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Promoting Innovative Entrepreneurship in Viet Nam: An Ecosystem Diagnostic

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World Bank Group
Finance, Competitiveness and Innovation
Global Practice

Promoting Innovative Entrepreneurship in Viet Nam: An Ecosystem Diagnostic

NOVEMBER 2023

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Acronyms and Abbreviations

| | |
|----------------|---|
| AED | Agency for Enterprise Development |
| DOST | Ho Chi Minh City Department of Science and Technology |
| FDI | Foreign direct investment |
| FIE | Foreign-invested enterprise |
| GCI | Global Competitiveness Index |
| GDP | Gross domestic product |
| GERD | Gross expenditures on R&D |
| GII | Global Innovation Index |
| GVC | Global value chain |
| HCMC | Ho Chi Minh City |
| HGF | High-growth firm |
| ICT | Information and communications technology |
| IP | Intellectual property |
| IPO | Initial public offering |
| M&A | Mergers and acquisition |
| MOST | Ministry of Science and Technology |
| MPI | Ministry of Planning and Investment |
| MVP | Minimum viable product |
| NATEC | National Agency for Technology Entrepreneurship and Commercialization Development |
| NATIF | National Technology Innovation Foundation |
| NIC | National Innovation Center |
| PCI | Provincial Competitiveness Index |
| PRO | Public research organization |
| R&D | Research and development |
| R&I | Research and innovation |
| SME | Small- and medium-sized enterprise |
| SMEDF | SME Development Fund |
| SOE | State-owned enterprise |
| STEM | Science, technology, engineering, and math |
| STI | Science, technology, and innovation |
| VC | Venture capital |

Acknowledgments

This report was prepared by a World Bank team led by Marcin Piatkowski (Task Team Leader) and Anwar Aridi (Co-Task Team Leader) and comprising Daniel Querejazu (Consultant), Nelson Gray (Consultant), and Vinh Quang Dang (Senior Private Sector Specialist). Joo Sueb Lee (Senior Economist), Hoang Linh Vu, Dinh Tuan Minh, Daein Kang, and Real Time Analytics (Consultants) provided valuable analytical inputs into the report. The report benefited from the guidance of the World Bank management, Carolyn Turk (Country Manager) and Zafer Mustafaoglu (Practice Manager), and from valuable feedback and comments provided by Juni Zhu (Senior Economist), Dorsati Madani (Senior Economist), Natasha Kapil (Senior Private Sector Specialist), Andrea Coppola (Lead Economist), Justin Hill (Senior Private Sector Specialist), Trang Thu Tran (Senior Economist), and Jing Zhao (Senior Financial Sector Specialist).

The team would like to thank the Government of Viet Nam, and in particular the Ministry of Science and Technology and Ho Chi Minh City Department of Science and Technology, as well as all other ministries and public agencies who provided input, data, and feedback into the report. The team also thanks the entrepreneurs, firms, investors, support organizations, public research institutions, universities, technology transfer offices, and donor organizations who took in interviews or responded to the firm survey.

Executive Summary

Viet Nam has been a global economic star over the last 30 years, during which it has experienced one of the fastest GDP growth rates in the world. From 1990 to 2021, Viet Nam's GDP per capita grew at an average annual rate of 5.3 percent, faster than any other economy in the region except China. This remarkable performance has been driven by three engines of growth: fast capital accumulation, plentiful labor supply, and high productivity growth, which were underpinned by, among others, improvements in the business environment, increases in the quality of human capital, and large inflows of foreign direct investment (FDI).

The private sector has played a central role in Viet Nam's growing prosperity. Driven by its trade openness and an export-oriented growth model, Viet Nam has attracted large amounts of FDI in labor-intensive segments of manufacturing global value chains (GVCs). The fast growth of the private sector has also driven rapid structural transformation, reflected in the rapidly declining share of agriculture employment and a corresponding increase of employment in industry and services. Medium and high-skilled employment increased as workers have moved out of agriculture and into the manufacturing and services sectors. However, high-skilled occupations still only make up a fraction (7 percent) of Viet Nam's workforce, and the labor market is dominated by low and medium skilled jobs (World Bank, 2023b).

While the domestic private sector is highly dynamic and growing rapidly, productivity remains a challenge. Although still relatively small and young, Viet Nam has a highly dynamic private sector, which produces a high share of new businesses and Vietnamese firms tend to have good prospects for growth – Viet Nam has a large share of high-growth firms (HGFs)¹ relative to the Organisation for Economic Co-operation and Development (OECD) average. HGFs are a primary driver of job creation in the country, adding more than 1.4 million jobs to the Vietnamese economy during 2017–2020 alone, while the rest of the private sector lost 1.1 million jobs during the same period. However, HGFs tend to be less productive, less innovative, and less integrated in global value chains (GVCs) than the average Vietnamese firm, largely because they tend to be concentrated in less productive and lower value-added sectors, such as wholesale/retail and

¹ High-growth firms are defined as those firms that initially have 10 or more employees and experience average annualized employment or revenue growth of greater than 20 percent over a three-year period, as established by Eurostat and OECD (2007) and used in the World Bank's analysis of the impacts of HGFs in developing countries in Grover, Medvedev, and Olafsen (2019).

construction. There are few knowledge- or innovation-based startups that have the potential to disrupt incumbent firms and transform industries. Although Viet Nam's labor productivity grew by about two-thirds since 2010, it still stands at only about 10 percent of Singapore's levels (Asian Productivity Organization, 2022).

Viet Nam needs to increase productivity of the domestic private sector to meet its target of becoming high income by 2045. Sustaining the average GDP growth of 5.9 percent per year needed to achieve the ambitious 2045 target will require increasing the productivity of the domestic private sector. The role of a private sector-led productivity growth will be especially important as the country's historic sources of growth are gradually losing steam: capital accumulation is constrained by relatively low public investment due to a conservative fiscal policy and implementation challenges, while the contribution of labor supply is also declining due to fast ageing (World Bank, 2023b). This leaves productivity growth, in addition to further private sector capital accumulation, as the key growth engine going forward.

While productivity of the domestic sector can grow through three main channels, this report focuses on potential productivity growth contributions of innovative startups. Productivity can grow by (i) improving efficiency of the existing firms, including by improving managerial practices, adopting new technologies and enhancing access to markets and finance, (ii) reallocating resources between firms and sectors from less efficient to more efficient firms and industries, and (iii) allowing higher-productivity firms, mostly innovative startups, to enter and low-productivity firms to exit the market². The last channel is the center of attention of this report, with a special focus on the entry of innovative startups.

There is evidence that innovative startups³ drive productivity growth. Previous studies have evidenced the impact of innovative startups on economic growth (Audretsch, Kielbach, and Lehmann 2006; Gries and Naudé 2009), innovation (Spender et al. 2017), and productivity (Aghion et al. 2009). Startups can also induce structural changes within an economy: whereas incumbent firms can suffer from lock-in effects because of the costs associated with switching economic activities, new firms can more easily enter into new areas of economic activity. If new firms are innovative, as they grow, they can shift employment patterns into more knowledge- and technology-intensive, higher value-added areas of economic activity—a process known in economic literature as “creative destruction” (Aghion and Howitt 1992). Innovative startups are especially relevant to middle-income countries, such as Viet Nam, as their future productivity growth must be increasingly driven by innovation and technology absorption.

Improving conditions for entry of innovative startups, through the development of a conducive entrepreneurial ecosystem, can help build a pipeline of potential highly productive HGFs in new and established sectors. Entrepreneurs who want to build innovative startups require environments where multiple factors work together to form an entrepreneurial ecosystem,

² A recent World Bank Group report (2021) discussed issues related to firm exits in Viet Nam. However, a detailed focus on this topic is beyond the scope of this report.

³ Innovative startups are defined as knowledge- or technology-intensive startup firms have developed (or aim to develop) new-to-market or new-to-world products and/or services.

in the form of conducive policies, markets, capital, skills, culture, and support mechanisms. Past studies on the binding constraints to growth of firms have found multiple interconnected factors, which combine to either create or limit a successful entrepreneurial ecosystem (Olafson and Cook 2016).

There are challenges within Viet Nam’s entrepreneurial ecosystem that could impede entry of innovative firms and undermine their high growth potential. The impeding factors include an outdated and burdensome regulatory environment, growing shortages of skilled workers, low rates of innovation, and difficulties in accessing finance – especially for startups outside of the ICT sector. Many sectors, such as financial services, health care, logistics, and education also suffer from high entry costs and regulatory uncertainty (World Bank Group 2021).

This report diagnoses Viet Nam’s entrepreneurship ecosystem and provides a set of targeted recommendations for improving conditions for innovative entrepreneurship in the country. The assessment consists of four components:

1. An overview of the Vietnamese private sector, with a focus on market dynamism
2. A demand side analysis focused on the flow of ideas, skills, and technology that contribute to the pipeline of innovative startups
3. A supply-side assessment of the policy mix and the availability of finance throughout the firm lifecycle, and
4. An analysis of the ecosystem framework conditions.

The key findings of the diagnostic are as follows:

- **The overall quality and the level of public support is low.** The existing policy mix targeting innovative firms and entrepreneurs is underdeveloped, underfunded, fragmented and not aligned with international good practices. Almost no direct financial support is provided to startups (or domestic firms of any kind). The quality of public entrepreneurship intermediaries (incubators, accelerators, innovation centers) is also low. Almost no direct financial support is provided to startups (or domestic firms of any kind). This undermines the government’s efforts to build a pipeline of investment-ready, innovative startups.
- **Despite reform efforts, entrepreneurs and investors face barriers in the regulatory framework.** Obtaining business sublicenses for selected economic activities is burdensome, and there is a lack of clarity on the legality of a broad range of business segments, which deters investment. For domestic investors, the legal framework for registering investment funds locally is incomplete and restrictive. Additionally, Viet Nam’s IP and technology transfer framework is not aligned with global best practices and suffers from contradictory policies and inconsistencies that inhibit technology transfer.
- **Despite being the source of talent and skills fueling the growth of the entrepreneurship ecosystem, universities and public research institutions are underperforming in terms**

of their economic contribution through technology transfer, industry collaboration, and spin-offs. Universities and public research organizations are facing funding and human capital constraints that will likely continue to limit their contribution to market innovation in the future.

- **Finding skilled talent, mid-level managers, and C-Suite executives is an increasing challenge for firms.** Viet Nam has a strong base of technical talent, but competition for skilled workers is increasing among domestic firms and FIEs. Universities are good at producing raw programming and engineering talent, but Viet Nam’s education system does not currently have the resources to scale up its supply of technically skilled workers, which could limit the development of knowledge-based firms.
- **Many founder teams struggle with key aspects of running a business, such as developing product-market fit, growth strategies, and team building.** There is a strong need for entrepreneurship support organizations that can offer better and more tailored training, mentoring, and acceleration programs that prepare entrepreneurs for developing new products and running businesses.
- **Risk capital investments have grown rapidly, but funding gaps remain for early-stage companies.** While Viet Nam has seen an influx of international venture capital (VC) funds and VC investment, which exceeded US\$1.5 billion in 2021, there are funding gaps for early-stage activities, especially for knowledge and intellectual property (IP)-based firms that are usually of a higher risk profile and require larger and longer-term funding to develop a minimum viable product (MVP). Angel investors, who generally play a key role in early-stage funding, are scarce and not professionalized.
- **The risk capital market is heavily dependent on foreign funds and investors,** making it vulnerable to shocks in global capital markets, which contributed to a dramatic drop in risk capital investments in 2022. Domestic Vietnamese investors face restrictions in their activities and are not incentivized to participate in risk capital investing.

These findings inform a set of policy recommendations for improving entrepreneurial outcomes and enabling innovative firms to enter high-growth trajectories (a detailed discussion is in the *Conclusions and Policy Recommendations* section):

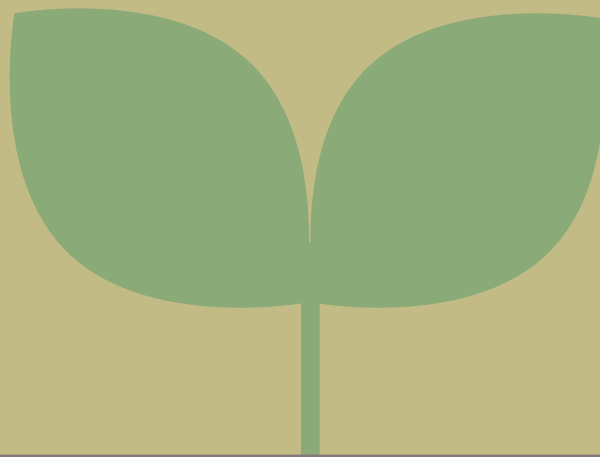
- 5. Reorient the national flagship Program 844 on “Supporting the National Innovation Initiative to 2025” toward building a pipeline of investment-ready, innovative startups,** including by upgrading key support instruments to be in line with international good practices, attracting qualified private operators and fund managers to run entrepreneurship support intermediaries and establish early-stage funds locally, and building capacity of key ecosystem stakeholders.
- 6. Address regulatory barriers through fast-track reforms,** including by revising the law on the establishment of domestic investment funds (Decree 38), and simplifying procedures for making inward and outward investments, particularly for small investments in innovative firms.

- 7. Increase the contribution of the public research sector to the innovative startup agenda,** including by modernizing the intellectual property (IP) and tech transfer framework, enhancing performance evaluation for commercialization of research, and building capacity for technology transfer at key universities and public research institutions.

Supporting the entry of new, innovative firms into the market is one piece of a larger agenda needed to improve the productivity and competitiveness of the Vietnamese private sector. Further work will be needed to orient the enterprise support system toward upgrading the capabilities of new and existing firms through the adoption of technology and digital solutions, increased investment in research and development, skills development, improved managerial practices, and access to finance.

01

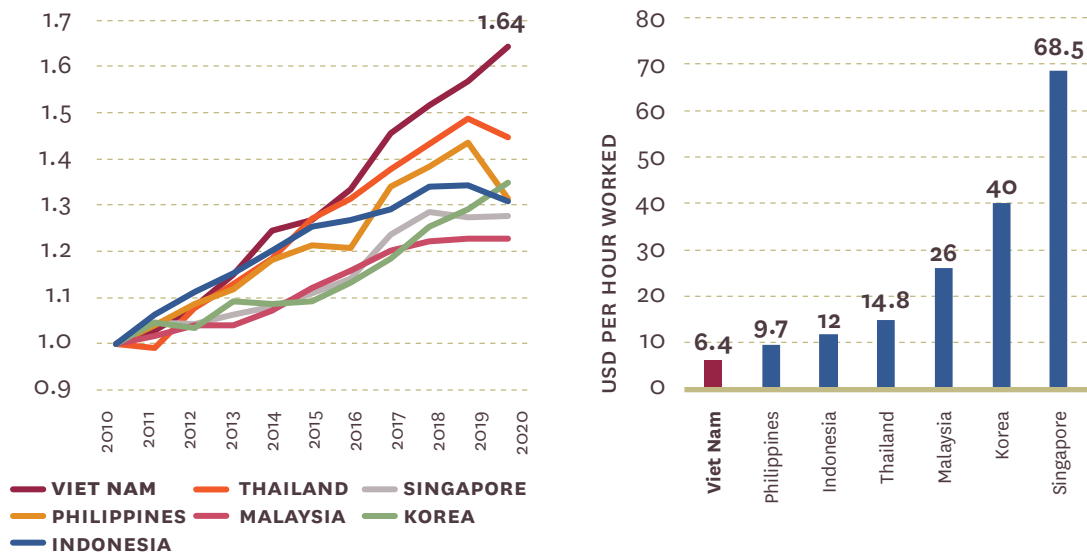
Introduction



01 Introduction

Productivity growth will be key to sustaining Viet Nam’s economic miracle. Viet Nam’s labor productivity grew by about two-thirds since 2010, faster than all its regional peers⁴ (Figure 1a), largely driven by improvements in the business environment, increases in the quality of human capital, and large inflows of foreign direct investment (FDI). However, despite recent growth, labor productivity levels are well below their peers (Figure 1b). In addition, average firm-level total factor productivity (TFP) grew by less than 2 percent between 2014 and 2018, below the levels seen in many East Asian economies (IMF, 2022). TFP growth has also played a relatively small role in Viet Nam’s rapid gross domestic product (GDP) growth, contributing only about 1.5 percentage points to GDP growth during 2015–2019 (OECD 2021).

FIGURE 1: A. LABOR PRODUCTIVITY GROWTH, 2010=1; B. PER-HOUR LABOR PRODUCTIVITY (IN US\$), 2020



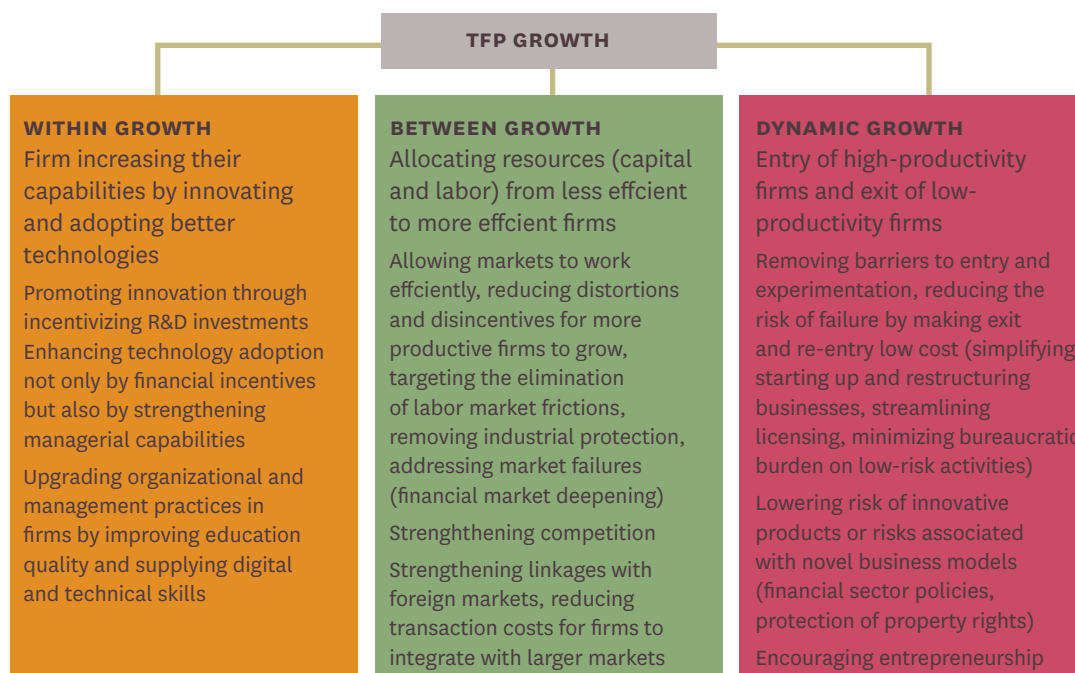
SOURCE: Authors’ calculations based on the Asian Productivity Organization (2022).

⁴ Throughout this report, Viet Nam’s innovation and entrepreneurship performance is benchmarked against a set of regional peers, including Indonesia, Korea, Malaysia, the Philippines, Singapore, and Thailand. For some analyses where data are not widely available among these peers, Viet Nam is benchmarked against the OECD countries.

Viet Nam’s economy has grown rapidly, but growth has largely been driven by FDI, with few spillovers to local firms. While the number of domestic private enterprises increased sharply over the past decade, domestic firms tend to be mostly smaller, less productive, and less innovative than foreign-invested enterprises (FIEs) and not well integrated into GVCs. Most domestic private firms are micro and small enterprises that operate in relatively low productivity services (such as small retail and restaurants) and simple manufacturing activities targeting the domestic market, rather than exporting. In terms of value added per employee, FIEs are almost five times more productive and have much higher returns on assets and profits than domestically owned enterprises (World Bank Group 2021).

While productivity of the domestic sector can grow through three main channels, the report focuses on the entry of innovative startups. Productivity can grow by (i) improving efficiency of the existing firms, including by improving managerial practices, adopting new technologies and enhancing access to markets and finance (Cirera, Comin, and Cruz 2022; World Bank Group, 2021), (ii) reallocating resources between firms and sectors from less efficient to more efficient firms and industries, and (iii) allowing higher-productivity firms, mostly innovative startups, to enter and low-productivity firms to exit the market (Figure 2). The last channel is the center of attention of this report, with a special focus on the entry of innovative startups (firm exits are already discussed in, for instance, World Bank Group, 2021). High-productivity, innovative startups can play a key role in creating higher quality jobs, creating new markets and disrupting existing ones, and boosting the productivity of the Vietnamese domestic private sector. The entrepreneurs who would build innovative startups require conducive enabling environments, in the form of an entrepreneurial ecosystem, to build and growth their firms.

FIGURE 2: THREE CHANNELS OF PRODUCTIVITY GROWTH



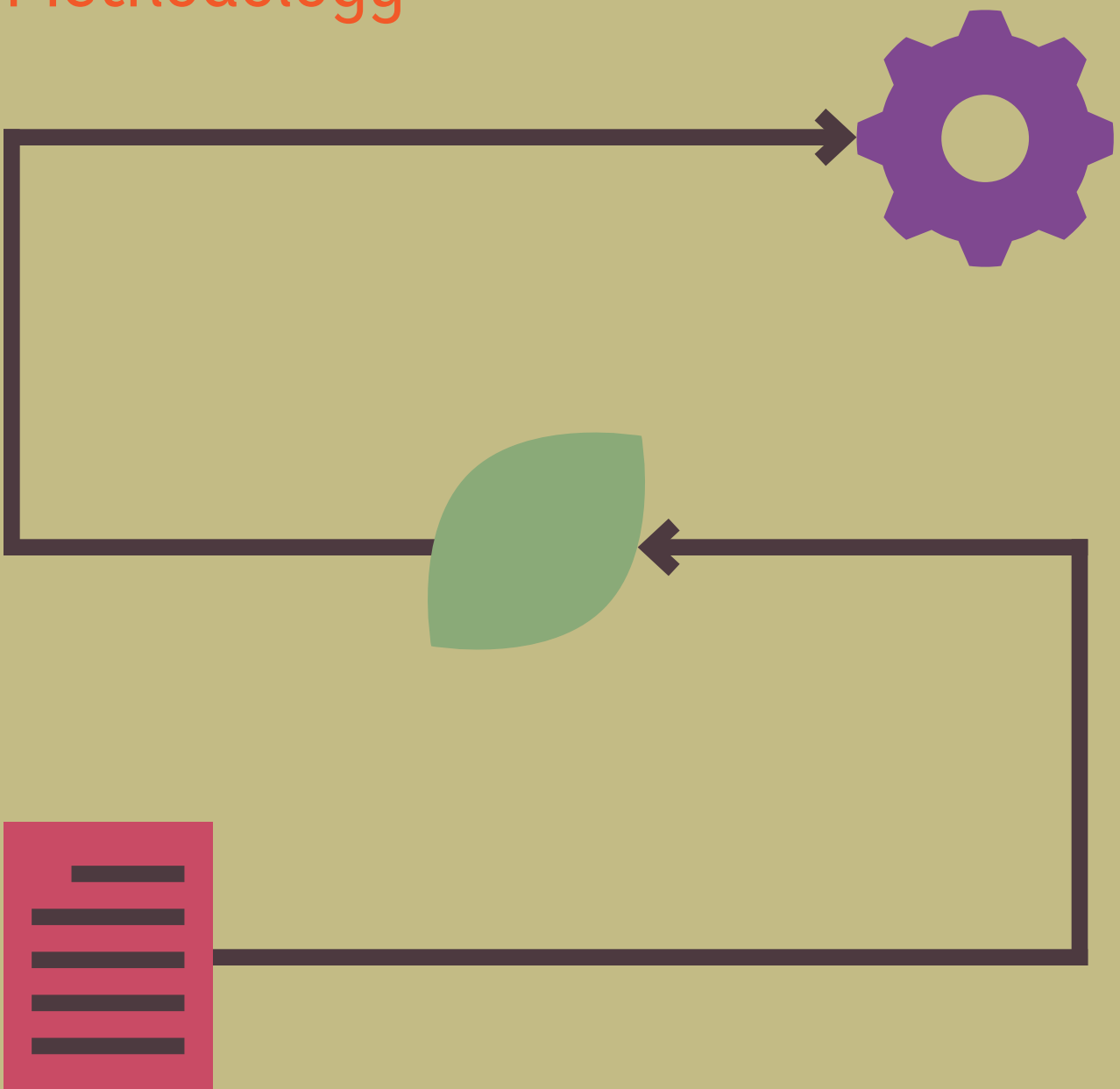
SOURCE: Marc et al. 2022, Cirera and Maloney 2017, Cusolito and Maloney 2018.

This report assesses the performance of Viet Nam’s entrepreneurial ecosystem and provides a set of targeted recommendations for improving entrepreneurial outcomes and boosting the pipeline of innovative startups. The report has been prepared at the request of Viet Nam’s Ministry of Science and Technology (MOST) and developed in collaboration with MOST and the Ho Chi Minh City Department of Science and Technology (DOST). The main objective of the report is to provide an informed assessment of the current drivers of growth and dynamism in the entrepreneurial ecosystem, identify areas of potential growth, and outline a policy agenda that could alleviate some of the barriers for new firm growth. The report intends to inform Vietnamese policy makers and private sector stakeholders for better and more coordinated action aimed at the sustained development of a dynamic entrepreneurial ecosystem.

The analysis and recommendations build on recent work by the World Bank and other organizations related to Viet Nam’s innovation and entrepreneurship performance. In particular, this report builds on the analysis and background papers from the 2021 World Bank “Viet Nam: Science, Technology, and Innovation” report, the 2021 World Bank “Firm-Level Technology Adoption in Viet Nam” survey and report, the World Bank Group’s 2021 “Creating Markets in Viet Nam: Country Private Sector Diagnostic” report, and the 2021 OECD report on “SME and Entrepreneurship Policy in Viet Nam.”

