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Determinants of Mobility Management in Higher Education: Evidence from Vietnam

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Abstract: - Academic mobility is a popular phenomenon at universities, particularly for promoting knowledge exchange, attracts the attention scientific community in recent years, especially in the context of integration and The Fourth Industrial Revolution (FIR). Indeed, FIR is place convergency many dimensions that make mobility flows at universities more advantageous with unlimited connection and interactions, including virtual space and digital tools for mobility. The paper aims at exploring the key determinants of mobility management in higher education to respond to the impacts of FIR. The conceptual model of this study emphasizes mobility management of high-quality human resources following their contribution process: attraction/recruitment, contribution onsite, and return. The model also shows that both individuals and universities have common and unique interests in enhancing mobility flows while creating knowledge transfer regions. It is important to combine these benefits to create active mobility flows. By analyzing some typical mobility flows in a Vietnam national university Hanoi case study, we emphasized that the current philosophy of Vietnamese universities is mostly to focus on solving the lost mobility flows (brain drain) instead of going hand-in-hand with managing the value of high-quality human resource mobility and connecting networks to make to promote knowledge exchange. Thus, it requires Vietnamese universities should change for adapt to FIR's impacts with academic mobility and manage mobility of human resources follow all their contribution process. This study explores these topics for their impact on FIR to manage mobility flows of high-quality human resources using assessment data which collected snowball methods. Finally, the paper proposes the policy framework supporting mobility management and priority solutions for promoting the knowledge interactions zones and developing smart platforms for university governance and human resource management adapting with the context of the FIR.

Key-Words: Academic mobility, mobility flow, high-quality human resources, university, mobility management, the Fourth Industrial Revolution.

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1 Introduction

At universities, academic mobility is a fairly common phenomenon associated with the need to improve the professional capacity of research personnel. Scientists' mobility has increased significantly and related on three main dimensions: internationalization, increasing inter-sector collaboration, and diversifying career and work roles [1]. Then, FIR continues to bring the fourth dimension is virtual spaces and smart digital tools make mobility flows at universities more advantageous with unlimited connection and interactions. Indeed, blockchain, the pillar of FIR, which is known as a tool for controlling the supply chain of data, services, now plays an important role in human resource management [2]. With the progressive waves of FIR, universities emphasize one of the add-functions as a huge incubator of potential talent resources and a place to intersect many social mobility flows of high-quality human resources. However, under the impact of FIR, universities must take the lead in embarking towards solutions of brain drain and creating interference zones for knowledge transfer and social mobility of talent and high-quality human resources. This will only happen when universities have a policy framework for mobility management and promote autonomy in building an ecosystem for high-quality human resource development.

In Vietnam, academic mobility has been nurtured in tradition for years but this principle has become more important in the era of modernization, and globalization. [3]. In 2020, Vietnam ranks 96 out of 132 countries on the 2020 Global Talent Competitiveness Index (GTCI), decreasing by four positions and nine positions compared to that in 2019 and 2018 respectively [4]. One of the highlight mobility policies is to attract talent or high-quality human resources. Most recently, The Resolution of the XIII National Congress of the Party in 2021 emphasized the key campaign to implement the country's development orientation for the period of 2021 - 2030 as "Developing human resources, especially high-quality human resources". Vietnam also has many efforts to engage with virtual mobility at a rapid pace. E-work, e-organizations, and e-services including e-learning have become much more common activities in the context of integration and globalization. In particular, Resolution No. 52-NQ/TW dated September 27, 2019, of the Politburo on proactively participating in

the Fourth Industrial Revolution, emphasized key goals namely encouraging new models of education and training based on digital platforms; improving mechanisms and policies to encourage, attract and use talents and high-quality human resources; forming an open learning network of Vietnamese people, adapting with new opportunities and challenges of this new revolution [5]. However, the policies to attract high-quality human resources still reveals several limits: unclear definitions of talents and high-quality human resources; qualifications, seniority, and age still regarded as main indicators for recruitment and attraction policy; lack of priority supports for foreigners, overseas Vietnamese, or international students (in terms of the international environment, passports, etc.); and lack of policies to prepare necessary conditions for digital transformation which support social mobility management. As a result, Vietnam cannot be a "promised land" for high-quality human resources if transformative philosophy is not implemented in managing knowledge/brain exchange made by mobility flows, instead of focusing on onsite labor of organizations.

