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USING SWOT MODEL TO ANALYSE STARTUP DEVELOPMENT IN THE CONTEXT OF INDUSTRY 4.0: THE CASE OF VIETNAM

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ABSTRACT

Industry 4.0 has created many opportunities and challenges for startup in order to improve business efficiency, promote the start-up process strongly in Vietnam recently. The paper focuses on the strengths, weaknesses, opportunities and challenges for Vietnamese start-up in the context of Industry 4.0 by using SWOT model. As a result, it finds some important reasons to explain why Vietnam start-up is not really effective. The reasons are an unsuitable start-up ecosystem, the lack of legal system, the weakness of startup's competitiveness, the lack of capital and innovative ideas and the misuse of strengths of Industry 4.0... In that context, the government needs to build a suitable startup ecosystem, create a stable macroeconomic environment, support startups so that they can access to capital easily. And the government has mechanisms and policies to help startup enterprises to enhance innovation in the direction of developing digital technology.

Keywords: Industry 4.0, Startup, Startup enterprises (Startups)

1. INTRODUCTION

Industry 4.0 has been formed on the basis of Industry 3.0. Digital technology with computer hardware, software and network becomes more and more complex, more connective. So this transforms our society and global economy. It is a trend that combines real and virtual systems, Internet of Thing (IoT) and Internet of System (IoS). In Revolution 4.0, "smart products" are attached sensors which show tell machinery what they need to be operated. Smart devices work together over a wireless network or through the cloud based storage. Industry 4.0's characteristic is that the initial investment may not be large, but the profit is high, this will be good for startups because they usually do not have much capital. This will be one of the major advantages for startups in the future. In Vietnam, promoting start-ups is considered a main in developing economy and it is also the means to implement three strategic breakthroughs, they are: institutions, infrastructure and human resources. We have more and more programs, seminars, workshops about start-up. Many policies, laws and incentive programs have been built and issued. Promoting start-up in Vietnam is contributing to the prosperity of the economy, the progress of society. The paper will focus on evaluating the current status of Vietnamese start-up, using the SWOT analysis model to assess the strengths, weaknesses, opportunities and challenges, in order to give solutions to accelerate the growth of start-up more powerfully and effectively in the context of Industry 4.0.

2. THEORETICAL FRAMEWORK AND METHODS

Over the past few years, the term "start-up" has appeared more and more in the mass media, on policy forums or academic forums. Now, when we talk about startups, they are aimed at "startups" - Enterprises are expected to develop strongly by technology or breakthrough by innovation. However, *starting a business is the act of starting a career and the most common way is to set up a business in a certain field.* To assess the current status of Vietnam's start-up in the context of Industry 4.0 and find out solutions to promote start-up in Vietnam, the paper uses SWOT analysis model. The SWOT model is an useful tool which helps us analyse the current status of Vietnamese start up, the strengths of Vietnam's start up, its weaknesses, the opportunities and the challenges that Vietnam has to face in the context of Industry 4.0.

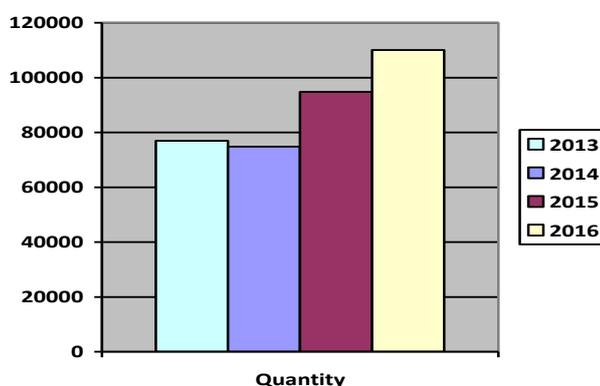
3. RESULTS AND DISCUSSION

3.1 The current status of Vietnamese startup

a. The number of startup enterprises (startups)

Since 2000, Vietnamese startups has gone through three stages. Successful startups in the first stage: Vatgia, Socbay... In the first stage, Vietnam's startup did not attract much attention. Because startup's communications have not developed and leaders in the field have not proved the potential for success. At present, Vietnam's startups is in the third stage. Many Vietnamese startups have reached out to international playgrounds and gained some success. In the 2017, report of business registration of the Ministry of Planning and Investment, there are 14,451 new startups were established with the capital 152.558 trillions VND, up 3.9% in volume and 35% in registered capital compared to the same period last year. In Vietnam, 2016 has been identified as the year for startups. From 2017 to 2020, this period is considered the golden age for start-up with the establishment of startup enterprises. The main form is self-employed individuals (households).

