

Challenges of Small and Medium Enterprises to Meet the Requirements of Industrial Revolution 4.0 In Vietnam*

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Abstract

Industry 4.0 is a term for the digital revolution in industrial production emerging from the comprehensive networking and computerisation of all areas of production. The changes arising from the digital revolution in the production and value creation process are radical and pose a real challenge to enterprises. In order not to be left behind companies need to develop strategies in good time to exploit the new possibilities of digitalisation, to improve established processes and develop new business models. The increasing involvement of Vietnam in international organizations and forums requires each enterprise to have appropriate strategies to adapt to the new business environment to meet the requirements of the Industrial Revolution. 4.0. Small and medium enterprises are now the majority of enterprises, and are an important part of the production of gross domestic product. The constant change and movement of the economy has created many conditions for small and medium enterprises to expand production and business development, while also bringing

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many difficulties and challenges. Therefore, the author examines the challenges that small and medium enterprises meet the Industrial Revolution 4.0 to provide a new perspective to help small and medium enterprises overcome difficulties to develop sustainably, contributing to the overall growth of the economy.

Keywords: Small and medium enterprises; Industrial Revolution 4.0; Challenges; Vietnam

Introduction

Industrial Revolution 4.0 helps small and medium enterprises participate in convenient global supply chains at low cost. Innovative new technologies will enable supply chains to be better connected and distributed more efficiently, minimizing logistics and transaction costs. If you take advantage of technology, Vietnamese enterprises can improve business efficiency, expand markets and market share, even encroach on new markets created by Vietnamese enterprises. The technology products will create more value, reduce production costs, labor workers ... Besides the opportunities, the digital economy also creates significant challenges for Vietnamese enterprises. In this article, the author points out the challenges for how small and medium enterprises in Vietnam meet the requirements of Industrial Revolution 4.0.

1. Industrial revolution 4.0

The fourth industrial revolution term (Industrial Revolution 4.0) first appeared in 2011, at the Hannover Fair, introducing the projections of Germany's industrial program 4.0, not just Germany with the chapter. For Industry 4.0, developed countries over the past few years all have strategic programs on production as advances in science and technology are happening very quickly. Industrial Revolution 4.0 aims to enhance the traditional mechanical industry that describes the next evolutionary step in production, activated through increased computing power and device connectivity. Historically, the First Industrial Revolution used water and steam energy to mechanize production. The second industrial revolution uses electrical energy to produce mass production. The third industrial revolution uses electronic technology and information to automate production. The Industrial Revolution 4.0, characterized by a key development in advanced manufacturing processes, includes: Digital data collection for aspects of manufacturing processes, warehouses and distribution networks; Digital connection between production machinery, logistics equipment and computer

systems; Analysis of data received from networked machines & equipment to report production cycles and distribution networks promotes improved productivity and efficiency; Ability to use creative thinking to quickly make changes and improvements in production cycles & distribution networks on the back of the analysis report. The Industrial Revolution 4.0 is the trillions of mobile devices, with unprecedented processing power, storage and access to knowledge, is unlimited. And emerging technological breakthroughs in areas such as artificial intelligence, robots, Internet of things, autonomous cars, 3D printing, nanotechnology, biotechnology, material science, energy storage and quantum computing. Impressive advances have been made in AI in recent years, fueled by an exponential increase in computing power and by huge amounts of data, from software used to explore the New drugs to algorithms are used to predict our cultural interests. Digital manufacturing technology, meanwhile, is interacting with the biological world every day. Engineers, designers and architects are incorporating computational design, additive manufacturing, material engineering and synthetic biology to pioneer symbiosis between microorganisms and our bodies. , the products we consume and even the buildings we live in.

Like previous revolutions, the Fourth Industrial Revolution has the potential to improve global income levels and improve the quality of life for people worldwide, access to digital; Technology has created new products and services that can increase efficiency and fun in life. In the future, technological innovation will also lead to long-term benefits of efficiency and productivity. Transportation and communication costs will decrease, global logistics and supply chains will be more efficient and trade costs will decrease, all of which will open new markets and boost economic growth. 2. Current situation of small and medium enterprises in Vietnam

Currently, in Vietnam, small and medium enterprises are increasingly asserting their role in the country's economy. According to the figures of the authorities, small and medium enterprises account for 95% of the total number of businesses in Vietnam, contributing over 40% of GDP, attracting more than 50% of the total number of employees, accounting for 17.26% total state budget revenue. [first]