02

Methodology



02 Methodology

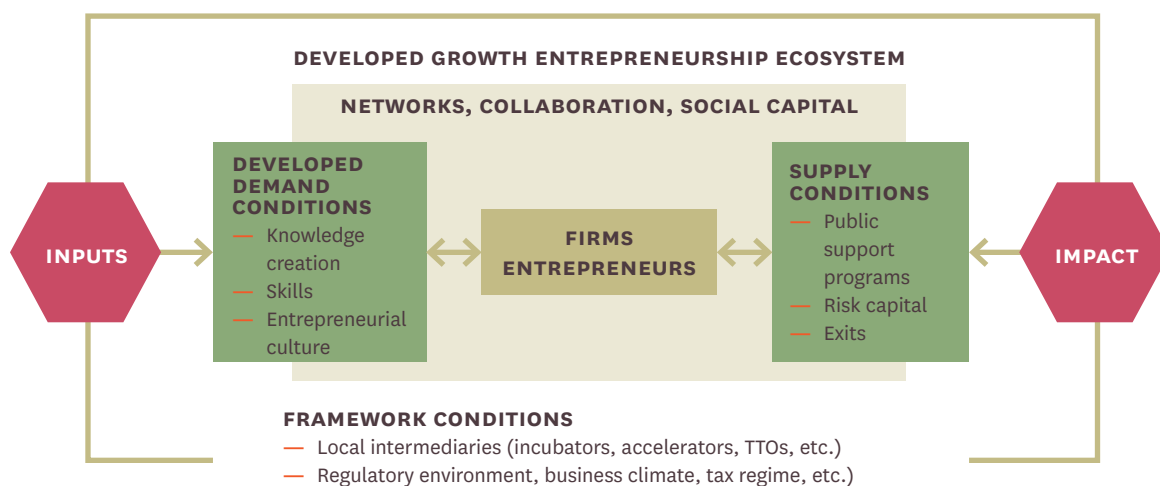
To deliver effective policies to support entrepreneurship, policy makers must focus on the complementary factors for the development of entrepreneurial ecosystems. Entrepreneurs require the knowledge and skills to be able to recognize business opportunities, start a business, convert their ideas into new or improved goods and services, and bring these goods and services to the market. Beyond knowledge and skills, entrepreneurs require access to financial resources to fund their activities and a conducive environment for their business operations in the form of a functioning regulatory framework, infrastructure, and networks.

The assessment is guided by the following research questions:

- What is the pipeline of innovative startups in Viet Nam?
- What is the supply of innovation finance along the startup lifecycle?
- What are the policies, regulations, market conditions, networks, and intermediaries that enable or constrain startup activity?

The assessment follows a conceptual framework focused on the entrepreneurship ecosystem. The framework developed by Aridi et al. (2018) looks at the demand and supply factors in the entrepreneurship ecosystem that are needed to develop the pipeline of innovative startups that could become contribute to future productivity growth and high-quality job creation (Figure 3).

FIGURE 3: CONCEPTUAL FRAMEWORK



SOURCE: Adapted from Aridi et al. (2018).

The conceptual framework is centered around startups and entrepreneurs and their ability to access the needed knowledge, resources, and complementary support services which allow them to produce economic impact. Mature entrepreneurship ecosystems transform innovation inputs (research and development [R&D], qualified/skilled personnel, etc.) into a steady pipeline of entrepreneurs and innovative startups. These new firms create a push-pull for investments from the public sector, conventional financing (e.g., banks), institutional investors, and other actors. Conducive framework conditions and supportive operating environments and institutions, represented by intermediaries, brokers, specialized service providers, enforceable intellectual property (IP) regimes, and others, are needed for such interactions to develop and grow. Such conditions help to produce competitive, innovative startups that are able to scale up, leading to increased productivity and economic growth at the national level.

The framework focuses on three key areas: (1) demand for innovation finance, (2) supply of innovation finance, and (3) framework conditions:

- 1. Demand-side conditions:** These are the factors that create the pipeline of innovative startups, which represent the demand for innovation finance:
 - Knowledge creation through R&D and innovation activities;
 - Skills, including the availability of skilled and qualified founders, managers, and workers; and
 - Entrepreneurial culture.

- 2. Supply-side conditions:** This is the supply of innovation finance, represented by sources of:
 - Public support for entrepreneurship (via financing, training, networks, and platform creation, etc.);
 - Risk capital; and
 - Exit markets.

- 3. Framework conditions, including:**
Regulatory framework for starting and operating a business, making investments, taxation of firms and investors, and IP and tech transfer policies;
 - Access to markets;
 - Infrastructure; and
 - Networks.

The data sources used for this assessment include:

Desk research

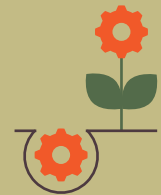
- A survey of Vietnamese startups and firms (see Appendix A for the survey methodology)
- Analysis of firm-level data related to firm entry and exit and high-growth firms (see Appendices B and C for the methodology and details of this analysis)
- Interviews with startups and key ecosystem actors (see Appendix E for a list of interviews).

Box 1:

Definitions

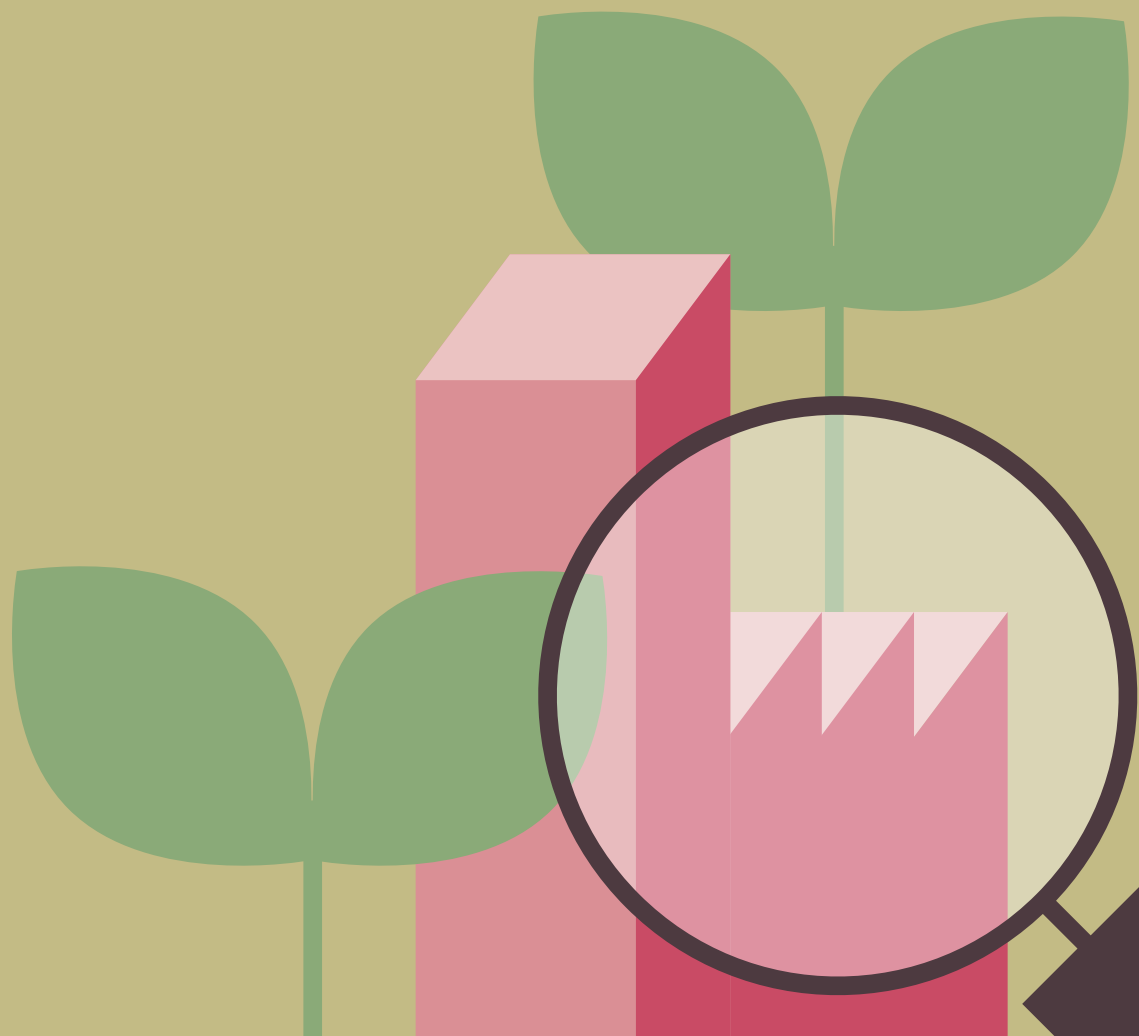
Innovative startups Knowledge- or technology-intensive startup firms have developed (or aim to develop) new-to-market or new-to-world products and/or services.

High-growth firms Firms that initially have 10 or more employees and experience average annualized employment or revenue growth of greater than 20 percent over a three-year period.



03

Overview of the Vietnamese Private Sector



03. Overview of the Vietnamese Private Sector

This section presents an overview of the Vietnamese private sector, with a focus on firm dynamism (the entry and exit of firms to the market) and firm growth (i.e., high growth firms).

This analysis provides critical context on Viet Nam's entrepreneurial performance by showing the extent to which the Vietnamese private sector produces new firms, the survivability of new firms, and the prospects of (new or existing) firms to grow (i.e., achieve high-growth status). The analysis also provides information on new firms' and HGFs' contributions to job creation and productivity, although additional analysis is needed in these areas.

KEY FINDINGS FROM THE PRIVATE SECTOR OVERVIEW INCLUDE:

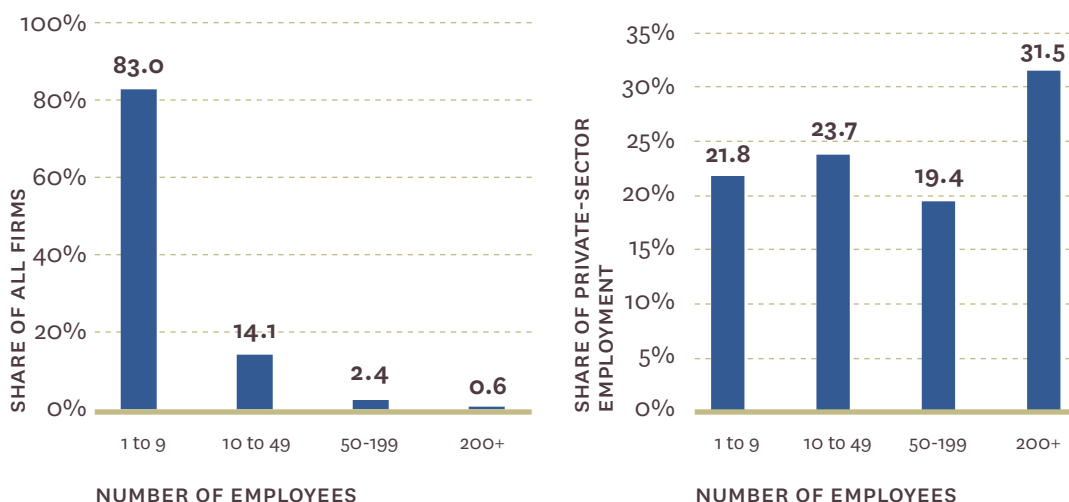
- The rate of new businesses entering the market is higher in Viet Nam than most in OECD countries, and new Vietnamese firms tend to survive at higher rates. The rate of firms entering the market has slowed since 2016, but firm survival rates have increased over the same period.
- High-growth firms (HGFs) as a share of total firms in Viet Nam are consistently high compared to other countries where HGFs have been studied.
- However, Vietnamese HGFs do not seem to be a reliable source of the much-needed productivity growth. HGFs appear to engage in innovation activities and participate in GVCs at lower rates than the average firm.
- A survey of innovative Vietnamese startups found that responding firms were heavily concentrated in the information and communications technology (ICT) sector and other services. Twenty percent of responding firms offer new-to-world products and services, while 44 percent offer products and services that are new to the Vietnamese market.

The Vietnamese private sector has grown rapidly since the start of the 2000s. Since the introduction of Enterprise Law 1999, the number of active registered enterprises in Viet Nam increased from 42,300 in 2000 to 684,260 in 2020. However, despite the tremendous growth of the private sector, the majority of domestic firms are low-productivity, non-innovating, micro- or small-sized firms (under 50 employees), while foreign-invested enterprises (FIEs) and state-owned enterprises (SOEs) play an outsized role in the economy in terms of employment, productivity, and profits (World Bank Group 2021).

Employment has grown as the economy and workforce have shifted away from agriculture, but high-skilled jobs are still a small share of the labor force. Medium skilled occupations have driven employment growth since 2014 as workers have moved out of the agriculture sector and into higher (but not necessarily high) skilled positions in manufacturing and services sectors. While high-skilled occupations have been growing rapidly in terms of number of workers, indicating rising demand for high skilled professionals, high-skilled occupations still account for a small share of total employment – 7 percent of the labor force in 2019 (World Bank, 2023b).

The Vietnamese private sector is primarily made up of micro-, small-, and medium-sized enterprises (MSMEs), although large firms make up the biggest share of employment. More than 80.0 percent of Vietnamese firms have fewer than 10 employees, 97.0 percent of firms have fewer than 50 employees, and only 0.6 percent of firms have 200 or more employees (Figure 4a). While firms under 10 employees make up a huge share of the total population of firms, they only account for 22 percent of total private sector employment. Medium-sized and large firms account for over one-half of private sector employment (19 percent and 32 percent of employment, respectively) despite representing only 3 percent of all firms (Figure 4b).

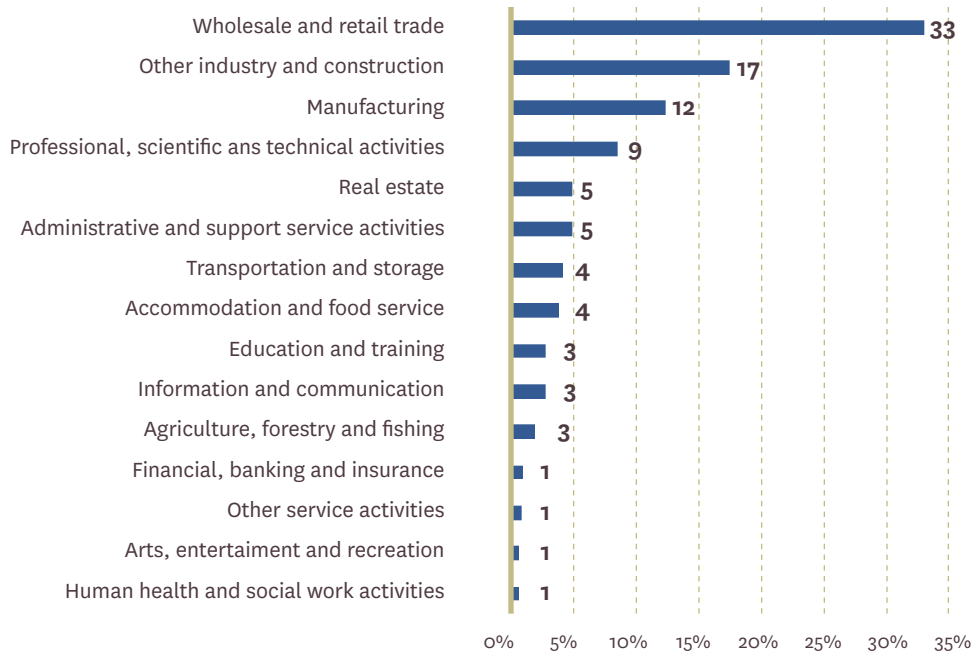
FIGURE 4: A. SHARE OF FIRMS BY SIZE, 2020; B. SHARE OF EMPLOYMENT BY SIZE, 2020



SOURCE: Authors' calculations based on data from the General Statistics Office.

Almost 70 percent of firms are active in services, of which one-third are in the wholesale and retail sectors. Other large sectors by employment include industry and construction sectors (18 percent of firms), manufacturing (12 percent), and professional services (9 percent) (Figure 5).

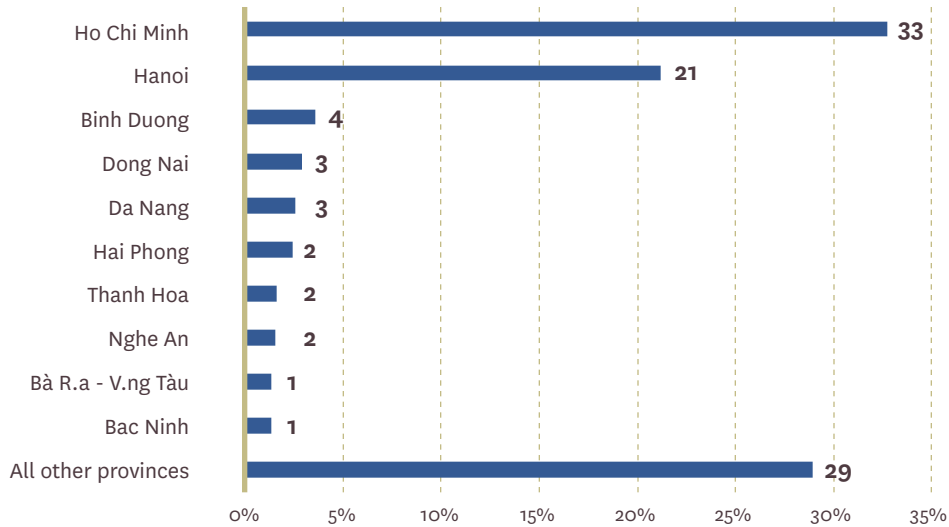
FIGURE 5: SHARE OF FIRMS BY SECTOR, 2021



SOURCE: Authors' calculations based on data from the General Statistics Office.

Firms are highly geographically concentrated in Ho Chi Minh City and Ha Noi. The two largest cities in Viet Nam are home to over one-half of all Vietnamese firms, and no other province has more than 4 percent of firms (Figure 6).

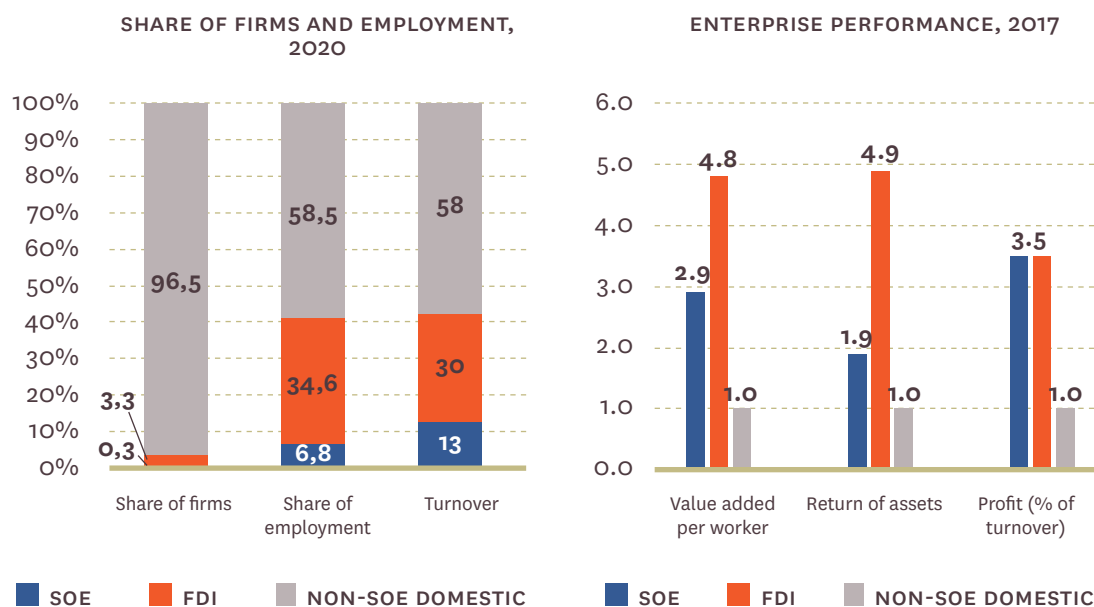
FIGURE 6: SHARE OF FIRMS BY PROVINCE, 2021



SOURCE: Authors' calculations based on data from the General Statistics Office.

FIEs represent only a small share of all firms, but dramatically outperform domestic private firms in terms of employment, profits, and productivity. FIEs represent only 3.3 percent of all firms, but account for almost one third of all employment and turnover (Figure 7a). FIEs are also almost five times more productive than domestically owned firms and have higher returns on assets and profits (Figure 7b). SOEs also report higher levels of productivity, but this is largely due to protected markets, implicit subsidies, and high economies of scale rather than from innovation activities or efficient practices. In addition, the large size and influence of SOEs undermines the development of the domestic private sector, because SOEs' dominance in key sectors, such as the financial sector, ICT, transport, and utilities, discourages private investment and undermines market competition. Implicit government guarantees for SOEs also hinders access to credit to SMEs, as banks prefer to lend to SOEs than to private firms (World Bank Group, 2021).

FIGURE 7: A. SHARE OF FIRMS AND EMPLOYMENT, 2020; B. ENTERPRISE PERFORMANCE, 2017



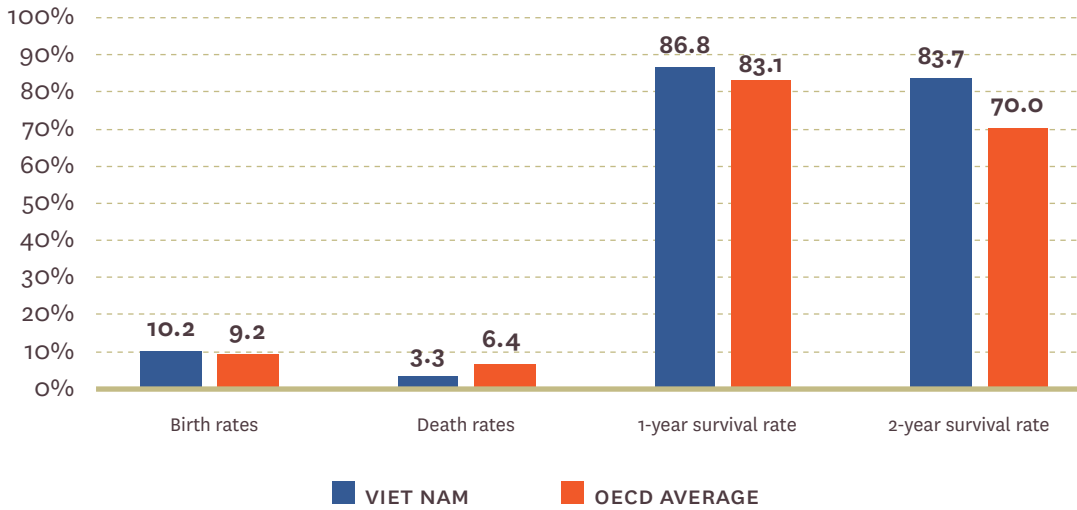
SOURCE: Authors' calculations based on data from the General Statistics Office, World Bank (2020a).

3.1

Private Sector Market Dynamism

The rate of new businesses entering the market is higher in Viet Nam than most in OECD countries, and new Vietnamese firms tend to survive at higher rates.⁵ In 2020, new businesses entering the market as a share of total enterprises was 10.2 percent, compared to the OECD average of 9.2 percent (Figure 8). Firm entry rates were highest in services—particularly in information and communication, accommodation and food services, and education. New Vietnamese firms also tend to survive at higher rates than OECD averages—the overall death rate (firms exiting the market as a share of total firms) was 3.3 percent in 2020, lower than the OECD average of 6.4 percent. The rate of firms that survive after their first year was 87 percent (compared to the OECD average of 83 percent) and 84 percent after two years (compared to the OECD average of 70 percent).

FIGURE 8: FIRM ENTRY, EXIT, AND SURVIVAL RATES—VIET NAM VS. OECD AVERAGE, 2020



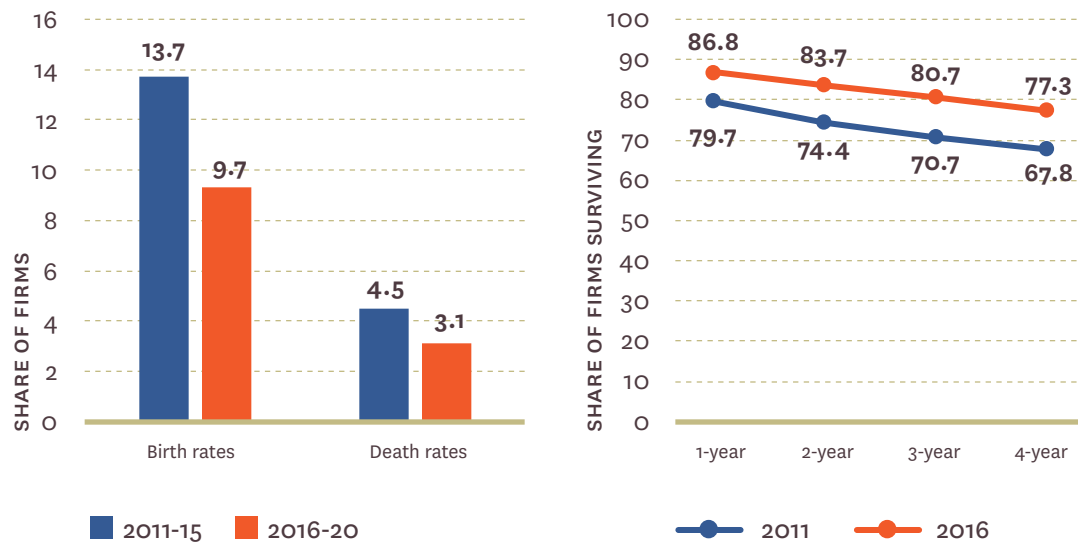
SOURCE: General Statistics Office, OECD, authors' calculations.

⁵ The analysis of market dynamism (firm entry, exit, and survival rates) and high-growth firms relies on firm-level data from the General Statistics Office of Viet Nam's annual Enterprise Survey in Viet Nam from 2010 to 2020. This analysis focuses on domestically owned private firms, excluding state-owned enterprises, with at least ten employees in the last year that the firm was in the sample (see Appendix C for more information on the analysis). Many of the figures in this analysis use 2020 data because it is the latest available. However, because 2020 was the start of the COVID-19 pandemic, the data were checked against 2018–2019 data to ensure 2020 figures were not outliers due to the effects of the pandemic's economic shocks.

The rate of firms entering the market recently slowed, but firm survival rates have increased. The average annual rate of firms entering the market dropped from 13.7 percent over the 2011–2015 period to 9.3 percent in the 2016–2020 period, partly due to the slowing pace of firm formalization, as the process has started to hit its limits. Firm entry rates for both periods were highest in services (particularly in information and communication, accommodation and food services, and education), while the real estate and health sectors had high rates of entry in the 2016–2020 period. Over the same period, the rate of firms exiting the market decreased, from 4.5 percent in 2011–2015 to 3.1 percent in 2016–2020 (Figure 9a). The sectors with relatively higher shares of exits were accommodation and food services (high during both periods), construction and wholesale (during the 2011–2015 period), and information and communication and other services (during the 2016–2020 period).

The share of firms surviving each year after entering the market was consistently higher for firms entering the market in 2016 than in 2011 (Figure 9b). This indicates that, while market dynamism cooled somewhat in the latter half of the 2010s, market conditions for the survival of new firms have improved.

