint Louis University – Baguio	Northern Philippines
12	Bohol Island State University - Candijay	Central Philippines	37	Saint Mary's Angel College of Pampanga	Central Luzon
13	Camarines Sur Polytechnic College	Southern Luzon	38	Saint Mary's University	NCR
14	Cavite State University	CALABARZON	39	Samar State University	Central Philippines
15	Cebu Technological University	Central Philippines	40	St. Paul University Philippines	NCR
16	City College of Angeles	Central Luzon	41	STI West Negros University	Central Philippines
17	Central Mindanao University	Southern Philippines	42	Surigao State College of Technology	Southern Philippines
18	Colegio De Dagupan	Central Luzon	43	Tarlac Agricultural University	Central Luzon
19	De La Salle University	National Capital Region	44	Technological Institute of the Philippines	NCR
20	Divine Word College of Calapan	MIMAROPA	45	University of Cebu Main Campus	Central Philippines

21	Don Mariano Marcos Memorial State University	Northern Philippines	46	University of Baguio	Northern Luzon
22	Eastern Visayas State University	Central Philippines	47	University of Cebu - Banilad	Central Philippines
23	Isabela State University	Northern Philippines	48	University of Santo Tomas	NCR
24	Lyceum of the Philippines University-Batangas	CALABARZON	49	University of St. La Salle	Central Philippines
25	Malayan Colleges Laguna	CALABARZON	50	University of Cordilleras	Northern Luzon

Table 1. Names and Location of Higher Educational Institutions Participated in the Survey in the Philippines

The details of contribution of each partner HEIs through the 73 total number of respondents are illustrated as Figure 5. It shows that 29,30, and 41% of the responses contributed by Mapua University, Saint Louis University and University of Cebu, respectively. The designation category of various respondents and the competency are presented as Figure 6 and 7. The responses constitute the competency of the respondents, e.g., 56, 34 and 10% have doctorate, MS/MA and MBA degree. These competencies describe the reliability of collected data. In addition, the responses/information show a wide range of ideas coming from lower to higher level of academic organization.
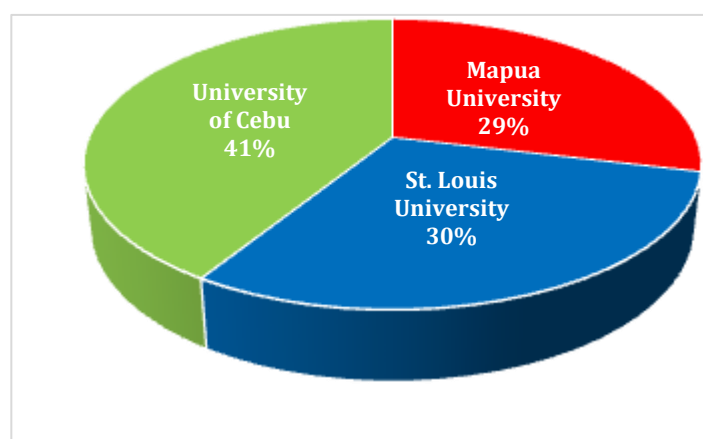
Figure 5. Partner HEIs contribution with respect to the number of respondents

Category/Designation of Respondents
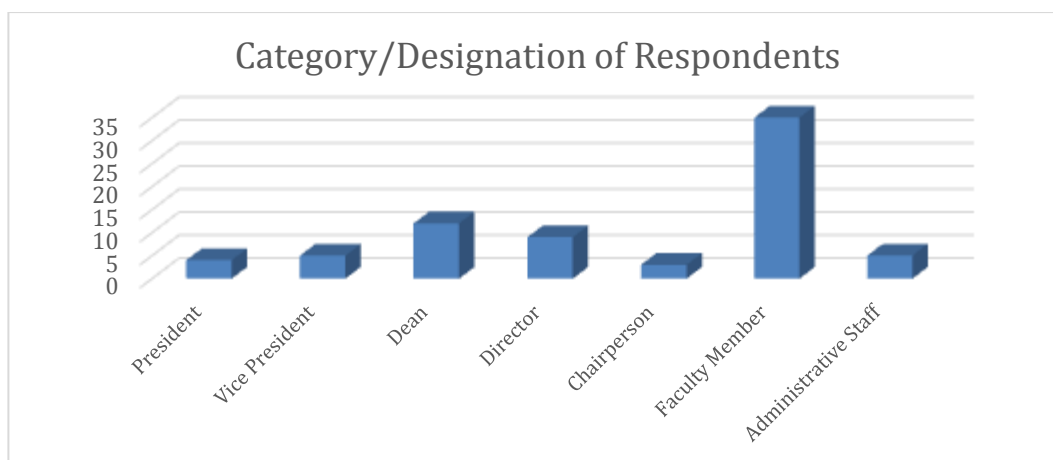
Figure 6. The category and number of respondents from HEIs
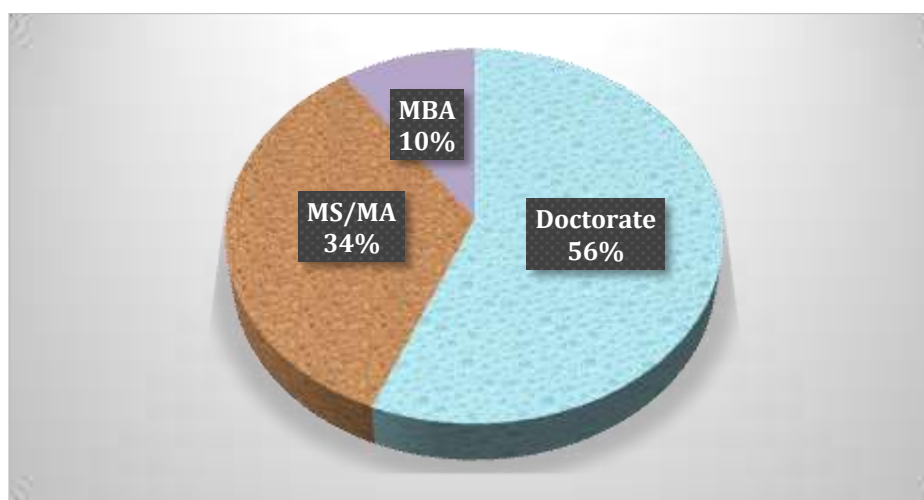
Figure 7. Highest educational attainment of respondents

Based on the 50 HEI respondents, Table 2 elaborates the general profile of these institutions in terms of the average number of academic programs offered, the average number of students per level, and the average number of faculty members. It showed that most students see the bachelor degree as necessity. Also, significant number of people who are undergraduate degree holder proceeded to seek master degree. In addition, Table 2 illustrates the faculty-student ratio of 1:34, 1:13; 1:29 and 1:4 for undergraduate, certificate/diploma, masteral and doctorate level, respectively. Further, it was recorded that only one HEI has been offering Master in Financial Technology in the whole country; 45% (33 HEIs) did not have plan to offer, 54% plan to offer the Master program in financial technology and digital innovation.

Program Level	Average No. of Program	Average Number of Students	Average Number of Faculty Members
BA/BS (undergraduate)	18	4,825	142
Certificate/ Diploma	4	368	29
MA/MS/MBA	7	1,171	41
Doctorate	3	64	18

Table 2. Average general profile of the HEI respondents (Philippines)

3.4. Research results on the current capability of the HEIs to supply talents to Fintech Industry in the Philippines

Among the favorable responses of offering master in financial technology and digital innovation, some HEIs perceived that this master program could be offered within the next 2-5 years due to the following potential factors listed below. In addition, the motivations of the universities and colleges vary significantly as shown on Table 3 and illustrated further as Figure 8. However, the data illustrate that majority of the respondents see the Master in Fintech and Digital Innovation as very important for career considerations and market demand as well as for new learning. Significant number of HEIs are under autonomous status by which program could be offered upon submission of complete requirements to the Commission on Higher Education (CHED);

1) Dependent on how the TRUST project progresses
2) The need for the program to produce talents for the Fintech industry
3) The internal approval process of each HEI
4) Fund to support the Master program in Fintech and Digital Innovation

% Level of Importance					
Motivations	Not Important	Minimally Important	Somewhat Important	Important	Very Important
Demand for New Learning	4	10	4	36	47
Career Considerations/ Market Demand	5	8	7	27	52

Table 3. The level of motivations of various HEIs to offer the Master in Fintech (Philippines)
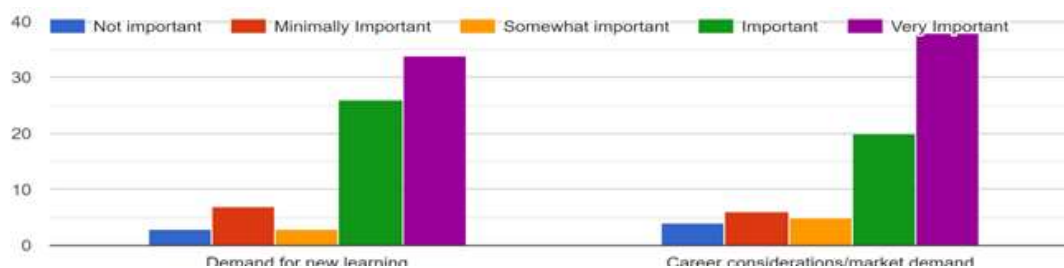
Figure 8. Response of HEIs on the motivation to offer the Master in Fintech (Philippines)

Other related programs being offered by the respondent HEIs are shown as follows: Master in Business Administration major in Financial Management, Master in Business Analytics, Master in Information Technology, Master in Financial Engineering, Master in Finance, Master in Computational Finance, Master in Business Administration, Master in Data Analytics, and master I Education Technology. Among these relevant graduate programs, it is the Master in Information Technology that is being offered most by the responding HEIs.

