

Development of Startup Ecosystem in Vietnam in the context of the Fourth Industrial Revolution

Quoc Cuong Nguyen^{1,#}, Thi Huyen Tran² and HyukDong Kwon³

¹Assistant Professor, Faculty of Technology, Dong Nai Technology University, Dong Nai, Vietnam

²Lecturer, Faculty of Accounting- Finance, Dong Nai Technology University, Dong Nai, Vietnam

³Professor, Graduate School of NID Fusion Technology, Seoul National University of Science and Technology, Seoul, Korea

Email: nguyenquoccuong@dntu.edu.vn

Abstract

The fourth industrial revolution (Industry 4.0) will generate great benefits and big challenges in equal measure. Industry 4.0 has an impact on context, technology and business as long as it transforms design, production systems and products themselves. Industry 4.0 has also created many opportunities and challenges for startups to improve their business efficiency. The reality has shown that the industry 4.0 has begun to strong impacts of various levels on many areas of Vietnam's economy. In such context, it is necessary to implement sufficient and thorough research and evaluation of many issues of startups and innovation and to consider suitable solutions and effective ways to take advantages of opportunities that the Industry 4.0 brings to Vietnam. This paper proposes the solution for supporting and promoting to develope of innovative start-up enterprise in accordance with the conditions and circumstances of Vietnam in the context of Industry 4.0

Keywords: The fourth Industrial Revolution, startup, innovation, Vietnam.

1. Introduction

The fourth industrial revolution is not only about smart and connected machines and systems. Its scope is much wider. Occurring simultaneously are waves of further breakthroughs in areas ranging from gene sequencing to nanotechnology, from renewable to quantum computing. It is the fusion of these technologies and their interaction across the physical, digital and biological domains that make the fourth industrial revolution fundamentally different from previous revolutions [1]. The fourth industrial revolution is understood as a strong transition in the manufacturing sector to apply new processes with fundamental changes in economic, social, cultural and technical conditions. It replaces the simple, small-scale, labor-based economy by production. A combination of cyber-physical systems, the Internet of Things and the Internet of Systems make Industry 4.0 possible and the smart factory a reality. As a result of the support of smart machines that keep getting smarter as they get access to more data, factories will become more efficient, more productive and less wasteful [2]. Industry 4.0 has now become a hinge strategy for developing countries to keep up with

Manuscript Received: April. 5, 2020 / Revised: April. 8, 2020 / Accepted: April. 11, 2020

Corresponding Author: nguyenquoccuong@dntu.edu.vn

Tel: +84-909-449 554, Fax: +84 -2513-996 915

Assistant Professor, Faculty of Technology, Dong Nai Technology University, Vietnam.

the development trend of the world.

Industry 4.0's characteristic is that the initial investment may not be large, but the profit is high, this will be good for startup businesses because they usually do not have much capital. Startups bring to the industry their series of digital innovations. As an example, sensors, automation, Big Data, the Internet of Things and cloud computing are integrated into the conception, exploitation and organization of a "smart factory". With vast areas of application, they can improve operational performance and security as well as financial performance of projects and management of industrial assets. These capabilities will be the major advantages for startups in the future. In Vietnam, promoting startups is considered an appropriate way in developing national economy. Promoting startups in Vietnam will contribute to the prosperity of the economy and the progress of the society. However, Dezan Shira and Associates Vietnam identified the major challenges facing the startup community in Vietnam are the lack of talented workforce, funding, lack of scale, and slow regulatory reforms [3]. This paper will focus on evaluating the current status of Vietnamese startups and provide some solutions to more powerfully and effectively promote the growth of startups in the context of the Industry 4.0.

2. The current status of Vietnamese startups

2.1 Vietnam startup ecosystem

In only two years, Vietnam jumped from the second least active startup ecosystem among the six largest ASEAN countries (Indonesia, Vietnam, Thailand, Malaysia, Singapore, the Philippines) into the third rank, trailing behind only Indonesia and Singapore, according to Southeast Asia-focused venture capital firm Cento Ventures. The amount of invested capital and the number of technology deals closed have grown six-fold from the first half of 2017 to the first half of 2019 [3].