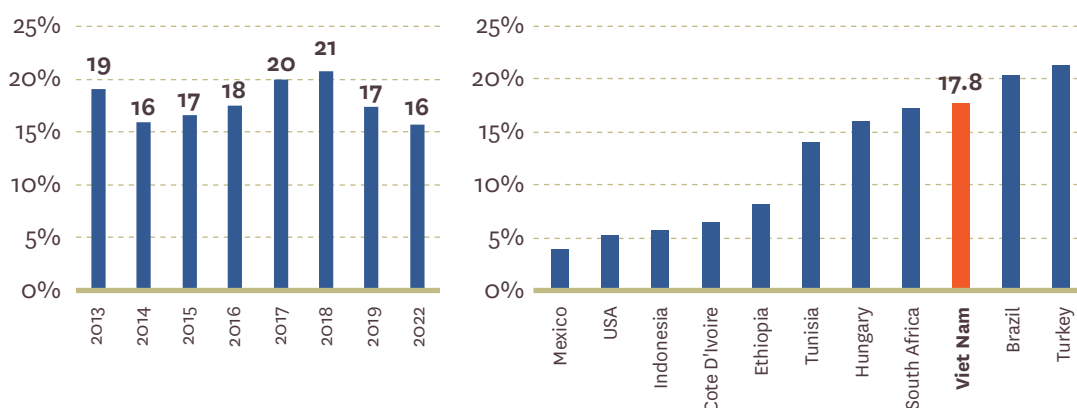
FIGURE 9: A. ANNUALIZED FIRM BIRTH AND DEATH RATE, 2011–2015 VS 2016–2020; B. SURVIVAL RATES FOR FIRMS ESTABLISHED IN 2011 VS. 2016



SOURCE: Authors' calculations based on data from the General Statistics Office.

High-growth firms⁶ (HGFs) as a share of total firms in Viet Nam are high compared to other countries where HGFs have been studied. The share of Vietnamese domestically owned firms that are HGFs has fluctuated between 15 and 21 percent over the 2013–2020 period (Figure 10a). The average annual share of HGFs in Viet Nam (18 percent) is relatively high compared to other countries where HGFs have been studied (e.g., in Grover, Medvedev, and Olafsen 2019; Jo Deok-hee 2011) or OECD countries where HGFs are tracked (Figure 10b). This may, in part, be because of the country’s high nominal GDP growth rate relative to the OECD average make it easier for firms to report growth in annual revenues sufficient to be classified as HGFs.

FIGURE 10: A. HGFs AS A SHARE OF ALL FIRMS BY YEAR; B. AVERAGE SHARE OF HGFs BY COUNTRY

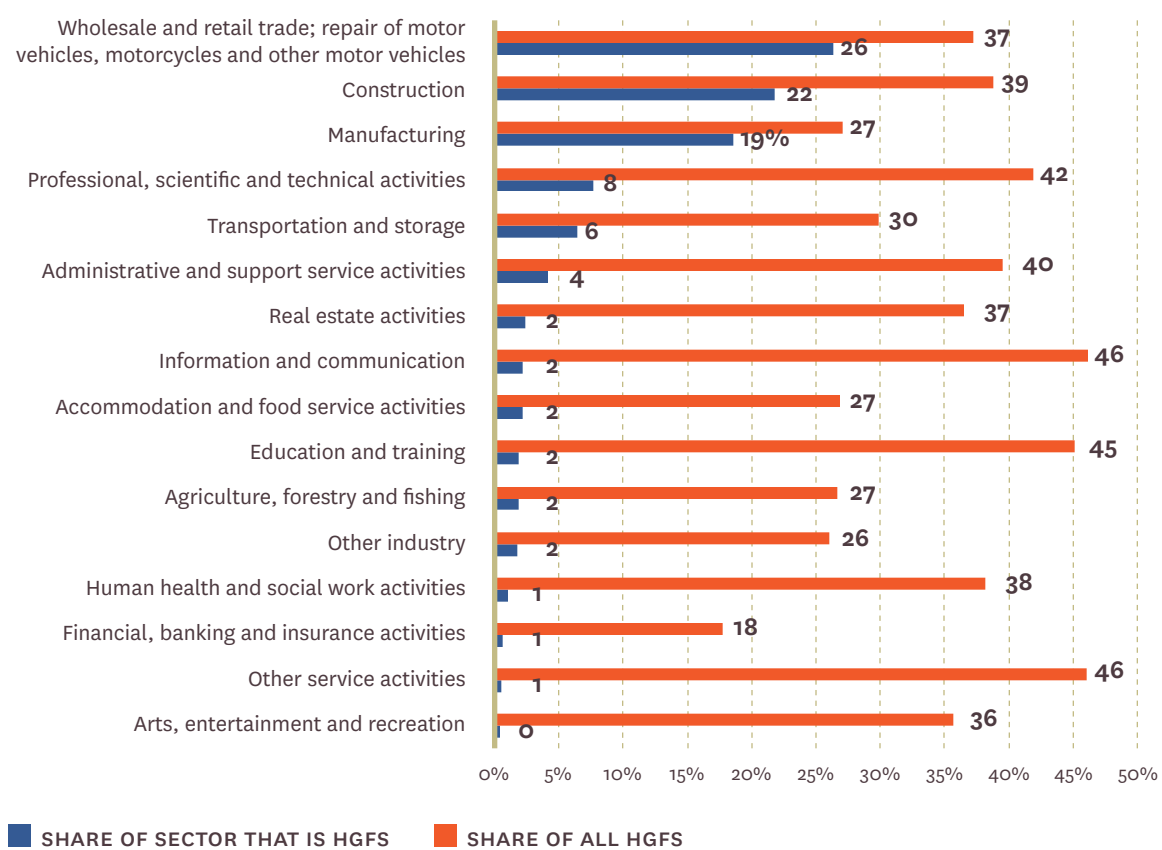


SOURCE: Authors’ calculations based on data from the General Statistics Office; Grover, Medvedev, and Olafsen (2019).

Nearly half of Vietnamese HGFs in 2020 were in the wholesale/retail and construction sectors, which are generally less productive than other economic sectors. The sectors with the largest absolute numbers of HGFs were also the largest sectors in the overall economy—retail, construction, and manufacturing. However, when looking at sectors where HGFs make up a relatively higher share of firms within the sector, HGFs are concentrated in higher value-added services sectors: information and communication (46 percent of all firms are HGFs); other services (46 percent of all firms) education and training (45 percent); and professional, scientific, and technical services (42 percent) (Figure 11).

⁶ HGFs are powerful engines of job and output growth globally. Several studies have found that on average HGFs account for a small share of firms (typically less than 20 percent of firms in a given country) but produce up to 80 percent of all new sales and jobs. See Appendix C for more information about HGFs in Viet Nam and around the world.

FIGURE 11: HGFS BY INDUSTRY, 2020

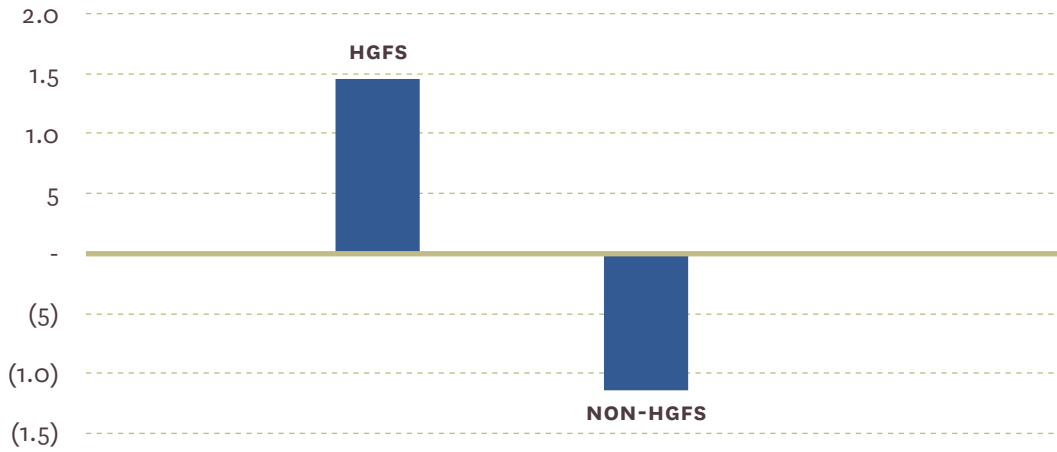


SOURCE: Authors' calculations based on data from the General Statistics Office.

HGFs are the driving force for employment growth in the Vietnamese economy. From 2017 to 2020, HGFs created a net of 1.4 million new jobs, while the rest of the Vietnamese private sector (including foreign-owned enterprises and SOEs) lost 1.1 million jobs (Figure 12).⁷ This finding is in line with the recent analysis of HGFs in developing countries from Grover, Medvedev, and Olafsen (2019), which found that the net change in employment in the analyzed countries would have been negative without the positive contribution of HGFs. Older HGFs (HGFs that have been in operation eight or more years) and HGFs in manufacturing and services sectors tended to create more jobs on average than other HGFs.

⁷ More research is needed to determine the reasons behind this job loss, which could be also attributed to the start of the pandemic period.

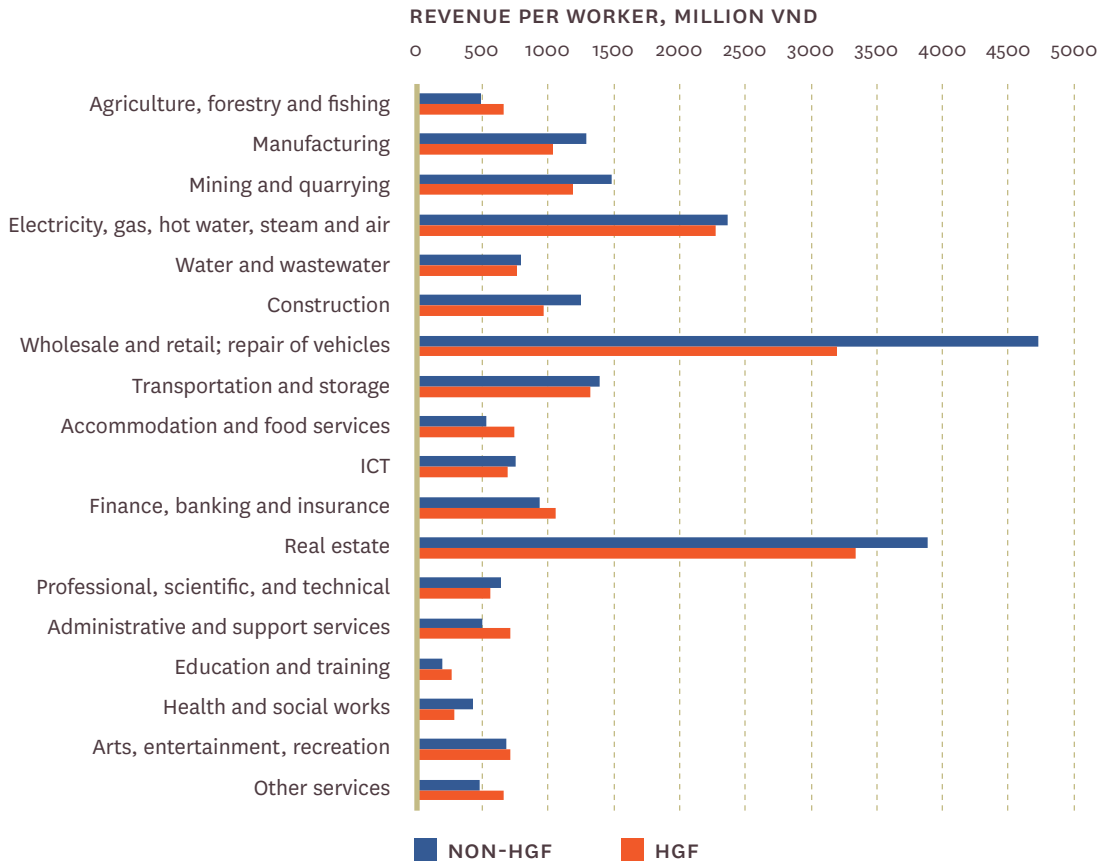
FIGURE 12: NET JOB CREATION IN MILLIONS HGFS VS NON-HGFS, 2017–2020



SOURCE: Authors' calculations based on data from the General Statistics Office.

Despite their positive contribution to job creation, Vietnamese HGFS do not seem to be a reliable source of the much-needed productivity growth. In 2020, HGFS generated on average less revenue per worker than non-HGFS (Figure 13), which was generally the case across sectors, including manufacturing, ICT, and professional services. The only sectors where HGFS were more productive than non-HGFS were accommodation and food, education, finance, administrative services, entertainment, and other services.

FIGURE 13: REVENUE PER WORKER IN HGFS AND NON-HGFS, 2020



SOURCE: Authors' calculations based on data from the General Statistics Office.

HGFs appear also less likely to participate in global value chains (GVCs), engage in innovation activities, or adopt new technologies than non-HGFs, although the evidence is not conclusive. In 2020, HGFs were significantly less likely to export or have outsourcing contracts with a foreign partner than non-HGFs; however, in 2018 and 2019, while HGFs were still less likely to export or have outsourcing contracts, the differences were not statistically significant. In 2020, HGFs across most sectors were less likely to engage in innovation activities, use software in management or production activities, or use automation in their business processes. However, these data are based on the General Statistics Office's annual Enterprise Survey, which did not include questions related to innovation and technology adoption prior to 2021. Given that the 2021 survey⁸ occurred during the COVID-19 pandemic, additional years of data will be required to establish whether the 2020 cohort of HGFs are representative of Vietnamese HGFs in their innovation and technology adoption patterns.

⁸ The 2021 Enterprise Survey questions cover firms' economic activities and outcomes in 2020.

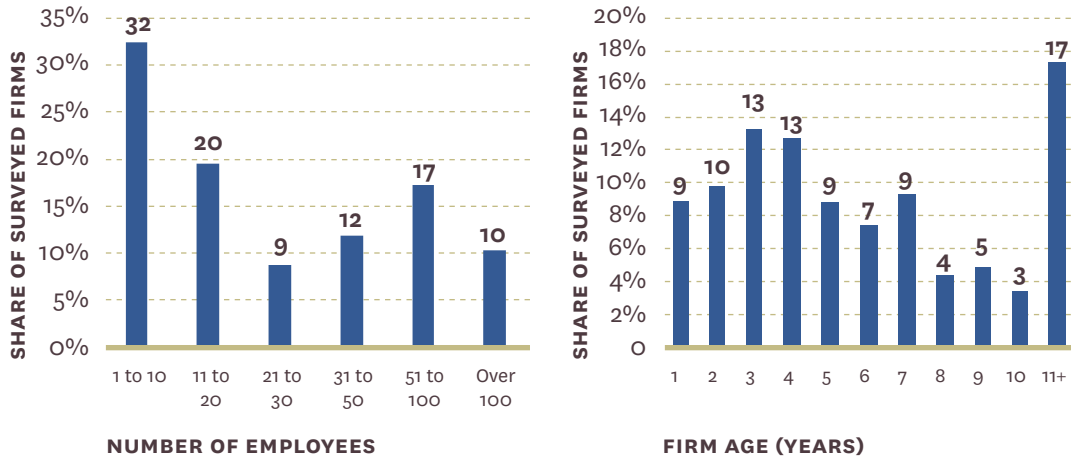
3.2

Survey of Innovative Startups

To address some gaps in data related to innovative startup activity in Viet Nam, the World Bank implemented a survey of innovative startups in Viet Nam. This survey attempted to capture the key characteristics, features, and challenges of knowledge- or technology-based startups that either (i) have received risk capital investments in the last four years; (ii) pitched to venture investors at recent startup conferences and events; or (iii) were recommended by investors, entrepreneurs, and/or industry experts for inclusion in the survey. Surveyed startups were asked questions about enterprise performance and characteristics, founders' background and experience, sources of financing, key challenges, and growth prospects. The survey questionnaire was adapted from an instrument developed by Cruz et al. (2022). The survey was conducted on a sample of Vietnamese startups drawn from Crunchbase, participants of the Viet Nam Venture Submit 2022, and other publicly available data on Vietnamese startups. 204 startups responded to the survey, with a response rate of more than 7 percent. See Appendix A for a description of the survey instrument and methodology.

Responding startups were larger in size and had a similar age profile to the average Vietnamese firm. The average size of responding firms was 84 employees (almost four times the size of the average firm [23 employees] in 2020) (Figure 14a), and the average age was 6.4 years, compared to an average age of 7.8 years for the average firm (Figure 14b).

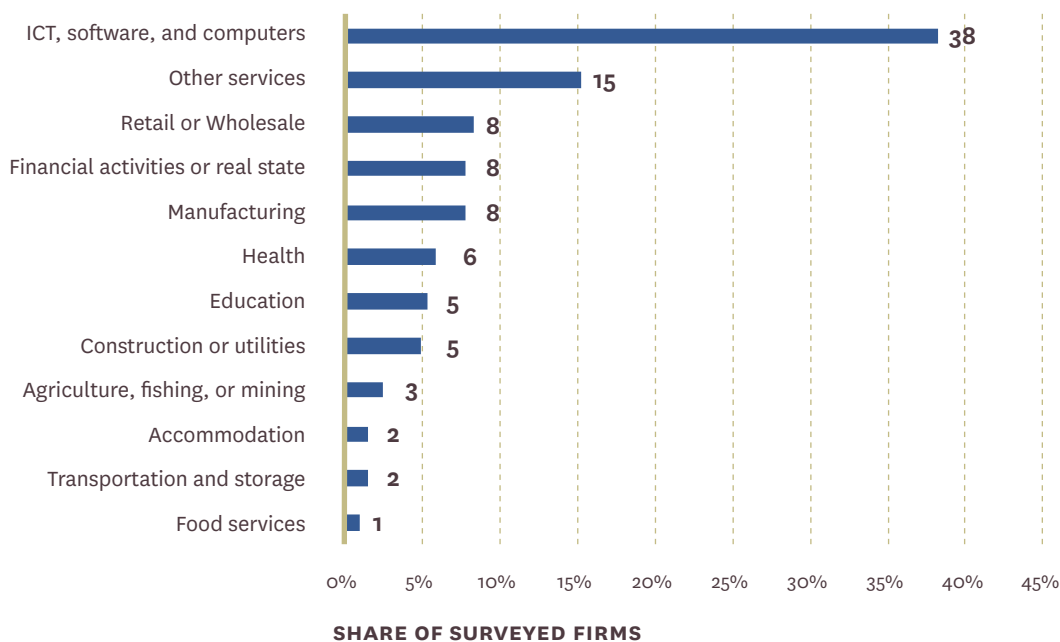
FIGURE 14: A. RESPONDING FIRMS BY SIZE; B. RESPONDING FIRMS BY AGE



SOURCE: World Bank Innovative Startups Survey, 2023.

Responding firms were heavily concentrated in the information and communications technology (ICT) sector and other services. 38 percent of responding firms were active in the ICT sector, much more than the sectoral concentration nationally, where only 3 percent of all firms are active in the information and communication sector. Other services, retail, manufacturing, and financial services were also prominent sectors among surveyed firms (Figure 15).

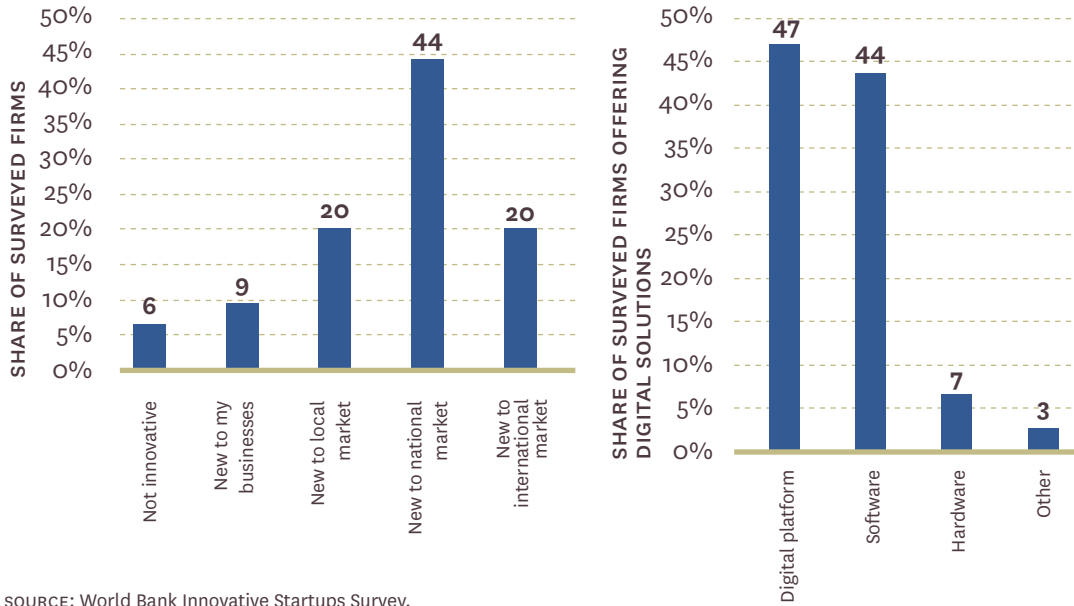
FIGURE 15: RESPONDING FIRMS BY SECTOR



SOURCE: World Bank Innovative Startups Survey.

Twenty percent of responding firms offer new-to-world products and services, while more than 40 percent offer products and services that are new to the Vietnamese market. When asked about the innovativeness of their primary product or services, 20 percent reported it was new to the international market, 44 percent reported it was new to the Vietnamese market, 9 percent reported it was new to the firm and 6 percent reported it was not innovative (Figure 16a). Sixty-one percent of firms said they offered digital solutions to customers, and of those firms, 47 percent offer digital platforms, 44 percent offer software solutions, and 7 percent offer hardware solutions (Figure 16b).

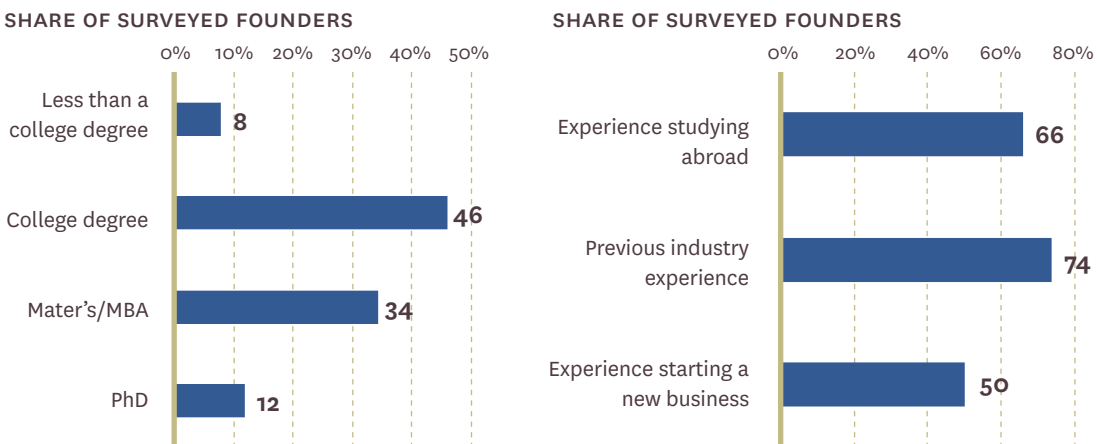
FIGURE 16: A. INNOVATIVENESS OF PRODUCTS/SERVICES; B. TYPE OF SOLUTIONS OFFERED TO CUSTOMERS



SOURCE: World Bank Innovative Startups Survey.

Most founders of responding firms had a bachelor's or master's degree and had work experience in the same sector as their startup. A large majority of founders had a bachelor's (46 percent) or master's degree (34 percent), while less than 8 percent had less than a bachelor's degree (Figure 17a). Sixty-six percent of founders reported experience studying abroad, 74 percent reported work experience within the same sector as their new firm, and 50 percent had started a new business prior to their current startup (Figure 17b).

FIGURE 17: A. FOUNDERS' EDUCATION LEVEL; B. FOUNDERS' EXPERIENCES

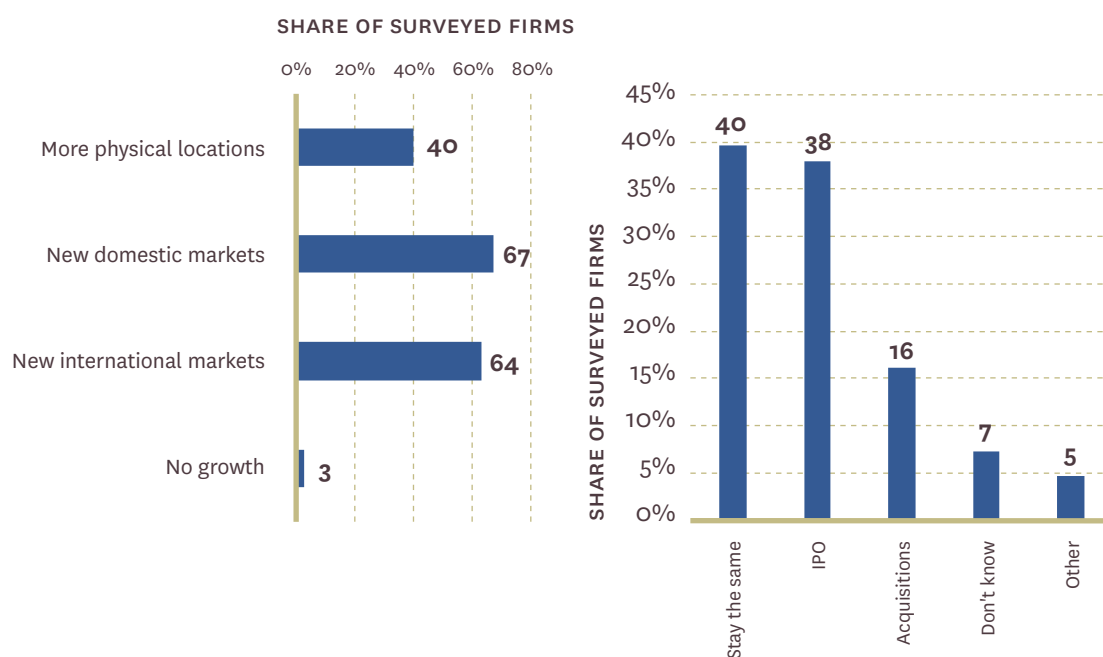


SOURCE: World Bank Innovative Startups Survey.

Almost half of the responding firms experienced growth in revenues. Of the firms that responded to the survey, 45 percent experienced growth in revenues from 2021 to 2022, with an average reported revenue growth of 93 percent over that period among firms that experienced revenue growth. Almost 20 percent of firms reported no change in revenue from 2021 to 2022, and 16 percent reported a decrease in revenues over that period, with an average report revenue decrease of 103 percent among firms that reported a drop in revenues. About one-tenth of surveyed firms were pre-revenue.