The factors that are considered by the prospective students to enroll in the Master program in Financial Technology and Digital Innovation, as shown in Figure 9, are (1) schools' academic reputation, (2) program's academic reputation, (3) preference for a faith-based university, (4) convenient schedule, (5) cost, (6) student support services, (7) small class size, (8) class availability, (9) accelerated program completion, (10) mode of delivery/teaching approach (interactive/workshops versus traditional academic approach) (11) profile of faculty members, (12) location/proximity to workplace, (13) undergraduate background, and (14) current work assignment. Among the factors, the number (2), (5) and (11) are the very important factors to prospective students.
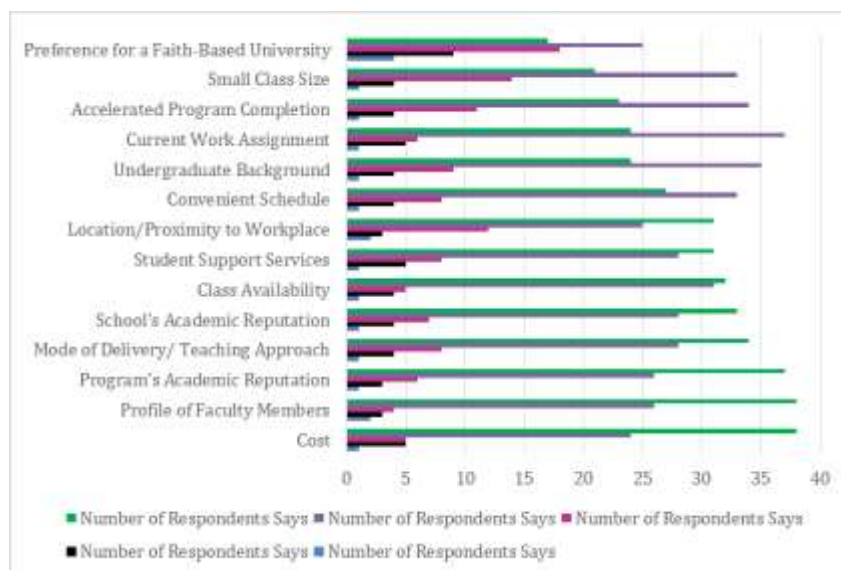
Figure 9. Factors considered by the prospective students to enroll in the Master in Fintech, Philippines

Among the factors that would primarily influence the decision of prospective students to enroll in the Master in Fintech, in descending order, are shown below. In terms of HEIs capability preparedness, Table 4 describes the HEIs' competency in offering Fintech related master program. It describes that majority of the HEIs need minor development.

1. the cost;
2. profile of faculty members;
3. program academic reputation;
4. current work assignment
5. undergraduate background;
6. mode of delivery;
7. accelerated program completion;
8. school's academic reputation;
9. small class size;
10. class availability;
11. convenient schedule;
12. location/proximity to workplace;
13. student support service;
14. preference for a faith-based university

Percentage % of HEIs				
Technological Aspect	Development Needed	Challenging & Substantial	Developed with Some Minor Needed Development	Fully Developed
Access to computers (desktop or laptop)	7	18	44	32
Access to internet connection (at least 3 mbps)	7	25	38	30
Access to licensed software (software required by the course)	10	27	38	25
Technical competency of lecturer or professor for use of learning technologies and software	7	29	41	23

Table 4. HEIs' Capability on Technological Preparedness and Student Support Aspects (Philippines)

As related the pedagogical needs, the respondents were asked to choose on six (6) types of program delivery. These six types were (a) fully face to face (F2F), (b) fully online, (c) hybrid

format – 50% face to face, 50% online, (d) 75% F2F, 25% online, (e) 25% F2F, 75% online, and (f) NA – whichever type of delivery mode. Majority of the respondents preferred "hybrid format' or the blended delivery mode as shown as Figure 10. It shall be noted that the survey was carried out during the period of COVID-19 pandemic and all academic institutions were struggling to convert the learning methods into online. In addition to the delivery mode preferences, teaching approaches preferences were also mapped out. It was recorded that the combination of traditional and interactive approaches were the most chosen modality. This is the approach of 'teachers provides course syllabus and reading materials with activities for students to carry out for the whole period. Then, students get certificates per module." The second preferred modality is the "flexible with discussion, and tiered. Teacher provides course syllabus & reading materials with activities for students to carry out for the whole period. Students get certificates per module". Table 5 elaborates the results showing the preferences of the respondents for clearer vision. The mapping activity showed that immersion and internship activity shall be included in the program. It recorded that 51 and 32% of the respondents agreed that these two activities are important in the Master in Fintech and the preferred period shall be 3 – 6 months. Only 17% voted for thesis to be included as a course or student activity. The HEI responded that they have Fintech related publications which give the possibility of a lifelong learning activity to be included in the program. These publications are in the areas of financial management, business analytics, data mining, artificial intelligence, statistical analysis, operations research, human-computer interaction, electronics, and application system development. Publications in statistical analysis lead among other topics. This result is attributed to the love of numbers of the respondents. Other publications are in multi-disciplinary journals, education, flora and fauna, engineering and environmental science.
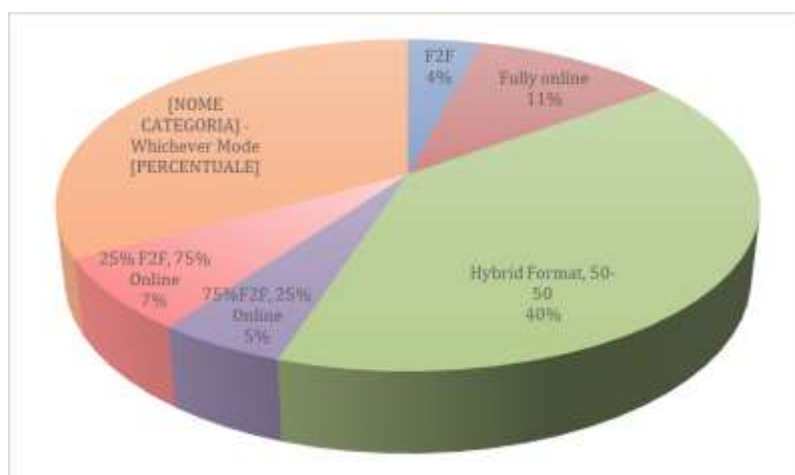
Figure 10. Preferences for the mode of delivery for the Master in Fintech (Philippines)

N.	Teaching Approach Modality	%	Number
1	Traditional: Teacher is the one leading the lesson (input based)	3	2
2	Traditional with workshops, group assignments, seminar: Teacher conducts lecture and workshop with group assignments; sends students or organize seminars inviting resource person/s	3	2
3	Interactive: Teacher submits all materials with case studies to students before classes start. Then, students discuss with teacher together on academic topics and business cases.	5	4
4	Combination of traditional and interactive; teacher delivers lecture, students engage in discussion, workshops, business case studies.	47	34
5	Flexible with discussion, and tiered. Teacher provides course syllabus & reading materials with activities for students to carry out for the whole period. Students get certificates per module	26	19
6	N/A	16	12

Table 5. The Teaching Approach Modality (Philippines)

The academic courses of the master program in the Philippines normally range in 24 – 30 credit units which are about 8 – 10 courses. Hence, the top 10 courses selected were identified. The first three top courses were: (A) design and innovation thinking, technical solutions and financial application, and financial and risk analysis. The next top three courses selected were: (B) quantitative methods in finance, principles of finance and risk management, and data management and business intelligence. Then the next four courses were: (C) operations research, entrepreneurship principles and business planning, project and program management, Fintech ecosystem and innovation. On the top 10 identified courses, the scoping activity analyzed the preparedness of the current faculty members. Table 6 showed that the faculty members of the Philippine HEIs need reinforcement to teach the abovementioned courses. Also, the Table 4 above showed that many of the HEIs are not prepared to offer a master in Fintech in terms of hard and soft infrastructure. Hence, given these data, both HEIs' infrastructure and human capital need to be retooled and reskilled.

	Responses, %			
N.	Name of Courses	Not at All	Quite Well	Very Well	Extremely Well
1	Design and Innovation Thinking	30	23	36	11
2	Technical Solutions and Financial Applications	29	38	21	12
3	Financial and Risk Analysis	27	27	33	13

4	Quantitative Methods in Finance	19	40	25	16
5	Principles of Finance and Risk Management	18	40	25	17
6	Data Management and Business Intelligence	25	32	32	11
7	Operations Research	21	34	25	20
8	Entrepreneurship Principles and Business Planning	11	30	38	21
9	Project and Program Management	15	30	34	21
10	Fintech Ecosystem and Innovation	37	40	15	8

Table 6. The Identified Courses and the Preparedness of the Current Faculty Members (Philippines)

Results on the secondary data assessment showed that among the 2,392 of HEIs in the Philippines, only two universities have academic program directly related to master in Fintech and digital innovation. De La Salle University offers Master of Science in Computational Finance, Master of Science in Financial Engineering, and Diploma in Financial Engineering. Whereas, Mapua University is offering Master in Business Analytics. The University of the Philippines offers Master of Science in Finance, and other HEIs offer Master in Financial Management.

In the case of Mapua University, it (now) requires all engineering programs to include 'Data Science' course in the curriculum. This is to expose their students on the use of scientific methods, algorithms and systems to extract insights from structures and un-structured data. These are among the skills required by Fintech industry from their potential manpower needs. Saint Louis University and University of Cebu have instituted hackathons, mentorship programs and incubators. These three TRUST HEI partne1rs (Mapua, SLU, and UC) establish accelerator programs to enhance the Fintech-related skills of their students. Apart from these strategies installed in HEIs' infrastructure, it was noted that nine technologies or technology-enabling trends that, individual or collectively, facilitates current and future Fintech innovations[4] . These are the following:

1. cloud technology
2. process and service externalization

---

[4] Ernest and Young, (2016). Capital Markets: Innovation and the Fintech landscape. Available at http://www.ey.com/Publication/vwLUAssets/EY-capital-markets-innovation-and-the-finTech-landscape/$FILE/EY-capital-markets-innovation-and-the-fintech-landscape.pdf   October 26, 2020.

3. robotic process automation (RPA)
4. advanced analytics
5. digital transformation
6. blockchain
7. smart contracts
8. artificial intelligence (AI)
9. internet of things (IoT)

The above mentioned technologies, described by Ernest and Young (2016), have not been fully introduced or applied by companies, and not fully focused in HEIs except for the AI, IoT, and analytics. Hence, there is a need to incorporate these technologies or technology-enabling trends into the existing academic curriculum of Fintech related undergraduate and graduate programs, or offer a new graduate program such as master in financial technology and digital innovation.

Another set of data which the HEIs were able to collect, that are important to the development of the Master in Fintech, was the Philippines statistics of the financial services industry in the context of digital technology. Among the about 110 Million population size1 only 31% have bank account, 4% did online bill payments/transactions, average internet speed of only 15.19 mbps, mobile penetration of 58% and connectivity score of 61.60/100. These data are associated with the weak use of digital technology. Hence, refocusing people into the use of digital technology for financial services and investments is important to the country's economic stature.