According to the General Statistics Office in 2017, there are nearly 517,900 businesses operating, increasing by 51.6% compared to 2012, of which small and medium enterprises account for 98.1%. (Thu Huong (2017) In 2018, the whole country had 131,275 newly established enterprises with a registered capital of VND 1,478,101 billion, an increase of 3.5% in number of enterprises and an increase of 14.1% in registered capital. (ThuHuong

(2017)), This is the fourth consecutive year with the highest number of newly established businesses and the highest registered capital in history. The ratio of average registered capital per enterprise in 2018 reached 11.3 billion VND, up 10.2% compared to 2017 (Thu Huong (2017)). Total additional registered capital to the economy in 2018 was 3,886 .892 billion VND, up 22.8% compared to 2017, including: 1,478,101 billion VND of newly registered enterprises and 2,408,791 billion VND of additional capital of operating enterprises with 42,538 times registered capital increase. (Tri Kien- An Thao (2019) This is a clear signal to show the confidence of operating businesses as they continue to add capital to production and business activities.

In 2018, the number of enterprises returning to operation was 34,010 businesses, an increase of 28.6% over the same period last year Source of Business Registration Administration (2018)

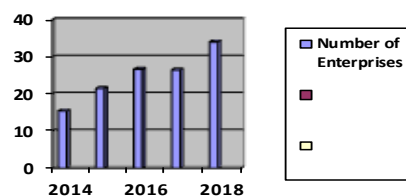


Figure 1. Chart of business situation back to operation in the period 2014 – 2018

Source: General Statistics Office 2018

The **Figure 1** shows that the situation of enterprises returning to operation tends to increase steadily over the years from 2014 to 2018 (reduced in 2017). This is a positive signal, partly showing that the open legal framework and drastic solutions of the government to solve difficulties and create a more favorable business and investment environment for existing businesses. Positive impact on investors' confidence, helping to increase participation and contribution of the private sector to the development of the economy. - By capital scale:

Table 1. Number of enterprises returning to operate according to capital size

(Unit: enterprises)

TT	Scale of registered capital	Year 2017	Year 2018	Year 2018 compared to the same period in 2017 (%)
	Total	26.448	34.010	28,6
1	0 - 10 billions	23.924	29.832	24,7
2	10-20 billions	1.240	2.003	61,5
3	20-50 billions	731	1.182	61,7
4	50-100 billions	289	503	74,0
5	Trên 100 billions	264	490	85,6

Source: General Statistics Office 2018

Statistics Table 1 shows that over the past year all registered capital scales have a high rate of enterprises returning to their activities compared to the same period last year, namely: the scale of registered capital of over 100 VND billion has the highest increase rate of 85.6%; followed by 50 - 100 billion dong, up 74.0%; The scale of registered capital is from 0 to 10 billion VND with the rate of increase of at least 24.7%.

- By territory:

The data show that in 2018, the South East region had the largest number of enterprises returning to operation with 14,453 enterprises, accounting for 42.5% of the total number of enterprises returning to operation; second is the Red River Delta region with 9,931 enterprises, accounting for 29.2% of the total number of enterprises; The Central Highlands region had the lowest number of enterprises returning 1,039, accounting for 3.1% of the total number of enterprises returning to operation.

Over the years, the rate of enterprises returning to operation in all regions increased compared to the same period last year. Some areas have increased such as: the Southeast increased by 38.0%; Central Highlands increased by 30.2%; Red River Delta increased by 27.4%.

Table 2. The situation of enterprises returning to operate in the territory

TT	Territory	Year 2017	Year 2018	Year 2018 compared to the same period in 2017 (%)
Total		26.448	34.010	28,6
1	Delta Song Hong	7.795	9.931	27,4
2	Northern midlands and mountains	1.172	1.323	12,9
3	North Central and Central Coast	4.246	5.007	17,9
4	Tay Nguyen	798	1.039	30,2
5	Đông Nam Bộ South East	10.476	14.453	38,0
6	Delta Song Cuu Long	1.961	2.257	15,1

Source: General Statistics Office 2018

- By field of activity:

Table 3. The situation of enterprises returning to activities by sector

TT	Business	Year 2017	Year 2018	Year 2018 compared to the same period in 2017 (%)
Total		26.448	34.010	28,6
1	Wholesale; retail; repairing cars and motorbikes	10.127	12.594	24,4
2	Manufacturing and processing industry	3.394	4.376	28,9
3	Accommodation and catering services	1.418	1.630	15,0
4	Employment services; travel; rental of machinery, equipment and other support services	1.311	1.612	23,0
5	Education and training	425	636	49,6
6	Other service activities	395	434	9,9
7	Real estate business	440	804	82,7