Figure 1: Number of Enterprises registered for New Establishment.



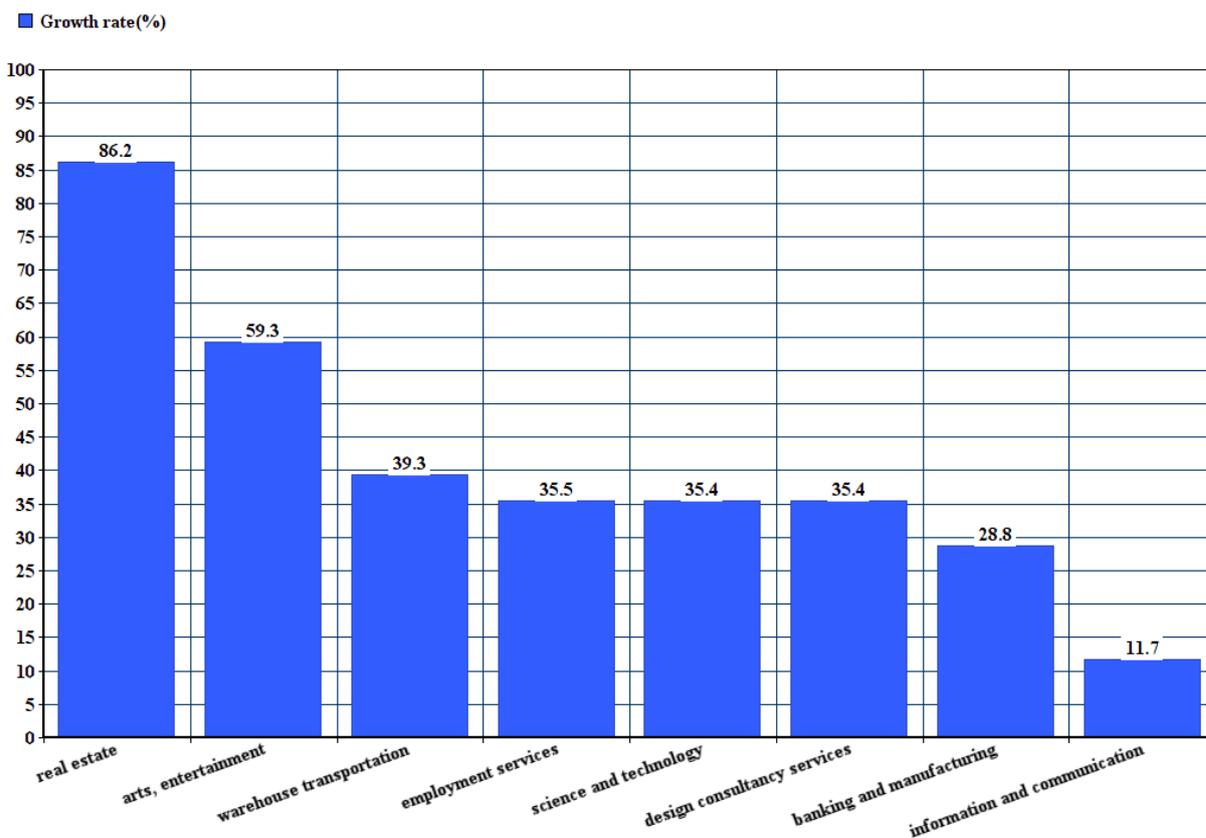
Source: Vietnam Chamber of Commerce and Industry (VCCI)