Furthermore, there is a need for companies to expand their technology tools, aside from computers, on the use of Fintech innovative tools. Establishment of RDI offices, or strengthening of RDIs in the university and utilize by industries, would act as catalyst in pursuing the near future needs of the Fintech industry and the appropriate strategies of the HEIs on their related academic curricula.

4. CURRENT CAPACITIES OF HIGHER EDUCATIONAL INSTITUTIONS TO OFFER TRAINING ON FINTECH IN VIETNAM

4.1. Overview of the Higher Educational scenario in Vietnam

Vietnam (Vietnamese: Việt Nam, [vîət nāːm] (listen), officially the Socialist Republic of Vietnam[9] (Vietnamese: Cộng hòa Xã hội chủ nghĩa Việt Nam), is a country in Southeast Asia and the easternmost country on the Indochinese Peninsula. The current population of Vietnam (or Viet Nam) is 97,717,109 as of Monday, December 7, 2020, based on Worldometer elaboration of the latest United Nations data (source https://www.worldometers.info/world-population/vietnam-population/).

Figure 11. Regions of Vietnam (https://en.wikipedia.org/wiki/Geography_of_Vietnam)

One of Vietnam's strategies to achieve further economic growth is the modernization of its education system. The goals of several of the current education reforms were already laid down in a government directive from 2005 on the "Comprehensive Reform of Higher Education in Vietnam, 2006–2020". Among the bold reforms currently enacted are the establishment of new accreditation and quality assurance mechanisms, the creation of a national qualifications framework, and a drastic increase in higher education enrollments.

25

Another goal of the current reforms is the internationalization of Vietnam's still somewhat insular higher education system. The government is trying to expand English-language education in Vietnam, and promote transnational cooperation and exchange with countries like Australia, France, the U.S., Japan, and Germany. Vietnam has also acceded to international education agreements, such as the Asia-Pacific Convention on the Recognition of Qualifications in Higher Education. Study abroad of Vietnamese students and scholars is explicitly promoted, while the government simultaneously seeks to increase the number of foreign students and researchers in Vietnam.

Many aspects of the education system are highly centralized and directed by the Ministry of Education and Training (MOET) in Hanoi. The MOET is responsible for most aspects of schooling and the implementation of education policy. The government has recently granted HEIs increased autonomy to determine their curricula and admissions quotas. In addition to universities overseen by the MOET, a sizeable number of public institutions are under the purview of other government bodies, such as people's committees and different line ministries overseeing specialized institutions. Since 1998, large parts of vocational education and training are overseen by the Ministry of Labor, Invalids and Social Affairs (MOLISA).

In Vietnam, there is no finance and banking master programs or higher education programs offering subjects in FinTech yet. Some institutions and universities have cooperated with foreign universities offering master programs in finance and FinTech in which foreign universities will grant the degrees. One of these programs is Master of Science in Banking, Finance and Fintech of EM Normandie, France collaborated with Agence Universitaire Francophone, Vietnam National University, Hanoi.

The first and only full Fintech education program in Vietnam is the cooperation between School of Management, Asia University, in Taiwan and National Economics University, Vietnam to offer a Bachelor of Finance and Banking in Fintech in 2018. Asia University, one of the top universities in Taiwan, has a Fintech and Blockchain Research Center, which studies the latest developments in technology adoption in the financial sector. National Economics University is one of some universities in Vietnam that offers bachelor, master, and doctoral degrees in finance and banking.

Beside the official degree program, there are several training workshop, forum and contest organized to support the development of Fintech in Vietnam. For example, with the aim of spurring innovation in financial and banking services, promoting greater financial inclusion in Viet Nam, the Fintech Challenge Vietnam (FCV) contest has been organized during 6 months in 2018, with the participation of 141 Fintech companies (45 from Viet Nam and 96 from foreign countries), coming from 27 countries in 5 different continents. This reflects the enormous efforts of the State Bank of Vietnam Fintech Steering Committee and MBI/ADB in designing the program focusing on five core Fintech fields that are critical for financial inclusion, which are: (i) electronic Know Your Customer (e-KYC), (ii) Open Application

26

Programming Interfaces (Open APIs), (iii) Peer-to-peer (P2P) Lending, (iv) e-Payments, and (v) Blockchain technology. Through the FCV, the SBV Fintech Steering Committee would be able to know more in-depth the technologies being applied widely in the fields of finance and banking; at the same time this is also the opportunity for Fintech companies to introduce their innovative ideas to administrators, as well as bankers and investors.

Another example is that the State Bank of Vietnam coordinated with the Asian Development Bank (ADB) and Australian Government to organize the Fintech Vietnam Forum 2018 with the theme of 'Fintech for Financial Inclusion'. The forum was also attended by over 300 participants representing the diplomatic missions, the international organizations, national and international experts, commercial banks, as well as Vietnamese and foreign Fintech companies. This forum was organized with a view to sharing new development trends in Fintech, breakthrough technologies that will be applied in the finance and banking systems in the coming decade, and especially the state management measures applied to Fintech in some countries. This was also a great opportunity for representatives of Vietnamese management entities, banks and Fintech firms to gain more information and useful knowledge for their organizations.

Therefore, the demand for Fintech education and training in Vietnam is still very potential at this stage. The knowledge in Fintech will help students to adapt quickly to the changing labor market and catch up with the digital economy.

As presented in Table 7, there were 2 popular programs related to FINTECH in Vietnam comprising Master in Finance and Master in Information Technology with 73,1% and 42,3%, respectively. Nevertheless, Vietnam's universities offer them in two distinguished training programs that lead to the quality that has not been equivalent to the demand. For instance, a student who pursues the Finance program lacking the knowledge in Information Technology and vice versa; some students are good at Information Technology but do not have an insight of Finance, Banking, and Insurance field. Thus, the demand for Master's Program in FINTECH is crucial to enhancing the knowledge for the student in the future.

Programs	Number of respondents		% of respondents	
	Yes	No	Yes	No
MBA major in Financial Management	16	36	30.8	69.2
Master in Business Analytics	5	47	9.6	90.4
Master in Information Technology	22	30	42.3	57.7
Master in Financial Engineering	4	48	7.7	92.3

Master in Finance	38	14	73.1	26.9
Master in Computational Finance	8	44	15.4	84.6
Other	17	35	32.7	67.3

Table 7. The current Program relating to Financial Technology and Digital Innovation (Vietnam)

4.2. Research methodology and data collection

The WP1 includes a scoping study conducted in the Vietnamese universities aimed to assess professors and the universities' staff training needs on FinTech and digital innovation. This was carried out by University of Economics and Business of Vietnam National University (Hanoy), Hue College of Economics (Hue), Ho Chi Minh City Open University (Ho Chi Minh City).

The objectives of this survey are to assessing the current situation and human resource needs in the financial technology sector (FINTECH) from enterprises' perspectives. Hence, it is vital to identify the general and specific capacities of training programs, which allow the universities to select the right strategy in choosing the content of the training program.

Before conducting the survey, the questionnaire was developed and completed through the following steps:

(1) The questionnaire was developed with partners in the Philippines along with related European partners' comments.

(2) Questionnaire was translated into Vietnamese then being edited by experts from the University of Economics, Vietnam National University (VNU-UEB), and Ho Chi Minh City Open University (HCMOU) to ensure the accuracy of terms.

(3) Upon the list of professors, managers at Vietnam's universities, the questionnaires were delivered via email or reliable application (Zalo) to respondents.

Respondents in the survey include experienced lecturers and leaders from the Vietnamese universities. These respondents are selected because they have experience in developing and implementing the Fintech related training programs at universities in Vietnam.

This study utilized a combination of online and face to face survey methods. In terms of the online survey, the team collected email addresses, phone numbers of potential respondents at universities and emailed the questionnaires to them via links on Google Drive. Regarding the face to face survey, the team conducted the interviews with the respondents via

telephone. After the survey, the project team collected 52 feedback questionnaires from representatives of Vietnam's universities.

All data are processed in Excel software. Statistical analysis (frequency) methods are used to aggregate the data.

The survey was conducted from 15/7/2020 to 15/9/2020.

4.3. Characteristics of Vietnamese participating HEIs and respondents profile

The study results show that there are only 2 universities (account for 3.8%) in the total of 52 surveyed universities offering the Master's Program in Financial Technology. Because Fintech is a new field of study in Vietnam, the number of universities offering Master of Fintech is limited. In the context of industry 4.0, the demand for Fintech experts is rapidly increasing, this field of study should be included in the training programs of universities in Vietnam in order to meet the labour market's needs.

Option	Number of respondents	Percentage of respondents (%)
Non-offering	50	96.2
Offering	2	3.8
Total	52	100

Table 8. Number of Fintech Master's Program offered in Vietnamese universities

4.4. Research results on the current capability of HEIs to supply talents to Fintech Industry in Vietnam

As can be seen in Table 9, 57.7% of respondents stated that their institution would have a plan to offer a Master's Program in Financial Technology and Digital Innovation in coming years. With the rapid change of technological application into the banking sector in developing countries like Vietnam, the need for human resources in financial technology have rapidly increased.

Therefore, it is likely that the universities tended to offer new training programs to satisfy social needs.

Plan to offer Master of Fintech	Number of respondents	Percentage of respondents (%)
No plan	22	42.3
Have a plan	30	57.7
Total	52	100.0

Table 9. Plan to offer Master's Program in Financial Technology & Digital Innovation (Vietnam)

Although many universities have had a plan to offer a Master's Program in Financial Technology and Digital Innovation, the offering of new Program is carefully considered may be due to limited training capacity. 50% of the respondents stated that they would offer the new Program in 4 or 5 years. While 40% of the respondents will offer the new Program in 2 or 3 years. Consequently, it is vital for Vietnam's universities to invest in enhancing the training capacity of Financial Technology in the coming time.

Time	Number of respondents	Percentage of respondents (%)
In 4 or 5 years	26	50.0
In 2 or 3 years	21	40.4
Next year	3	5.8
Next semester	2	3.8
Total	52	100.0

Table 10. Time to offer Master's Program in Financial Technology & Digital Innovation (Vietnam)

As related to the motivation to offer the Master's Program in Financial Technology and Digital Innovation, The findings indicated that offering a new training program is based on the «needs of market labour». There were about 78% of respondents considered the «needs of market labour» as «very important» and «important» factor of offering the Master of Fintech. In this sense, the market demand for Master's Program in FINTECH is great in Vietnam.