8	Extractive	285	320	12,3
9	Science and technology; consulting and design services; advertising and other expertise	1.378	2.166	57,2
10	Agriculture, forestry and fisheries	630	793	25,9
11	Art, fun and entertainment	248	267	7,7
12	Production, distribution, electricity, water and gas	157	191	21,7
13	Finance, banking and insurance	219	262	19,6
14	Information and communication	504	715	41,9
15	Warehouse transportation	1.439	1.747	21,4
16	Build	4.004	5.358	33,8
17	Health and social assistance activities	74	105	41,9

Source: General Statistics Office 2018

Statistics of the number of enterprises returning to activities by sector showed that in 2018 the number of enterprises mainly focused on industries such as Wholesale; retail; repairing automobiles and motorbikes with 12,594 enterprises, accounting for 37.0% of the total number of enterprises returning to operation; Construction has 5,358 enterprises, accounting for 15.8% of the total number of enterprises; Processing and manufacturing industry has 4,376 enterprises, accounting for 12.9% of the total number of enterprises; Science and technology; consulting and design services; Other advertising and expertise has 2,166 businesses, accounting for 6.4%.

Compared to the same period in 2017, the rate of enterprises returning to operation in the last year increased in all sectors. In particular, some sectors with high growth rates are: real estate business (82.7%); Science and technology; consulting and design services; advertising and other specialties (57.2%); Education and training (49.6%); Information and communication and Health and social assistance activities (increased by 41.9%).

In 2020, Vietnam can reach 1 million enterprises for many reasons: Firstly, the Government has created and the Prime Minister has met enterprises with a new climate, promoting support for start-up and creative enterprises. In addition, Government Resolution 19 is also an important "push" to remove barriers that are hindering business development.

Besides, there is also Resolution 35, so we want the country to start a business, turning the idea of starting a business into a successful and successful project ... Creating favorable conditions, removing the winning button for the business As of now, by 2020, the goal of 1 million businesses is completely achievable.

Thus, the strength of our small and medium enterprises is low initial investment capital, quick and efficient capital recovery; lightweight organization and management apparatus; being able to penetrate into niche markets and not highly profitable business and production sectors; flexible improvability However, it also reveals limitations such as: spontaneous and small development, lack of economic and technical linkages; weak management and financial capacity, narrow market and low competitiveness. In particular, because of the "medium and small" size, small and medium enterprises outside "suffering" because of "weak, small, and underweight" are also affected by unfair competition due to their weaknesses in the next benefits. access to national resources as well as premises, labor, technology, training, markets ... compared to state enterprises.

3. Challenges of small and medium enterprises to meet the requirements of Industrial Revolution 4.0

Firstly, the challenge for small and medium enterprises is to create flexible organizational structures and motivate their employees to think interdisciplinary. Therefore, current qualified and experienced employees must be deployed in the introduction of Industry 4.0 and allowed to reflect production processes and bring continuous improvements. Industry 4.0 requires the reassignment of new tasks and responsibilities that need to be strengthened by more appropriate training measures, as well as consensus-oriented concepts on data protection and mobile work, must be developed with the participation of workplace coding agencies.

Secondly, to meet the requirements of Industrial Revolution 4.0, it requires Vietnamese SMEs to choose the right standards and data security. Currently, small and medium enterprises in Vietnam are adapting to the standards of the big companies they provide. The lack of common standards makes it difficult for SMEs to join value creation networks with different standards and norms, so their limitations must adapt and keep up.

Small and medium-sized enterprises are aware of security and privacy. Technical infrastructure system and technology level are still inadequate. Digital economy based on Internet platform still contains many risks of security, information security, data privacy.

When digital became popular, businesses had difficulty in how to prevent and solve cyberattacks.

Third, the adaptation of small and medium enterprises to meet the requirements of Industrial Revolution 4.0, can open up the potential by practical knowledge, acumen and employee adaptability. While simple repetitive jobs are increasingly being replaced by new jobs emerging elsewhere due to the new business model, must implement strong information technology, must implement resolutions on public Information technology, the most important is to train and train all skilled and blind people in information technology and Internet. The ability to adapt to the economy of Vietnamese enterprises is limited, especially for small and medium enterprises. This business sector is struggling to expand its business through a digital economy due to the problems of Internet access and broad-band information transmission, safety and security of personal information. As the basic knowledge of online development, the expensive cost of information technology equipment.