Most responding firms anticipate entering new markets in the next five years. When asked about how they see the company growing in the next five years, more than one-half of respondents said they anticipate the firm entering new domestic (67 percent of respondents) and international markets (64 percent). 40 percent reported they anticipate adding new physical locations, while 3 percent did not anticipate company growth over the next five years (Figure 18a). When asked about their long-term ambitions for the company, 40 percent of respondents said they would like to retain ownership of the company, 38 percent said they plan to do an initial public offering (IPO), and 16 percent said they would like to be acquired (Figure 18b).

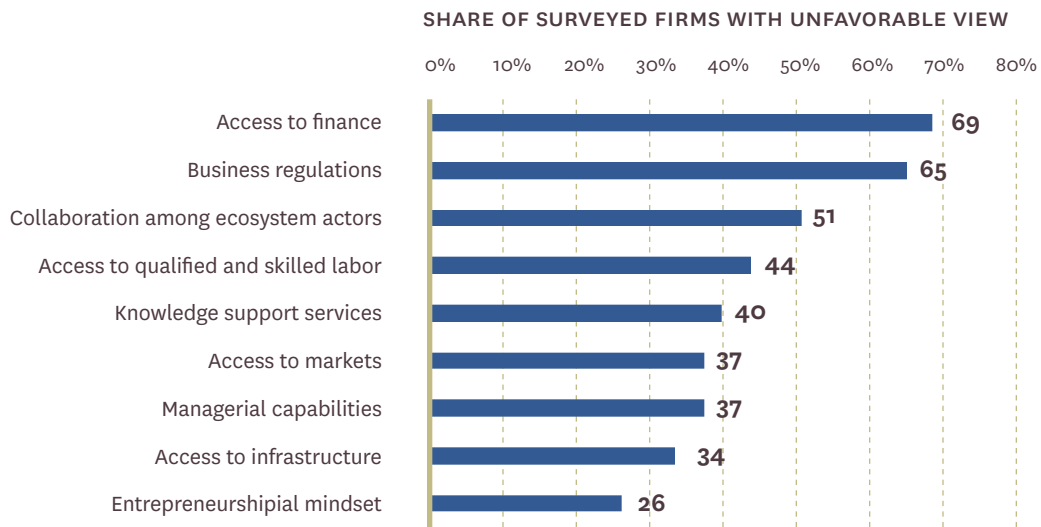
FIGURE 18: A. FIRM GROWTH AMBITIONS IN NEXT 5 YEARS; B. FIRM EXIT AMBITIONS



SOURCE: World Bank Innovative Startups Survey.

More than two-thirds of responding firms reported challenges with access to finance and business regulations. Sixty-nine percent of the responding firms described their access to finance as “very unfavorable” or “slightly unfavorable,” and 65 percent of firms reported the same for their interactions with business regulations (Figure 19). The responding firms also experienced challenges with collaborations with other ecosystem actors (described as a challenge by more than half of surveyed firms), access to skilled labor (44 percent), support services (40 percent), managerial capabilities (37 percent), and access to markets (37 percent).

FIGURE 19: KEY CHALLENGES FACING SURVEYED STARTUPS



SOURCE: World Bank Innovative Startups Survey.

04

Demand-side Analysis



04. Demand-side Analysis

This section focuses on the factors that create the pipeline of innovative startups: knowledge creation through research and development (R&D) and innovation activities, the availability of skills and qualified workers, investment readiness of startup teams, and entrepreneurial culture.

THE KEY FINDINGS FROM THE DEMAND-SIDE ANALYSIS INCLUDE:

- The Vietnamese research sector contributes little to the pipeline of ideas and companies that feed into the country’s entrepreneurship ecosystem.
- Universities and public research organizations face ongoing funding and human capital constraints that limit their contribution to innovation and entrepreneurship.
- Finding skilled and technical talent, C-suite managers, and executives are increasing challenges for startups. Firms in the ICT sector report more challenges in finding skilled workers than those in most other sectors.
- Universities are good at producing raw programming and engineering talent, but Viet Nam’s education system does not have the resources to scale up its production of technical talent, which could limit the development of knowledge-based firms in the future.
- While investment readiness of startup teams has improved in the last five years, supported by a growing number of intermediaries and entrepreneurship support organizations, many firm founders struggle with key aspects of developing products and growing a business.

4.1

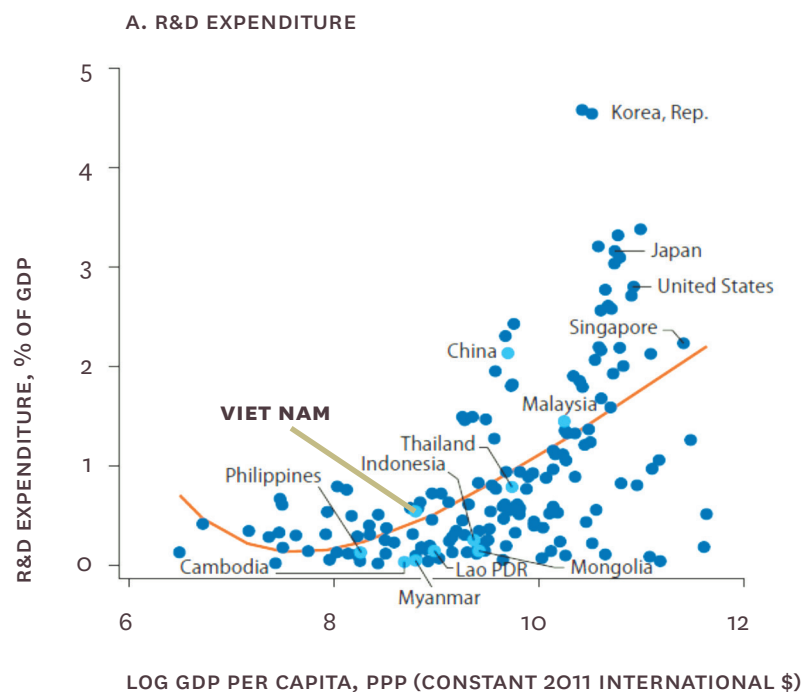
Knowledge Creation and Innovation Activities

Innovation has not played a significant role in the Viet Nam’s economic growth to date.

Average firm-level total factor productivity (TFP) grew by less than 2 percent between 2014 and 2018, below the levels seen in many East Asian economies (IMF 2022), and TFP growth has played a small role in Viet Nam’s rapid gross domestic product (GDP) growth (OECD, 2021), which was driven primarily by low-cost and labor-intensive manufacturing (World Bank 2021b). Subdued TFP growth suggests that the contribution of innovation and technology absorption to economic growth could have been higher.

Viet Nam’s innovation investments are lower than in much of the region, although largely consistent with its level of income. Gross expenditures on R&D (GERD) were 0.5 percent of GDP in 2021, well below regional peers Korea, Singapore, Thailand, and Malaysia, but in line with the country’s per capita income (Figure 20).

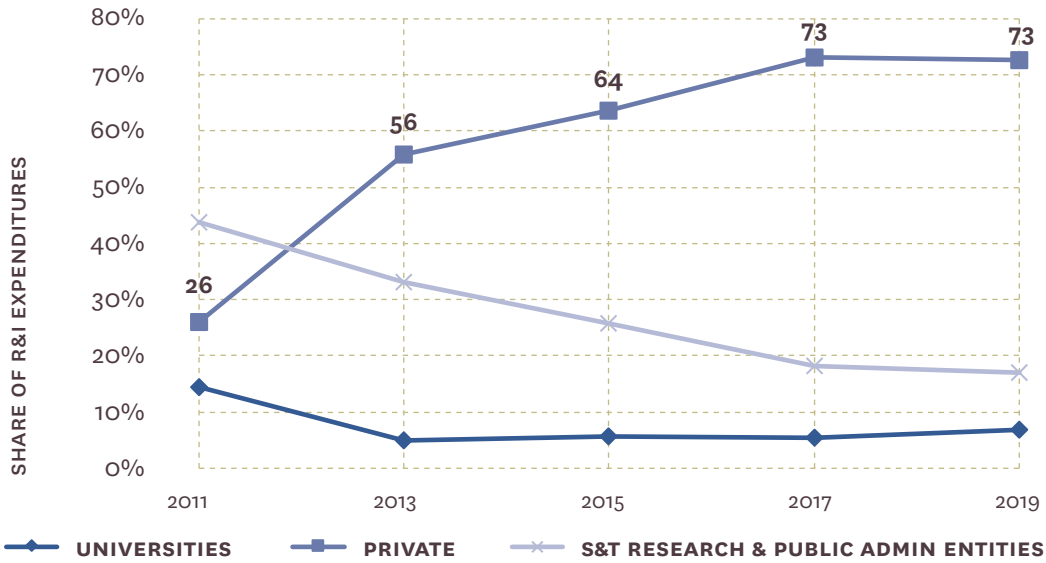
FIGURE 20: R&D EXPENDITURE RELATIVE TO LOG GDP PER CAPITA, 2020



SOURCE: Cirera et al. (2021b).

The research sector lacks resources and has a negligible contribution to the pipeline of ideas and companies that feed into the country’s entrepreneurship ecosystem. R&D is increasingly done by the private sector (Figure 21), which is welcome, but the absolute amounts of R&D investment is stagnate at a low level of 0.5 percent of GDP. R&D by government institutions is not significant and additionally suffers from low quality and little relevance to the private sector (World Bank 2021b). The share of R&D funding allocated to universities and research institutes in total R&D spending has also declined substantially. While business expenditure on R&D has increased, it is well below peers and firms lag in the adoption of new technologies. Viet Nam’s business expenditures on R&D (BERD) as a share of GDP are lower than all regional peers and below what would be expected for its income level (Jewell, 2021).

FIGURE 21: R&D EXPENDITURES BY SECTOR, 2011–2019, IN PERCENT OF TOTAL

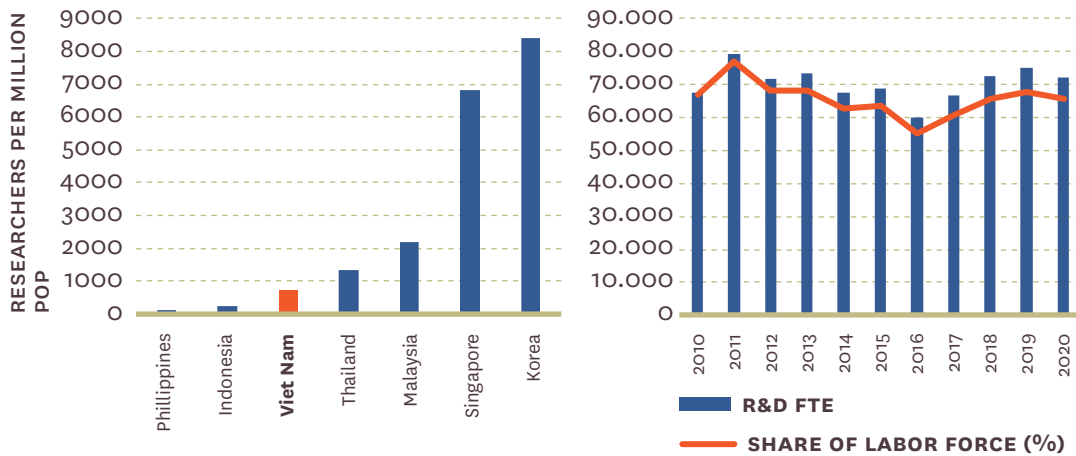


SOURCE: WB staff calculation, VISTA R&D report.

Vietnamese firms lag behind the technological frontier in the adoption and use of technologies in general business functions, such as quality control, production planning, sales, and sourcing and procurement, and the manufacturing sector faces the largest technological gap, larger than services and agricultural firms (Cirera et al, 2021a).

Viet Nam’s R&D workforce is small relative to peers and is not growing. In 2021, Viet Nam had fewer researchers per capita than all peers except Philippines and Indonesia (Figure 22a), and the absolute numbers and the shares in the R&D workforce (full-time equivalent) has remained almost unchanged over the last 10 years (Figure 22b).

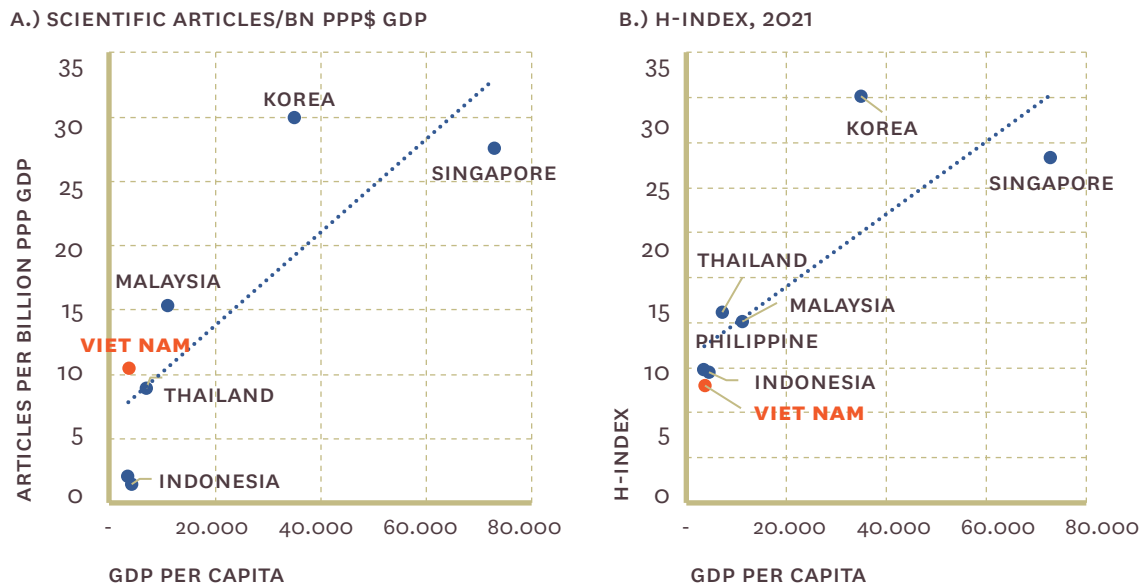
FIGURE 22: A. RESEARCHERS, FTE PER MILLION POPULATION, 2021; B. R&D PERSONNEL AND SHARE OF LABOR FORCE, 2010–2020



SOURCE: Global Innovation Index, General Statistics Office.

Research outputs are relatively robust but tend to be of low quality. Viet Nam ranks among the middle of its peers in publication productivity (patents per billion GDP), and productivity is in line with its level of GDP per capita (Figure 23a). However, the country ranks last among peers in the H-Index—a measure of both the productivity and citation impact of a group of publications—indicating a lack of quality and/or relevance of research being conducted nationally (Figure 23b).

FIGURE 23: A. SCIENTIFIC ARTICLES PER BILLION GDP PPP\$; B. H-INDEX BY COUNTRY 2021

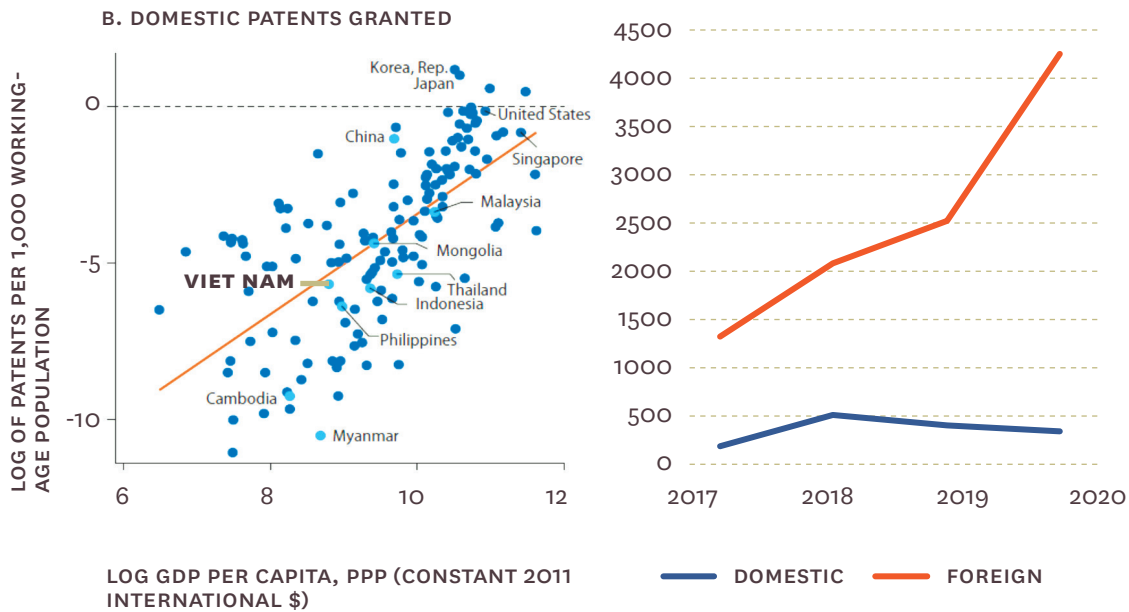


SOURCE: Authors' calculations based on Global Innovation Index, 2021.

In addition, most research in public research institutions is not market oriented. Public research institutions lack incentives to engage in market-oriented research and lack mechanisms to diagnose the innovation needs of firms. Public-private linkages are weak, and enterprises rarely find public sector R&D a useful source of knowledge for their innovative activities (World Bank 2021b).

Viet Nam's patent intensity is in line with its level of income, but most patents are filed by FDI firms. Viet Nam's patent intensity is close to the estimated relationship between patent intensity and income across countries (Figure 24a). Over 90 percent of domestic patents are filed by foreign investors, indicating that the vast majority of patent activity is foreign businesses protecting intellectual property (IP) developed elsewhere for the Vietnamese market, rather than representing the results of domestic research (Figure 24b).

FIGURE 24: A. PATENTS GRANTED PER POPULATION; B. PATENTS GRANTED BY INVENTOR ORIGIN, 2017-2020



SOURCE: Cirera et al. (2021b).

SOURCE: GSO.

Universities are not well integrated into the entrepreneurial ecosystem and are not a meaningful source of new startups.

This is partially due to historical reasons – prior to the 2022 Innovation Strategy 2022, universities were not recognized as major players in the R&D ecosystem by government strategies and were entirely focused on producing skilled workers. Investors interviewed by the World Bank team (see Appendix E for a list of interviews) commented that they generally do not look to universities and public research organizations (PROs) as a part of their deal flow pipeline due to a lack of supply of investable companies from these institutions. Of the startups that participated in the World Bank Innovative Startups Survey, 12 percent reported that the idea for their business’ main product or service emerged from (or was inspired by) academic or scientific research. University-based entrepreneurship has been a major point of focus by the government in recent years; each public university has a publicly funded innovation center or incubator (discussed further in the Public Support Programs section) to support startups, and several universities have introduced entrepreneurship courses as part of their curricula. There appears to be an expectation from the government that student-created startups will become a significant source of startups and innovation activities nationally, but this is generally not the case, even in mature entrepreneurial ecosystems. Students can, of course, benefit from entrepreneurial courses and from the experience of starting a company, but it is usually (with notable exceptions) mid-career professionals with multiple years of industry experience that are the primary source of successful startup founders—a recent analysis of high growth startups in the United States found that the average age of software startup founders was 40, while in other industries the average

age was 47 (Azoulay et al. 2020). Indeed, 74 percent of the founders that responded to the World Bank Innovative Startups Survey had previous experience working within the same sector as their new firm.

University IP-based startup activity is limited by low research budgets and a lack of industry relevance in public research, unclear IP and tech transfer frameworks and incentives, and a lack of skills and resources for commercialization activities. Government spending on research is well below that of Viet Nam's peers, and the research done at public institutions tends to be of low quality and of little relevance to industry needs. Viet Nam's IP and tech transfer framework is also not aligned with global best practices and suffers from inconsistencies that inhibit tech transfer activities and disincentivize private sector participation (see the Regulatory Framework section for a detailed analysis of the IP framework). The public research sector lacks both resources and the skills needed to undertake commercialization and technology transfer projects, and institutions and researchers lack incentives to engage in commercialization and technology transfer activities. Public institutions cannot transfer their IP into companies registered abroad, so early-stage funding for university IP-based startups from universities and PROs can be challenging because they are limited to receiving investments from Viet Nam-registered investors (angel investors or funds).

4.2 Skills

Viet Nam's education system has made notable progress by expanding access to tertiary education. Total tertiary enrollment more than doubled, from 0.9 million students in 2000 to 2.0 million in 2020. However, there is significant room for improvement; despite the large increase, the gross enrollment rate in higher education is still below 30 percent, lower than regional peers such as China, Malaysia, and Thailand (World Bank 2023b).

The country has significant capacity to grow its high-skilled workforce, but so far growth has been limited by relatively low public spending on tertiary education . Over the last decade tertiary enrollment has stabilized at around 1.7 to 2.0 million students, and the share of students in science, technology, engineering, and math (STEM) fields has stayed at around 35 percent of total enrollment (World Bank, 2023b). Under resource constraints, many leading science and engineering universities are focusing on quality enhancement rather than expansion of access. Without increased investments in the tertiary education system, the availability of skilled technical workers will likely become increasingly difficult for firms.

Universities and training providers are not adequately preparing workers for positions in high-tech sectors. While 80 percent of training institutions believe their graduates are adequately prepared for entry-level positions, fewer than 40 percent of employers think recent graduates are prepared, especially for higher skill positions (Truong, 2022; World Bank, 2023b). The 2021 Global Competitiveness Index ranked Viet Nam 127 out of 140 countries on the industry-relevant skills set of university graduates. Companies interviewed by the World Bank team report that universities are good at producing raw engineering and programming talent, but many recent

graduates from universities and colleges do not have sufficient experience to take on positions in emerging technology areas such as biotech, nanotechnology, and artificial intelligence

Firms across industries report challenges in finding suitable workers. In the 2021 Provincial Competitiveness Index (PCI) firm survey, 27 percent of firms reported challenges recruiting technicians and managers, and firms in the ICT sector reported more challenges in finding suitable workers than many other sectors (PCI 2021). Of the firms that participated in the World Bank Innovative Startups Survey, 44 percent reported challenges in access to qualified and skilled labor. Companies interviewed by the World Bank team reported that many computer science and engineering students are hired before even finishing their degrees due to rising competition for their skills. Recent work by the World Bank (2023b) found a need for investments in education and training focused on growing occupations and their required skills, including improvements to career orientation services to reduce the mismatch between workers' aspirations and high-growth occupations, particularly among medium-skilled workers. There is also a need for improved access to updated and user-friendly labor market information and interventions to help direct workers toward the growing occupational fields.

Managerial skills are also in high demand in high-tech sectors and the supply is limited. In a 2015 World Bank enterprise survey, 37 percent of firms reported difficulties in finding employees with sufficient managerial and leadership skills (World Bank 2021b). Skills shortages remain a challenge, as many startups and investors interviewed by the World Bank team reported that workers with product management, business development, and marketing skills are hard to find, as are C-level executives (e.g., Chief Financial Officers and Chief Technology Officers). While these managerial positions are prevalent within Vietnamese growing and FDI driven industrial sector, they have been predominantly reserved for expats from the country of origin. Thus, there is a limited supply and mobility of such experienced managerial talent into the domestic sector. Additionally, the base of serial entrepreneurs who have scaled a company in Viet Nam is small, so the pool of executives with experience and skills for scaling a business is limited. Companies need to be competitive in salaries and stock options to attract and retain executives.

While investment readiness of startup businesses has improved in the last five years, many founders still struggle with key aspects of running and growing a business. Investors interviewed by the World Bank team noted that the quality of pitching presentations has improved dramatically in recent years, as this has been an area of focus of many of the new entrepreneurial training curricula, accelerator courses, and pitch competitions. However, many founder teams still struggle with core startup business functions, such as creating a product-market fit, financial management, developing growth strategies, and team building. There remains a strong need for better and more tailored training and mentoring to prepare entrepreneurs for developing products and running businesses, rather than making a pitch. Other factors hindering investment readiness include weak English and negotiation skills, limited knowledge and experience of deal terms, lack of knowledge on IP, and reluctance to hire external consulting (Pham and Tan 2021). The National Program 844 (Supporting the National Innovation Initiative to 2025) supports universities and intermediaries to develop entrepreneurship curricula, with more than 300 courses being taught between 2016 and 2020. However, the quality of this training was generally low due to human resource and budget constraints (Ibid).

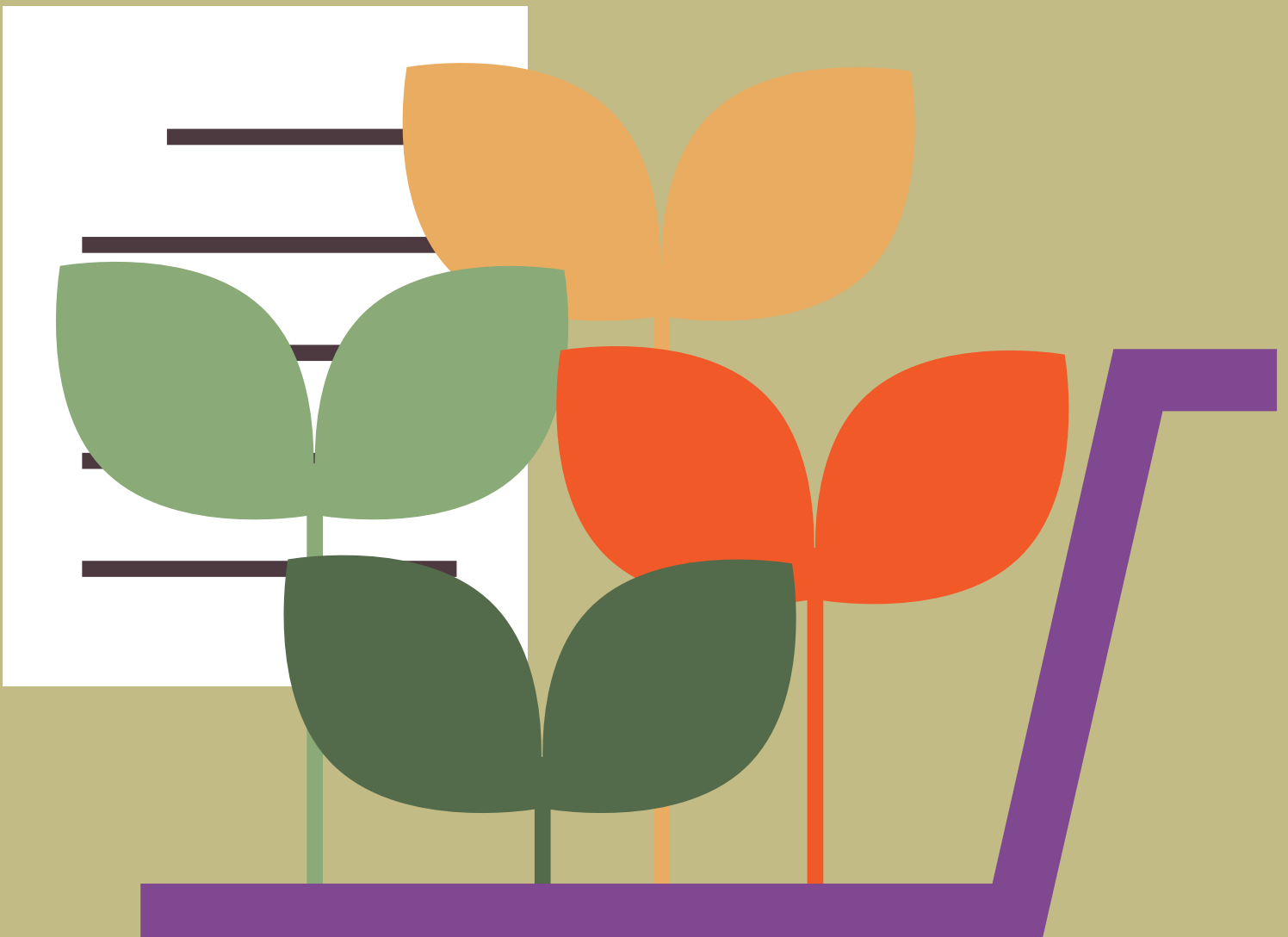
4.3

Entrepreneurial Culture

Cultural support for entrepreneurship is a notable strength, with broad societal recognition of the role of entrepreneurship. In the 2018 Global Entrepreneurship Monitor survey in Viet Nam, 75 percent of respondents said that successful entrepreneurs are highly appreciated by society, ranking 15 out of 54 surveyed economies, and 62 percent said that becoming an entrepreneur is a desirable career choice, ranking 27 out of 54 countries. Viet Nam also ranked first globally in the gender equity index, defined as the rate of women participating in business startup activities (Global Entrepreneurship Monitor 2018). Entrepreneurs and investors interviewed by the World Bank team noted that the Vietnamese are culturally inclined to starting their own businesses, and it is common for workers to have one or several side jobs in addition to their main line of employment. They also noted that the government of Viet Nam has been successful in promoting entrepreneurship as a profession—particularly among students and young people.