The startup ecosystem in Vietnam is still very young. They've just passed the second stage of activation and now they are going into the third phase of the development which is the globalization stage (Fig. 1). In Vietnam, at present it can be affirmed that there are all components of an ecosystem. There are new components that have emerged in the past 10 years and are increasing in numbers such as Co-Working Space; manufacturing laboratory (Fab Lab); business promotion organizations; business incubator; technology incubation center; Venture Capital; Angel investors; Startup businesses; start-up support programs such as FIRST Project, Project 844, IPP program, BIPP Project ... Besides, there are other components that have existed for a long time, including universities and research institutes; science and technology enterprises; product research and development organizations; technology transfer center. In theory, the components of the ecosystem interact with each other by characterized the flow of data and knowledge, but in fact this connection in Vietnam is very limited and fragmented.

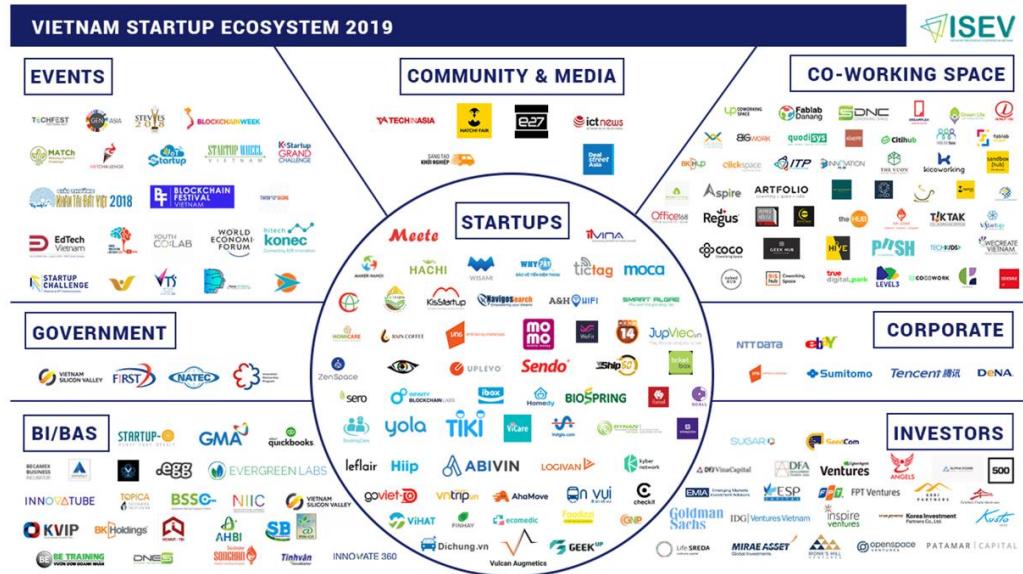


Figure 1. Components of Vietnam's innovative start-up ecosystem (Source: Initiative for Startup Ecosystem in Vietnam)

2.2 The number of Startups

A business can only be considered a startup when it shows innovation. Obviously, the definition of startup enterprises in Vietnam is not an easy task and there is no separate statistics on startup businesses. Moreover, the concept of startup businesses is still relatively new and often confused with other activities such as "career building", "establishing a career" or generally establishing new businesses.

According to the Law on Supporting Small and Medium-sized Enterprises 2017[4], “small and medium-sized creative startups are small and medium-sized enterprises which are established to realize ideas based on the exploitation of intellectual property, technology, new business models, and having a possibility of rapid growth”. Thus, a startup (or a creative startup) and the establishment of a business are different. Establishing a business can also create big enterprises. However, innovative startups are defined as those based on new technology, a new business model, or creating a new market fragment, i.e. creating differences not only to the domestic market but also to enterprises around the world.

Roles of creative startups [5]:

- Creating a new generation of laborers who are more motivated and knowledgeable: Since startup enterprises typically have low capital-density, but need to operate as productive as possible, they thus require employees to be dynamic, creative and of high learning capability. Therefore, the new generation of employees has better chances to discover new jobs and acquire experiences.

- Creating new products, professions, and jobs: Startups exploit market niches with new innovative solutions to create more advanced new products and services; therefore, startups also generate new professions and jobs for the workers.

- Contributing to the national economic growth: Creative startups create more values and boost economic growth. They are the most dynamic business players in the market, creating a strong driving force for the economy, promoting innovation and competitiveness through technological revolutions.