Fourth, to continue to inherit and promote stronger administrative reforms under Resolution 01, 02, the Government clearly stated the work of each agency and assigned it to the Vietnam Chamber of Commerce and Industry and the Business Association. Small and medium-sized Vietnam monitors and monitors implementation. This is a progressive step, there must be incentives and sanctions for cadres and civil servants to implement, to reform the apparatus, to select talented people to work. The legal environment is suitable for the new economy. If there is an appropriate legal framework that will help accelerate the transition between the economy and the digital economy takes place more quickly and more strongly in Vietnam; including electronic text law, electronic transaction law and digital signature law to support electronic transactions. Changing awareness to recognize electronic texts is as valuable as paper. Procedures for application, licensing, approval, registration ... need to be more effective and transparent. The government can promote this process by improving regulations to ease restrictions on businesses that want to exploit the Internet in their businesses, as well as eliminate uncertainties and encourage use. Internet for all businesses. Competent authorities need to work more closely to ensure transparency and avoid legal risks for investors.

Fifthly, the role of the Business Association studies the situation, informs the business in a timely manner and predicts how it will happen, where the opportunities and challenges are.

Associations must have activities to connect large-scale enterprises, FDI enterprises with member enterprises, and among members together to increase business opportunities, cooperation and links for development. . Associations and associations also need to innovate operating methods to improve the effectiveness of supporting members in localities. Promote consultancy activities, encourage support for business households to carry out the transformation to operate under the enterprise model, contributing to the implementation of the Prime Minister's targets till 2020, the whole country has 1 million businesses. ... "To increase the linkage, it is necessary to have the role of Association, Industry Association, the role of strong enterprises in the industry, in the region to lead and support, the new linkage brings efficiency. practical". The Association of Small and Medium Enterprises must provide guidance and training for this. For small and medium enterprises, there must be funds to encourage, help, train and guide businesses to connect. The world economy is not stable and faces many challenges.

Sixth, difficulties due to capital. Small and medium enterprises currently account for 97% of the total number of enterprises operating in Vietnam, contributing up to 45% of GDP, 31% of the total budget revenue and attracting more than 5 million workers. However, small and medium-sized enterprises only have credit outstanding at 22-25%, meaning that they account for only 1/5 of the total outstanding loans of the whole country. Meanwhile, the ability to access other capital sources is also very limited. Although Vietnam is ranked 29/190 countries in terms of credit access index, so far, up to 60% of SMEs have not been able to access capital. Information provided at the Forum "Solutions to promote capital for small and medium enterprises" organized by the Vietnam Chamber of Commerce and Industry on August 7, 2018 in Hanoi

As for Vietnamese enterprises, whether they are State-owned enterprises or SMEs, the long-term problem is lack of capital. In theory, in the field of production - business, no business is not lack of capital, because every business wants to survive, develop and increase next year. Therefore, the birth of a banking system is to lend to businesses. However, small and medium-sized business owners find it difficult to borrow money from banks. But they forgot that, for small and medium-sized enterprises, the only way to find capital has been to find commercial banks. However, loans from small and medium enterprises will gradually be removed, if the authorities, managers, scientists and professional associations agree to find effective solutions. But the core issue is that small and medium-sized enterprises know how to do business properly and have real profits, banks find themselves to invite loans.

Conclusion

The Industrial Revolution 4.0 is taking place on a global scale and has a direct impact on the Vietnamese economy. In this trend, enterprises in general and small and medium enterprises in particular, if not caught in the "right time" will be left behind, even eliminated from the Vietnamese market, should create the best conditions to encourage technology creation. The implementation of the national strategy on the Industrial Revolution 4.0 is the key solution for the implementation of the policy of restructuring, reforming the growth model and the socio-economic development strategy of institutional reform and transfer. Changing the state apparatus to a digital economy in both management thinking and management tools is a prerequisite for implementing the 4.0 Industrial Revolution in Vietnam; In which, international cooperation with countries, technology centers, advanced technology enterprises, leading scientists and overseas Vietnamese knowledge is a cross-cutting element in strategy implementation and enlistment. The peak intelligence of humanity will help Vietnam advance faster, need to build the foundation for the Industrial Revolution 4.0, transform the state governance, support businesses to participate in the Industrial Revolution 4.0, develop the birth system state innovation and technology transfer; attracting investment and developing industries 4.0; focusing on investment, developing a number of new technologies with multi-industry applications, advantages and potentials for development. The state should take the initiative and drastically transform state governance and build the foundation for the implementation of the Industrial Revolution 4.0.

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