05

Supply-side Analysis



5. Supply-side Analysis

This section focuses on the supply of innovation finance along the firm lifecycle: the supply of public support through grants, vouchers, loans, and other instruments; the availability of conventional financing and risk capital; and the maturity of exit markets.

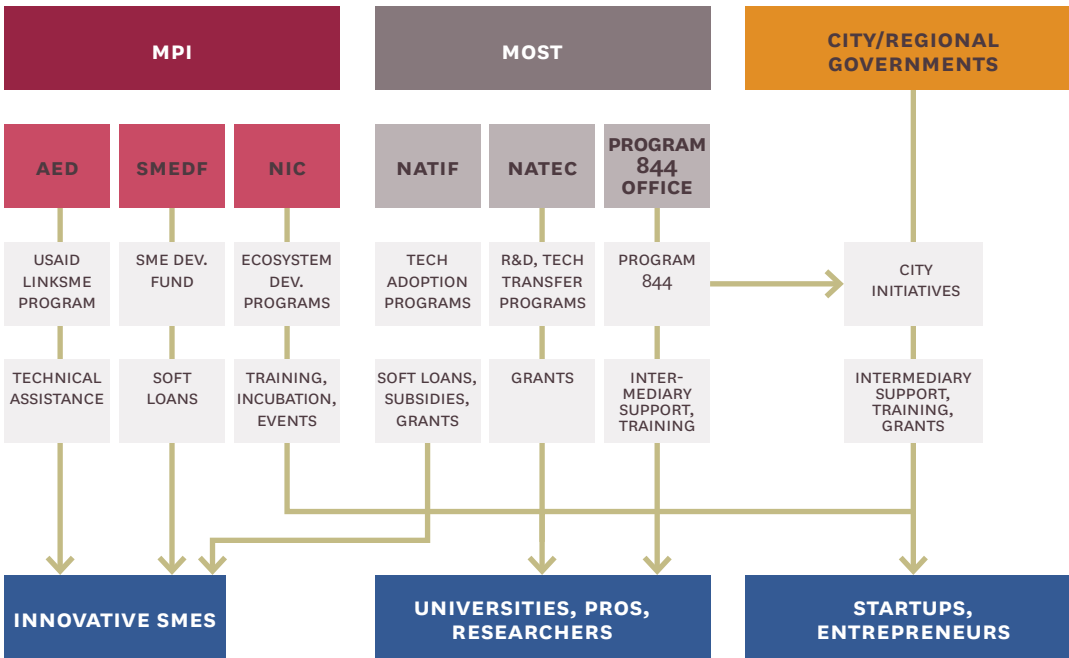
THE KEY FINDINGS FROM THE SUPPLY-SIDE ANALYSIS INCLUDE:

- Policies supporting startups and entrepreneurship are fragmented across several ministries and implementing agencies, and the overall quality, targeting, and level of support provided is low.
- Almost no direct public support is provided to startups (or firms of any kind). Program budgets are very limited in both size and scope.
- There are gaps in very early stage and later stage risk capital investing. Angel investors, who generally play a key role in early-stage funding, are scarce and not professionalized.
- The risk capital market is heavily dependent on foreign funds and investors, making it vulnerable to shocks in global capital markets. Vietnamese investors and funds face restrictions in their activities and are not incentivized to participate in risk capital investing.

5.1 Public Support Programs for Entrepreneurship and Innovation

Policies supporting entrepreneurship and innovation are fragmented across several ministries and implementing agencies. The two key ministries involved with supporting startups are the Ministry of Science and Technology (MOST), which is generally responsible for innovation policies, and the Ministry of Planning and Investment (MPI), which is responsible for small- and medium-sized enterprises (SME) and entrepreneurship policies, although there are clear overlaps in support between the ministries and their subordinate agencies and implementing bodies (see Figure 25).

FIGURE 25: SME, STARTUP, AND ENTREPRENEURSHIP POLICY SUPPORT



SOURCE: Authors' compilation.

Additional institutions that support entrepreneurship and innovation policies include:

Under MOST:

- National Technology Innovation Foundation (NATIF), which administers preferential loans, subsidized loan interests, and loan guarantees for innovation and technology adoption
- National Agency for Technology Entrepreneurship and Commercialization Development (NATEC), which provides grants for research, commercialization, and technology transfer
- Program 844 Office, which administers funds for Program 844 “Supporting the National Innovation Initiative to 2025,” focusing on developing the ecosystem in general

Under MPI:

- National Innovation Center (NIC), which provides incubation services to resident startups and organizes events and training programs
- Agency for Enterprise Development (AED), which provides technical assistance to SMEs via the USAID-funded LinkSME program and other public-funded programs
- SME Development Fund (SMEDF), which provides soft loans for innovative SMEs and those engaging in global value chains (GVCs) and clusters

There are also a number of subnational programs providing support for entrepreneurship, which are discussed below.

Viet Nam’s financial support for innovation is mostly directed at a few large multinationals, rather than domestic firms, and the quality of design and implementation of support programs is far from best practices. An analysis of Viet Nam’s science and innovation support programs (World Bank 2021b) found that most of Viet Nam’s largest innovation program provides R&D tax incentives to FIEs, while innovation and entrepreneurship support to the domestic private sector is much lower than the levels of spending found in other countries. As an example, in 2017, the level of financial allocation for direct support to business innovation was US\$237 million in the Philippines, but in the same year in Viet Nam direct support to innovation was only US\$69 million. The analysis also found that key processes related to the design, implementation, and coordination of national-level support instruments for STI lags well behind the global frontier, which likely hinders the effectiveness of its innovation support. Insufficient budgets, poor monitoring and evaluation frameworks, and poorly defined and disconnected indicators were all key issues uncovered by the analysis. Additionally, startup founders interviewed by the World Bank team were largely unaware of public programs supporting innovation and entrepreneurship, indicating a challenge with disseminating information on public support.

The 2018 Law on Supporting SMEs provides the national framework for policies supporting innovative firms and startups, but policy support is limited and not fully implemented. Under the Law, the government has introduced policies to support SMEs and entrepreneurs in the areas of taxation, access to finance, innovation, and value chain development, but program budgets are often extremely small, and many programs have a low uptake (OECD 2021). In the 2021 Provincial Competitiveness Index national survey of firms, fewer than one-half of firms said that they heard of the SME Support Law and fewer than 8 percent of firms had benefited from any program implemented under the law (PCI 2021). Additionally, parts of the Law have also not been fully implemented. For example, Article 18 of the Law on Supporting SMEs offered tax exemptions and reductions for their investors, but the implementation of this article has not been guided by detailed corporate income tax regulations.

The most prominent program supporting entrepreneurship at the national level is MOST Program 844 “Supporting the National Innovation Initiative to 2025.” The program aims to support the development of Viet Nam’s entrepreneurial ecosystem. It primarily supports the development of entrepreneurship training and curricula in universities and public research organizations (PROs) and a network of public incubators and innovation centers around Viet Nam. According to MOST, Program 844 has supported approximately 2,000 projects for a total disbursement of approximately US\$84 million since 2018.⁹

Financial support for innovation and entrepreneurship, in the form of grants, loans, or vouchers, is very limited in size and scope. National programs that provide either grants (generally focused on R&D and commercialization) or soft loans (generally focused on technology adoption and equipment purchases) are very small, each supporting fewer than 100 projects in total over the last five years (see Table 1). Ho Chi Minh City’s SpeedUp program (implemented by the city’s Department of Science and Technology) is larger in scope, supporting 1,500 startups

⁹ The following numbers are drawn from the MOST website, but the official counts of Program 844 projects and funding have not been officially reported, so the actual numbers may be different than those reported here.

from 2018–2022, but grants provided through the program actually function like a voucher, where startups must spend the funding on services provided by a participating intermediary (incubator or accelerator). There are no grant or forgivable loan programs tailored to commercialization or early-stage companies, such as those discussed in Box 2. Of the firms that participated in the World Bank Innovative Startups Survey, only 2 percent of firms reported receiving government funding (grants or loans) during the early stages of company development and 7 percent received (or expected to receive) government funding during later stages (e.g., after product launch).

Box 2:

Examples of early-stage support programs

SERBIA INNOVATION FUND

Serbia's matching grant program, implemented by the Serbian Innovation Fund (IF), provides financial assistance to firms of up to €300,000 for a two-year project. The program can fund up to 70% of project costs for micro- and small-sized enterprises and 60% of costs for medium-sized enterprises, with the remaining funding coming from the beneficiaries. Eligible costs covered by the program include:

- Staff salaries
- R&D equipment and supplies (to be used for project purposes)
- External R&D services, subcontracts
- R&D experts/advisors and business consultants
- IP protection costs

If the project results in successful commercialization of a new product or service, the beneficiaries make royalty payments back to IF, based on the revenue from sales emerging from the funded technology.

MALAYSIA CRADLE INVESTMENT PROGRAM

CIP Spark is a conditional grant under the portfolio of the Malaysian Cradle Investment Program. The program provides financial assistance of up to RM150,000 (approximately US\$35,000) for a maximum duration of eighteen (18) months, covering development and pre commercialization for technology start-ups. Funding is in the form of a conditional grant to assist early-stage entrepreneurs to develop and commercialize their product and comes with a range of value-added assistance, including coaching and mentoring, matchmaking with investors and Cradle's partners, business advisory services, and media and public relation support.

CIP SPARK is open to both companies and individuals. CIP SPARK accepts applications from various stages from ideation, prototype development, product enhancement. The grant can be converted into a loan if the recipient receives other forms of funding or financing, or a sales contract.

SOURCE: Serbian Innovation Fund; Cradle Fund



Limited public financial support is a factor in the widespread access to finance challenge across the private sector; among startups, it contributes to an observed gap in funding for very early-stage firms and developing minimum viable products (MVP)—the stage before startups are able to secure pre-seed funding from investors. This gap is most acute for hardware and IP-based startups, which require more capital to develop MVPs.

Lack of direct financial support to firms is partially driven by the risk of prosecution that public administrators face for misuse of public funds. While direct grant support to firms is possible under current law, public officials are generally unwilling to risk their careers, fines, or even jail time, for misusing public funds. This situation is made worse by the fact that main government support agencies have a requirement not to “lose” government funds (e.g., by supporting unsuccessful projects) through loans to the private sector, even if the economic activities they are supporting are addressing a market failure or generate a public good.

TABLE 1: SELECT PUBLIC SUPPORT PROGRAMS FOR ENTREPRENEURSHIP AND INNOVATION

| PROGRAM | IMPLEMENTOR | OBJECTIVE(S) | BENEFICIARIES | TYPE OF SUPPORT | NUMBER OF PROJECTS SUPPORTED | FUNDING, 2018–2022 |
|--|----------------------------|-------------------------------------|--|-----------------|------------------------------|---------------------|
| Program 844 ¹⁰ (2016–2022) | MOST Project 844 Office | Development of startup ecosystem | Intermediaries, HEIs, local governments | Grants | Approximately 2,000 | US\$85 million |
| The National Product Development Program until 2020 ¹¹ | MOST | Product development | Firms | Grants | 13 | US\$24.7 million |
| National program for development of advanced technologies until 2020 ¹² | MOST | Applied research and development | Research institutions, researchers, and firms | Grants | 49 | US\$18.8 million |

¹⁰ Decision 844/QĐ-TTg dated 18/05/2016 on Approving the Project “Supporting the national innovation startup ecosystem until 2025.” As stated earlier, data on Program 844 projects and funding are drawn from the MOST website but the official counts of have not been officially reported, so the actual numbers may be different than those reported here.

¹¹ Decision 2441/QĐ-TTg dated 31/12/2010 Approving the National Product Development Program until 2020. The new program for the 2021–2030 period was approved by the Decision 1322/QĐ-TTg dated 31/8/2020.

¹² Decision 2457/QĐ-TTg dated 31/12/2010.

| PROGRAM | IMPLEMENTOR | OBJECTIVE(S) | BENEFICIARIES | TYPE OF SUPPORT | NUMBER OF PROJECTS SUPPORTED | FUNDING, 2018–2022 |
|--|-------------|---|--|----------------------|--|---|
| S&T Market Development Program until 2020 ¹³ | MOST/NATEC | Commercialization and product development | Research institutions, intermediaries, and firms | Grants | 63 | US\$8.2 million |
| SME Development Fund (SMEDF) 2014–2022 | MPI SMEDF | Improving the competitiveness of SMEs | Innovative SMEs, SMEs engaging in GVC and clusters | Indirect soft loans | 25 | US\$7.6 million |
| USAID-funded LinkSME (2018–2023) | MPI AED | SME linkages, capacity upgrading | Intermediaries and SMEs | Technical assistance | 1050 firms supported with 79 firms receiving intensive assistance; 40 business support organizations supported | About US\$12 million ¹⁴ |
| Supporting the development of HCMC innovative startup ecosystem 2021–2025 | HCMC DOST | Ecosystem support | Intermediaries and firms | Training, events | 3,500 innovation projects; 1,500 startups; 40 incubators; 80 investors; 3,887 enterprises | US\$55.3 million in 2021–2025 period (or about US\$11 million a year) |
| Program scientific research - technological development and enhancement of scientific and technological potentials in HCMC 2021–2025 | HCMC DOST | Technology development | Firms, universities, research institutes, | Grants | | |

SOURCE: Authors' compilation.

¹³ Decision 2075/QĐ-TTg dated 08/11/2013.

¹⁴ Total budget of LinkSME is about USD 20 million which is spent on three components. Supporting SME is one of them.

There are no public equity instruments supporting firms, either in the form of fund-of-funds, direct investment funds, or co-investment funds. Law on Supporting SMEs and Decree 38/2018/ND-CP have established a framework for investment in innovative SMEs by local governments but no such investment has been recorded so far. Restrictive state capital protection limits set out by the Public Investment Law and State Capital Management Law prohibit government agencies, including social security funds, from making risk capital investments or investing in funds.

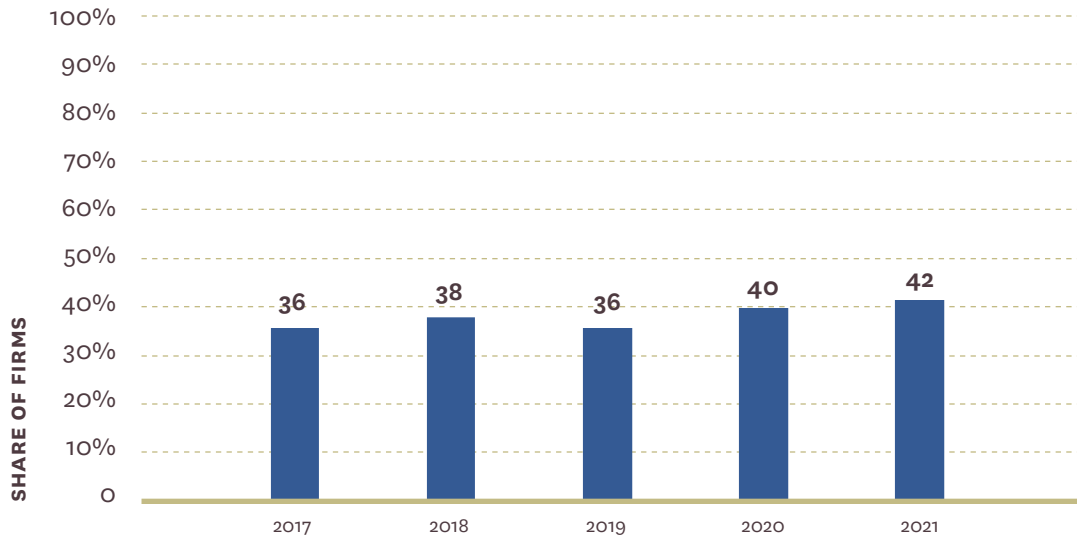
Entrepreneurship training and education are key areas of focus of government support, but the quality of training provided remains inadequate. Program 844 has a large focus on training and supports the development of entrepreneurship curricula and training at public institutions. Several universities, including the Foreign Trade University, National Economics University, Hanoi University of Science and Technology, University of Social Sciences and Humanities, and University of Economics and Business (part of Viet Nam National University), have implemented entrepreneurship courses in their core curriculum with support of the program. However, investors and startup founders noted that the quality of training provided by public programs is inadequate, with an overemphasis on pitching competitions and too little attention on the fundamentals of developing products and operating a business. Stakeholders interviewed by the World Bank team noted that the exception to this is the higher quality training provided through partnership programs between the NIC and international organizations and companies, such as Startup Academy Viet Nam (a partnership with Google), as well as those intermediaries who have received support from the Swiss government-funded Swiss Entrepreneurship Program, which provides capacity building support for improving the quality of training and services of partner incubators, accelerators, and other intermediaries.

Publicly supported events, such as Techfest, have helped to boost the entrepreneurship agenda. Interviewees noted that the government has been successful in raising the profile of innovative entrepreneurship nationally through events and other publicity, which has increased the number of people interested in becoming an entrepreneur and attracted investors into the country. Other notable publicly supported events include Startup Day, Vietchallenge, Viet Nam Venture Summit and Viet Nam Frontier Summit.

5.2 Risk Capital

Access to finance remains a key challenge for the Vietnamese private sector, including startups. Almost 70 percent of the firms that responded to the World Bank Innovate Startups Survey reported experiencing challenges in accessing financing at some point in their development. Similarly, nearly one-half of firms in the 2021 Provincial Competitiveness Index (PCI) firm survey reported access to finance challenges, and the share of firms reporting access to finance challenges has increased since 2017 (Figure 26).

FIGURE 26: SHARE OF FIRMS WITH CHALLENGES ACCESSING FINANCE, 2017–2021



SOURCE: PCI, 2017–2021.

While risk capital investments have grown rapidly, there are gaps in financing for very early-stage companies – particularly for those that are IP or hardware based. The risk capital market is also heavily dependent on foreign funds and investors, making it vulnerable to shocks in global capital markets, while domestic investors and funds face barriers and restrictions in making risk capital investments.

Founders, friends, and family are the primary source of early-stage financing for startups due to a lack of other options for pre-seed funding. Self-financing and friends and family were the primary sources of funding for firms that participated in the World Bank Innovative Startups Survey—82 percent reported using personal savings and 38 percent reported receiving friends and family funding during early-stage development (e.g., before product launch), while 47 percent reported using personal savings and 21 percent reported receiving friends and family funding after launching their products. Similarly, almost all the founders interviewed by the World Bank team relied on self-financing or investments or loans from friends and family at some point in their companies’ development. The friends and family financing is important for firms of all ages in Viet Nam: in the 2021 Provincial Competitiveness Index firm survey, one-half of business owners reported receiving capital from friends or relatives in the last year.

Stakeholders report a fair amount of angel activity, but it is not professionalized. Roughly one-half of the startups interviewed said they had received one or more investments from what they referred to as an angel investor. However, it appears that many of these “angel” investments would in other geographies be classified as being from “friends and family”; most investments oc-

cur because of personal or family connections between the founder team and an individual known to them.¹⁵ The majority of these investors seem to have made only one, or perhaps two, investments. They are not organized, are largely invisible as investors to anyone outside of their close contacts, have likely received little to no training on equity investing, and invest as individuals without syndication with others. As a result, the amount of initial and follow-on funding they can provide is limited, and few have relevant experience to provide mentorship to founder teams post investment. For those startup founders without such personal contacts, the availability of early-stage funding is significantly limited. Investments from professional angels outside of Viet Nam appear to be rare. Additionally, startup founders interviewed by the World Bank team mentioned examples of angels taking too much equity, which made follow-on institutional funding difficult, or of angels taking control of the company's management rather than serving as an advisor. These are both indicators of a non-professional angel market.

Syndication is not a common practice among angel investors. Syndication (the practice of two or more angels pooling money to invest smaller amounts into several ventures, which is generally regarded as best practice to spread risk) is rare. There are at least two active angel networks (WeAngels and Viet Nam Angel Network), but their activities appear limited to networking and information sharing, with no syndication among members and no visibility of investment activities. Many interviewees attributed this individual approach to a lack of trust.

Angel investors could play a larger role as investors and ecosystem actors. According to a 2022 Knight Frank report, there are 72,000 individuals in Viet Nam with a net worth, including property, of US\$1 million, yet the total number of active angel investors in Viet Nam appears to be under 100—with many of these limited to one or two total investments. While the government has helped to establish the Viet Nam Angels Network, there is currently no public support for the professionalization of angel activity through training or outreach, little visibility of deals done, or platforms to enable contact between active investors and firms. Given the decline in pre-seed institutional funding in 2022 due to global capital constraints (see the venture capital discussion below), growing and professionalizing angel investors could help to insulate the Vietnamese ecosystem from its reliance on foreign risk capital. See Box 3 for more information about the role angel investors can play in entrepreneurship ecosystems.

¹⁵ Most definitions of an angel investor specifically exclude those that have a personal connection to the founders.

Box 3:

The Role of Angel Investors in Entrepreneurship Ecosystems

Angel investors are globally recognized as an important source of risk capital at the early stages of company development. Generally, VC funds do not have the capacity to invest in large numbers of relatively small value (under US\$500,000) deals, so angel investors tend to fill this pre-seed funding gap. For example, while VC funds invested in 13,000 deals, in the US¹⁶ in 2020 the number of angel-funded deals was over 64,000.¹⁷ A large, educated, visible, and contactable angel community is essential to support the high numbers of startups needed to generate the pipeline of HGFs of the future.



In developed angel markets, angel investors will typically pool investments through groups and syndicates, allowing them to make more and larger-sized investments into companies seeking early-stage financing. This diversifies the angel investors' risk and broadens the capital source for companies.

Angel investors can provide key benefits to entrepreneurial ecosystems: they generally invest locally and in a wider range of sectors than venture capitalists, meaning that they provide broader investment coverage both in terms of industry sectors and geography than VCs; VCs tend to be concentrated in major hubs, while angels can live anywhere (Wilson 2011). Angels are also typically “hands on” investors who are either experienced business people, investors, or entrepreneurs, and the firms they invest in also can benefit from their advice, insights, knowledge, and contacts. This nonfinancial assistance is particularly important in the earliest development stages where the management team is typically incomplete and inexperienced. (Aridi et al. 2018). Angel investors have a positive impact on the growth of firms they fund, both in terms of their performance and survival. Startups funded by angel investors are 14 percent to 23 percent more likely to survive for the next 1.5 to 3 years and grow their employment by 40% relative to nonangel funded startups (Lerner 2015).

Angel markets will not necessarily develop on their own and typically require policies to incentivize angel activities. There are considerable disincentives and barriers to entry that are likely to restrict the number of individuals willing to become business angel investors. This form of investing requires prospective angels to learn new skills, expend a considerable amount of time, and take substantial risks in comparison to other traditional forms of investment (data from the US suggests that up to 70 percent of investments made by angels fail to return capital, let alone profit). Many governments now provide incentives (grants, tax incentives, etc.) to support the for-

¹⁶ <https://www.statista.com/statistics/277505/venture-capital-number-of-deals-in-the-united-states-since-1995/>.

¹⁷ https://paulcollege.unh.edu/sites/default/files/resource/files/2020-analysis-report_.pdf.

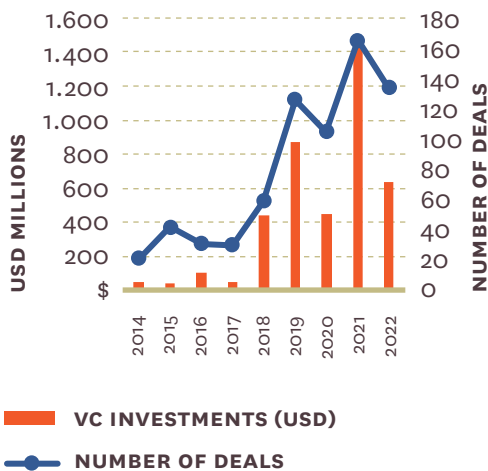
mation of angel networks and training, and co-investment funds to help spread risk, with the state benefiting from the resulting additional economic growth (Aridi et al. 2018).

SOURCE: Authors' compilation.

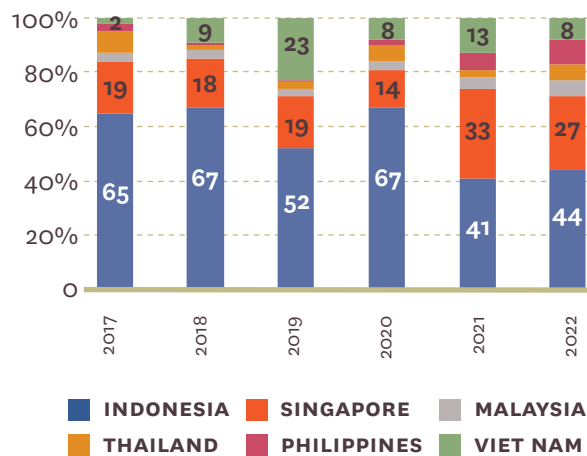
VC investments have grown rapidly, driven by an influx of funds from around the region, although the overall level of investment activity is well below developed VC markets. VC investments reached record levels in 2021 in terms of value of deals (US\$1.5 billion) and number of deals (165) in 2021, both huge increases from previous years (Figure 27a). However, VC investments experienced a large decline in 2022 due to the ongoing global capital crunch, dropping to US\$634 million in investments in 134 deals. VC activity in Viet Nam has increased relative to regional peers (Figure 27b) but remains small relative to developed VC markets. Viet Nam achieved a peak of 165 reported deals in 2021, while Singapore reported 303 deals, Israel had 773 deals, and the US had 17,054 deals the same year.