One of the most critical policies for Vietnam to transform its higher education system would be to establish a good talent management system and create a more adaptive working environment to nurture talent and high-quality human resources [6]. In recent years, Vietnamese universities have implemented various transformative policies to attract talents or high-quality human resources that can meet regional and international demands. FIR opens a broader space for social mobility of academic staff in universities while they must face more and more serious "brain drain". The philosophy of talent and high-quality human resources attraction mostly focuses on solving the lost mobility flows (brain drain) instead of going hand-in-hand with managing the value of high-quality human resource mobility and connecting networks to make a knowledge platform The goal of this study, is, thus, to identify mobility management determinants in higher education in the context of FIR and propose policy implications. Posed research questions will henceforth be as follows: What are the key determinants of mobility management in Vietnam higher education and how to manage mobility flows of high-quality human resources in the university, to adapt to FIR's impacts? Concerning the inquiries, the assumed hypothesis is that mobility management in Vietnam higher

Nguyen Thi Quynh Anh, Nguyen Hieu,
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Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

education need to be identified on whole 03 periods: recruitment/attraction, contribution, and return, to ensure knowledge exchange between onsite and outside high-quality human resources. The viewpoints on "keep/maintain the high-quality human resource" and "promote physical mobility flow" in some current policies are behind the time in the context of FIR. Instead, mobility management plays an important role in creating knowledge intersection zones between the original university and coming organizations, using virtual space and digital tools. By exploring some typical mobility flows in Vietnam National University Hanoi (VNU Hanoi), this paper will propose policy implications on mobility management for Vietnamese universities, to adapt to opportunities and challenges originating by FIR. Altering universities' directions to create a virtuous cycle of brain circulation of high-quality human resources can shorten the gap between Vietnam higher education with regional countries in a manpower competition to serve the digital transformation to university 4.0.

2 Theoretical Background and the Conceptual Model

2.1 Mobility and Academic Development

Sami Mahroum (2000) has pointed out that scientific mobility has, as a part of its function, enhanced scientific expansion and the formation of gravity centers in science [7]. Through the mobility of scientists, scientific traditions that are embodied in certain schools or departments expand to embrace other spatial sites of science and include them in their social spaces. Mobility makes complex impacts to develop academic activities, contribute to the creation and diffusion of knowledge, expand a collaboration network, and, thereby, affecting the development of local and national innovation systems [8-12]. As a result, mobility is leading to an increasing level of labor-market internationalization and integration, and talent competition is now influencing innovation policy initiatives across the globe [13]. The global mobility of scientists is regarded as a "key driver of knowledge circulation worldwide [14]. Nowadays, the pessimistic viewpoint on mobility has caused fears of "brain drain" which was driven by economists in assessing the economic consequences of international human capital flows from the 1960s. However, this situation has changed when recent researches point out the benefits of mobility flows for both sending and receiving countries. Universities have made

efforts to approach the mobility of high-quality human resources such as encourage inflows, expand collaboration networks, and support other necessary conditions. It means mobility is an activity that has not been recognized as a tool to improve higher education but also is the potential to strengthen university capacity [15]. However, there is still a lack of statistics about the mobility of researchers and often the information available is dispersed and incomplete [16] in universities in particular, at a national level in general. There are many viewpoints on mobility types related to higher education such as educational mobility, job-to-job mobility, occupational mobility, sectoral mobility, geographic mobility, social mobility, disciplinary mobility [1]. According to Oxfarm (2018), Vietnamese people view social mobility as a multi-dimensional concept [17]. The number of studies on social mobility and the role of education in Vietnam in the past is very limited. Regarding the mobility of higher education in Vietnam, mobility involves not only physical mobility, but also regional mobility, virtual mobility, and cross-border intellectual mobility including the mobility of ideas [3]. To adapt to an ever-changing world, Vietnam's higher education needs to identify knowledge exchange and its types of human resource mobility flow and making a policy framework to support for transformation and adaption process. Student mobility is a highlighted issue of Vietnam universities to diversify and internationalize their campuses in the context of integration [18].

2.2 Talent, Mobility in the Context of FIR

In the context of FIR, talent, more than capital, will represent the critical factor of production [19]. Unpredictable changes of the human market in the context of Industry 4.0 is named VUCA (formed by the first 4 letters of the terms Volatility, Uncertainty, Complexity, Ambiguity), where born new career trends and structures are also accompanied by technology unemployment, talent shortages, and unpreparedness of workers leading to technological unemployment [20-22]. They lead a "war of talent" which promote the process of seeking, nurturing and managing talent and high quality/high skilled human resource [23-25]. FIR brings chances for knowledge workers to scatter around the world in global competence clusters and mobility, the transformation of education, and vice versa, the education system should ideally be ready to lead FIR [26-27]. As a result, the 4.0 university models is emerged as a place to create a future learning environment for talents, cultivating innovative talent

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

thereby leading the development of high-tech industry and realizing the capitalization of resources of knowledge and technology [28]. To discuss mobility in Vietnam's universities, brain drain is a key approach and matches with the philosophy "keep/maintain high-quality human resource" mentioned in current policies. Chi (2014) pointed out that while politicians claim that Vietnam's development is compromised by brain drain, little is known about the mobilities of skilled Vietnamese migrants as well as the extent to which the outflows of work migrants bring back forces for development [29].

In conclusion, managing the mobility of high-quality human resources in universities plays an important role, especially in the context of FIR. However, there is an apparent gap in the research on the FIR and its influence on higher education in general and the ability of higher education systems to adjust mobility of high-quality human resource management adapt to the FIR in particular.