However, Vietnam's start-up is facing a lack of unification within the development network and the connection to startup sources in and out of the community. Besides, Vietnamese startups are racing to keep up with the latest trends in the world instead of focusing on finding out and analyzing the current status of Vietnamese startups. It is difficult for the startups to find out the best development orientation.

b. Start-up Sectors

Industry 4.0 has a significant impact on the business sector of startups. Now the number of startups in technology sector is much higher than startups in other sectors. Many Vietnamese startups are also choosing to be "Tech Startup" bussiness. Because technology startups do not need too much capital if they are compared to other sectors and it's easy to learn from previous models in the world. There is a diversification in startup sectors. Some sectors have increased dominantly: real estate (86.2%); arts, entertainment (59.3%); warehouse transportation (39.3%); employment services (35.5%) and high-tech industries are also growing as science and technology, design consultancy services (35.4%); information and communication (11.7%).

Figure 2. Growth rate of startup business sector in 2015



Source: National Business Registration Portal, 2015

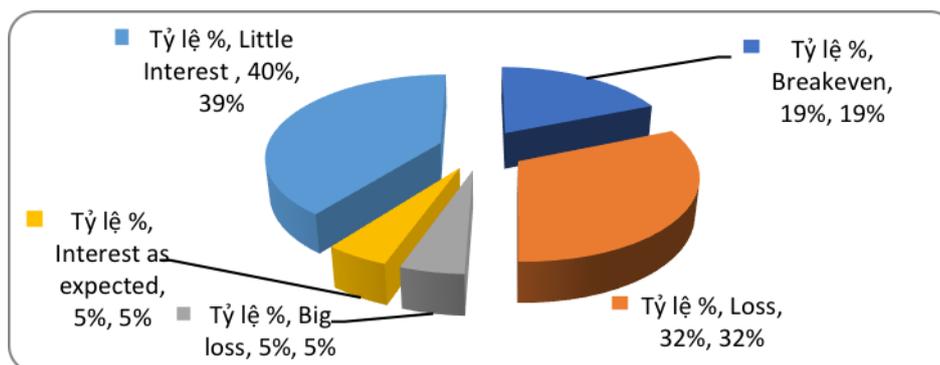
c. Owner of startup enterprises

Owner of startup enterprises are often young (about 30 years old), accounting for 72% of startup enterprises. Most of them have tertiary degrees, accounting for 84%. They are private enterprises (occupied 73%). According to General Statistics Office (GSO), the number of non-agricultural private units was 4,671,339 in 2014 and 4,754,826 in 2015 (increase of 135,293 units compared to 2014). Meanwhile, the number of individual enterprises establishments, which are mainly in the Mekong Delta, Red River Delta, South East in the agricultural sector only increased 2,275 times in 2015. The purpose of starting a business is to be financial independent (59%), self-employed (41%) and passionate about new things (31%)[National Business Registration Portal, 2015].

d. Business efficiency of startups

The characteristic of startups is in the early stages of development. 86% of startups are in the beginning period, only 8% of startups are in the expansion period. About the size of the labor force in small start-up enterprises: 63% have less than 10 employees, 30% have form 10 to 49 employees, and only 7% have more than 50 employees [VCCI survey, 2016]. Few of start-up businesses take part in import-export activities, most of them serve in domestic market.

In term of efficiency, the recent statistics reflect an unpleasant situation that most of Vietnamese startups were failed. Only 3% Vietnamese startups are successful, it means that one of their criteria are met: valued at \$ 10 millions or more; revenues from \$ 2 millions; has more than 100 employees; at good prices to sale [VCCI survey, 2016]. According to VCCI survey results, owner of successful startups: 78% are employed or owners failed in the previous two companies, 45% of them studied or worked abroad companies before they return to home. The average startup time is 5.7 years to success and it will take longer to become a company which has hundreds of millions dollars, 100% of them are learned and localized from similar abroad models that were successful.