Besides, the «demand for new learning» is a motivational factor influencing on the intention to offer this Master's Program in Vietnam's universities (36.5% of respondents regarded this as «very important»).

Level of importance	Number of respondents		% of respondents	
	Demand for new learning	Career considerations/ market demand	Demand for new learning	Career considerations/ market demand
Very important	19	23	36.5	44.2
Important	22	18	42.3	34.6
Somewhat important	5	1	9.6	1.9
Minimally important	5	9	9.6	17.3
Not important	1	1	1.9	1.9
TOTAL	52	52	100	100

Table 11. Motivational factors for offering Master of Fintech (Vietnam)

The survey results show that the strength of universities at Vietnam is to have a good internet connection and computer (40.4% and 36.5% of respondents agreed with « fully developed »). The internet is well developed in Vietnam during the last decade and people are easily accessing internet any time. On the other hand, the weakness of Vietnam's universities when being implemented the training program is the shortage of software and technical competency of lecturer/professor for the use of learning technologies and software.

Technological aspects	Number of respondents				% of respondents			
	Fully Developed	Developed with Some Minor Development Needed	Development Needed	Challenging and Substantial	Fully Developed	Developed with Some Minor Development Needed	Development Needed	Challenging and Substantial
Access to computer (desktop or laptop)	19	26	3	4	36.5	50.0	5.8	7.7
Access to internet connection (at least 3Mbps)	21	22	3	6	40.4	42.3	5.8	11.5

Access to licensed software (software required by the course)	7	22	13	10	13.5	42.3	25.0	19.2
Technical competency of lecturer or professor for use of learning technologies and software	9	26	3	14	17.3	50.0	5.8	26.9

Table 12. University capability for technological aspects (Vietnam)

As related <u>training methodology</u>, the blended methodology is currently selected to offer the Master's Program in FINTECH (approximately 50% of respondents). At present, the mode of Hybrid format is popularly carried out in Vietnam corresponds to the mode of training Master's Program in FINTECH.

Delivery mode	**Number of respondents**		**% of respondents**	
	Yes	**No**	**Yes**	**No**
Fully face-to-face (F2F in-class) program	24	28	46.2	53.8
Fully on-line program	6	46	11.5	88.5
Hybrid format (50% F2F, 50% online)	27	25	51.9	48.1
75% F2F, 25% online	27	25	51.9	48.1
25% F2F, 75% online	8	44	15.4	84.6

Table 13. Proposed delivery mode for Master in Financial Technology and Digital Innovation Program (Vietnam)

It is clearly that there are many <u>factors influencing the students' selection of training Master's Program in FINTECH</u>, in which three factors are the most important including Program's academic reputation ; Mode of delivery/Teaching Approach and Profile of faculty members meanwhile the factors of class size, cost are the least important (Table 14).

In addition, the teaching approach has a great impact on students' selection of training programs. 98% of respondents agreed that the teaching approach is an influential factor in their selection of training Master's Program in FINTECH.

FACTORS	Number of respondents					% of respondents				
	Very important	Important	Somewhat important	Minimal Important	Not important	Very important	Important	Somewhat important	Minimal Important	Not important
School's academic reputation	10	31	8	2	1	19.2	59.6	15.4	3.8	1.9
Program's academic reputation	16	31	4	1	0	30.8	56.6	7.7	1.9	0.0
Preference for a faith-based university	13	25	10	4	0	25.5	48.1	19.2	7.7	0.0
Convenient schedule	14	21	10	6	1	26.9	40.4	19.2	11.5	1.9
Cost	13	25	12	2	0	25.0	48.1	23.1	3.8	0.0
Student support services	11	27	10	4	0	21.2	51.9	19.2	7.7	0.0
Small class size	7	17	16	11	1	13.5	32.7	30.8	21.2	1.9
Class availability	10	20	15	4	3	19.2	38.5	28.8	7.7	5.8
Accelerated program completion	11	26	11	4	0	21.2	50.0	21.2	7.7	0.0
Mode of delivery/Teaching Approach (interactive/ workshops versus traditional academic approach)	22	23	6	1	0	42.3	44.2	11.5	1.9	0.0
Profile of faculty members	19	22	9	2	0	36.5	42.3	17.3	3.8	0.0

Location/Proximity to workplace	13	20	11	7	1	25.0	38.5	21.2	13.5	1.9
Undergraduate background	4	30	13	4	1	7.7	57.7	25.0	7.7	1.9
Current work assignment	8	35	6	3	0	15.4	67.3	11.5	5.8	0.0

Table 14. Factors for prospective students of Master in Financial Technology and Digital Innovation Program (Vietnam)

When being asked about the best <u>teaching approach</u> for Master's Program in FINTECH, 44,2% of respondents believed that « Combination of traditional and interactive: teacher delivers lectures, students engage in discussion, workshops, business case studies » is the best one. In Vietnam's universities, the traditional teaching approach is widely used. However, if students are able to apply well technology, the combination of traditional and interactive teaching approach will bring more effectiveness and be suitable for them.

Teaching approach	Frequency	Percent
Combination of traditional and interactive: teacher delivers lecture, students engage in discussion, workshops, business case studies.	23	44.2
Flexible with discussion, and tiered: Teacher provides course syllabus & reading materials with activities for students to carry out for the whole period. Students get certificates per module.	13	25.0
Interactive: Teacher submits all materials with case studies to students before classes start. Then, students discuss with teacher together on academic topics and business cases.	13	25.0
Traditional with workshops, group assignments, seminar: Teacher conducts lecture and workshop with group assignments; sends students or organize seminars inviting resource person/s.	3	5.8
Total	**52**	**100.0**

Table 15. Preferred teaching approach (Vietnam)

The internship is mostly chosen when being implemented in the Master's Program in FINTECH because it creates a good opportunity for students to apply their knowledge to Fintech enterprises, banks, insurance companies. The internship duration is from 3 to 6

months being preferred time for students to get to know about the actual operation of Fintech services and enterprises (Figure 12 and Table 16).

Figure 12. Internship (Vietnam)
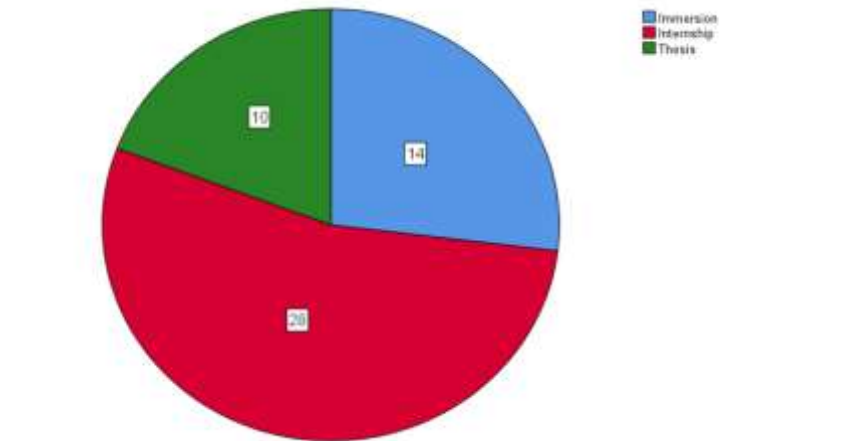
As indicated in Table 16, the percentage of universities that have FinTech-related publications is still limited, and the reason why could be Fintech is a new field.

Number of publications	Frequency	Percent
< 10	32	61.5
10 - 20	15	28.8
21 - 30	1	1.9
> 30	4	7.7
Total	52	100.0

Table 16. FinTech-related publications (Vietnam)

5. CONCLUSIONS AND SUGGESTIONS FOR THE MASTER IN FINTECH DESIGNING

The <u>PHILIPPINES</u> has a total of 2,392 HEIs and over 200 Fintech companies. Seventy three from HEIs and twenty four Fintech and related companies participated in the scoping study. It was recorded that the entry level skills required by the Fintech and related companies are communication and business/finance skills with knowledge in analytics, problem solving, selling, design thinking, information technology, business and operation, product and engineering. The hard core Fintech companies need Talents who are adaptable to technology with financial background. The technical competencies of the Talents which Fintech industry needs are management engineering, management information system, programming languages, database, infrastructure, server maintenance, mobile App development, UI, and UX design. According to Fintech industry, they prefer experiences than degree. Based on the internal survey of FAP, the skills which the industry need are: digital sales and marketing, basic computer or software troubleshooting, use of online tools and teleconference, data analysis and insights, managing cloud-based operations through SaaS, and utilizing logistics and e-commerce platforms. The technologies and/or technology-enabling trends are: cloud technology, process and service externalization, robotic process automation, advanced analytics, digital transformation, blockchain, smart contracts, artificial intelligence, and internet of things. The tools used are computer, AI, ICT, ERP, POS, and own banking/insurance system. The software that are commonly used are Java, C++, and SAP.

On the challenges that were recorded, the COVID-19 pandemic was recorded the most challenging concern in both the industry and HEIs. Uncertainty in the market was also recorded. Also, culture was mentioned but this shall be embraced as selling point. Another are the lack of digital readiness and innovation skill of the available human capital.

Given the abovementioned necessary skills that the Fintech industry needs, majority of the respondents from HEIs 50 HEIs wrote that they are not prepared to teach these tools/ technologies. Hence, it is not only a master degree program shall be developed but also specialized short term courses for faculty members who need retooling. In addition, existing fintech relevant programs shall be reinforced with the financial technology-enabling trends courses. The program shall incorporate workshop/s, immersion related activities as teaching modality, and various fintech courses including capstone course. The program could include the developed BEEHIVE MOOC on entrepreneurship. It is proposed that the capstone course shall compose of two courses, i.e., Capstone 1 and 2 with the following student outcomes:

1.Capstone Course 1

a.Acquire the techno-entrepreneurial mind set;

b.Able to prepare business model;

c.Capability to deliver pitching activity

2.Capstone Course 2

a.Students capable to implement start-up activity

b.Students acquire domestic trade industry (DTI) registration

Competency requirements by the industry are leaning towards technological capacity building of the existing manpower, the restructuring of the existing relevant academic programs and the retooling of the educators who are in the finance, business and information technology programs shall be carried out by all means. The courses and the tools for faculty members competency upgrading are as shown below. We can call these as the "Critical 12".