2.3 The Conceptual Model of Determinants of Mobility Management in Higher Education

Managing the social mobility flow of high-quality human resources comes from finding common denominators between the needs and interests of individuals and universities. In the context of the FIR, high-quality human resources have many supporting technology solutions to move without moving, which means that "the role of participating and contributing to organizational growth" may not be the same as the commitment of human resources after the recruitment process. This analytical model emphasizes the need for systems management thinking with social mobility flows of high-quality human resources in universities. The FIR is a context that creates multi-dimensional impacts that help social mobility flows have many conditions for development but also creates consequences for internal brain drain.
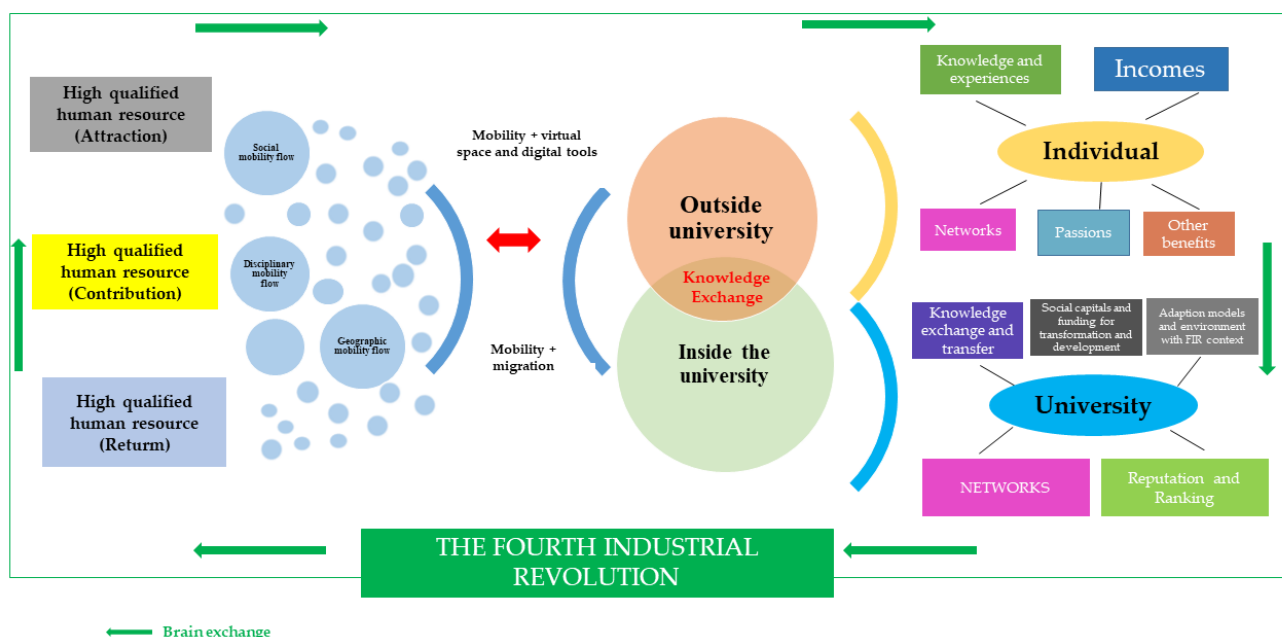

Fig. 1: The conceptual model of determinants of mobility management in higher education in the context of FIR

High-quality human resources in higher education

Highly qualified people are the most mobile population group worldwide. The Frascati-Manual offers an internationally recognized definition for researchers, which can be operationalized with the International Standard Classification of Occupations (ISCO). Within the feasibility study, only international mobility was investigated.[1] [30]. Although there is no agreed definition of highly skilled migration, at an international level, to develop a proxy definition of what constitutes a highly skilled person, and individual professions

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[1] Futhermore it is recommended not to take mobility of under six months into account and to focus the research on short-term (six months to one year), mid-term (one to three years) and long-term mobility (more than three years).

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

such as doctors, nurses, information technology professionals, scientists, and academics [16]. In this paper, highly qualified human resources at universities can be considered those who have capacities to mobility and contribute to the knowledge exchange between their original universities and coming place/organizations. Importantly, high quality is assessed from the perspective of contributing to the source organization (also known as the previous universities), and after mobility. This means qualifications, degrees, and age are not the scales that determine the mobility of high-quality human resources.

* Mobility flows in universities
Looking at the above model, it can be seen that mobility flows can occur at various stages of the contribution of high-quality human resources at the university. The following table details indicators and motivation determinants of social mobility flow at three stages: attraction/recruitment; contribution; return.