Figure 3. Business activities efficiency of startup enterprises in 2016

Source: Vietnam Chamber of Commerce and Industry (VCCI)

The figure shows that the number of newly established enterprises is equal to the number of dissolved enterprises in Vietnam. In 2013, the number of new enterprises increased 10.1% and the number of dissolved enterprises increased 11.9% (compared to 2012). In 2014, the number of new enterprises decreased 2.7% while the number of dissolved enterprises increased 11.7% (compared to 2013)[VCCI survey, 2016]. This number is a warning about the way of operating of Vietnam Startups. Many startups are tending to copy the products, services and business models which are available in the market. This contraries completely to the conclusions about the intimate relationship between start-up and creativity that has been confirmed by many research.

3.2 SWOT analysis of Vietnam start-up in the context of Industry 4.0

a. Strengths

Firstly, the stable macroeconomic environment has had a positive impact on the development of the entrepreneurial movement in the context of Industry 4.0. Vietnam's macroeconomic environment is considered to be stable. This will be a factor to nurture the expectations and determination to start a business for people. This helps startup enterprises secure their investment in start-up. Government is ensuring macro stability actively through the development and effective implementation of macroeconomic policies. According to the World Economic Forum in 2016, Vietnam is considered a stable macroeconomy and Viet nam's National Competitiveness Index is 4.7 [Le Duy Binh, 2017]. In 2017, the legal corridor to support innovative entrepreneurship has also been improved when Congress adopts Technology Transfer Law, Small and Medium Enterprise Support Law. In this laws, there are many new regulations that support creative start-up. The number of venture capital funds and individual investors is higher.

Secondly, the start-up movement received strong support from the Government, ministries and social organizations. At present, the start-up movement is developing strongly and spreading to individuals in communities in Vietnam. At the Young Entrepreneurship Forum in 2017, Vietnam is the top position in Start up Spirit Index in the world. A survey of Startup Spirit was carried out in 45 countries with 50,861 respondents was sponsored by the Amway Group, Technische Universitat Munchen (TUM) and GFK market research firm. According to this report, Vietnam is the second about Positive startup attitude. This will be a strength for Viet namese start-up.

Thirdly, Vietnam is being considered as a potential market for enterprises, especially technology startups. The world is witness the transformation of businesses in digitalizing enterprises. In developed countries such as Singapore, more than 60% of total payment transactions are without cash. As reported by the Ministry of Planning and Investment, in 2017, Vietnam has nearly 210 websites with operation related to e-commerce. E-commerce turnover in 2017 reached about 2.08 billions USD with 20% growth rate per year. The revenue of Vietnam's online advertising market in 2017 is about 76 millions USD, 36% of the total online advertising revenue were made through mobile phones. Specially, Vietnam has a very high rate of using smart phones, it is at over 80% in big cities and over 60% in rural areas. This is the initial basis for enterprises to take advantages and give solutions to encourage people increasing the demand for products. These figures show that digital consumption is driving business to transform digital models. This is a great opportunity for startups if they know how to fill the market gap for development in the context of Industry 4.0.

b. Weakness

Firstly, the legal system and administrative barriers. Government Resolution No.19 and Government Resolution No.35 are stepping up reforms in Vietnam's business environment. Reforms in many sectors continue to take place. However, the moves are slow and do not meet the startup's expectations. There are still many buracratic administrative procedures, hidden fees in the regulations,

complicated procedures that make business environment unfavorable for startups. In addition, there are still many barriers in terms of business conditions, licenses, withdrawing capital... This makes investors reluctant to invest in Vietnam. According to statistics in 2016, the total investment in startups in Southeast Asia is about 1.5 billions USD. However, this figure in Vietnam is less than 100 million USD. 80% of the money is invested in Indonesia and Singapore because of their supporting startup policies and attracting capital policies [Luu Gia Binh, 2017]. In the next time, it is necessary to construct a suitable legal barrier and start-up ecosystem to support startups in the new context.

Secondly, the start-up education system. Start-up education is not focused properly. The two major constraints of the current education system are: Start-up education in universities has not paid much attention; training programs on start-up are not unrealistic, lack of practicality. Many students do not have opportunities to meet successful entrepreneurs when the students were in school to learn and share. Therefore, they can not find the right path for themselves.