1.Advanced analytics

2.AI

3.Blockchain

4.Cloud technology

5.Digital transformation

6.ERP

7.Java

8.POS

9.Process and service externalization

10.Python

11.RPA

12.SaaS

The Philippines financial system is like a wholesale digital transformation and Fintech is an upswing industry sector, its job market and likewise the skills requirements. Therefore, the offering of the Master in Fintech and relevant/related short term course is currently critical.

As related the results of the research in VIETNAM, in order to identify the essential courses in FinTech field, it is crucial to conduct a survey with all listed courses of Master's Program in FINTECH so that respondents can evaluate the level of importance of each factor.

Obviously, the findings showed that the demand for courses of Master's Program in FINTECH is various, including the related courses in Finance and Information Technology. The courses are related to IT being assessed the most important ones such as Algorithmic Trading and Robo-Advisors; Blockchain Systems: Concepts and Principles; Data Mining; Technical Solutions and Finance Applications; Data Management and Business Intelligence; Design and Innovation Thinking. Additionally, the related courses in Finance such as Principles of Finance and Risk Management; Quantitative Methods in Finance; Financial and Risk Analytics; Probability and Statistics; Entrepreneurship Principles and Business Planning; Project and Program Management. The basic courses are, moreover, related to the concepts of Financial Technology being assessed as important: Introduction to Fintech; Fintech Ecosystem and Innovations.

Courses	Number of respondents				% of respondents			
	Extremely Important	Very Important	Important	Not at all	Extremely Important	Very Important	Important	Not at all
Introduction to Fintech	21	19	12	0	40.4	36.5	23.1	0.0
Fintech Ecosystem and Innovations	14	26	12	0	26.9	50.0	23.1	0.0
Principles of Finance and Risk Management	14	26	10	2	26.9	50.0	19.2	3.8
Algorithmic Trading and Robo-Advisors	15	23	13	1	28.8	44.2	25.0	1.9
Blockchain Systems: Concepts and Principles	18	19	14	1	34.6	36.5	26.9	1.9
Probability and Statistics	17	26	8	1	32.7	50.0	15.4	1.9
Data Mining	13	26	12	1	25.0	50.0	23.1	1.9

Quantitative Methods in Finance	20	20	10	2	38.5	38.5	19.2	3.8
Financial and Risk Analytics	16	25	9	2	30.8	48.1	17.3	3.8
Data Management and Business Intelligence	19	22	11	0	36.5	42.3	21.2	0.0
Design and Innovation Thinking	16	21	14	1	30.8	40.4	26.9	1.9
Entrepreneurship Principles and Business Planning	14	19	15	4	26.9	36.5	28.8	7.7
Project and Program Management	14	19	17	2	26.9	36.5	32.7	3.8
Technical Solutions and Finance Applications	17	26	8	1	32.7	50.0	15.4	1.9
Python Programming	5	32	14	1	9.6	61.5	26.9	1.9
Python for Data Analysis	7	32	12	1	13.5	61.5	23.1	1.9
Advanced Natural Language Processing and Deep Learning	8	26	12	6	15.4	50.0	23.1	11.5
Regulatory Technology	7	29	11	5	13.5	55.8	21.2	9.6
Anti-Financial Crime and Compliance	8	24	18	2	15.4	46.2	34.6	3.8
Operations Research	10	20	15	7	19.2	38.5	28.8	14.4
Time Series Analysis	14	19	16	3	26.9	36.5	30.8	5.8
Information Retrieval and Analysis	14	25	12	1	26.9	48.1	23.1	1.9
Applied Cryptography	12	25	13	2	23.1	48.1	25.0	3.8

People Management	3	26	19	4	5.8	50.0	36.5	7.7
Negotiation Principles	3	22	23	4	5.8	42.3	44.2	7.7
Marketing and Communication Effectiveness	10	19	19	4	19.2	36.5	36.5	7.7
Venture Creation and Startup	6	25	19	2	11.5	48.1	36.5	3.8

Table 17. List of important courses for Master in Financial Technology and Digital Innovation (Vietnam)

Yet, the preparation for delivering the new courses had shortcomings due to the limited training programs in Vietnam, especially limited courses in IT and Fintech. Therefore, there is a need for teaching staff to be supported to train the courses at Vietnam's universities.

Courses	Number of respondents				% of respondents			
	Extremely Important	Very Important	Important	Not at all	Extremely Important	Very Important	Important	Not at all
Blockchain Systems: Concepts and Principles	6	7	17	22	11.5	13.5	32.7	42.3
Python Programming	1	11	9	31	1.9	21.2	17.3	59.6
Python for Data Analysis	0	12	9	31	0.0	23.1	17.3	59.6
Data Mining	7	8	18	19	13.5	15.4	34.6	36.5
Advanced Natural Language Processing and Deep Learning	3	8	16	25	5.8	15.4	30.8	48.1
Algorithmic Trading and Robo-Advisors	6	6	9	31	11.5	11.5	17.3	59.6
Applied Cryptography	6	5	8	33	11.5	9.6	15.4	63.5

Regulatory Technology	3	9	10	30	5.8	17.3	19.2	57.7
Anti-Financial Crime and Compliance	1	10	13	28	1.9	19.2	25.0	53.8
Marketing and Communication Effectiveness	0	19	17	16	0.0	36.5	32.7	30.8
Venture Creation and Start-up	1	16	17	18	1.9	30.8	32.7	34.6
Technical Solutions and Finance Applications	4	10	20	18	7.7	19.2	38.5	34.6
Introduction to Fintech	3	18	12	19	5.8	34.6	23.1	36.5
Fintech Ecosystem and Innovations	7	12	11	22	13.5	23.1	21.2	42.3
Principles of Finance and Risk Management	12	18	13	9	23.1	34.6	25.0	17.3
Probability and Statistics	12	18	15	7	23.1	34.6	28.8	13.5
Quantitative Methods in Finance	12	13	18	9	23.1	25.0	34.6	17.3
Financial and Risk Analytics	11	14	18	9	21.2	26.9	34.6	17.3
Operations Research	6	14	12	20	11.5	26.9	23.1	38.5
Time Series Analysis	9	16	19	8	17.3	30.8	36.5	15.4
Data Management and Business Intelligence	4	12	18	18	7.7	23.1	34.6	34.6
Information Retrieval and Analysis	4	10	14	24	7.7	19.2	26.9	46.2
Design and Innovation Thinking	7	10	16	19	13.5	19.2	30.8	36.5

Entrepreneurship Principles and Business Planning	9	8	19	16	17.3	15.4	36.5	30.8
Project and Program Management	8	16	17	11	15.4	30.8	32.7	21.2
People Management	3	18	17	14	5.8	34.6	32.7	26.9
Negotiation Principles	8	12	16	16	15.4	23.1	30.8	30.8

Table 18. The preparation of delivering/teaching proposed courses (Vietnam)

The findings on the capacities of higher educational institutions in Vietnam illustrated that there is a great demand for Master's Program in FINTECH. Furthermore, many higher education institutions have had a plan for training Master's Program in FINTECH to meet the social needs. Nevertheless, this is the new Program, while the current capacities of higher educational institutions are limited, particularly related courses in technology. As a result of that, higher educational institutions in Vietnam have paid more attention to enhancing their capacities in FINTECH, being necessarily supported by the government and international projects

6. LIST OF ANNEXES

6.1. Annex I – Questionnaire – English

Master's Program in Financial Technology Interest Survey

This survey is being administered in the Philippines and Vietnam which aims to assess professors and universities' staff training needs on Financial Technology (FinTech) and Digital Innovation. This activity is part of the TRUST project co-funded by the European Union Erasmus Plus Programme. TRUST project is a consortium of four European institutions (two from Italy, one from the United Kingdom and one from Serbia), three from Vietnam and four in Philippines.

This questionnaire should take about 5-7 minutes and will provide vital information for institutional planning. Your participation is completely voluntary and your responses will be held in strict confidentiality. TRUST project will help Vietnam and Philippines higher educational institutions improve its professors/lecturers' capability and competency in teaching and providing human resources who are technologically competent to support financial services industry. Kindly put an "X" on the relevant spaces provided below.

The questionnaire asks about information on:

a. The financial technology program or any related program offered in your university
b. Important factors for prospective students of Master in Financial Technology program
c. The use of information technology, software and the obstacles in this area
d. Pedagogical practices
e. Fintech Preparedness – Course Offerings

I] About the University and Respondent

Name of the University:

_____

Site Address:

_____

Type of University (Public/Private):

_____

Profile of the University:

	No. of Programs	No. of Students	No. of Faculty
BA/BS			
Certificate/Diploma			
MA/MS			
PhD			

Respondent: _____
Position: _____
Highest Education: _____
Email: _____
Telephone Number: _____

II] About the Master in Financial Technology program

1. Does your university offer a Master's program in Financial Technology and Digital Innovation?
    a. Yesb. No

    If yes, fill up below table. You may add table should you have more than one active program. If No, go to question 2; also on page 4, omit question V.7 and proceed to V.8

Title	
Level of study	
List of subjects and credits (ECTS or comparable credit system) for each of them	
Duration (in years and hours)	
N° of students	

2. Does your university have a plan to offer a Master's program in Financial Technology and Digital Innovation?
    a.Yesb. No

    If yes, when do you plan to offer the program

Next semester	Next year	In 2 or 3 years	In 4 or 5 years

3. What do you think is the motivation of your university to offer the Master's program in Financial Technology and Digital Innovation? Or motivation to offer this graduate program in the future?

	Not important	Minimally important	Somewhat important	Important	Very important
Demand for new learning					
Career considerations/market demand					

4. What graduate program/s does your university currently offer that is/are related to Financial Technology and Digital Innovation?

Graduate Program	Year Offered; (Put X if not being offered)
MBA major in Financial Management	
Master in Business Analytics	
Master in Information Technology	
Master in Financial Engineering	
Master in Finance	
Master in Computational Finance	
Other (Pls specify)	

III] Important factors for prospective students of Master in Financial Technology and Digital Innovation program

5. How important are the following factors for prospective students of Master in Financial Technology and Digital Innovation program?