Table 1. The contribution process and related mobility flows of high-quality human resources at the university

Period	Identification	Mobility flows	Motivation determinants of mobility flow
ATTRACTION/ RECRUITMENT	• Indicators: diploma, experiences, research works, publications, study aspiration, etc...	• Incoming mobility flows	• *Individual:* Capacity development; Support condition and working environment at university • *Universities:* + Networks/talent pools/ mobility hubs that gather both recruited labor and failed candidates.
CONTRIBUTION	• Indicators: quality and impacts of work tasks and outputs, contribute to university development • Other competencies (technology transfer, technology development, science and technology services, etc.)	• Internal mobility flows • Sending mobility flows	• *Individuals (Onsite staff):* Capacity development; Support condition and working environment of sending/coming mobility places. • *Individuals (Remote/online collaborators):* Network projects; knowledge transformation conditions; academic aspirations. • *Universities:* + Knowledge exchanges activities + Development of ecosystem of science, technology, and innovation at universities + Linkages between the university and another member of the national/sectoral/local innovation system
RETURN	• Indicators: cooperations between the original university and coming/sending organization, or reinvesting brainpower for original university/nation	• Returning mobility flows	• *Individuals (Sending mobility staff or remote/online collaborators):* Cooperation culture of the original university; network, etc…. • *Universities:* + International/regional networks and cooperations + Consultions from returnees

* Benefits for individual and university from mobility flows
Salary, career advancement and research opportunities, environment and conditions, opportunities to work with important colleagues and in reputable organizations, increased autonomy, freedom to debate and conduct research are considered important determinants of academic mobility [31], besides external factors as safe and family supports. There are many viewpoints about the motivations of academic mobility and benefits of original and sending countries/organization, in the conceptual framework show some key benefits between individual and university can be raised in FIR context (Table 2).

Mobilised human resources can get more knowled and experiences, incomes, networks, passions and

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

other benefits. While the original-university also develop knowledge exchange and transfer, increase social capitals and fundings, increse the adaption models and the environment with FIR context.

Table 2. Benefits of mobility flow for individual and university

	INDIVIDUAL		UNIVERSITY	
	Benefits	Explanation	Benefits	Explanation
1	*Knowledge and experiences*	• To improve their skills, capacity, adaption, experimental activities • To increase work efficiency through experimenting/using new technologies and modern tools of FIR	*Knowledge exchange and transfer*	• To develop academic mobility community cross-border • To develop mobility hubs in an ecosystem of science, technology, and innovation in university • To ensure brain gain from mobility flows
2	*Incomes*	• To get a higher salary and another related finance supports	*Social capitals and funding for transformation and development*	• To approach potential international partners who provide social capital and funding for academic activities
3	**NETWORKS**	• To be built their teams for personal projects and academic activities	**NETWORKS**	• To develop networks and cooperation base on scientists' reputations and individual networks
4	*Passions*	• To be respected and supported by new mobility communities all around the world • To be inspired by mentors/experts about autonomic and interdisciplinary spirits in academic activities	*Adaption models and the environment with FIR context*	• To push 4.0 infrastructure and technologies through cooperation and funded project • To develop R&D at universities and commercial process of research products • To build international integration criteria and thinking in organizational culture
5	*Other benefits*	• To be safe • To be practice international integration style	*Reputation and Ranking*	• To improve the development indicators of ranking top list of higher education

The personal network of high-quality human resources can be the starting point of organizational cooperation, thereby creating a wider and deeper network. Besides, catalyzing return flows of mobilized-high quality human resources can make more opportunities to build an international innovation network for a better, common future [32]. Especially, the flows of movement inside or outside the original organization create an interference zone for knowledge transfer (including technology transfer) which attract both of internal, outside and return-mobility flows of high-quality human resource join university.

3 Research Methodology

3.1 Research Context
This study was conducted in the context that research institutions and public universities in Vietnam are facing brain drain and challenges posed by the Fourth Industrial Revolution. According to the statistical research of the Ministry of Education and Training (MOET), there are more than 235 universities including 170 public institutions and 65 non-public institutions in Vietnam [33]. We choose Vietnam National University, Hanoi (VNU Hanoi) is the case study for this research.VNU Hanoi is one of the leading higher education institutions with a high percentage of high-quality human resources. According to VNU annual report 2020, VNU also has 4326 staff, including 2345 academic staff, 62 people's teachers, 137 meritorious teachers, 60 professors, 362 associate professors, and 1352 doctors and philosophy and Doctors of Science [34]. Besides, VNU has priority policies to attract high-quality human resources, policies of sending/support academics to study abroad. This inevitably creates mobile flows of high-quality human resources at VNU, as well as contributes to promoting the

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

process of knowledge transfer and knowledge sharing. VNU is listed in many prestigious university rankings in the region and the world. In the July 2021 ranking of Webometrics, VNU continues to maintain its No. 1 position in Vietnam and the group of 1000 best higher education institutions (position 959, up 41 places compared to the ranking in January 2021, 220th in Asia, and 17th in Southeast Asia).

3.2. Research Methods and Sampling

By conducting quantitative research studies, this study focuses on describing current situations and establishing the relationships between variables. The research team extracted and processed sociological survey data from VNU Hanoi's member univeristies and organizations, collecting 356 responses from researchers, lecturers, and manager. In addition, some data of VNU Hanoi were compared to those of major Vietnamese training and research institutions such as Vietnam National University Ho Chi Minh City (VNU HCM), Vietnam Academy of Social Sciences (VASS), and Vietnam Academy of Science and Technology (VAST).