Thirdly, the start-up's weakness

- ❖ The biggest barrier is English language. Many potential foreign investors have difficulty in communicating and understanding products and services of startup. Vietnam Startups are losing their opportunities to foreign startups due to poor English ability, inconfidence in communicating in foreign languages. In the context of regional and world integration, Industry 4.0 links nations closer together, this lack of basic skills is reduce the chances of accessing foreign investors and thus, reducing their competitiveness.
- ❖ Start-up enterprises are lack and weak about basic knowledge and legal knowledge. This is a hindrance to the success of startups. They are not good at financial knowledge while investors need a realistic business potential to make decisions on their investment. They are not good at legal knowledge so they are entangled in many issues such as lack of consideration of the type of company when established, no protection of intellectual property.
- ❖ Most of startups are in need of capital. The number of startups is increasing while the fund is dwindling. Besides, the investors also expect startup's development to a certain level and then put capital into so Start-up enterprises have to compete aggressively for capital.
- ❖ Enterprises have difficulty in branding. Many startups have new products, good quality, meet the need of consumers but they still have to close. Because the cost of marketing (television, radio, newspapers, radio, etc.) is very expensive. In addition, time and place restrictions affect negatively the choice of target customers, gather feedback, in-store survey.

c. Opportunities for Vietnam startups

In the context of Industry 4.0, Vietnam has achieved initial success in start-up and has a younger and more active start-up generation. In addition to the advantage of technology boom, market opening, open management thinking, this startup generation also has the advantage of market when Vietnam opened widely into the world economy through a series of trade agreement from Asia to Europe. And they have more opportunities when the Internet, Smartphone booms in with the development of e-commerce. There are many successful startups such as Flappy Bird, Foody.vn, Haravan, Fibo... This has made Vietnam a bright spot in the technology start-up movement. Vietnam is a potential market for digital startup businesses. As reported by Vibiz, up to 2017, Vietnam has nearly 210 websites with content related to e-commerce. E-commerce retail sales in 2017 reached about 2.08 billions USD with the growth rate about 20% per year. The report also said that the revenue of Vietnam's online advertising market in 2017 is about \$ 76 million, in which 36% of online advertising market revenue is generated via mobile phones. These figures show that digital consumption is driving the business to convert digital models. This is also a great opportunity for startups if you know how to grasp the market needs to grow. Thus, the main opportunity of startups is to grasp the market's need to deploy the business plan. Vietnam has a very high penetration rate of smart phones, 80% in big cities and over 60% in rural areas. However, this is only the initial basic, the important thing is that businesses need to take this advantage, offer solutions to encourage people to increase the demand for their products.

d. Challenges for Vietnam startups

According to the general assessment, the startup is still facing many difficulties. Because most of startups are often young, the financial resources are not many, the staff are not professional. Therefore, startups businesses are confused in the knowledge of administrative procedures, legal ... So Vietnamese market has very favorable opportunities for startups, but it is also difficult to orient, share practical experience from successful domestic and foreign startup companies. In other words, encouraging start-up spirit needs for more specific guidance and support such as: Offer ideas or projects to support capital, navigate young people to do and enable them to try their best. Thus, in the context of Industry 4.0, the biggest challenge for Vietnam to encourage startups is establishing a start-up ecosystem. At present, among these institutions, the government has a great influence on the development of start-up ecosystem.

Over the past 10 years, the Vietnamese government has made an effort to upgrade the the start-up ecosystem. For example, the launching of R & D form of public and private organizations, such as the National Science and Technology Development Fund (NAFOSTED) or the National Technological Innovation Fund (NATIF). This contributes to form of new businesses that might be applied research results. However, the development of the start-up ecosystem in Vietnam is still facing many difficulties. Firstly, the legal acts still refer mainly to enterprises in general, while regulations for startups (especially creative start-up) are quite poor absent. For example, venture capital funds - a new investment form in Vietnam do not have specific legal regulations. In addition, the legal mechanisms for recognizing the monetary value of intangible assets in a capital contribution, the mortgage loans or the protection of intellectual property rights for startups should be more specific.