	Not important	Minimally important	Somewhat important	Important	Very important
School's academic reputation					
Program's academic reputation					
Preference for a faith-based university					

Convenient schedule					
Cost					
Student support services					
Small class size					
Class availability					
Accelerated program completion					
Mode of delivery/Teaching Approach (interactive/ workshops versus traditional academic approach)					
Profile of faculty members					
Location/Proximity to workplace					
Undergraduate background					
Current work assignment					

IV] The use of information technology, software and obstacles in these areas

6. In your opinion, how developed is your university capability for the following technological aspects?

	Development Needed	Challenging and Substantial	Developed with Some Minor Development Needed	Fully Developed
Access to computer (desktop or laptop)				
Access to internet connection (at least 3Mbps)				
Access to licensed software (software required by the course)				
Technical competency of lecturer or professor for use of learning technologies and software.				

V] Pedagogical practices

7. A] What is the current delivery mode of your Master in Financial Technology and Digital Innovation program? Or your proposed delivery mode in the future?

Fully face-to-face (F2F in-class) program	Fully on-line program	Hybrid format (50% F2F, 50% online)	75% F2F, 25% online	25% F2F, 75% online

8. Do you think the teaching approach (style and modality of delivery) is also relevant component for the student decision on the Master program?

    If YES, what do you think would be the best teaching approach/modality to adopt for the Master program effectiveness? Please mark X on the space provided on the table below. If answer is NO, please mark N/A and proceed to question 9.

Traditional: Teacher is the one leading the lesson (input based)	Traditional with workshops, group assignments, seminar: Teacher conducts lecture and workshop with group assignments; sends students or organize seminars inviting resource person/s.	Interactive: Teacher submits all materials with case studies to students before classes start. Then, students discuss with teacher together on academic topics and business cases.	Combination of traditional and interactive: teacher delivers lecture, students engage in discussion, workshops, business case studies.	Flexible with discussion, and tiered: Teacher provides course syllabus & reading materials with activities for students to carry out for the whole period. Students get certificates per module.

9. Which course/activity you think shall be included in the Master Program for Financial Technology and Digital Innovation?

Internship	Immersion	Thesis

10. How long shall be the internship or immersion should you think is necessary to Master in Financial and Digital Innovation program?

< 3 Months	3 – 6 Months	> 6 Months

VI] FinTech-related researches

11. Does your university have FinTech-related publications (ISI or Scopus)? (Financial Management, Business Analytics, Data Mining, etc)

Research Area	No. of publications
Financial Management	
Business Analytics	
Data Mining	
Artificial Intelligence	
Statistical Analysis	
Operations Research	
Other (pls specify)	

VII] Fintech Preparedness – Course Offerings

12. How important are following courses for a competitive future oriented Master in Financial Technology and Digital Innovation?

Courses	Not at all	Important	Very Important	Extremely Important
Introduction to Fintech				
Fintech Ecosystem and Innovations				
Principles of Finance and Risk Management				
Algorithmic Trading and Robo-Advisors				
Blockchain Systems: Concepts and Principles				
Python Programming				
Python for Data Analysis				
Probability and Statistics				
Data Mining				
Advanced Natural Language Processing and Deep Learning				
Quantitative Methods in Finance				
Regulatory Technology				

48

Anti-Financial Crime and Compliance				
Financial and Risk Analytics				
Operations Research				
Time Series Analysis				
Data Management and Business Intelligence				
Information Retrieval and Analysis				
Applied Cryptography				
Design and Innovation Thinking				
Entrepreneurship Principles and Business Planning				
Project and Program Management				
People Management				
Negotiation Principles				
Marketing and Communication Effectiveness				
Venture Creation and Startup				
Technical Solutions and Finance Applications				

13. How well are you prepared to deliver/teach the following courses?

Courses	Not at all	Quite Well	Very Well	Extremely Well
Introduction to Fintech				
Fintech Ecosystem and Innovations				
Principles of Finance and Risk Management				
Algorithmic Trading and Robo-Advisors				
Blockchain Systems: Concepts and Principles				
Python Programming				
Python for Data Analysis				
Probability and Statistics				
Data Mining				
Advanced Natural Language Processing and Deep Learning				
Quantitative Methods in Finance				
Regulatory Technology				
Anti-Financial Crime and Compliance				

Financial and Risk Analytics				
Operations Research				
Time Series Analysis				
Data Management and Business Intelligence				
Information Retrieval and Analysis				
Applied Cryptography				
Design and Innovation Thinking				
Entrepreneurship Principles and Business Planning				
Project and Program Management				
People Management				
Negotiation Principles				
Marketing and Communication Effectiveness				
Venture Creation and Startup				
Technical Solutions and Finance Applications				

APPENDIX
COURSE DESCRIPTION

I] Core Courses

1. Introduction to Fintech (Source: Nanyang Technological University)

This course gives an overview of all the changes, which are happening now in the financial industry and discusses how some of the FinTech processes are being constructed. Each FinTech disruption concept is based on a mathematical of behaviour concept, which is backed by data, analysis and technology. This course goes into detail into some of these processes, so give an understanding as to what is the business model, skill, and future of FinTech in the financial services industry. It will also cover the recent progresses on FinTech development and applications. Although the topics may vary in order to keep pace with the FinTech development, they mainly involve case studies, practical challenges, trends, and opportunities in a FinTech career.

2. Fintech Ecosystem and Innovations (Source: Nanyang Technological University)

This course discusses the existing and future landscapes of FinTech in Singapore, from incumbent financial firms to FinTech startups. Both traditional and new players are working with policy-makers to define the ecosystem, to encourage innovation, adoption while maintaining regulatory oversight.

3. Algorithmic Trading and Robo-Advisors (Source: Nanyang Technological University)

This course covers the quantitative methods to construct computer-based algorithms for automatic trading and asset management. A number of notable algorithmic trading strategies are discussed. This course also emphasizes the rationale behind the winning strategies, backtesting, automated execution and how to build robots for trading and asset management with specific goals. Moreover, the course provides a hands-on experience of implementing the financial solutions with real market data.

4. Blockchain Systems : Concepts and Principles (Source: Nanyang Technological University)

This is an introductory course that attempts to answer the following questions: What is blockchain? What does blockchain aim to achieve? What are the useful properties of blockchains? What are the building blocks of blockchain? What are the design principles underlying the building blocks of blockchain? What are the use cases for blockchains? What is cryptoasset and cryptocurrency? How to evaluate

cryptoasset/cryptocurrency? What is Bitcoin? What is the relationship between Bitcoin and blockchain?

5. Python Programming (Source: Nanyang Technological University)

Python is an easy to learn higher level scripting language that can be used across many different platforms. As such, it is a common choice to code for FinTech products. This course will train the student for programming in python, with particular focus in FinTech applications.

6. Python for Data Analysis (Source: Nanyang Technological University)

This course builds upon the Python basics, covered in MH8811 Python Programming, to understand a more comprehensive use of Python with its famous libraries, such as Numpy, Pandas, Matplotlib, Seaborn, and Scikit-learn. This course will train the students for Python programming skills for data analysis.

7. Probability and Statistics (Source: Nanyang Technological University)

Probability, conditional probability; random variables, joint distributions, conditional distributions and independence; probability laws, multivariate normal distribution; order statistics; convergence concepts, the law of large numbers, central limit theorem. Estimation, Bayes estimators, interval estimation including confidence intervals, prediction intervals, Bayesian interval estimation; Hypothesis testing, likelihood ratio tests; Bayesian tests; Nonparametric methods, bootstrap.

8. Data Mining (Source: Nanyang Technological University)

The knowledge discovery process. Data preparation including data cleaning, outlier analysis and transformation. Statistical techniques: regression modelling, multivariate statistics, statistical inference. Supervised and unsupervised learning techniques including decision tree induction, nearest neighbour categorisation, cluster analysis, association analysis, support vector machines, Bayesian learning and neural networks. Data mining software and tools. Applications of data mining to complex data types.

II] Elective Courses

A] Artificial Intelligence Elective Courses (Source: Nanyang Technological University)

1. Advanced Natural Language Processing with Deep Learning (Source: Nanyang Technological University)

In this course, students will learn state-of-the-art deep learning methods for Natural

52

language processing (NLP). Through lectures, practical assignments and projects, students will learn the necessary tricks for making their deep learning models work on practical problems. They will learn to implement, and possibly to invent their own deep learning models using available deep learning libraries.

2. Quantitative Methods in Finance   (Source: Nanyang Technological University)

This course covers basic and essential quantitative methods in finance. A number of mathematical and statistical techniques are introduced. This course emphasizes the applications of the quantitative methods in two important areas in finance: asset management and derivative pricing.

3. Blockchain Systems II : Development and Engineering   (Source: Nanyang Technological University)

This course builds upon the basic blockchain knowledge discussed in the introductory course to understand the most popular blockchain networks: Ethereum. It covers the mechanics of Ethereum and how it aims to become a global computer through its artifact smart contracts. We will learn one of the languages for smart contract: Solidity and use this to code smart contracts. With these tools, we explore the processes and principles of building decentralized apps on the Ethereum platform.

B] Operations and Compliance Elective Courses (Source: Nanyang Technological University)

1. Regulatory Technology (Source: Nanyang Technological University)

Regulations are essential to ensure good governance in the finance industry. FinTech aiming to replace existing financial services will be subject to the same regulations. RegTech, short for regulatory technology, aims to simplify the compliance process, providing large savings in face of rising compliance costs. This course introduces the myriad of financial regulations, both for traditional financial services as well as new regulations introduced to cover novel FinTech services. The potential of RegTech for cost reduction will also be discussed.

2. Anti-Financial Crime and Compliance (Source: Nanyang Technological University)

Financial Crime Compliance and Regulatory Compliance are probably at the top of nearly every financial institution's risk review process and have become the key strategic imperatives for all board members. This course provides a robust training in Know your customer (KYC) and Customer Due Diligence (CDD) processes by drawing on cutting-edge experience of what world's leading financial institutions are

doing, have done, and must still do. In addition, this course covers the incorporation of the new technologies into the KYC and CDD processes.

3. Financial and Risk Analytics I (Source: Nanyang Technological University)

Techniques for measuring and managing the risk of trading and investment positions for positions in equities, credit, interest rates, foreign exchange, commodities, vanilla options, and exotic options; risk sensitivity reports, design of static and dynamic hedges, measure value-at-risk and stress tests; Monte Carlo simulations determining hedge effectiveness; case studies.

C] Other Elective Courses (Source: Nanyang Technological University)

1. Operations Research (Source: Nanyang Technological University)

These courses introduce a number of optimization methods commonly used in operations research. Nonlinear optimization, discrete optimization, stochastic optimization, queuing theory, inventory theory, dynamic programming, simulation, applications.