Table 3. The number of science and technology staff participating in the survey of VNU Hanoi

Majors		
Valid	**Frequency**	**Percent**
Natural Sciences	99	27.8
Technological Science	50	14.0
Social Sciences	109	30.6
Human Sciences	80	22.5

Medical Science and Pharmacy	16	4.5
Others	1	.3
Missing	1	.3
Total	**356**	**100.0**

The sampling technique used here is Snowball. After the survey, the data was encoded, processed, and analyzed to identify the research problem. To investigate the correlation and the influence between variables, Statistical Package for Social and Science (SPSS), version 22.0 was employed to analyze the results of the questionnaire.

4 Findings

4.1 Mobility Flows to Join VNU Hanoi (Attraction Period)

VNU Hanoi's policies to attract high-quality scientific and technological human resources have created mobility flows with migration of foreign scientists and students for jobs and study opportunities.

* Mobility with migration of foreign lecturers:
The majority of foreign lecturers at VNU-HN work in units having foreign components. The number of professors from Japan makes up the highest propotion (45.3%), followed by France (18.6%) and the United States (12%). Some other nationalities are German, Australian, and Taiwan.

Table 4. The number of fulltime foreign lecturers in some VNU Hanoi's member organizations

Organizations	Number
VNU University of Science	11
VNU University of Languages and International Studies	19
VNU University of Education	5
VNU University of Social Sciences and Humanities	10
VNU University of Engineering and Technology	13
VNU University of Medicine and Pharmacy	6
VNU Vietnam Japan University	24
VNU University of Economics and Business	6
International Francophone Institute	8
VNU International School	15
VNU School of Interdisciplinary Studies	10
Total	**127**

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
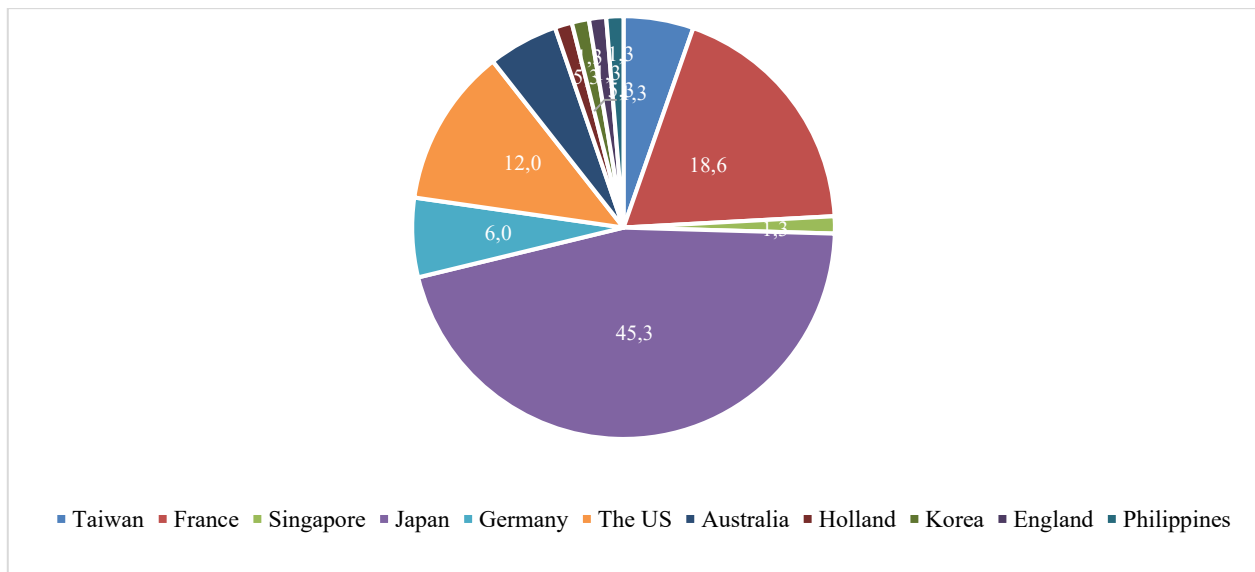Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

Fig. 2: The nationalities of fulltime foreign experts and lecturers in VNU Hanoi's member institutions (%)

VNU Hanoi also had the longest residency of foreign scientists among VNU HCM, VAST, and VASS. The working time of scientists coming from ASEAN countries, East Asia countries, EU countries, the U.K. tended to last for 2 to 6 months, while scientists from China, The U.S.A, and Australia tended to work for more than 6 months.

* *Mobility with migration of foreign students:*
VNU Hanoi issued policies on promulgating regulations on attracting and managing international students at VNU Hanoi and building software for online international student admission on the VNU Hanoi website. VNU also strengthened international joint training programs and established member units to implement international joint training programs. From 2015 to 2019, the number of foreign students coming to VNU Hanoi increased by 1.23 times (2015: 1,222 international students, 2019: 1,506 international students. International students and trainees mostly study in a variety of foreign joint training programs, such as VNU International School, International Francophone Institute, etc…or study Vietnamese language at the Faculty of Vietnamese Studies and Vietnamese Language.

* *Mobility with migration of Vietnamese scientists abroad:*
In 2007, VNU began adopting international standard training programs and strategies to encourage cooperation with Vietnamese scientists abroad. Overseas Vietnamese collaborate in a variety of ways, including returning Vietnam for teaching;

working overseas through research collaboration programs; and serving as a hub for bringing together a group of scientists from prestigious universities and introducing VNU's training institutions However, they mostly teach a few courses or attend a few international conferences in a short period of time.