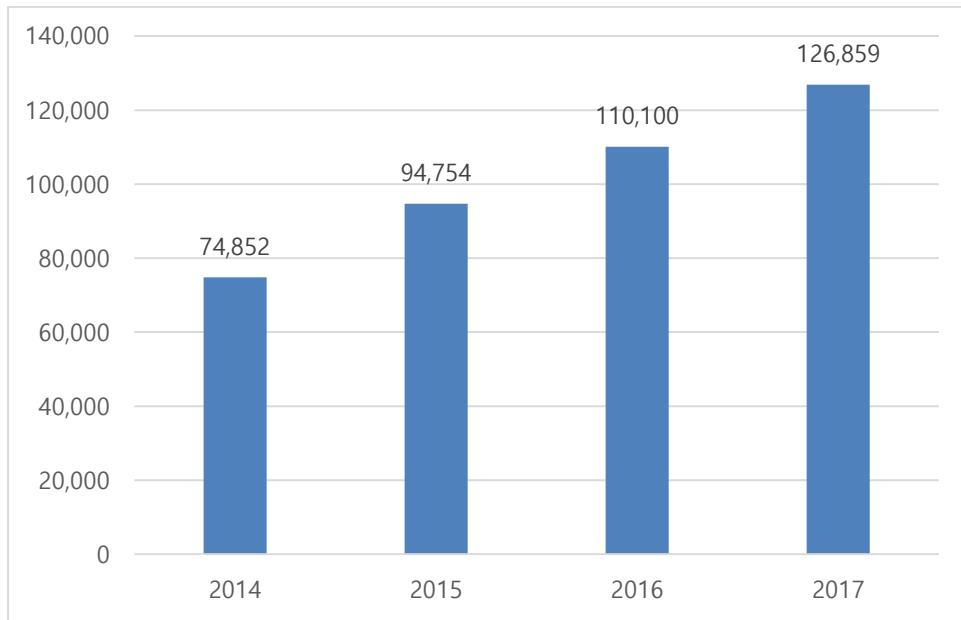


Figure 2. Number of newly established enterprises in the period of 2014 – 2017

According to the Vietnam Chamber of Commerce and Industry (VCCI) [6], the number of newly established enterprises in 2015 is 94,754 (Fig.2) while the total number of enterprises what can be identified as startup enterprises by the end of 2015 is only about 1,500. So far, Vietnam has currently has around 3,000 startup businesses and most of them are technological enterprises such as financial tech, food tech, healthcare, and e-commerce, established in about 4 years up to the time of the preliminary survey in 2016 [3]. In fact, the determination of the number of start-up enterprises in Vietnam is currently only at the estimated level since there was insufficient surveys and statistics. One of the factors determining whether a new business is a startup or not is the business registration. Businesses register activities in science and technology field will serve as the foundation for innovation, making an important contribution to creating conditions for entrepreneurship. However, according to the statistics of the Business Registration Administration (Ministry of Planning and Investment) [7], in 2017, there were 126,850 newly established businesses, but only 9,392 newly established enterprises in the field of science, technology, accounting for 7.4% of the total number of newly established businesses, with a corresponding capital of VND 59,776 million, accounting for 4.6% of the total investment capital (Fig. 3). This means that the field of innovative start-up activities has not been given much attention in the current period, so the number of newly established businesses and the amount of investment capital in this field is quite limited.