FIGURE 27: A. VC INVESTMENTS IN VIET NAM, 2014–2022; B. SHARE OF VC CAPITAL INVESTED BY COUNTRY IN SE ASIAN REGION, 2017–2021

A.) VC INVESTMENTS IN VIET NAM, 2014-2022, IN US\$



B.) SHARE OF VC CAPITAL INVESTED BY COUNTRY IN SE ASIAN REGION, 2017-2021



SOURCE: Do Ventures, NIC, and Cento Ventures Research, 2022.

While VC investments have increased in recent years, startups report gaps in early-stage funding and in “patient capital” willing to invest on longer time horizons. Only 15 percent of the firms that participated in the World Bank Innovative Startups Survey reported receiving VC investments prior to launching their products (well below the share of firms that self-financed or received friends and family investments during early-stage development). Many startup founders interviewed noted gaps in funding for startups to develop an MVP—most startups self-finance or rely on friends and family at this stage. For hardware-based startups with larger capital requirements, this early-stage funding gap is a bigger challenge. Hardware-based startups also noted a gap in “patient capital”—many VCs, particularly those coming into Viet Nam from the region, are focused on software and copycat models that are bringing existing ideas to the Vietnamese market, and there are few investors willing to invest in firms with longer time horizons or those with novel business models or technologies.

Most active VCs are registered overseas to avoid risk and state capital controls, which complicates the investment process but does not appear to have inhibited investment activity. Almost all active VCs in Viet Nam are registered outside the country. Because Vietnamese investors (firms and individuals) cannot invest in or serve as limited partners in foreign funds without permission from the State Bank, the Vietnamese risk capital market is highly dependent on foreign capital, and most of the profits from equity investments in Vietnamese startups go to investors residing abroad. In addition, foreign-registered funds have strong preferences (or requirements, depending on the fund) to invest in firms registered outside of Viet Nam (typically in Singapore) to avoid capital controls and perceived credit and accounting risks. To receive investments from foreign funds, most startups must register in Singapore and transfer firm assets into the Singaporean shell company, which can represent a significant administrative burden and cost to early-stage companies.

New legislation allows for domestically registered VC funds, but few domestic funds have been established due to restrictions in their activities and a lack of incentives for investing into such funds. Decree 38/2018/ND-CP, adopted in 2018, established the legal framework for establishing and registering an “innovative investment fund”, but unlike in many developed countries, potential investors into local VC funds are not incentivized in any way, and funds established under the decree face restrictions on investing that foreign-registered funds do not (see the Regulatory Framework section for additional discussion). As a result, only a few funds have been registered under the decree since 2018: ThinkZone Fund, ITI Fund, and BK Fund, which combined have deployed less than US \$50 million in investments since 2018 (out of approximately US\$3.2 billion in total VC investments over that period). Additionally, traditional institutional investors, such as pension funds and insurance companies, are not active investors into VC or PE funds in Viet Nam due to legislative restrictions placed on them.

There may be a gap emerging in early-stage funding due to global capital constraints, resulting in some international VC funds withdrawing from the market. Prior to 2022, there were a number of active private accelerators and pre-seed investors investing at the US\$100,000–500,000 range (notably 500 startups, which made 38 investments from 2015–2021 but ceased investing in Viet Nam in 2021), while some VC funds were making investments as small as US\$50,000–\$100,000 through scout funds or grants to help build their investment pipelines. However, institutional funding for investments under US\$500,000 decreased in 2022 due to glob-

al capital constraints, with most funds now focusing on larger ticket sizes in their investment activities. Pre-seed and seed stage deals, typically those under US \$500,000, fell from 59 deals valued at US\$12 million in 2020 to 44 deals valued at US\$9 million in 2022 (Do Ventures, NIC, and Cento Ventures Research, 2022).

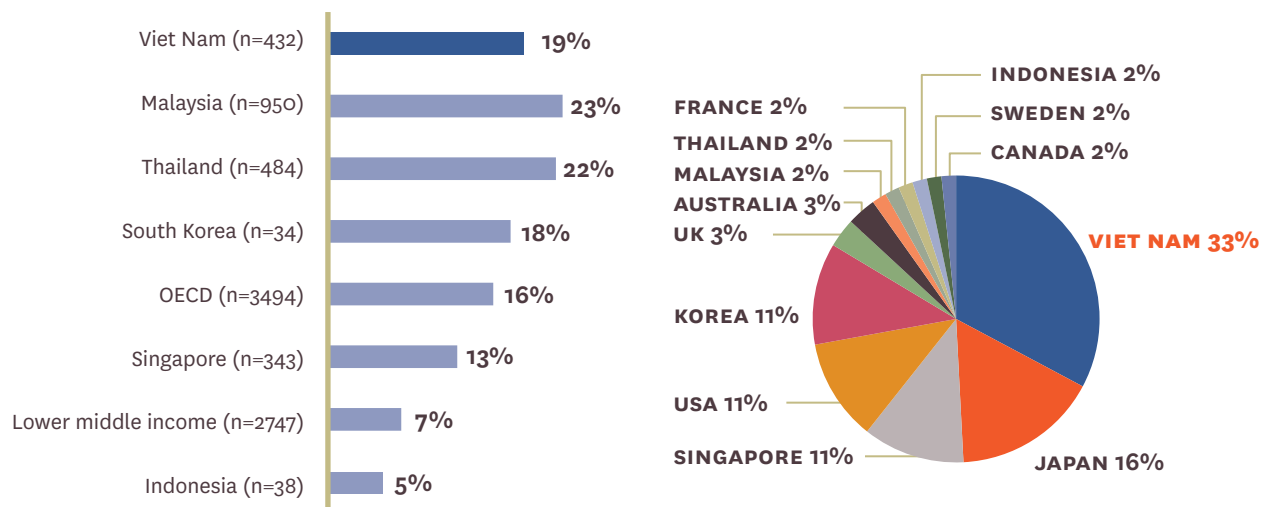
5.3

Exit Markets

Exits through mergers and acquisition (M&A) do not appear to be a challenge for Vietnamese digital firms. Almost 20 percent of Vietnamese digital firms in Pitchbook achieved exits, largely through M&A, which is above the OECD average of 16 percent (Figure 28a). Vietnamese conglomerates have not really set themselves up for risk capital investing or acquisition of startups, so M&A activity largely comes from regional/global corporates (Figure 28b).

FIGURE 28: A. SHARE OF DIGITAL BUSINESSES THAT HAVE REACHED EXIT (M&A AND IPO), 1970–2022; B. ACQUIRER COUNTRY OF ORIGIN OF VIETNAMESE DIGITAL BUSINESSES, 1970–2022

A.) SHARE OF DIGITAL BUSINESSES THAT HAVE REACHED EXIT (M&A AND IPO), 1970-2022



SOURCE: World Bank Digital Business Database.

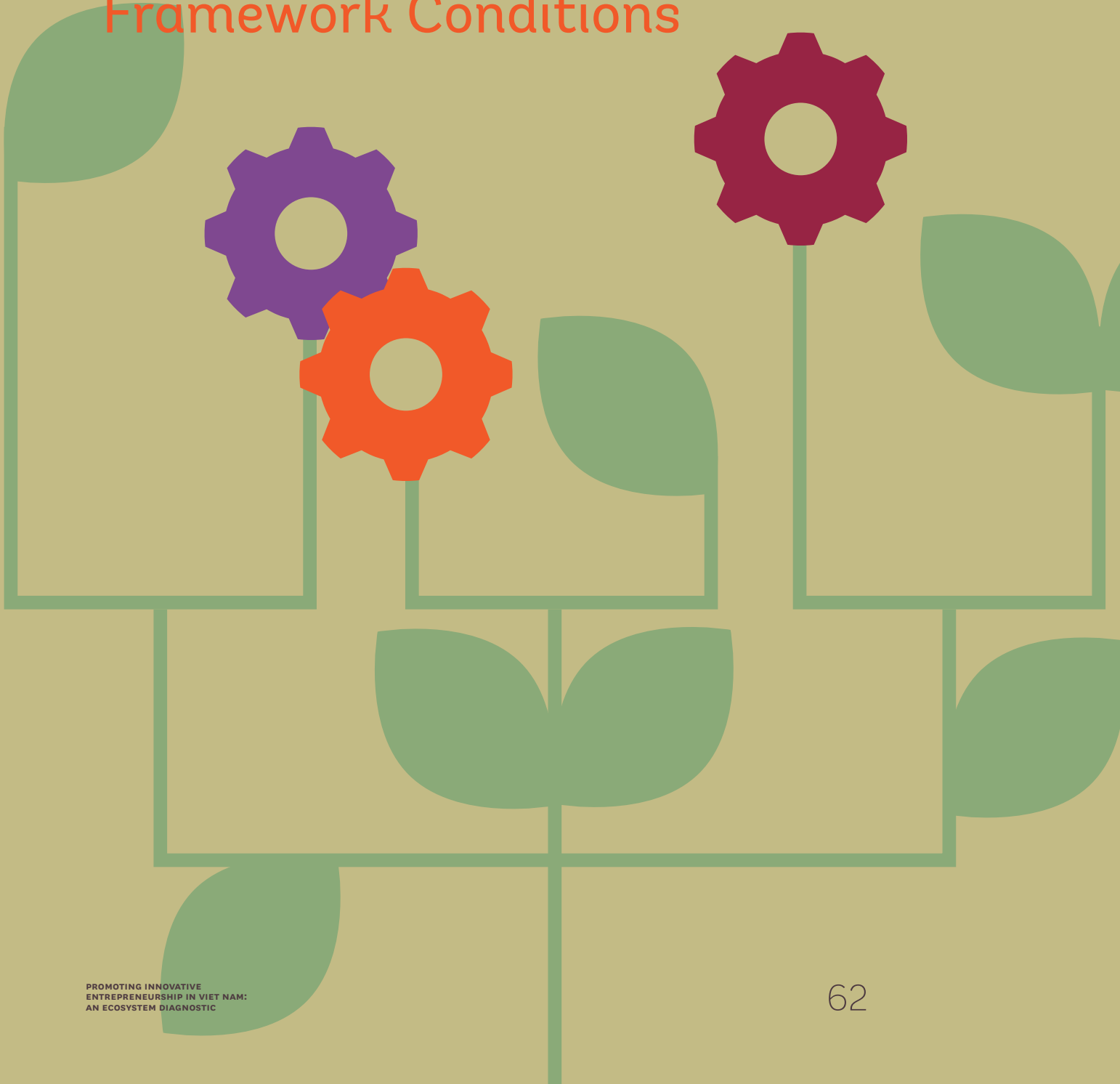
Exits through IPOs are, as in most countries, relatively limited. Viet Nam hosts two large stock exchanges; the Ho Chi Minh City Stock Exchange (HOSE), Viet Nam’s largest stock exchange, and the Hanoi Stock Exchange (HSX), both subsidiary exchanges of the Viet Nam Stock Exchange (VNX) and supervised by the State Securities Commission (SSC). In the period 2020—2022, there were just 22 IPOs of companies of all types on VNX exchanges, compared to 19 IPOs in the Philippines, 30 in Singapore, 83 in Malaysia, 111 in Thailand, and 164 in Indonesia. Part of the reason for the low level of IPO activity is the strict requirement for listing, which include reporting a profit for two consecutive years immediately preceding the year of listing—something that growth-stage companies struggle to satisfy.

Viet Nam IPOs raise little funding. In 2022, the average funds raised in all Vietnamese IPOs was just \$8m, compared to \$44m in the Philippines, \$39m in Singapore, \$23m in Malaysia, \$85m in Thailand, and \$40m in Indonesia. This suggests that the amount of funding available from the Viet Nam stock market is limited and may be a significant factor in making domestic IPOs unattractive to innovative startups in Viet Nam.

After launching in 2021, VNX announced a roadmap for the professionalization of exchange by-products, including stocks, bonds, derivatives, and a startup stock exchange. However, there is currently no timeline for the creation of the startup exchange.

06

Framework Conditions



6. Framework Conditions

This section focuses on the framework conditions for entrepreneurship: a conducive regulatory environment, access to markets, and infrastructure.

THE KEY FINDINGS FROM THE ANALYSIS OF FRAMEWORK CONDITIONS INCLUDE:

Processes for obtaining business sublicenses for some economic activities are burdensome, while there is a lack of clarity on the legality of a broad range of economic activities

- Registering outside Viet Nam (often a prerequisite for receiving venture capital (VC) investment) can be a costly and burdensome process for startups, particularly in the early stage
- The legal framework for registering an investment fund locally is restrictive and lacks incentives, resulting in very few funds registered locally
- Viet Nam’s intellectual property (IP) and technology transfer framework suffers from contradictory policies and inconsistencies that inhibit tech transfer activities
- Viet Nam has made strides in upgrading its infrastructure, but logistics costs remain high relative to peers, which can create barriers to firms—particularly in e-commerce and other consumer markets.
- The number of entrepreneurship support intermediaries (incubators, accelerators, innovation centers, etc.) has grown, but the quality of services provided tends to be low

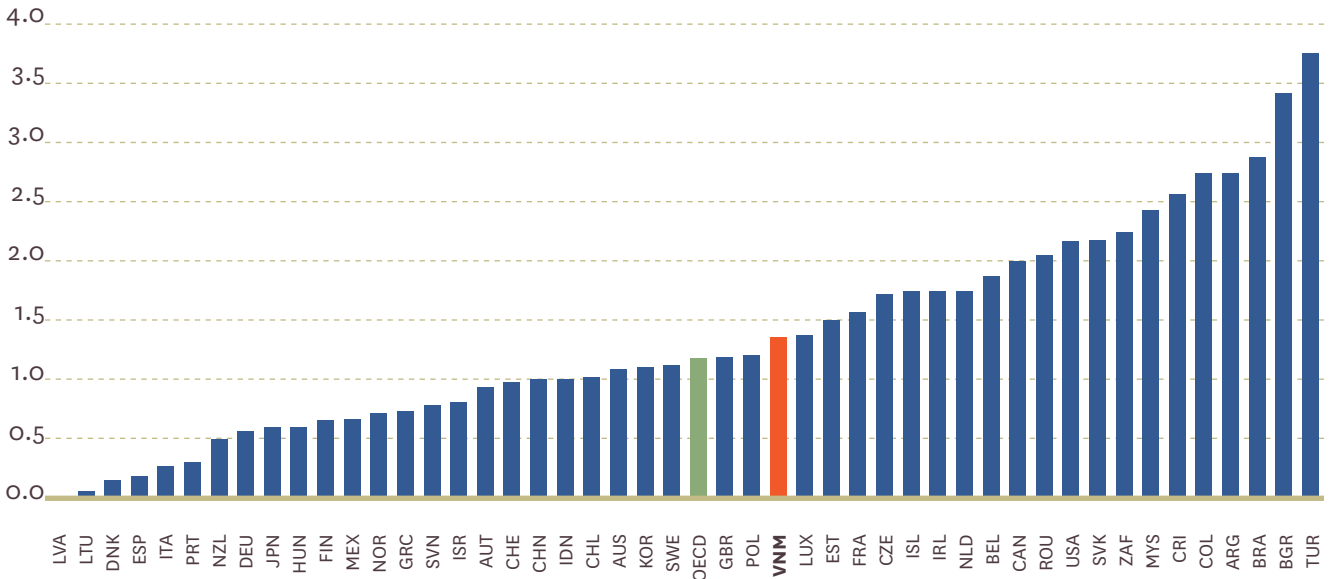
6.1

Regulatory Framework

6.1.1 STARTING AND OPERATING A BUSINESS

Relatively low startup establishment costs have likely contributed to high business entry rates. Establishment costs are only slightly higher than the OECD average and below that of many middle-income countries (Figure 29). Viet Nam has implemented substantial business environment reforms over the past few years, including in business registration, which have helped drive the costs down. According to the 2020 Doing Business report, in 2020, the cost of setting up a company amounted to only 5.6 percent of gross domestic product (GDP) per capita, below the East Asia and Pacific (EAP) average of 17.4 percent. However, the number of procedures was above the EAP average and the registration process was also relatively lengthy.

FIGURE 29: STARTUP ESTABLISHMENT COSTS IN VIET NAM AND OECD COUNTRIES



SOURCE: OECD 2023 (Economic Survey of Viet Nam).

NOTE: Indicator of administrative burdens on startups, index scale of 0–6 from least to most restrictive; laws and regulation in place on January 1, 2018, or later (January 2020 for Viet Nam).

Despite some progress, more work is needed to facilitate firm exits and allow for better reallocation of resources in the market. Viet Nam ranks 133rd out of 190 economies on the World Bank Doing Business Indicator on Resolving Insolvency. It takes, on average, five years to work through an insolvency case, which is almost 10 times longer than the global best performer (Ireland). Viet Nam's recovery rate is estimated to be 21.3 cents on the dollar, less than a third of the recovery rate in Japan (global best performer). This is one of the areas where Viet Nam has advanced through reforms, but areas for improvement remain (World Bank, 2020c).

Processes for obtaining business sublicenses for selected economic activities are burdensome. Firms in Viet Nam must obtain one or more conditional business sublicenses to engage in over 200 economic activities specified in the Investment Law, and, depending on the sector, this can represent a large burden on firms. For example, FinTech firms are required to go through the Ministry of Industry and Trade for approval of their apps/websites and e-commerce licenses, the State Bank of Viet Nam for interbank payments, and the Ministry of Information and Communications if there is any digital content involved with their business. In the 2021 Provincial Competitiveness Index (PCI) firm survey, 22 percent of surveyed firms reported that challenges in registering sublicenses caused them to delay or cancel their business plans in 2020. Petty corruption is also common in business sublicensing, with 61 percent of firms surveyed in the 2021 PCI reporting making informal payments as part of the process to obtain their sublicenses (PCI 2021). Of the firms that responded to the World Bank Innovative Startups Survey, 65 percent had an unfavorable view of the Vietnamese business environment.

There is a lack of clarity on the legality of a broad range of economic activities, which may be deterring investment in some sectors. Interviewees noted that the legality of a large number of economic activities (for example, storage of health data or use of public space for vehicle charging infrastructure) is not clear, nor is it clear which government body or counterpart can provide such clarification about what is legal and what is not. Startups operating in these regulatory grey areas face legal risks, and interviewed funds said they avoid making investments in some business models in FinTech, health care, logistics, education, and other sectors because of these risks. In response to these legal ambiguities, there have been calls for and discussions about instituting regulatory sandboxes, which allow startups to operate in such markets similar to international experiences. The State Bank of Viet Nam released a second draft of a decree for a FinTech sandbox in 2022, but there is currently no timeline for its implementation.

6.1.2 EARLY-STAGE AND EQUITY INVESTING

Most startups and institutional investors are registered outside Viet Nam to avoid capital controls, although this does not appear to have slowed investment activity. Viet Nam maintains strict control on capital transfers, and processes such as investment entry and exit, tax settlement, and maintaining bank accounts can be taxing, especially for small investments in the pre-seed stage. Many foreign investors avoid these controls by requiring firms that they invest in to register their companies in Singapore (or other external jurisdictions). While it is possible for foreign VCs to invest in Viet Nam-registered companies, many prefer not to (or have a binding agreement with their Limited Partners to only invest in Singapore-registered companies, in some cases) due to concerns over political, transfer, and currency risks and administrative burdens.

The legal framework for registering an investment fund locally is restrictive and lacks incentives. Decree No. 38/2018/ND-CP created the legal basis for registering “innovative startup investment funds” domestically, but funds registered under the decree face restrictions and lack incentives for making investments. Under current legislation, the fund itself is not a taxable legal entity, so the fund management company is subject to the tax obligations of the fund’s activities and must pay corporate tax on profits from the sale of investments before distributing profits to investors, which is not in line with global best practices in taxation for investment funds. Funds are limited to a maximum of 30 investors, but the rationale for this limitation is unclear. It is not uncommon for funds to have more than 30 investors (for example, under US regulations, funds can have up to 100 limited partners before requiring an exception from the U.S. Securities and Exchange Commission). Like other domestic investors, domestic VC funds cannot make investments in firms registered outside Viet Nam without permission from the State Bank – yet most investment-ready firms in Viet Nam are registered outside the country so they can receive funding from foreign VCs.

Public agencies and funds do not participate in VC or PE funds due to restrictive state capital protection limits set out by the Public Investment Law and State Capital Management Law. State owned enterprises do not participate in VC or PE because of the 2014 Law on the Use and Management of State Capital Invested in Manufacturing and Business Operations of Enterprises (Law No. 69/2014/QH13) and guiding decrees, which task state-owned companies with the responsibility to preserve state capital. Officials responsible for losses made on investments risk facing possible penalties.

Pension funds also do not play any role in investing in VC/PE in Viet Nam due to state restrictions; the state social insurance fund is only allowed to invest in government bonds, corporate bonds, and savings accounts, while private pension funds are almost non-existent. Yet, pension funds are major sources of capital for venture capital and private equity funds globally: in 2014, 20 percent of all capital raised by VC funds in the US came from public pension funds and an additional 7 percent came from corporate pensions (Bloomberg 2014).

6.1.3 TAXATION

Startups and SMEs are treated like all other firms under the corporate regime. While Article 20 of the 2018 Law on Supporting SMEs includes provisions for advisory support and legal assistance for tax and accounting matters to SMEs, startups and SMEs have no special tax regimes. Firms can receive some tax reductions related to R&D and software development, but these are not specific to startups. In 2019, the government introduced a simplified accounting framework for micro-enterprises, which is simpler than that for SMEs and the preparation of full accounting books may be burdensome for less profitable businesses—these provisions in the taxation framework may give firms perverse incentives to stay small or pretend to be small (OECD, 2021).

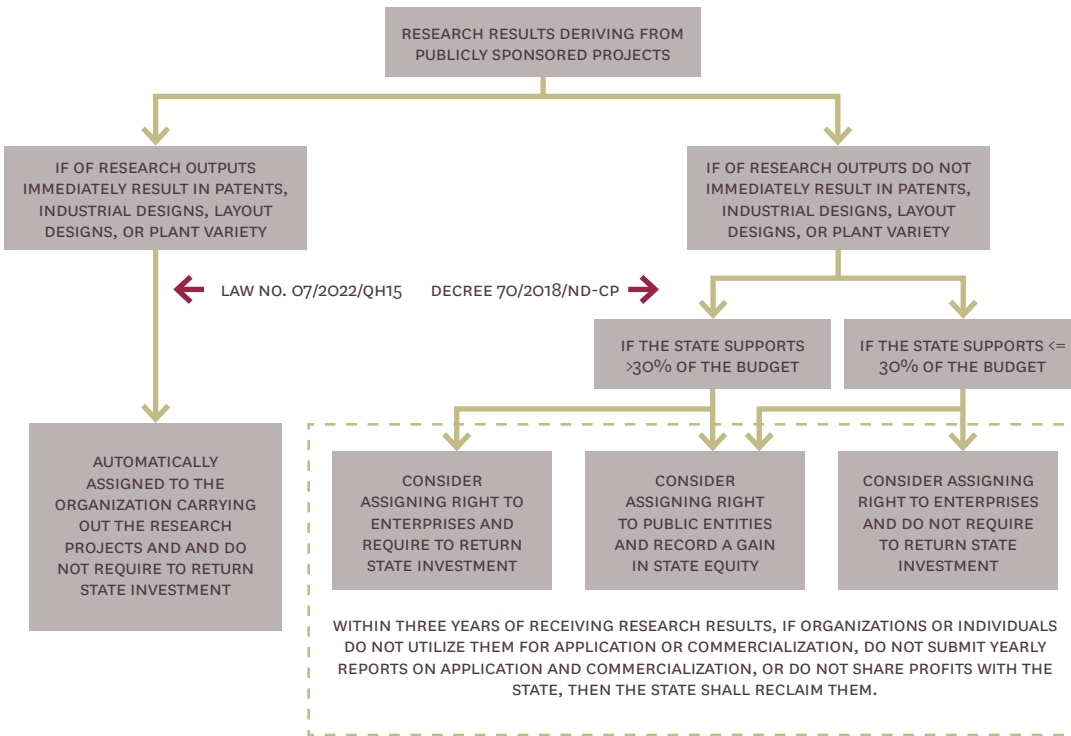
There are no tax exemptions or reductions for risk capital investors, so investors are not incentivized to support higher-risk investments. Globally, tax incentives for risk capital investors aim to change investor behavior, shifting capital from “safe” investments to higher risk investments—many countries have developed their risk capital markets by providing such incentives. In Viet Nam, risk capital investors are subject to the same capital gains tax as all other investments,

which is high relative to several regional peers. The Law on Supporting SMEs includes a provision that states investors in startups are entitled to remission or reduction of corporate income tax on revenues from their investment in startups, but this provision was never included in the corporate tax law. Fund management fees are therefore taxed under the standard corporate tax scheme, and there are no other specific tax incentives or reductions for angel investors or venture funds. There are numerous tax incentives schemes for venture investors in place globally, including tax credits against personal or corporate income for entities investing in small companies and qualified venture funds in the U.K., US, and Canada; and capital gains tax relief on profits realized from venture investments in the U.K., US, Canada, Israel, Korea, Portugal, and Spain (OECD 2005). These types of indirect incentives differ in their effectiveness across countries and depend on the authorities' implementation capacity and other complementary aspects of the tax regime. They should be considered within a broader context of Viet Nam's tax regime.

6.1.4 INTELLECTUAL PROPERTY AND TECHNOLOGY TRANSFER FRAMEWORK

Viet Nam's IP and technology transfer framework suffers from contradictory policies and inconsistencies that inhibit tech transfer activities. A key inconsistency in the framework is the varying treatment of research results from publicly funded R&D, depending on whether IP is generated within three years of project completion or not (Figure 30). Publicly funded R&D that results in IP (in the form of a patent, trademark, copyright, industrial designs, or trade secrets) within three years is governed by Law No. 07/2022/QH15 on Intellectual Property, and ownership is automatically assigned to the organization carrying out the research projects, without any obligation to commercialize research results or repay public funds (in line with global best practices). However, for publicly funded R&D projects that do not result in IP within three years (governed by the rules of the Law on Technology Transfer and Decree No. 70/2018 ND-CP), ownership of the research results is determined on a case-by-case basis: if private firms are awarded the right to research results, they must reimburse the state-funded investment if the state gives more than 30 percent of the total funding for a research project. If the recipient of the right is a public organization, the entity must report a gain in state equity. Furthermore, the decree requires that within three years of receiving rights on research results, organizations or individuals must utilize them for application or commercialization, submit yearly reports on application and commercialization, or share profits with the state, otherwise the state shall reclaim ownership. There is no clear rationale for treating ownership of research results differently if IP is generated within three years or not—project results may require additional R&D before IP can be generated, and this additional R&D should not be disincentivized by IP policy. Requiring repayment of state funding and/or profit sharing with the state and the reclamation of ownership of research results are not in line with global best practices in IP legislation.