In addition, VNU has implemented related policies to support the process of attracting high-quality human resources such as forming strong research groups and establishing key laboratories; institutional links in human development; establishing science and technology enterprises; strengthening financial support/bonuses for international publication; promoting technology transfer and setting up centers for incubating and supporting startups; promulgating the policy of VNU scholarships for PhD students and post-doctoral trainees with excellent research ability. These policies support the highly qualified human resources contribute to promoting the development of training programs, research and cooperation activities of VNU Hanoi. From 2019, the mobility with the migration of high-quality human resources in universities is also restricted because of the impact of the Covid-19 Pandemic. Under this circumstance, VNU has implemented the application of online working forms. The policy of promoting digital platforms and adopting the achievements of the Fourth Industrial Revolution has actively supported this process. Mobility flows with migration are also replaced by mobility without migration.

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

4.2. Mobility Flows in Contributions Period

VNU Hanoi has implemented policies on training, knowledge transfer, and incentives (such as wages rises for changes in academic titles, bonus policy for international publication, policy grant scholarships to young research workers, etc.) to improve lecturers and researchers' research capacity, as well as to promote the efforts of high-quality human resources in the development of the university's functional activities. Vertical mobility flows greatly contribute to the university's research and teaching activities by increasing the input of high-quality human resources. The survey results showed that in the period of 2013-2018, the percentage of staff who gained doctorate degrees accounted for the highest rate with 73.2%, while people who acquired Associate Professor title and Professor title only took up a very small proportion (1.8%). The deployment and establishment of new training courses at VNU Hanoi are also aided by this human resource; the quantity of high-quality papers and research has also increased. Furthermore, the phenomena of horizontal mobility (changes in job positions among VNU Hanoi's member institutions or changes in majors) also helps the university's knowledge transfer process.

However, the phenomenon of interbrain drain (multiple job holding) is quite common VNU Hanoi, lowering the efficiency of high-quality human resources in contributing to their work. In 2018, the proportion of VNU Hanoi's staff with part-time jobs was up to 71.7%2 while the rate of staff with part-time jobs in other units (VNU HCM, VASS, VAST) was less than 50% of the total number of surveyed officers who stated that they have to do extra jobs other than the main full-time job. Up to 83.4% of respondents have received an invitation and made the collaboration with agencies outside the unit [35]. The fundamental cause of this situation is that the basic salary of high-quality human resources has not yet kept pace with their needs, and there is no specialized salary structure for this unique workforce.

4.3. Social Mobility Flow of Mobilized High-Quality Human Resources (Return Period)

Young academics and researchers at VNU Hanoi have the option to study in an international environment for an average of two years (1-3 years). From 2015 to 2019, the mobility flow with the migration of high-quality human resources in VNU increased by 1.23 times (2015: 611 employees, 2019: 753 employees). However, a significant portion of the workforce that has migrated does not return to work or participates in cooperative activities with the university. The percentage of staff who do not return is also remarkable as in 2016, for every 10 people leaving, 3 people did not return. According to the survey results, some of the main factors influencing the social mobility of high-quality S&T human resources are: salary (57.02%); organizational managers' perspectives on social mobility (68.26%); organizational remuneration (66.01%); administrative procedures for scientific research (67.70%); and policies on Social Security and the subsidy system (65.45%).

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2 Among the 356 VNU staff members participating in the survey, there are 255 people engaged in part-time jobs other than their current work (equivalent to 71.7%).

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

Table 5. The causes of social mobility of high-quality scientific and technological human resources at VNU-HN

N = 356	Number	%
Obstacle from the human resources themselves		
Family/living conditions	154	43.26
Personal capacity	127	35.67
Possibility of career advancement	136	38.20
Working environment/social network	143	40.17
Wage	**203**	**57.02**
Obstacle from manager perspective		
Viewpoints on social mobility of the organization's managers	243	**68.26**
Viewpoints on human resource development of the organization's managers	230	64.61
Viewpoints on cooperation in research	227	63.76
Obstacle from resources of organizations		
Infrastructure	194	54.49
Organization's reputation	188	52.81
Organizational resources	182	51.12
Organizational compensation	235	**66.01**
Working conditions	191	53.65
Obstacle from administrative institutionalization of S&T management activities		
Consistency and concentration in direction	233	65.45
Democracy in scientific research	236	66.29
Administrative procedures for scientific research	**241**	**67.70**
Obstacle from the legal framework of the state and administrative agencies		
Lack of policies on social mobility and brain circulation	217	60.96
Lack of policy on Social Security and subsidy system	233	**65.45**
Lack of policies on human resource development	213	59.83

As can be seen, the phenomenon of social mobility can have a direct impact on the change in the university's human resource structure. According to the case study of VNU, current policies to control the process of attracting contributions of local and mobile human resources of universities are not really effective, as evidenced by the phenomenon of on-the-spot brain drain and the mobile workforce did not return.