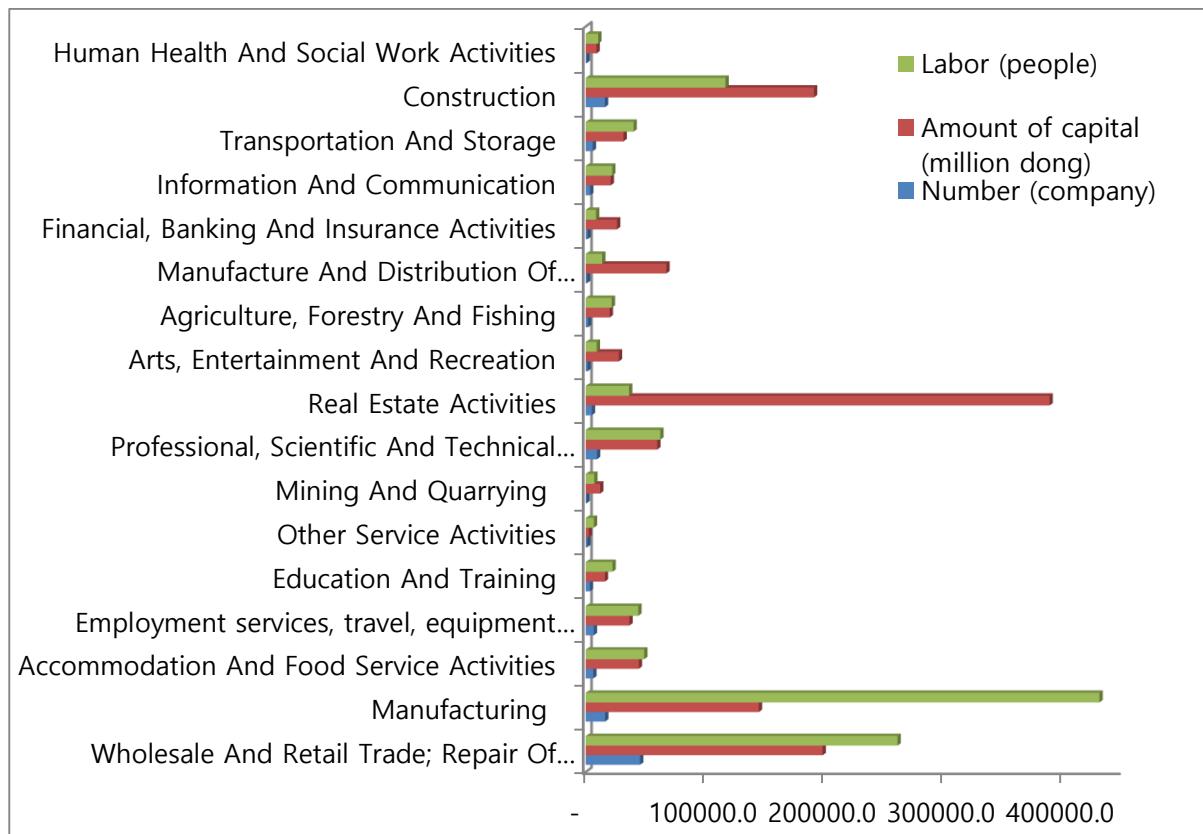


Figure 3. Number of newly established enterprises and number of labor versus the business activities

The number of startups is increasing while the investment funding for startups is also fast growing as well. The increase of startups was made possible with a good telecommunications system, the Internet, 4G, and the improvement of technology and education. Besides, the investors also expect startup's development to a certain level before they put additional capital so startup enterprises have to aggressively compete for capital. According to a report published by Topica Founder Institute (TFI) [8], the number of start-up business deals has increased significantly over the years. In 2017, there were 92 deals received investment with total capital of 291 million USD (about 6,500 billion VND), up 42 per cent from 2016. Although the number of startup investment deals of both mergers and acquisitions and fundraising activities in 2018 is the same as 2017, the total transaction value tripled to USD 889 million (Fig. 4). Among those 92 deals in 2018, 83 percent of the total transaction value was poured into the top 10 investment deals valued at USD 734 million. Thus, this is quite concentrated in terms of value per deal. Local investors became an important source of funding in 2018, making up 55 percent of the total transaction value. Fintech and e-Commerce received the highest attention from investors.