FIGURE 30: REGULATIONS REGARDING OWNERSHIP OF RESEARCH RESULTS DERIVING FROM PUBLICLY FUNDED R&D



SOURCE: Authors' compilation.

Public research organizations and researchers face restrictions related to ownership and management of university/PRO IP-based startups. According to the Law on Science and Technology (2013) and the Law on Higher Education (2018), public research institutions and universities are permitted to create enterprises, including startups; however, the Enterprise Law (2020), Law on Public Employees (2010), and Law on Anti-Corruption (2018) place prohibitions on government employees in managing private businesses, so employees of public research institutions and universities cannot work directly for startups or as directors or on the boards of startups they founded.

Startups based on publicly funded research are limited to domestic investors in the early stages, and thus can face challenges in raising capital. Vietnamese public research organizations (PROs) and universities cannot transfer their IP to a foreign-registered startup, and because most foreign VCs require their investees to register in Singapore, university/PRO IP-based startups are largely limited to domestic investors for their startup capital—this can be a particular challenge for hardware-based startups from public research institutions. Hanoi University's BK Fund was created largely to address this funding gap and facilitate the creation of startups (see Box 4). Nevertheless, the scope and impact of such university affiliated legal entities (as special purpose vehicles) remain limited, as reflected by the small number of university-based startups from Viet Nam's leading science and engineering university.

Box 4:

BK Holdings

As part of its efforts to commercialize and transfer university IP to the private sector, Hanoi University of Science and Technology (HUST) has established a technology transfer center (BK-TTO) and investment fund (BK-Fund), both of which are managed by BK Holdings, a single-member limited liability company wholly owned by the university.



In the management of BK-TTO, HUST establishes policies for the TTOs operations and provides funding for operations and facilities, while BK Holdings manages the operations, employees, and finances of the TTO. The services offered by BK-TTO include management of some university IP, support for commercialization of technology, technology evaluation, intellectual property exploitation services, technology transfer, consulting and training, incubation, and access to a FabLab.

BK Fund was established to address the gap in early-stage funding for IP-based startups from universities (see the Knowledge Creation and Innovation Activities section). The fund was established under Decree No. 38 (see the Risk Capital and the Early-Stage and Equity Investing sections for additional information on domestic funds) and the university invited alumni to contribute to the fund as Limited Partners, raising approximately US\$2 million. The fund invests in university technologies, as well as makes co-investments in startups formed by teachers, students, and alumni.

Via its ownership of BK Holdings, HUST is able to take part in investing and managing university startups—something universities are not able to do directly due to restrictions in the national IP and technology transfer framework. In the last 10 years, BK Holdings and HUST have generated about 12 IP-based spinouts and 120 startups, which have raised approximately US\$100 million in follow-on funding.

SOURCE: BK Holdings, authors' compilation.

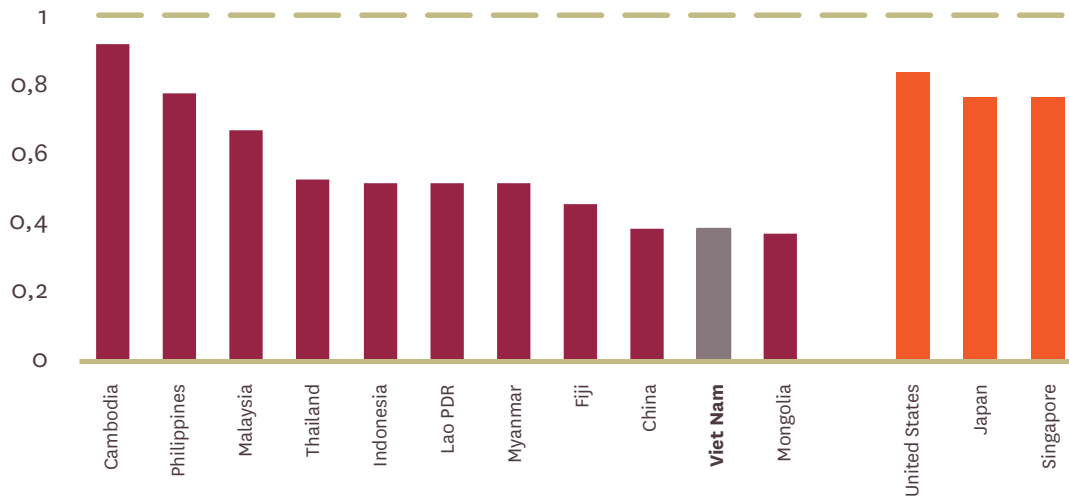
Public research institutions and researchers are not incentivized to commercialize and transfer technology to the market. Institutional performance-based metrics for public research organizations and universities are teaching and research focused and do not include indicators related to IP generation, commercialization, or tech transfer activities. Similarly, public researcher incentive frameworks (salaries and career progression) do not include any metrics related to IP generation, commercialization, or tech transfer activities. In some cases (for research results governed by Decree No. 70/2018 ND-CP, discussed above), institutions and researchers would need to share profits from IP generated from their research with the government, which provides a disincentive for commercialization of research findings.

6.2

Access to Markets

Viet Nam has implemented significant structural reforms to its product markets, but access to markets remains uneven. Despite multiple product market reforms, including the run-up to the World Trade Organization (WTO) accession, Viet Nam continues to lag behind its regional

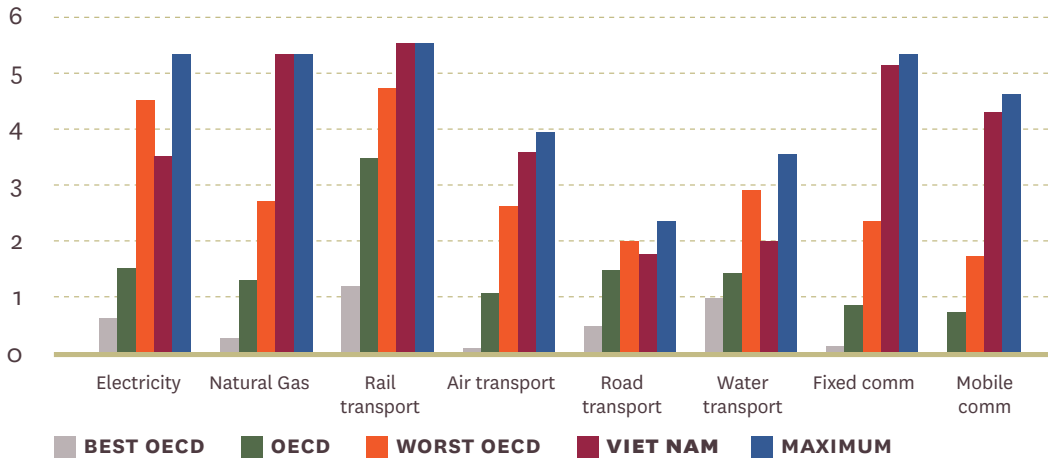
FIGURE 31: PRODUCT MARKET REFORM INDEX IN EAST ASIA, 2020



SOURCE: World Bank (2023).

NOTE: Overall and sectoral reform indices are continuous indicators taking a value in the 0–1.0 interval in 2020. A higher value indicates a greater degree of liberalization (lower intensity of restrictions).

FIGURE 32: PRODUCT MARKET BARRIERS IN THE SERVICE SECTOR



SOURCE: OECD (2021).

NOTE: Index scale of 0–6 from least to most restrictive, 2018 or the latest year available.

peers in product market openness (Figure 31). Of the firms that participated in the World Bank Innovative Startups Survey, 38 percent reported challenges in accessing markets. Regulatory constraints are particularly binding in the service sector, especially in transport and communications (Figure 32). In addition, SOEs and private conglomerates seem to hinder competition from smaller, less established firms (World Bank Group, 2021).

Many Vietnamese startups are focused on business to consumer (B2C) markets, largely in e-commerce and FinTech. Many of the startups that received investments in the last five years are based on copycat models, bringing ideas and business models that already exist on the global market and localizing them for the growing Vietnamese consumer market. This is, in part, due to the preferences of regional VC funds, many of whom prefer to invest in business models they are already familiar with and believe copycat companies can achieve adequate scale in the Vietnamese domestic market. Almost 70 percent of VC investments in 2021 in Viet Nam were in e-commerce and fintech firms. The consumer-focused gaming sector is also growing in importance in Viet Nam, accounting for 12 percent of VC investments in 2021 (Do Ventures, NIC, and Cento Ventures Research, 2022). Of the firms that participated in the World Bank Innovative Startups Survey, 67 percent focused on B2C markets.

Business to business (B2B) markets for startups appears less developed, in part due to business culture and information barriers. Founders and investors interviewed by the World Bank team stated that the Vietnamese corporate sector is quite risk averse, and most corporations have no history of working with startups. Despite some movement in personnel between Viet Nam's startup and corporate communities, linkages are limited and there are information barriers. There are some reverse pitching events (provided by the Zone Startups accelerator in Ho Chi Minh City [HCMC]) to help build B2B relationships. There are examples of startups that have established B2B deals with local corporates in SaaS and financial services, but these deals are often based on personal relationships. Seventy-six percent of the firms that participated in the World Bank Innovative Startups Survey focused on B2B markets.

The public sector is not a significant market for startups. In general, government institutions and SOEs are reluctant to work with startups due to several factors: public administrators fear contracts with startups will place them at risk for prosecution for misuse of public funds; there is no past culture of working with startups within the public sector; and there are knowledge barriers, where startups do not know public sector needs or procurement practices and the public sector does not know what products/services startups can offer. Interviewees noted that some startups have been able to obtain government contracts, but those have largely been based on personal connections. The 2021 PCI firms survey found that firms that participated in public procurement processes faced challenges with the availability of information on bids and short time-lines for submission of bids.

6.3

Infrastructure

Viet Nam has made strides in improving infrastructure, but logistics costs remain high and electricity supply is increasing unreliable. Viet Nam’s ranking in the World Bank’s Logistics Performance Index improved from ranking 53 in 2010 to 39 out of 160 economies in 2018, logistics costs accounted for about 21 percent of total GDP in 2016, which was much higher than Korea (9.5 percent) or Singapore (9.5 percent). A lack of adequate infrastructure and excessive transportation regulations hinder last-mile delivery services, while freight services are inefficient because the industry is fragmented and lacks aggregators. While high logistics costs have not hindered Viet Nam’s rapid integration into global value chains (GVCs), they can represent a significant burden to startups—particularly in the rapidly growing e-commerce sector (World Bank Group 2021). In recent years, lack of investment in power generation, especially in the north, has led to recurrent power shortages in various locations, including Ha Noi¹⁸. Thirty-two percent of the firms that participated in the World Bank Innovative Startups Survey had an unfavorable view of the country’s infrastructure.

The number of entrepreneurship support intermediaries (incubators, accelerators, innovation centers, etc.) has grown, but the quality of services provided tends to be low. Pham and Tan (2022) report more than 1,400 incubators, accelerators, and coworking spaces in Viet Nam, although many of these offer no services beyond office space. Few of the firms that participated in the World Bank Innovative Startups Survey had received support from entrepreneurial intermediaries—only 22 percent reported receiving support from an incubator or accelerator, and 18 percent reported receiving support from a mentoring or consulting program. National Program 844 supports a network of more than 40 public incubators and innovation centers around the country, but these public intermediaries tend to be under resourced and provide poor quality services. Founders interviewed by the World Bank team noted that the public intermediaries that have partnered with the Swiss government-funded Swiss Entrepreneurship Program (EP) tend to offer better quality services, having benefited from capacity building support from the Swiss EP. Investors interviewed by the World Bank team commented that there is a strong need for tailor-made support on core aspects of developing products and running a business.

Private accelerators, which also act as early-stage investors, offer better quality services but may exit the Vietnamese market because of lack of profitability. Viet Nam has seen a number of private accelerators enter the market since 2015, such as ThinkZone, Zone Startups, Antler, and VIISA. These accelerators tend to offer higher quality services to the startups they support, and also represent a significant source of pre-seed investments. However, global experience has shown that this model is not profitable, and these accelerators will likely exit the Vietnamese market without public or donor support for their activities. Already, 500 Startups Viet Nam, which was the most active VC investor in the country (in terms of number of deals) from 2015–2021, ceased to make investments or provide services in Viet Nam as of 2021.

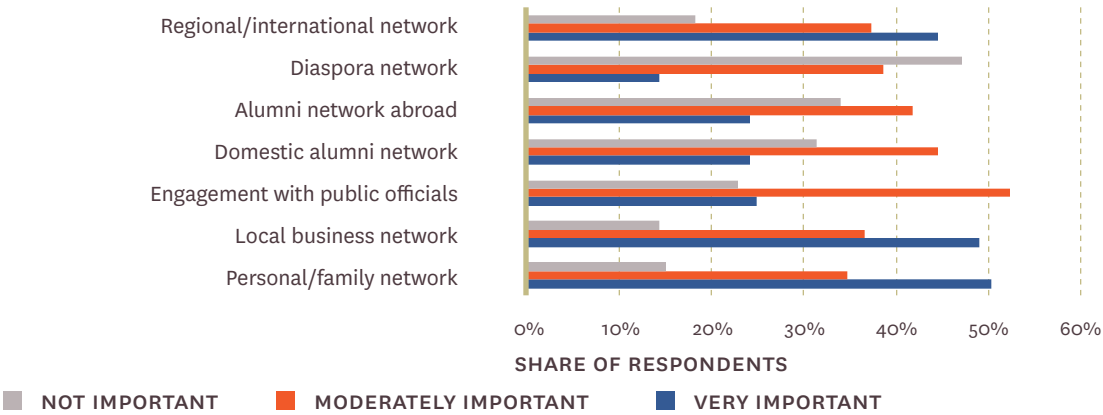
¹⁸ Vnexpress.net, June 6, 2023, accessible at <https://vnexpress.net/cac-nguon-dien-cua-mien-bac-dang-thieu-toi-dau-4615718.html>.

6.4

Networks

Personal and local networks are key sources of information and support for firms. Of the firms that responded to the World Bank Innovative Startups Survey, 86 percent said that local business networks were very important or moderately important sources of support, while 85 percent said the same for personal and family networks (Figure 33). Regional and international networks also play an important role, with 82 percent of respondents saying these networks were very important or moderately important.

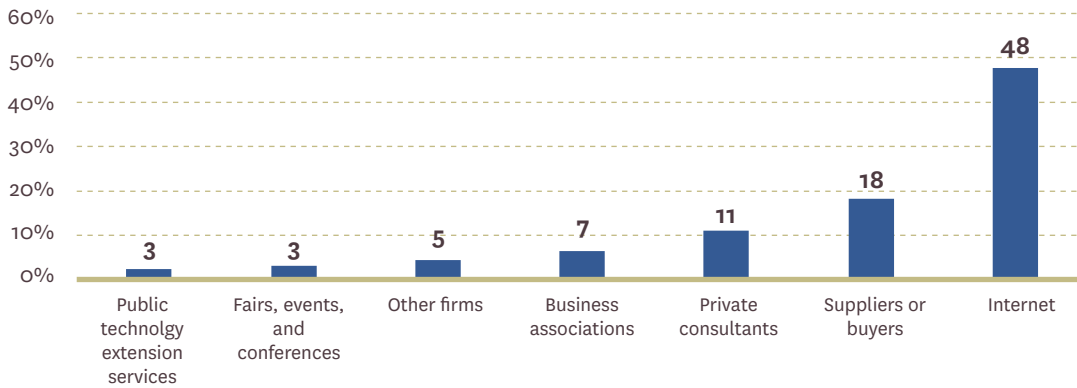
FIGURE 33: FIRM NETWORKS



SOURCE: World Bank Innovative Startups Survey.

Associations, conferences, and extension services are not important sources of information for startups. When asked about the source(s) of information most often used to make decisions, almost 50 percent of the firms that responded to the World Bank Innovative Startups Survey relied on the internet, and 18 percent used information gathered from suppliers or buyers. Fewer than 10 percent of firms said they relied on information from public technology extension services, conferences and events, other firms, or business associations (Figure 34).

FIGURE 34: FIRM SOURCES OF INFORMATION



SOURCE: World Bank Innovative Startups Survey.

07

Conclusions and Policy Recommendations



7. Conclusions and Policy Recommendations

This section details a set of recommendations that aims to boost the number and quality of innovative startups in Viet Nam, reduce gaps in innovation finance, and alleviate existing barriers for new firm entry and growth. The recommendations aim to inform Vietnamese policy makers and private sector stakeholders for better and more coordinated actions to support sustained development of a dynamic entrepreneurial ecosystem. The recommendations provide policy directions and prioritization for ecosystem stakeholders, beyond the public section, and could be developed into a more detailed roadmap for implementation in consultation and cooperation with key players.¹⁹

Entrepreneurship and innovative startups can play key roles as drivers of innovation, knowledge spillover, and productivity growth in Viet Nam's private sector. While Viet Nam creates many new firms and has a high rate of HGFs, the productivity of domestic enterprises remains low, which could undermine Viet Nam's future growth. Innovative entrepreneurs matter more for countries at the middle-income level when growth is increasingly driven by technology absorption and innovation. Thus, there is a need for policy makers to support the entry of more innovative and productive firms entering the market. However, for entrepreneurs to flourish, they require a conducive enabling environment in the form of an entrepreneurial ecosystem. At present, there are challenges within the ecosystem that can impede innovative firms' entry and growth, including an outdated and burdensome regulatory environment, growing shortages of skills, and difficulty in accessing finance, especially for startups beyond the digital sector. Many industries such as financial services, health care, logistics, and education also suffer from high entry costs and regulatory uncertainty.

Public support to the entrepreneurship agenda has become widespread worldwide and plays a key role in reducing market failures, creating new markets, and coordinating interactions among stakeholders. According to a recent comprehensive study of 755 national government start-up funding programs in 66 countries, the budgets for such programs averaged \$156 billion per year between 2010 and 2019 (Bai et al., 2021). Government spending on entrepreneurship programs has increased over time, from approximately \$50 billion in 1995 to more than \$170 billion in 2019. Economic literature identifies three reasons for providing public funding support to start-ups. First, government funding for start-ups helps mitigate the uncertainty about whether R&D projects will lead to usable results or outputs (Hottenrott and Richstein, 2020). Second, government funding can help shape and create new technologies and markets instead of fixing

¹⁹ A relevant example of a potential second phase of this work is included here: <https://openknowledge.worldbank.org/entities/publication/314b3598-a6e4-51c5-8c01-355a5e0aae52>

existing ones (Mazzucato 2015). Third, the government can facilitate and coordinate interactions among economic units and innovation activities, creating incentives for firms to diffuse their innovations throughout the economy (Lundvall 2010).

While the recommendations of this report focus mainly on improving conditions for growth and innovative entrepreneurship in Viet Nam, additional work will be needed to support upgrading of existing firms across the broader economy. This includes orientation of the enterprise support system toward firm upgrading through adoption of technology and digital solutions, investment in research and development, skills development, improved managerial practices, and access to finance (World Bank Group 2021).

Table 2 details a set of recommendations developed in response to the key findings from the entrepreneurial ecosystem diagnostic, which aims to boost the number and quality of innovative startups in Viet Nam. The table includes a schedule for implementation of each of the recommendations informed by urgency and prioritization and the ability of the stakeholders to successfully implement the recommendations given the policy economy environment. In the short term, several of the recommendations could be incorporated into the ongoing mid-term review of the flagship Program 844 currently under the Ministry of Science and Technology (MOST) and be implemented by the National Agency for Technology Entrepreneurship and Commercialization Development (NATEC). There is an opportunity for the program steering committee to refocus the program’s support towards building a pipeline of innovative startups and a local investor base and generally improve the quality of the design and implementation of the program components. The rest of the section discusses each recommendation in more detail.

TABLE 2: SUMMARY OF RECOMMENDATIONS

| CHALLENGE | RECOMMENDATION | IMPLEMENTATION | COUNTERPART INSTITUTIONS | PRIORITY TIMEFRAME |
|---|---|---|---|--------------------|
| The quality of services provided by intermediaries to startups tends to be low. | Reorient Program 844 toward building a pipeline of investment-ready innovative startups | <ul style="list-style-type: none"> Design a public co-financing scheme to attract qualified private operators and fund managers to run entrepreneurship intermediaries (incubators, accelerators, innovation centers), co-support early stage (pre-MVP) development, and eventually increase the local early stage investor base Facilitate the formation of business angel associations and networks to improve the number and capacity domestic angel investors | MOST, NATEC, MPI, NIC, private sector intermediaries and investors, international donor organizations | Short term |
| There are funding gaps for early-stage firms, especially technology and engineering-based ventures. | | | | |
| Angel investments are minimal, and angel investors are not professionalized | | | | |

| | | | | |
|--|---|---|--|-----------------------------|
| <p>Domestic investors face restrictions on their activities and the base of domestic investors is very small.</p> <p>Obtaining business sublicenses for many economic activities is burdensome, while there is a lack of clarity on the legality of a broad range of economic activities.</p> | <p>Address regulatory barriers through fast-track reforms</p> | <ul style="list-style-type: none"> — Revise regulations (Decree 38) to build the domestic base of risk capital investors — Pilot regulatory sandbox(es) in the FinTech sector, scale to other areas if experience proves successful — Simplify the procedures for making inward and outward investments, particularly for small investments (e.g., under US\$5 million) in innovative firms | <p>Office of Government, State Bank of Viet Nam, MOST, Ministry of Finance, MPI</p> | <p>Short to medium term</p> |
| <p>The research sector lacks resources and contributes little to the pipeline of new ideas and companies.</p> <p>University/PRO-based startup activity is limited by unclear IP and tech transfer frameworks, a lack of skills and resources for technology transfer and commercialization activities, and poor incentive frameworks</p> | <p>Increase the contribution of the public research sector to the innovative startup pipeline</p> | <ul style="list-style-type: none"> — Modernize the intellectual property (IP) and tech transfer framework in line with international best practices — Include metrics related to research commercialization, technology transfer and collaboration in career development and salary progression frameworks of public researchers — Build capacity for commercialization and technology transfer at key universities and public research institutions | <p>MOST (SATI, NATEC), Ministry of Education and Training, national universities, international donors</p> | <p>Medium to long term</p> |

The recommendations detailed below are guided by the following key principles:

- **Improving quality and effectiveness of public support for entrepreneurship and innovation** through leveraging evidence-based policy making and the use of piloting and improved monitoring and evaluation (M&E) in the implementation of public support programs. This could be achieved through the adoption of international best practices in the design and implementation of innovation and entrepreneurship policies to improve the quality of public support. The World Bank’s *A Practitioner’s Guide to Innovation Policy* (Cirera et al. 2020) can serve as a useful reference for policy makers in the design of future support programs.
- **Enhancing transparency and accessibility of entrepreneurship and innovation public support programs.** Public policies targeting entrepreneurship ecosystem stakeholders should be informed by and guided through public-private dialog (such as the Viet Nam Business Forum) and designed through open and transparent processes. Leveraging such open dialogue

could improve the effectiveness and relevance of policies and minimize the risk of negative externalities. Additionally, information about public support programs (applications, calls, implementation indicators, etc.) should be made public and accessible through online portals to reduce information barriers.

- **Leveraging private sector resources and maximizing the impact of public funds.** Public funding for the entrepreneurship agenda is very limited and, unless innovative entrepreneurship becomes a policy priority, is likely to remain so in the short-to-medium term. Additionally, the implementation capabilities of public institutions are constrained. To maximize the impact of the limited public funds, it is important to 1) target the areas/activities that will have the highest impact on entrepreneurial outcomes (identified pain points), and 2) leverage the technical and financial resources of private sector actors where possible. Given that entrepreneurial activities and investments are inherently high risk, public support should primarily focus on 3) risk-sharing with the private sector. Private investors are better informed and positioned to make investment decisions related to entrepreneurial ventures and funds, while the government can co-fund or facilitate these activities and investments through matching funds, investments, or credit guarantees.

RECOMMENDATION 1: REORIENT PROGRAM 844 TOWARD BUILDING A PIPELINE OF INVESTMENT-READY INNOVATIVE STARTUPS

Problem:

- The quality of services provided by intermediaries to startups tends to be low.
- There are funding gaps for early-stage firms, especially technology and engineering-based ventures.
- Angel investments are minimal, and angel investors are not professionalized

Stakeholder(s):

- MOST, NATEC, MPI, NIC, private sector intermediaries and investors, international donor organizations

Priority timeline:

- Short term

Implementation:

- **Support a co-financing scheme to attract qualified private operators and funds to run acceleration and incubation programs, support early-stage tech-based startup (pre-MVP), and eventually increase the early-stage investor base locally.** The number of entrepreneurship support intermediaries (incubators, accelerators, innovation centers, etc.) has grown, but the quality of services provided remains low and there is need to support early-stage tech venture to develop MVP, prototypes and proof of concepts. In this proposal, public support for entrepreneurship intermediaries provided by Program 844 could be redesigned as a public

*co-financing scheme*²⁰ to attract qualified private sector operators and fund managers to manage/run existing intermediaries or launch new ones. The program could include provisions to co-support prototyping and proof of concept activities by technology- and engineering-based startups²¹ selected by the program private sector partners. Qualified private operators would be selected through a competitive bidding process based on their staff qualifications and experience and will have to commit investment amounts to unlock public matching funds. Ideally, the operators would also invest in high potential portfolio startups, in addition to providing incubation/acceleration services, mentorship, and MVP development support. As such, the co-financing scheme could increase the local early-stage investor base²². International donors can provide technical and financial support to design and implement these programs following international good practices.