5 Discussion

* Viewpoint of mobility management of the high-quality human resource in university
It can be seen that it is inevitable to promote mobility flows in the development of high-quality human resources instead of the philosophy of "retaining human resources" and focusing on "brain drain areas". Base on social mobility theory, policy to manage mobility of high-quality human resources

in universities adapting with the context of the Fourth Industrial Revolution means that a set of measures to create inward mobility flows of human resources and attract outgoing mobility flows of human resources to return and participate in university activities through immigration or virtual space to ensure brain exchange. To be able to change the administrative institutions that are creating barriers to mobile flows, a specific flow-priority policy framework is needed, as follows:
* Ensuring brain circulation through policies:
 - Enable policy: This is a policy to promote the great advantage of potential human resources in the university. Learners participate in working at units, research groups, research centers, and spin-offs under the university (full-time or part-time jobs relate to their research and study). The activation of this potential high-quality human resource depends on several supporting factors in creating a learning environment associated with practice and promoting the spirit of entrepreneurship and entrepreneurship;

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

training content prioritizes 4.0 skills and follows the school's development orientation; scholarship and sponsorship programs; regulations on income from working and collaborating at university. To avoid wasting high-quality human resources, any potential human resources or on-site or expected manpower also need "roll out the red carpet" policies. For instance, Sekiyama (2020) analyzed the impacts of the FIR on student mobility and their contributions to higher education. Instead of only focusing on training people with knowledge and skills, a country's higher education system must have priority strategies for cultivating innovative talent, especially R&D human resources [36].

- *Hiring/recruitment policy*: Recruitment through the use of high-quality human resource portals and the application of blockchain in information filtering and integration of recruitment information with building candidate profiles. Candidates who are not selected are still included in the recruitment database system to serve as the basis for the school to develop other attractive directions. Different from the previous process of building portfolios only for selected candidates and discarding all applications of unselected candidates. This wastes information resources. The recruitment of human resources mainly focuses on managing the capacity profiles of quality human resources on the spot, but there is no "recruitment orientation" on the human resource database. One of the cornerstones of recruitment is the use of criteria on competence and social mobility expectations, rather than just qualifications. The current recruitment at university is mainly carried out by the unit in charge of personnel organization. Human resource departments or top leaders have the absolute right in selecting or giving priority chances for staff selection. With the autonomy trend of universities, it is necessary to empower strong research groups or excellent research centers in attracting high-quality or potential human resources. When the autonomy is well implemented by the school's member units, the autonomy environment will automatically form on the overall scale. Empowering the selection of potential or high-quality candidates to excellent institutions, research groups, and disciplines will help develop talent pools or talent incubators in the university.

- *Positioning and forecasting policy*: The "positioning" of professional orientation and social mobility for individuals plays a decisive role in expanding the multi-functions of a university in the context of The Fourth Industrial Revolution. Positioning and forecasting high-quality human resources is a missing step in the Vietnam

university's human resource development strategy. To be able to position and forecast, universities need to first build key pillars in talent development in association with the school's development goals. These pillars will "locate" the individual's expectations on mobility, on another hand, help the school forecast which human resources need to be developed and which mobility flows need to be promoted, thereby ensuring brain exchange.

- *Training policy:* A strong point of the university is the function of training and training links, develop training activities in research cooperation, or technology transfer. In the context of the FIR, a criterion that needs to be set more strictly in Vietnam's universities today is a system with sufficient capacity to internationalize. The working environment in foreign languages (English) has not been standardized in Vietnamese universities. This is one of the barriers that prevent foreign experts and students work and contribute to Vietnamese universities. Social mobility flows to and from abroad should be based on the internationalization environment at universities. Besides, developing *transversal skills ar*e contents that universities need to pay attention to to put into official or supplementary training activities for high-quality human resources.

* Improving the networks development:
As shown in Table 2, social mobility can benefit both the labor force and the university. Encouragement of mobile human resources to develop cooperation activities and network development with the source school, on the other hand, is ineffective. Universities need to focus to provide conditions and necessary sources for potential high-quality human resources who can create networks. Accordingly, there should be priority policies for high-quality human resources to develop cooperation networks or promote Vietnamese overseas scholars' contribution in connecting cooperation between universities with other institutions. Besides, a university can expand local networks by promoting MA and PhD. students who are local staff or leaders implemented researches or projects relating to their practice works at local, to bring research results to practice.

* Identifying the interference zones for knowledge transfer
The knowledge transfer zones between coming-place or original-place are made by social mobility flows of high-quality human resources. According to Samil (2009), one of three key factors to develop

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

a world-class university is a concentration of talent [37]. The world-class universities' success in mobilizing a broadly diverse national and international academic staff is likely to maximize these institutions' knowledge-networking capacity. The interference zones can nurture intellectual development between high quality and potential human resources. Therefore, universities need to build a knowledge-sharing mechanism in departments, research working groups, centers of excellence, to expand in whole member units. This means that the departments will create strategies to attract human resources to work, actively send human resources to study and develop new research fields, and attract mobile human flows. go back to work. It is different from "human resource planning" and assigns "KPI targets on publications" to the departments. High-quality human resources do not necessarily join an intersection, but can move socially, participate in different jobs in different regions.