Another sector which the government needs to pay attention to developing a startup ecosystem is start-up's finance. Most of start-up businesses have difficulty in accessing loan because the procedure is too complicated or they do not know bank's requirement clearly. According to the VCCI and USAID provincial survey on enterprise's competitiveness index conducted during the last 11 years shows that accessing to capital is always a top problem for startups. According to the results of the PCI survey in 2015, 35% of new startups which established within 3 years have loans from banks, while this figure for enterprises with the establishment time of more than 3 years is 53%. At the same time, the role of local governments for promoting start-up ecosystems also needs to be improved. At present, many local authorities do not have policies to improve the business environment to create favorable conditions for small and medium enterprises. Therefore, in order to build a good start-up ecosystem, local authorities must also take part and have detailed solutions with experts and the entrepreneurial community.

4. SOME SOLUTIONS TO ACCELERATE VIETNAM'S START-UP IN THE CONTEXT OF INDUSTRY 4.0

First, promote Industry 4.0 and increase the access to science and technology of startups.

This Industry is characterized by a combination of technologies that blur the boundaries between physics, digitization and biology. This is a trend that combines real and virtual systems, Internet of Thing (IoT) and Internet connection systems (IoS). Industry 4.0 is not only about the machines, intelligent systems and connection, but also it has a much broader scope. At the same time, there are waves of further breakthroughs in different areas from gene sequence coding to nanotechnology, from renewable energy to quantum computing. Industrial 4.0 is the fusion of these technologies and their interaction in the fields of physics, digital and biology.

Second, focus on start-up education.

Human resource quality is one of the key elements of startups. Therefore, we need to focus to the start-up programs in tertiary education. Training programs should be consistent with the startup content, ensure the specificity and system. It should provides students with the knowledge of corporate governance and other soft skills to develop their startup ideas after graduation. Universities and training institutions need to re-evaluate the effectiveness of current curricula related to startups, including assessments based on student's feedback. Schools should organize events that invite business leaders, experts to talk to students, or even invite them to participate directly in teaching students, instruct students to participate their projects.

Third, build an suitable ecosystem and supportive start-up institutions.

The start-ups ecosystem includes the participation of various stakeholders and institutions. It implements three functional groups: (i) start-up functions (such as newly established startups), (ii) support functions (eg, government, universities, research institutes, expert advisors); and (iii) investment functions (via venture capital funds, angel investors, business promotion organizations). The interaction between stakeholders in the start-up ecosystem is extremely important to the development of startups. In these institutions, the government has a great influence on the development of start-up ecosystem. The government needs to review add regulations for startups support. We need display venture capital funds and have specific legal regulations for the fund to operate effectively. We need to enact the Law on Small Business Support, legal mechanisms for recognizing the monetary value of intangible assets in the capital contribution to establish the company, the mortgage loans or to protect intellectual property rights. It should be more specific regulation for start-up businesses.

Fourth, improve the financial accessibility of start-up enterprises, improve competitive power of start-up enterprises.

Establish channels to provide financial funds for start-ups such as loans from families, commercial banks, private equity or through angel investment funds and venture capital funds. Create mechanisms for start-up enterprises to prove easily the conditions to access these investment funds. In addition, the government should focus to financing of start-ups. Most of startups find difficulty in

accessing bank credit due to complicated procedures or lack of collateral which was required by the bank. Therefore, it is necessary to review the procedure of bank loan, make it easier for startups to access business capital.

Fifth, maintain a stable macroeconomic environment, guarantee the business freedom for startups.

A stable macroeconomic environment will nurture the expectations and determination of the people to start a business. This requires the government to formulate and implement effective macroeconomic policies that can manage the economy in a tactful and careful manner to help the economy not to fall into instability. It is difficult to imagine that the enthusiasm of the people, of young people will remain in an economy with high inflation rate, the bank interest rate is higher than the average profit, high rate public debt, unstable exchange rate and high budget deficits. The stability of the macroeconomy makes startups believe in the long-term future and be reluctant bet bigger in that future.

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