2. Time Series Analysis (Source: Nanyang Technological University)

Many of the business systems are dynamic systems in which their states change over time. This course introduces time series models and associated methods of data analysis and inference. Topics include auto regressive (AR), moving average (MA), ARMA, and ARIMA processes, stationary and non-stationary processes, seasonal processes, identification of models, estimation of parameters, diagnostic checking of fitted models, forecasting, and spectral analysis. Real-world applications for understanding characteristics of time series data in economics, finance, management and industries, and modelling and evaluating forecasts upon which decision-making would depend are emphasized with lab on using SAS.

3. Data Management and Business Intelligence (Source: Nanyang Technological University)

This course explores management, organizational, and technological issues in the ways data are stored, managed and applied in businesses. Using a simulated business, the database module covers data concepts, structures, conceptual and physical design techniques, data administration and data mining. Theory and practice of database management systems are integrated through hands-on experience with the design and implementation of a business solution. By the end of the course, participants will gain critical IT skills in analysing business processes, improving these processes, developing business applications with an industry standard database and use data for business requirements.

4. Information Retrieval and Analysis (Source: Nanyang Technological University)

Representation, storage, and access to very large digital document collections: issues, data structures and algorithms. Information retrieval models including Boolean, vector space and probabilistic models. Indexing and retrieval techniques. Evaluation of information retrieval systems. Text and Web mining: content, structure and usage mining. Web search: search engines, spiders, link analysis, agents. Recommender systems and intelligent information retrieval. Information extraction and integration.

5. Applied Cryptography   (Source: Nanyang Technological University)

This course explores cryptographic primitives, and how these are used in building secure protocols. These include symmetric ciphers, cryptographic hashes, one-time pads, public key cryptography and pseudorandom number generators.

6. Design and innovation thinking (Source: Deus Technology)

Design thinking is a powerful process of problem solving that begins with understanding unmet customer needs. That insight triggers a process for innovation that encloses development, applied creativity, prototyping, and experimentation. When design thinking approaches are applied to business, the success rate for innovation improves substantially.
The overall goal of this design thinking course is to design better products, services, processes, strategies, spaces, architecture, and experiences.

The objective of the course will be to guide students on a path of understanding of the framework that modern companies, on the basis of their needs in terms of speed and scalability, uses to collaborate, align teams, define intent, solve users' problems and to improve customer experience. These principles include: solution-focused and action-oriented approach; focus on user results; shared responsibility; continuous reinventions.

7. Entrepreneurship principles and business planning (Source: Deus Technology)

The course will expose the relevance of Entrepreneurship as a process creating value for a plurality of stakeholders, from the entrepreneur him/herself to employees, customers, partners and the surrounding community. It is therefore of key importance to provide student with a complete understanding of how and why the entrepreneurial process unfolds and what its effects are.

The course will address the following contents:
- what are the factors that facilitate company opportunity recognition;
- the notion of business model and frameworks to design it;
- the main tools to design compelling value proposition and targeting customer

55

segments and business plans

- the start-up ecosystem: lean business model, funding options, the methodology to be employed by start-ups when planning their entrance in the market
- the business plan: the key dimensions for a detailed description of the business.

8. Project and program management (Source: Deus Technology)

The course aims to provide students with fundamental concepts and main methods of Project Management and analyses all its typical processes.

The course will review the relevant techniques and tools used in project management providing student with the opportunity to interpret and process independent judgments on matters concerning planning, management, control and accounting; acquire a technical language that enables students to communicate effectively with C-levels typically involved in the projects thanks to advanced project management skills.

9. People management (Source: Deus Technology)

The course explores, from an economic and managerial perspective, the main topics related to people's behaviour inside organisations. In particular, the course will define the main relational, managerial, and self-management skills requested by companies in the current socio-economic context, with a focus on change and innovation skills.

Contents: aspects of diversity management; intercultural competences and management, employees satisfaction and engagement; organizational change, group dynamics and processes; individual differences and personality management; individual performance determinants: motivation and skills, organizational culture, organizational change.

10. Negotiation principles (Source: Deus Technology)

This course will have the aim to explore all the main aspects that characterize the negotiation processes that are generated within and out the organization.

The course could integrate the following modules: communicating within organisations; negotiation skills, organisational processes, power and influence tactics, power dynamics and leadership.

11. Marketing and communication effectiveness (Source: Deus Technology)

The course addresses the theoretical issues and operational implications present in the marketing discipline applied to the FinTech sector.

56

The topics covered could be:

- marketing processes in B2B and B2C markets,
- communication in business marketing,
- analysis and management of the customer portfolio, segmentation and prices strategies
- the differentiation of the offer through product and technological choices,
- the financial sector within the retail services in terms of composition, evolution, trends, customer journey and customer experience

10. Venture Creation and Startup (Source: University of Cebu)

The intent of this course is to develop capabilities needed to conceptualize, create, execute and sustain entrepreneurial endeavor. Introducing to students to the key elements of venture creation process is the main objective of this course. It is expected that students will acquire entrepreneurial knowledge and develop entrepreneurial behaviors needed to create and manage a financial technology related business solutions. The following are the specifics which students will explore on: identification and exploitation of opportunities, evaluation of possible entrepreneurial activities, strategy formulation, research and feasibility study, business planning and implementation. The end goal of this course is to provide students the necessary skills to commercialize financial technology innovations.

11. Tech Solutions and Finance Apps (Source: University of Cebu)

This course covers fundamentals on mobile application development. Developing requirement, design considerations and data handling are few of the major topics in this course. Specifically, the students will be exposed on the following: identification of business and technical requirements, mobile flatform and usability, app visuals, database creation, loading, data collection and integration. At the end of this course, it is expected that students will be presenting the visual concept and business model of the proposed App. Graduate students coming from technical background may opt on creating a prototype or a beta version of their proposed App.

6.2. Annex II – Questionnaire - Vietnamese

Khảo sát mức độ quan tâm đối với Chương trình Thạc sĩ Công nghệ Tài chính

Khảo sát này được thực hiện tại Philippines và Việt Nam nhằm đánh giá nhu cầu đào tạo của các giáo sư và đội ngũ giảng viên đối với Công nghệ Tài chính (FinTech) và Sáng tạo số. Đây là một phần của dự án TRUST do Chương trình Erasmus+ của Liên minh Châu Âu đồng tài trợ. Dự án TRUST là sự liên kết của 4 tổ chức Châu Âu (2 ở Italy, 1 ở Vương quốc Anh và 1 ở Serbia), 3 ở Việt Nam và 4 ở Philippines.

Quý Anh/Chị chỉ mất tầm 5 – 7 phút để hoàn thành phiếu khảo sát này nhưng điều này sẽ giúp cung cấp những thông tin quan trọng cho việc lập kế hoạch của tổ chức. Sự tham gia của quý Anh/Chị là hoàn toàn tự nguyện và các câu trả lời của Anh/Chị sẽ được giữ bí mật nghiêm ngặt. Dự án TRUST sẽ giúp các tổ chức giáo dục đại học ở Việt Nam và Philippines nâng cao năng lực, khả năng giảng dạy của các giáo sư và đội ngũ giảng viên. Đồng thời, cung cấp nguồn nhân lực có năng lực công nghệ để hỗ trợ ngành dịch vụ tài chính.

Phiếu khảo sát này gồm những thông tin sau:

- Chương trình công nghệ tài chính hoặc bất kỳ chương trình liên quan nào được cung cấp tại trường đại học của quý Anh/Chị;
- Các yếu tố quan trọng đối với sinh viên tương lai của chương trình Thạc sĩ Công nghệ Tài chính;
- Việc sử dụng công nghệ thông tin, phần mềm và những trở ngại trong lĩnh vực này;
- Thực hành sư phạm;
- Trang bị về Công nghệ Tài chính - Cung cấp khóa học.

Thông tin mà quý Anh/Chị cung cấp cho chúng tôi chỉ được dùng để xử lý dữ liệu cá nhân vì mục đích lưu trữ trong nghiên cứu khoa học của dự án TRUST theo Điều 156 của Quy định 2016/679/EU của Hội đồng và Nghị viện Châu Âu ngày 27 tháng 4 năm 2016.

Trân trọng cảm ơn sự hợp tác của quý Anh/Chị!

*Required

Anh/Chị nhận được phiếu khảo sát từ:

◯ Trường ĐH Kinh tế, ĐHQGHN

◯ Trường Đại học Kinh tế, ĐH Huế

◯ Trường ĐH Mở, TP Hồ Chí Minh

1. Trường của Anh/Chị có đào tạo chương trình Thạc sĩ Công nghệ Tài chính và Sáng tạo số (Fintech and Digital Innovation) không? *

○ Có

○ Không

Nếu Có, vui lòng cung cấp những thông tin sau: Bậc đào tạo; Danh mục các học phần và tín chỉ (ECTS hoặc hệ thống tín chỉ tương đương) đối với mỗi chương trình; Thời gian đào tạo (tính bằng năm học và giờ học); Số lượng sinh viên. Nếu Không, vui lòng chuyển đến câu hỏi 2.