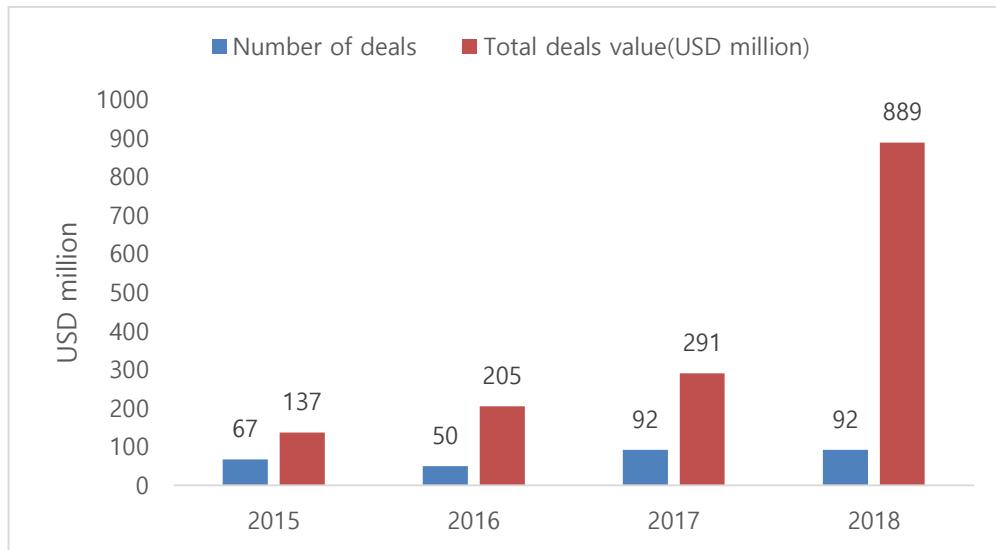


Figure 4. Total value and number of startup investment deals in Vietnam

3. Proposed solutions to develop innovative startup enterprise in Vietnam in the context of Industry 4.0

According to the above analysis, the startup is still facing many challenges. Because most of startups are often young, the financial resources are not many, the staff are not professional. In the other hand, startups businesses are confused in the knowledge of administrative procedures, business model, marketing strategy... Therefore, to promote the startup business in Vietnam in the coming period in response to the rapid and strong impact of the Industry 4.0, some key solutions could be offered as follows:

3.1 Focus on Startup Ecosystem development strategies

To support for the startup ecosystem, the Vietnamese government has officially launch a project that will result in the establishment of a National Innovation Centre (NIC) in Hanoi, that will lay the groundwork for Vietnam to capitalize on the Industry 4.0 era. The NIC provides regulatory sandboxes in unregulated industries for startups to pilot new ideas. US\$82 million is committed to the first NIC at Hoa Lac HiTech Park, with more centers to be set up nation wide. Beside, the government not only endorses major startup-related events such as the recent Vietnam Venture Summit, with the participation of the highest-ranking government officials to have insightful discussions with key stakeholders in the startup ecosystem. Meanwhile, corporates also play an active role in Vietnam's startup ecosystem. For example, FPT has long provided investment support to local startups. Vingroup set up its corporate venture capital last year, while other prominent corporations such as Masan and Vietjet Air are considering similar initiatives [3]. Moreover, in order to encourage entrepreneurship, the Vietnamese government has established a number of funds at State and provincial/city level to support startups. In addition, they have also collaborated with countries and banks, to develop funding and innovation programs, to provide loans, technical training, and business mentoring.

3.2 Focus on Tech startups in industry 4.0

Industry 4.0 has a significant impact on the business sector of startups. Unlike the last three industrial revolutions, Industry 4.0 focuses on automation and data exchange in manufacturing technologies. Industry 4.0 will pave the way for businesses in Vietnam, including the startup community, given the country's young demographic and high internet penetration rate. Furthermore, the revolution will also create more jobs and

small startups with limited capital can still be very competitive. However, launching a new enterprise also means taking a risk. Opportunities and risks go hand in hand, but with government's support policies for the startup community, they should begin to change their minds and the way they run their businesses, depending on their needs and financial capabilities. Therefore, Vietnamese startups should choose to be technology startup business. Because technology startups do not need too much initial capital if they are compared to other business model and it's easy to learn from previous models in the world.

3.3. Focus on human resources

Human resource quality is one of the key factors of startups. Therefore, we need to focus on the startup training programs in tertiary education. Training on innovative entrepreneurship should be more focused to young people facing practical issues with a more positive attitude, and having confidence and motivation to overcome risk of failure when trying to introduce valuable, innovative solutions. Training programs should be consistent with the startup content and ensure the system specifications. It should provide students the knowledge of corporate governance and other software skills to develop their startup ideas after graduation. In addition, it is necessary to develop business training programs at universities and colleges, instruct students of technical schools and vocational schools to create their jobs by combining technical expertise to start a business. In addition to financial support through funds and preferential loans, the government needs to increase investments in training and education to build a skilled workforce.