* Developing smart platforms for university governance and human resource management adapting with the context of the Fourth Industrial Revolution

The phenomenon of holding multiple jobs, multiple roles, participating in research and teaching with external scientific units will help scientists of universities, research institutes, and human resources to have deeper expertise, provide more practical lectures and research expertise, acquire more research and teaching experience and thereby contribute to improving their quality of expertise. When social mobility happens, collaborating with agencies outside the university, many individuals only expect and want to get more income from such mobility, but some go beyond their expectations. For example, they can expand their cooperation relations, exchange expertise, have new projects, research topics, ... Together with the positive impacts, the phenomenon that high-quality human resources hold multiple jobs, multiple roles also have negative effects. First, qualified people and a situation of "internal brain drain are deficient". There are many cases where the staff only have positions and titles at the university but having all their time and effort for other jobs, for other external organizations. In addition, human resources themselves are also required to know how to arrange jobs and harmonize social relationships to avoid the phenomenon of "role conflict". When the "role conflict" happens, it is very easy for the quality of the main full-time job to be affected, even the psychology in the workplace, in the long run, it

would lead to the type of social mobility with migration. According to the analysis, the phenomenon of social mobility without migration is increasing at VNU, with complicated developments and detrimental consequences for the organization in the future. This requires timely countermeasures to limit the risks from this phenomenon and the need for efficient use of existing qualified people.

This is also the situation of many public universities in Vietnam today, as private universities (Vinuniversity[3], FPT University[4]) are focusing on investment in governance, management methods, and an internationalized working environment to attract domestic and international high-quality human resources to work and study there. This poses an urgent problem to shift the philosophy in the policy of acquisition and the development of a smart working environment that is adaptive to the Fourth Industrial Revolution context.

Therefore, in the FIR background, people can be globally connected without having to physically travel. Online communication could displace traditional in-person communication. This is an opportunity for the university to take advantage of blockchain and virtual space in developing a larger network for high-quality human resources by mobility portal. In the world, the blockchain-based decentralized professional social network has been adopted. This can take place when individuals have been identified and their expertise verified, they may decide to share these data on social media. The organization will create a database in acquiring and supplying human resources, implementing science and technology tasks according to orders, limiting the method of managing R&D human resources based on payroll contracts. Mehedi et al (2018) came up with solutions which are the Blockchain-based Recruitment Management System (BcRMS) as well as the Blockchain-based Human Resource Management System (BcHRMS) at the university. The most modern smart-university model today is the university model applying Cyber-Physical System (CPS) and IoT, to make an environment for mobility streams [38].

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[3] VinUniversity is the first private, not-for-profit Vietnamese university established based on international standards. The university integrates the models of excellent international universities with the unique cultural and economic characteristics of Vietnam, in order to make a breakthrough in Vietnamese higher education and to become a world-class university. VinUniversity was founded by Vingroup Joint Stock Company in 2018.

[4] FPT University is a private Vietnam university, founded in 2006. FPT University is a member of FPT Group - the largest information technology service company in Vietnam with its core business focusing on the provision of ICT-related services.

Nguyen Thi Quynh Anh, Nguyen Hieu,
Do Hoang Nam, Nguyen Thi Ngoc Anh,
Vu Huyen Trang, Nguyen Thu Trang,
Pham Minh Thuy, Tran Tien Anh,
Do Huyen Trang, Nguyen Thi Tuyet Mai,
Do Thi Lam Thanh, Luu Hoang Long

6 Conclusion

In the context of the FIR, academic mobility developed base on interactions among dimensions as internationalization, inter-sector collaboration, diversifying career and work roles, and application of virtual spaces and smart digital tools. It makes mobility flows of high-quality human resources at universities can be changed with different features, one of them is mobility without migration. Although Vietnam implemented many policies which focus to attract high-quality human resources, the brain drain is popular in universities. It is caused by the lack of solutions to manage mobility flows of high-quality human resources.

To promote the brain exchange at university, the contribution of high-quality human resources must be identified during 3 periods: attraction - to make incoming mobility flows, contribution - to develop mobility flows, return - to attract mobilized human resources.

The priority solutions for mobility management in Vietnamese universities can be started by promoting five key policies as Enable policy, hiring/recruitment policy, positioning, and forecasting policy, training policy, and network development policy. Besides, to promote the effectiveness of mobility management, universities need to build a knowledge-sharing mechanism to build the interference zones for knowledge transfer and developing smart platforms for university governance and human resource management adapting with the context of the Fourth Industrial Revolution.

The paper intended as a conceptual study aiming to raise awareness of the vital importance of the adaptiveness philosophy of universities on mobility management is related to FIR. This means that it has some limitations such as lack of detailed indicators for high-quality human resources; the number of samples is very small in a case study; the research methodology should be further developed. Besides, the mobility data of universities does not exist and is archived, to make difficulties on inputs for research. In addition, the Covid-19 pandemic has influenced strongly the mobility flows at universities, due to limited sources and time, which we cannot analyze deeply in this paper

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