Your answer

2. Trường của Anh/Chị có kế hoạch đào tạo chương trình Thạc sĩ Tài chính Công nghệ và Sáng tạo số không? *

○ Có

○ Không

3. Nếu Có, khi nào trường của Anh/Chị dự định đào tạo? *

○ Học kỳ tới

○ Năm tới

○ 2 hoặc 3 năm nữa

○ 4 hoặc 5 năm nữa

4. Theo Anh/Chị, động lực mở ngành đào tạo trình độ Thạc sĩ Tài chính Công nghệ và Sáng tạo số của trường anh/chị là gì? Hoặc động lực mở ngành đào tạo trình độ Thạc sĩ này trong tương lai là gì? *

	Hoàn toàn không quan trọng	Không quan trọng	Tương đối quan trọng	Quan trọng	Rất quan trọng
Yêu cầu về chương trình đào tạo mới	☐	☐	☐	☐	☐
Cơ hội nghề nghiệp/nhu cầu thị trường	☐	☐	☐	☐	☐

5. Trường đại học của Anh/Chị hiện đang cung cấp những chương trình sau đại học nào có liên quan đến Công nghệ tài chính và Sáng tạo số? *

	Có	Không
Thạc sĩ Quản trị Kinh doanh, chuyên ngành Quản trị tài chính	☐	☐
Thạc sĩ Phân tích Kinh doanh	☐	☐
Thạc sĩ Công nghệ Thông tin	☐	☐
Thạc sĩ Kỹ thuật Tài chính	☐	☐
Thạc sĩ Tài chính or Thạc sĩ Tài chính - Ngân hàng	☐	☐
Thạc sĩ Tài chính Tính toán định lượng	☐	☐
Khác	☐	☐

6. Các yếu tố nào sau đây quan trọng đối với các sinh viên tương lai của chương trình Thạc sĩ Công nghệ Tài chính và Sáng tạo số? *

	Hoàn toàn không quan trọng	Không quan trọng	Tương đối quan trọng	Quan trọng	Rất quan trọng
Danh tiếng của Trường về đào tạo	☐	☐	☐	☐	☐
Danh tiếng về chương trình đào tạo	☐	☐	☐	☐	☐
Ưu tiên lựa chọn vì uy tín của Trường	☐	☐	☐	☐	☐
Lịch học thuận tiện	☐	☐	☐	☐	☐
Chi phí	☐	☐	☐	☐	☐
Các dịch vụ hỗ trợ sinh viên	☐	☐	☐	☐	☐
Quy mô lớp học nhỏ	☐	☐	☐	☐	☐
Lớp học sẵn có	☐	☐	☐	☐	☐
Tăng tốc độ hoàn thành chương trình	☐	☐	☐	☐	☐
Phương pháp giảng dạy (phương pháp giảng dạy tương tác/hội thảo hoặc phương pháp giảng dạy truyền thống)	☐	☐	☐	☐	☐

Hồ sơ của giảng viên	☐	☐	☐	☐	☐
Vị trí/ Gần nơi làm việc	☐	☐	☐	☐	☐
Trình độ đại học	☐	☐	☐	☐	☐
Phân công công việc hiện tại	☐	☐	☐	☐	☐
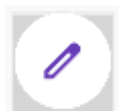
7.Theo Anh/Chị, xét về mặt công nghệ, Trường của anh/chị có yếu tố nào cần phát triển? *

	Rất cần được phát triển	Quan trọng nhưng đầy thách thức	Cần phát triển thêm một chút	Đã được phát triển hoàn toàn
Truy cập vào máy tính (máy tính để bàn hoặc máy tính xách tay)	☐	☐	☐	☐
Truy cập kết nối internet (tối thiểu 3Mbps)	☐	☐	☐	☐
Truy cập vào phần mềm được cấp phép (phần mềm theo yêu cầu của khóa học)	☐	☐	☐	☐
Năng lực kỹ thuật của giảng viên hoặc giáo sư để sử dụng các công nghệ và phần mềm dạy học	☐	☐	☐	☐

8. Phương pháp giảng dạy chương trình Thạc sĩ Công nghệ Tài chính và Sáng tạo số hiện tại của anh/chị là gì? Hoặc phương pháp giảng dạy nào được anh/chị đề xuất trong tương lai? *

	Có	Không
Chương trình giảng dạy theo kiểu truyền thống hoàn toàn (mặt đối mặt trên lớp học)	☐	☐
Chương trình giảng trực tuyến hoàn toàn	☐	☐
Chương trình tổ hợp (50% theo kiểu truyền thống, 50% theo kiểu trực tuyến)	☐	☐
75% theo kiểu truyền thống, 25% theo kiểu trực tuyến	☐	☐
25% theo kiểu truyền thống, 75% theo kiểu trực tuyến	☐	☐

9. Anh/chị có nghĩ rằng phương pháp giảng dạy (phong cách và phương thức giảng dạy) cũng là yếu tố liên quan đến quyết định của sinh viên đối với chương trình Thạc sĩ? *

○ Có

○ Không

10. Nếu có, anh/chị nghĩ phương pháp / phương thức giảng dạy nào là tốt nhất để áp dụng cho chương trình Thạc sĩ hiệu quả ? (chọn MỘT) *

○ Truyền thống: Giáo viên là người dẫn dắt bài học (dựa trên đầu vào)

○ Truyền thống kết hợp hội thảo, bài tập nhóm, hội thảo chuyên đề: Giáo viên tổ chức bài giảng và hội thảo bằng việc giao bài tập nhóm; gửi sinh viên hoặc tổ chức hội thảo chuyên đề có mời một/nhiều chuyên gia tham dự.

○ Tương tác: Giáo viên gửi cho sinh viên tất cả các tài liệu cùng các trường hợp nghiên cứu trước khi các lớp học bắt đầu. Sau đó, sinh viên thảo luận với giáo viên về các chủ đề học thuật và các trường hợp kinh doanh

○ Kết hợp giữa truyền thống và tương tác: giáo viên giảng bài, sinh viên tham gia thảo luận, hội thảo, nghiên cứu các trường hợp kinh doanh

○ Linh hoạt giữa thảo luận với xếp tầng: Giáo viên cung cấp giáo trình khóa học & tài liệu đọc với các hoạt động để sinh viên thực hiện trong cả khóa học. Sinh viên nhận được chứng chỉ trên mỗi học phần

11. Khóa học / hoạt động nào anh/chị nghĩ sẽ được đưa vào Chương trình Thạc sĩ Công nghệ tài chính và Sáng tạo số? *

○ Thực tập

○ Học tập trung toàn thời gian

○ Luận văn

12. Anh/chị nghĩ thời gian thực tập hoặc học tập trung toàn thời gian cần thiết đối với chương trình Thạc sĩ Công nghệ tài chính và Sáng tạo số nên là trong bao lâu? *

○ < 3 tháng

○ 3 – 6 tháng

○ > 6 tháng

13. Trong 10 năm qua, trường đại học của anh/chị có các ấn phẩm nào liên quan đến Công nghệ Tài chính (ISI hoặc Scopus) không? (Quản lý tài chính, Phân tích kinh doanh, Khai phá dữ liệu, Trí tuệ nhân tạo, v.v.) *

○ < 10

○ 10 - 20

○ 21 - 30

○ > 30
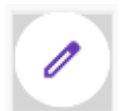
14. Các khóa học sau đây quan trọng như thế nào đối với chương trình Thạc sĩ Công nghệ tài chính và Sáng tạo số mang tính cạnh tranh trong tương lai ? *
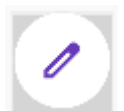
	Rất không quan trọng	Quan trọng	Tương đối quan trọng	Rất quan trọng
Nhập môn Công nghệ tài chính	☐	☐	☐	☐
Hệ sinh thái và Sáng tạo Fintech	☐	☐	☐	☐
Những nguyên lý về Quản trị rủi ro và Tài chính	☐	☐	☐	☐
Giao dịch thuật toán và Tư vấn tài chính tự động	☐	☐	☐	☐
Những khái niệm và nguyên lý về Hệ thống Blockchain	☐	☐	☐	☐
Lập trình Python	☐	☐	☐	☐
Phân tích dữ liệu với Python	☐	☐	☐	☐
Xác suất và Thống kê	☐	☐	☐	☐
Khai phá dữ liệu	☐	☐	☐	☐
Xử lý ngôn ngữ tự nhiên nâng cao và Deep Learning	☐	☐	☐	☐
Các phương pháp định lượng về Tài chính	☐	☐	☐	☐
Công nghệ điều tiết	☐	☐	☐	☐

☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐

Những nguyên lý đàm phán	☐	☐	☐	☐
Hiệu quả của Tiếp thị và Truyền thông	☐	☐	☐	☐
Khởi tạo doanh	☐	☐	☐	☐

nghiệp

Ứng dụng Tài
chính và Giải
pháp kỹ thuật

☐   ☐   ☐   ☐

15. Anh/chị chuẩn bị tốt như thế nào để giảng dạy các khóa học sau? *

	Rất không tốt	Tốt	Khá tốt	Rất tốt
Nhập môn Công nghệ tài chính	☐	☐	☐	☐
Hệ sinh thái và Sáng tạo Fintech	☐	☐	☐	☐
Những nguyên lý về Quản trị rủi ro và Tài chính	☐	☐	☐	☐
Giao dịch thuật toán và Tư vấn tài chính tự động	☐	☐	☐	☐
Những khái niệm và nguyên lý về Hệ thống Blockchain	☐	☐	☐	☐
Lập trình Python	☐	☐	☐	☐
Phân tích dữ liệu với Python	☐	☐	☐	☐
Xác suất và Thống kê	☐	☐	☐	☐
Khai phá dữ liệu	☐	☐	☐	☐
Xử lý ngôn ngữ tự nhiên nâng cao và Deep Learning	☐	☐	☐	☐
Các phương pháp định lượng về Tài chính	☐	☐	☐	☐
Công nghệ điều tiết	☐	☐	☐	☐

Tuân thủ và chống tội phạm tài chính ☐ ☐ ☐ ☐

Phân tích rủi ro và tài chính ☐ ☐ ☐ ☐

Nghiên cứu tác nghiệp/Vận trù học ☐ ☐ ☐ ☐

Phân tích Dãy số thời gian ☐ ☐ ☐ ☐

Trí tuệ doanh nghiệp và Quản lý dữ liệu ☐ ☐ ☐ ☐

Phân tích và truy vấn thông tin ☐ ☐ ☐ ☐

Ứng dụng Mã hóa dữ liệu ☐ ☐ ☐ ☐

Đổi mới sáng tạo và Tư duy thiết kế ☐ ☐ ☐ ☐

Những nguyên lý về Tinh thần khởi nghiệp và Lập kế hoạch kinh doanh ☐ ☐ ☐ ☐

Quản lý chương trình và dự án ☐ ☐ ☐ ☐

☐ ☐ ☐ ☐

☐ ☐ ☐ ☐

☐ ☐ ☐ ☐

☐ ☐ ☐ ☐

Ứng dụng Tài
chính và Giải
pháp kỹ thuật

☐   ☐   ☐   ☐

16. Anh/chị vui lòng cung cấp cho chúng tôi một số thông tin về Trường của anh/chị (Tên trường Đại học; Địa chỉ trang web; Loại trường Đại học (Công lập / Tư nhân); Số chương trình; Số sinh viên; Số Khoa) *

Your answer

17. Nếu không phiền, xin vui lòng cho biết tên, vị trí công tác, và đơn vị của anh/chị? *

Your answer

18. Email của anh/chị là? *

Your answer

Submit

Google Forms