3.4 Focus on innovation of startups

Due to the property of startup having possibilities of rapid growth and focusing on creativity with new ideas, policy measures need to focus on encouraging R&D and investment to improve qualifications, ability to apply the science learning and technology in businesses. This is an effective way to put the foundation for innovation and promote rapid growth based on new ideas and initiatives. Vietnam needs to continue to establish creative innovation funds and programs to encourage the innovation of startups to be a solution to maintain the flame of entrepreneurship, creativeness, and innovation. Additionally, it is necessary to strengthen the honor of successful entrepreneurs who steadily followed their entrepreneurial goals, and to understand how to overcome difficulties during startup while remaining dynamic and innovative in their field. Besides, in the context of fast and powerful Industry 4.0, startup ideas need to be fully evaluated with new features, especially the innovation aspect.

3.5 Focus on policies and legal framework for the operation of ecosystem

In 2016, the Prime Minister approved the “Supporting National Innovative Start-up Ecosystem to 2025” Project, or Project 844, through Decision 844/QĐ-TTg/2016. It focuses on supporting the national innovation startup ecosystem through 2025 and developing a legal system and a national e-portal for startups by 2020 [9]. In addition, it will also provide funding support to 200 startup enterprises. Beside, in January 2018, the Law on Supporting Small and Medium-Sized Enterprises came into effect, with detailed provisions for support to start-ups in areas such as technology transfer, training, trade promotion, investments, preferential loans, and incentives for venture capital funds [4]. Decree 38/NĐ-CP, which came into effect in March 2018, focuses on innovative start-up investments [10]. It identifies and recognizes start-up investment activities as a business and provides legal status to innovative start-up companies and funds. Beside the above policies, the government should steadily continue the policies to stabilize the macroeconomy, prevent inflation, and build up the confidence of businesses and startups. Policies should be looser on tax, finance towards startups and facilitating the development of startup enterprises and enabling them to access more venture funds and angel

investors. Especially, business and startup barriers should be removed and policies should be transparent to enable entrepreneurs to access information and financial support.

3.6 Focus on the financial accessibility for startup enterprises

Beside establishing and effectively operating startup and Small and Medium Enterprise support funds, it is necessary to have mechanisms in order to encourage the development of a private model of startups, including venture funds, angel funds from the public to meet the funding needs of startup activities. Operations of the technological innovative support funds should be promoted at the same time strongly marketing innovative technology projects supported by international donors. Moreover, creating a mechanism for startups to easily demonstrate the conditions to access these investment funds. Most startups have difficulty accessing bank credit due to complicated procedures or lack of collateral required by the bank. It may be necessary to consider bank loan procedures or make it easier for startups to access business capital.

4. Conclusions

Vietnam is participating in the dynamic startup wave worldwide but the innovative start-up activities in Vietnam are still young while there is great potential for development. In order to strongly and comprehensively develop start-up activities, the Vietnamese government needs to focus on connecting the components of the startup ecosystem which are government policies, legal framework, human resources, and amount of labor, funding, nurseries and speeding systems. With the available advantages and solutions mentioned above, it will become a premise for the promulgation of specific and necessary mechanisms and policies to support the development of innovative start-up activities in the context of the 4th industrial revolution.

References

- [1] Klaus schwab, The Fourth Industrial Revolution, World Economic Forum, 2016.
- [2] Bernard Marr, What is Industry 4.0? <http://https://www.forbes.com>
- [3] Vietnam Tech Investment Report, 2018, 2019.
- [4] Vietnam National Assembly, Law on Supporting Small and Medium-sized Enterprises, 2017.
- [5] Nguyen Thu Thuy, “Solutions for Startup Ecosystem Development in Vietnam”, *Tạp chí Những vấn đề Kinh tế và chính trị thế giới*, Vol. 7, 2017.
- [6] Vietnam Chamber of Commerce and Industry, *Annual report* 2017.
- [7] URL: <http://dangkykinhdoanh.gov.vn>
- [8] Topica Founder Institute (TFI), URL: <http://topica.asia/tfi/detail/vietnam-startup-deals-insight-2016>
- [9] 2017 Vietnamese Government (2016). Support Innovative Startup Ecosystem in Vietnam Until 2025. Decision No. 844 / QD-TTg, May, 2016. Hanoi
- [10] Vietnamese Government (2018). – Innovative Startup Investments, Decree 38/2018/NĐ-CP, Mach, 2018, Hanoi.