Box 5:

Examples of public matching and co-financing support programs for startups

SOUTH KOREA'S TECH INCUBATOR PROGRAM FOR STARTUPS (TIPS)

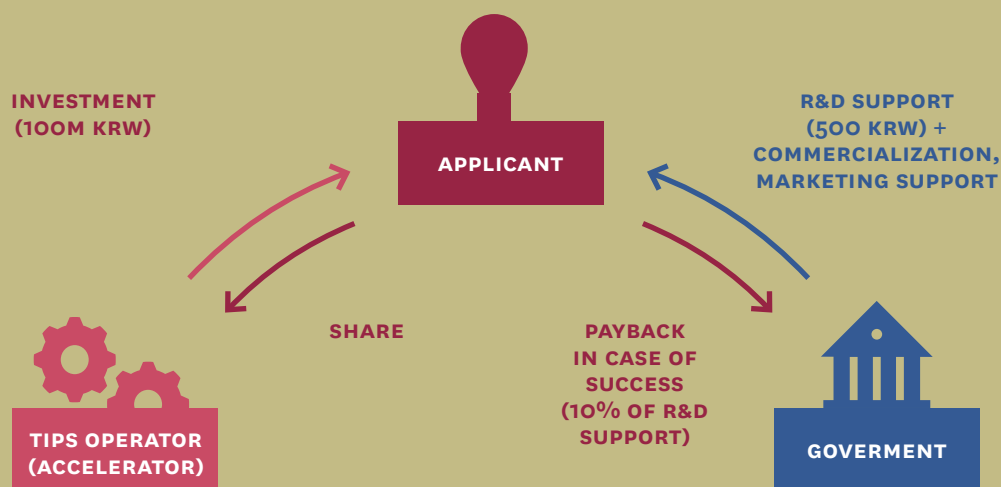
The TIPS program is a private-investor-driven support scheme launched by the Korean government in 2013 to promote R&D and commercialization of technology in high-tech startups. Inspired by other tech incubating programs such as the Technological Incubator Program of Israel, the program is designed to promote new technologies and industries while tackling the issues of underinvestment in R&D in SMEs and the “valley of death” that startups typically face three to five years after their inception.

Whereas government loan programs often face issues, such as limited technology and market expertise to select high potential firms, the TIPS model uses public funds to leverage private sector funding and expertise in high-tech investing. As such, the program's approach combines private investment-based support with matching government R&D subsidy to firms. The program starts



- 20** Co-financing or matching funds could take different shapes but generally they adopt a matching ratio (1 to 2 or 1 to 4) to de-risk and attract private sector investments and funds. The design of these co-investments should be based on internationally recognized models of matching funds. Public sector engagement is usually limited to providing matching support and does not involve selection or evaluation of projects/startups; a role reserved for the certified private operators.
- 21** These types of ventures generally have higher capital requirements and longer investment periods than software-based startups.
- 22** The domestic base of risk capital investors (both funds and individual investors) can be further grown through public co-investments to leverage additional investments from the private sector and mitigate some of the risk that early entrant risk investors face. Program 844 could provide co-investments into the starting capital of privately managed domestic VC funds that target early-stage innovative startups. Under such scheme, the program would invest (potentially support from international donor organizations) into privately managed, domestically based venture capital funds, acting as a limited partner of the fund.

with a competitive process to select the program operators, who in turn identify eligible startups, which are seven years old at most. The private program operators provide investments (100M KRW angel investment or US\$75,000) per team with 20 percent government support) as well as entrepreneurship mentoring. The investments are complemented by R&D funds by the government (up to 500M KRW or US\$380,000 for a maximum 80 percent of R&D costs) and private funds (cash or in kind for up to 20 percent of R&D costs). The firms are further eligible for 100M KRW (US\$75,000) in startup funding, 200M KRW (US\$150,000) in matching angel funds, and 100M KRW (US\$75,000) in overseas marketing assistance. Upon “graduation” of the program after two to three years, 10 percent of the R&D support is paid back as a technology fee.



SOURCE: Translated from TIPS official website <http://www.jointips.or.kr/about.php>.

From 2013 to 2021, 1,442 startups received investments valued at US\$240 million by private angel investors, and public support for R&D (US\$450 million), commercialization (US\$60 million), and overseas marketing support (US\$43 million). Beyond the program, firms have been able to further attract private investment in the value of US\$4.4 billion, which is 18 times the value of investments from TIPS. Startups that have benefited from the program have been shown to have higher employment, investments, patent applications, and R&D intensity.

EXAMPLE OF PROOF-OF-CONCEPT SUPPORT PROGRAMS

Croatia’s Proof-of-Concept (PoC) program, implemented by the Agency for SMEs, Innovations, and Investments (HAMAG-BICRO), supports innovations at the earliest stage of research to provide pre-commercial capital for the technical and commercial validation of an innovative concept. The program targets an observed early-stage gap in funding and aims to provide evidence that a new process or technology is feasible and can potentially have commercial applications. For

companies seeking investors, successful validation of an innovative concept gives potential investors confidence that the prototype or further development process is technically feasible, thereby helping the company attract customers and investors.

The program can support both public and private sector actors and funds projects from TRL 3 to 4, including support for the following:

- Verification and protection of intellectual property
- Creation of a functional prototype
- Demonstration of technical feasibility
- Additional activities, including market analysis or profitability study preparation, preparation of concepts and strategies for product development or commercialization

From 2010–2020, the program funded 359 projects for a total of US\$14 million in grants. An assessment of the first five calls (2010–2015) of the program found that 60 percent of supported projects led to further development activities, 34 percent of supported projects have started commercialization activities, and 20 percent of supported projects launched an innovation on the market.

SOURCE: World Bank (2023). HAMAG-BICRO.

- **Facilitate the formation of business angel associations and networks to improve the number and capacity domestic angel investors.** There are currently few active business angels under a conventional definition (many are just friends and family and few other those angels are organized into professional networks or syndicates. Public support through Program 844 could help (i) promote the formation and operation of a national business angel association (NBAA) to help address issues related to information gaps for potential angel investors, lack of professionalization among existing angels, and the lack of visibility of existing business angels, and (ii) the establishment of business angel networks to address the lack of syndication and network-driven angel investments in Viet Nam. These promotional and coordination activities could be complemented and supported by international donors through sharing international experience, training and capacity building delivered through the NBAA.

Box 6:

Halo Business Angel Network in Ireland

The Halo Business Angel Network (HBAN) was established by Enterprise Ireland in 2009 and aimed to facilitate investment by business angel investor syndicate groups in early-stage companies in Ireland. This is achieved through the establishment, support, development, and promotion of business angel investments (specifically investments by syndicates of angels) and by facilitating and encouraging referrals of investment opportunities to angel investors.



The main objectives of the program include:

- Securing the participation of high-net-worth investors as angel investors
- Developing business angel syndicates (i.e., groups of more than one business angel who work as a partnership to fund businesses)
- Acting as the lead representative body for business angel investing nationally
- Lobbying the Irish government on behalf of angel investors
- Providing training for investors on business angel investing
- Ensuring the spread of international best practice in angel investing
- Standardizing legal documents for business angels and syndicates
- Working in cooperation with all angels in the country
- Facilitating the introduction of international business angels to the network; and
- Hosting and managing an annual business angel conference.

The service provider operating HBAN on behalf of Enterprise Ireland is expected to be independent of existing and new angel networks and funds. As such, they are not permitted to operate another business angel network (BAN) or syndicate group or provide business angel services while delivering the HBAN program. HBAN has an advisory group made up of representatives of business angel syndicates and high-profile entrepreneurs. The role of the advisory group is to provide further direction and advice to the HBAN initiative and to enable HBAN to get feedback and support from both representative groups. The present contracted manager for the program is Dogpatch Labs, a startup hub and accelerator based in Dublin.

Since its creation, visible angel investment in Ireland has increased from €4.6 million in 2009 to €33 million in 2022. Seventy-eight companies received angel funding from the HALO members in 2022. Critically, because of the organization and training provided, leading to a degree of “professionalization” of angel investing, the impact of this investment has been assessed as more effective than if delivered by individuals alone.

SOURCE: Enterprise Ireland

RECOMMENDATION 2: ADDRESS REGULATORY BARRIERS THROUGH FAST-TRACK REFORMS

Problem:

- Domestic investors face restrictions on their activities and the base of domestic investors is very small.
- Processes for obtaining business sublicenses for many economic activities are burdensome, while there is a lack of clarity on the legality of a broad range of economic activities.

Stakeholders:

- Office of Government, State Bank of Viet Nam, MOST, Ministry of Finance, MPI, international donors

Priority timeline:

- Short to medium term

Implementation:

- **Revise regulations to build the domestic base of risk capital investors.** Very few domestic VC funds have been established partly due to a restrictive regulatory framework. To address this, the government could revise Decree No. 38/2018/ND-CP to clarify the tax obligations of registered funds and management companies and remove restrictions (e.g., limits on the maximum number of investors, limits on percentage of investment in startup's charter capital, etc.) to encourage more funds to register locally²³. The revised decree should modernize the tax treatment of fund structures registered in Viet Nam based on international best practice, making them tax neutral.
- **Simplify the procedures for making inward and outward investments, particularly for small investments (e.g., under US\$5 million) in innovative firms.** Registering outside Viet Nam—Singaporean registration is often a prerequisite for receiving VC investment--can be a burdensome process for startups, particularly in the early stage. Singaporean registration also technically represents a cash transfer out of the country; to do this legally, a firm is required to obtain permission from the State Bank to invest abroad to establish a parent company in a foreign country, and then the parent company is required to follow the same procedures for investing from abroad back into the Vietnamese holding company. At least for smaller investments (for example, those under US\$5 million), this process could be streamlined, and State Bank approval could be granted automatically under specific conditions.
- **Pilot regulatory sandbox(es) in the FinTech sector and scale the use of sandboxes to other sectors if experience proves successful.** There is a lack of clarity on the legality of a broad

²³ The Ministry of Planning and Investment (MPI) is tasked with revising this decree and have requested technical support from the World Bank to share international experience and practices.

range of economic activities in Viet Nam, which is deterring investment in some sectors. A draft decree on experimental regulations (sandbox) for the FinTech in the banking sector has been drafted and posted for comments, but there is currently no timeline for its adoption and implementation. GoV can benefit from Korea's experience in the use of sandboxes (see Box 6), which allows for the launch of new products and services under certain conditions, even if they do not comply with (or are not covered by) existing regulations. If the product shows that no harm is done after being on the market FOR two years, the activity is then made legal under the regulatory framework.

Box 7:

The Use of Regulatory Sandboxes in Korea

Korea's regulatory sandbox was introduced in 2019 to identify and remove regulatory bottlenecks that could hinder firm entry and industry innovation. The sandbox allows new products and services to be launched to the market on a preferential basis under certain conditions so they can be tested and verified, even if they may not comply with current regulations. The multi-sector regulatory sandbox consists of six themes: ICT convergence, industrial convergence, financial innovation, regulation-free special zones, smart city, and special research and development zones. The Office of Government Policy Coordination (OPC) assumes the overall planning and coordination of the regulatory sandbox in Korea, while six ministries collaborate with the OPC to operate each thematic sandbox that pertains to their respective mandates.

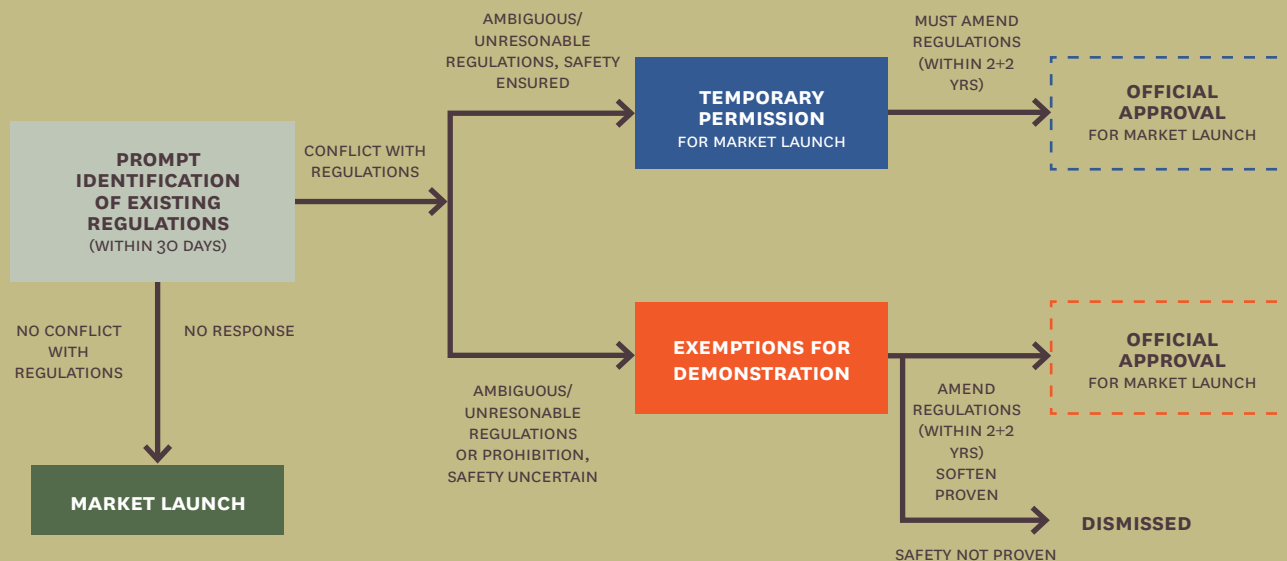


Once an application for a new product or service to operate in the sandbox is submitted, the responsible regulator is obliged to respond within 30 days. Regulators will identify if there are conflicts with existing regulations, and if no response is received, it is considered there are no regulations concerning the proposed goods or services. This prompt feedback on existing regulations provides confirmation of whether new products or services do not conflict with current regulations.

In the new product or service conflicts with existing regulations, temporary permission or exemption for demonstration is awarded to operate in the market for two years (with an option for an additional two years) depending on safety impacts. The regulating bodies can also alter regulations based on data collected through this regulatory sandbox scheme. Preferential loans and relevant policy support can also be offered to successful applicants.

Ensuring safety and implementing necessary requirements for damage compensation are also of utmost importance in the regulatory sandbox in Korea. When it involves matters related to the life and safety of people, exemptions or temporary permissions should be limited. In case problems arise or are anticipated during the exemption period, these special regulatory treatments should be revoked. Establishing robust safety nets may allow greater flexibility to grant permissions and support innovative firms in starting their businesses. Tightened damage compensation measures

through enhanced liability insurance strengthen these safety nets, as well as provide more opportunities to innovative firms.



In its first four years of operation, 860 cases have been approved and 32 regulation free zones have been designated. Combined, they have attracted US\$8 billion in investments, accrued US\$30 million in sales, and created 11,000 jobs. The approved cases include hydrogen fuel for ships, recycling of retired batteries, and autonomous delivery robots. Moving forward, improvements to the policy, such as better mechanisms to resolve conflicting interests between parties, speeding up similar cases, and supporting successful applicants (investment opportunities, technical and marketing support, commercialization), are being considered.

SOURCE: Korea Regulation Information Portal https://www.better.go.kr/sandbox/info/sandbox_intro.jsp.

RECOMMENDATION 3: INCREASE THE CONTRIBUTION THE PUBLIC RESEARCH SECTOR TO THE INNOVATIVE STARTUP AGENDA

Problem:

- The research sector lacks resources and contributes little to the pipeline of new innovative startups.
- University/PRO-based startup activity is limited by unclear IP and tech transfer frameworks, a lack of skills and resources for technology transfer and commercialization activities, and poor incentive frameworks

Stakeholder(s):

- MOST (SATI, NATEC), Ministry of Education and Training, national universities, international donors

Priority timeline:

- Medium to long term

Implementation:

- **Modernize the intellectual property (IP) and tech transfer framework in line with international best practices.** This includes modernizing and harmonizing regulations governing the ownership of research results so that the results of all publicly-funded research is governed by Law No. 07/2022/QH15 on Intellectual Property. This means that ownership of research outcomes are automatically assigned to the organization carrying out the research projects, whether they result in patents or not, and eliminating the requirement to share or return profits to the state. The main objective of such reforms is to de-risk research activities and incentivize academic and private organizations to pursue commercialization and realize market outcomes. The government could also provide support and guidelines to universities and research institutions to develop their internal IP and tech transfer policies in line with global best practices and national objectives.
- **Include metrics related to research commercialization, technology transfer, and industry collaboration activities in career development and salary progression frameworks of public researchers.** At present, Vietnamese public sector researchers are not incentivized to engage in commercialization and technology transfer activities or to collaborate with industry in an open and official manner. By including metrics related to commercialization, technology transfer, and industry collaboration activities (such as licenses, spinouts, contract research, industry research collaboration, etc.) in career development and salary progression frameworks, researchers will be incentivized to engage in these activities.
- **Build capacity for commercialization and technology transfer at key universities and public research institutions.** Research institutions and researchers suffer from a lack of resources and knowledge to carry out commercialization and technology transfer activities. International donors could extend training and resources to build the capacity at key research universities and PROs' TTOs to carry out research commercialization activities such as invention disclosure, patenting, licensing, market assessment, and startup/spin-off formation.

Box 8:

Examples of research commercialization training for researchers

U.S. I-CORPS PROGRAM

Innovation Corps (I-Corps) is a U.S. National Science Foundation (NSF) initiative aimed at increasing the economic impact of NSF-funded research. The program was created in 2011 to help move academic research to market. The program offers select researchers and engineers from US academic laboratories the opportunity to participate in a special, accelerated version of Stanford University's Lean LaunchPad course. During the course, participants learn key concepts related to commercialization, developing product-market fits, and creation of a scalable business model.

As of 2020, more than 5,800 researchers and engineers from 1,280 universities and research institutions had been trained through the I-Corps program. More than one-half of all participating teams launched startups that cumulatively raised over US\$760 million in public and private funding.

SINGAPORE LEAN LAUNCHPAD PROGRAM

In 2013, Singapore launched the National Lean LaunchPad (LLP), a national entrepreneurial training program for researchers adapted from I-Corps. The program consists of a 10-week course where research scientists and engineers learn about the technology commercialization process, including customer discovery and market validation, by directly engaging with potential users and customers.

With new funding from 2017–2022 by the National Research Foundation Singapore (NRF), Singapore's universities joined together to create a national LLP platform: satellite nodes were established in Nanyang Technological University, Singapore University of Technology and Design, and Singapore Management University, which serve as decentralized sites to conduct the program within their campuses and catalyze the engagement of academic researchers from all publicly funded institutes to the program. The satellite node network has scaled up the market potential assessment of more technological innovations to increase the pipeline of commercializable technologies that may flow into downstream follow-on programs.

SOURCES: U.S. National Science Foundation; National Research Foundation Singapore.



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Appendix

Appendix A: Survey of Vietnamese Innovative Startups

The World Bank Innovative Startups Survey aims to capture the key characteristics of innovative startups and entrepreneurs in Viet Nam. The survey questionnaire was adapted from a World Bank survey instrument targeting startups detailed in Cruz et al. (2022). The survey was implemented by RTA Analytics under supervision of the World Bank team.

This survey attempted to capture innovative startups with growth ambitions by targeting those firms that either (i) have received risk capital investments in the last four years; (ii) pitched to venture investors at recent startup conferences and events; or (iii) were recommended by investors, entrepreneurs, and/or industry experts for inclusion in the survey. The survey sample was drawn from an initial list of startups that was created from three primary sources: Crunchbase, Viet Nam Venture Summit, and other sources:

- The Crunchbase platform provides information on startups, funding rounds, and other investment activity. 2,590 firms were drawn from Crunchbase based on their presence in the Vietnamese market, funding status, growth potential, and other relevant criteria. These firms include those from across different sectors, stages, and regions.
- Viet Nam Venture Summit is an annual event that brings together startups, investors, and other stakeholders in the Vietnamese startup ecosystem. 400 startups that participated in this event were selected for the initial list based on their potential for growth and innovation, as well as their relevance to the survey's research questions.
- Finally, 300 additional startups from other sources were included in the initial list based on recommendations from industry experts, media coverage, and other publicly available data.

From this initial list of more than 3,000 startups, a sample frame was drawn to ensure representation of startups across key sectors (e.g., ICT, manufacturing, etc.) and regions.

The survey was conducted over a period of four months, from March to June 2023. The survey was conducted using a mix of online and telesurvey methods, with the primary mode of data collection being an online survey. To conduct the survey, an invitation to participate in the survey was sent via email to all the startups in the sample. The email included a link to the online survey, as well as a brief explanation of the survey's purpose and importance. After sending the initial invitation, the RTA followed up with several phone calls to the startups to encourage participation and answer any questions they might have had about the survey. The RTA also sent up to three email remind-

ers to non-respondents, urging them to complete the survey and emphasizing its importance for understanding the challenges and opportunities faced by startups in Viet Nam.

To ensure data quality, several measures were implemented, such as pre-testing the survey with a small sample of startups, using skip logic to tailor the survey to the characteristics of each startup, and ensuring the anonymity and confidentiality of the data.

Appendix B: Firm-Level Analysis of Entrepreneurial Dynamics

DATA DESCRIPTION

The data used for firm-level analysis is drawn from the annual Enterprise Survey in Viet Nam from 2010 to 2020, which is conducted by the General Statistics Office of Viet Nam. The survey covers all types of enterprises and collectives in Viet Nam, gathering data from the previous year (thus, Enterprise Survey 2021 refers to 2020 data). There are two types of sampling: (i) completed survey (or census), and (ii) sampling. The first group include all SOEs and foreign-invested companies as well as all private enterprises having over 100 employees. The second group is a sampling survey, based on the employment size, with the sampling to population proportion ranging from 5 percent (for a less than 10-employee enterprise) to 10 percent (10 to 49 employees) and 50 percent (50 to 90 employees).

In 2017 and 2021, the annual Enterprise Survey was incorporated into the Economic Census, so the samples are larger in 2016 and 2020 as a result.

While the main questionnaire is fairly consistent from year to year, specific questions may change. Notably, in 2020 and 2021, financial data were collected via the General Department of Taxation, rather than through questions in the Enterprise Survey.

DEFINITIONS AND DATA

For this analysis, the sample was limited to firms with at least 10 employees in the last year that the firm was in the sample. The analysis was also limited to domestic private firms, excluding state-owned or foreign-invested firms. An SOE is defined as a firm which is either wholly owned by the state or the state share of ownership is greater than 50 percent. Since a firm can be private in one year and state-owned in another, we limit our analysis to firms that are domestic private in the last year that the firm was in the sample.

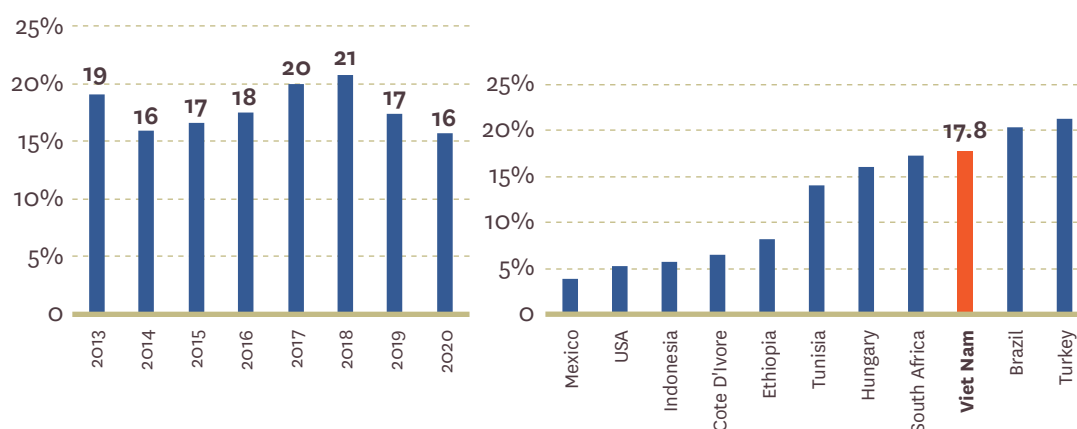
Except for the analysis on firm entry and exit, in the analysis of firm characteristics and high-growth firms (HGFs), we limit the sample to firms that were in the 2020 data set.

The definition of HGFs is based on the OECD's definition (OECD 2007; Goswami et al. 2018). More specifically, an HGF in 2020 is defined as a firm with an average annualized growth rate greater than 20 percent, over the three-year period 2018–2020. Growth is measured by the number of employees. Firms with missing data points in terms of three-year labor growth are not included in the HGF analysis.

Appendix C: Analysis of High-Growth Firms in Viet Nam

High-growth firms (HGFs) as a share of total firms in Viet Nam are high compared to other countries where HGFs have been studied. The share of Vietnamese domestically owned firms that are HGFs has fluctuated between 15 and 21 percent over the 2013–2020 period (Figure 35a). The average annual share of HGFs in Viet Nam (18 percent) is relatively high compared to other countries where HGFs have been studied (e.g., in Grover, Medvedev, and Olafsen 2019; Jo Deok-hee 2011) or OECD countries where HGFs are tracked (Figure 35b).

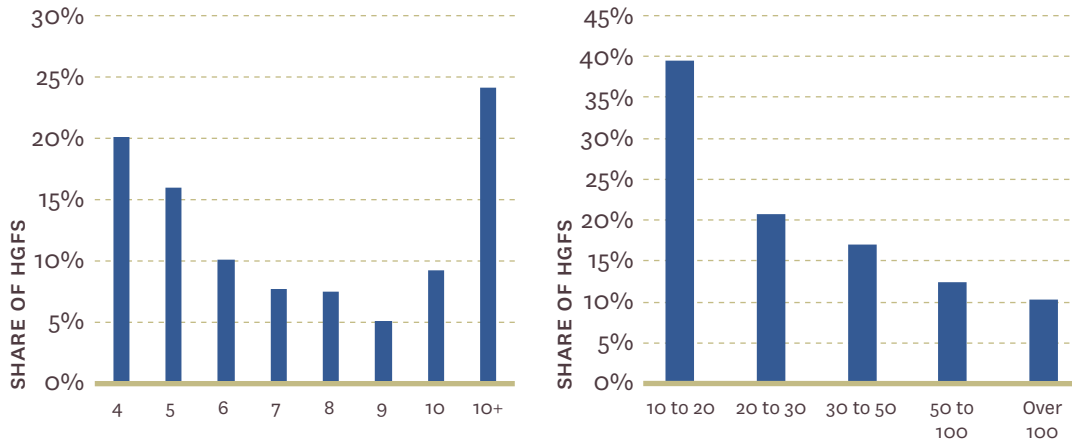
FIGURE 35: A. HGFs AS A SHARE OF ALL FIRMS BY YEAR; B. AVERAGE SHARE OF HGFs BY COUNTRY



SOURCE: Authors' calculations based on data from the General Statistics Office; Grover, Medvedev, and Olafsen (2019).

HGFs tend to be slightly younger and larger than the average Vietnamese firm. In 2020, HGFs had an average age of 7.0 years, compared to an average age of 7.8 years for non-HGFs (Figure 36a). HGFs also had an average size of about 40 employees, almost double the national average (23 employees), as shown in Figure 36b. This is in line with the findings from Grover, Medvedev, and Olafsen (2019), who observed that HGFs tend to be younger than the average firm but most will have been in business for at least a few years before starting on a high-growth trajectory. They also observed that many HGFs are larger than the average firm at the beginning of a high-growth episode and may average anywhere from 4 percent larger to 600 percent larger as an average firm after three years of high growth.

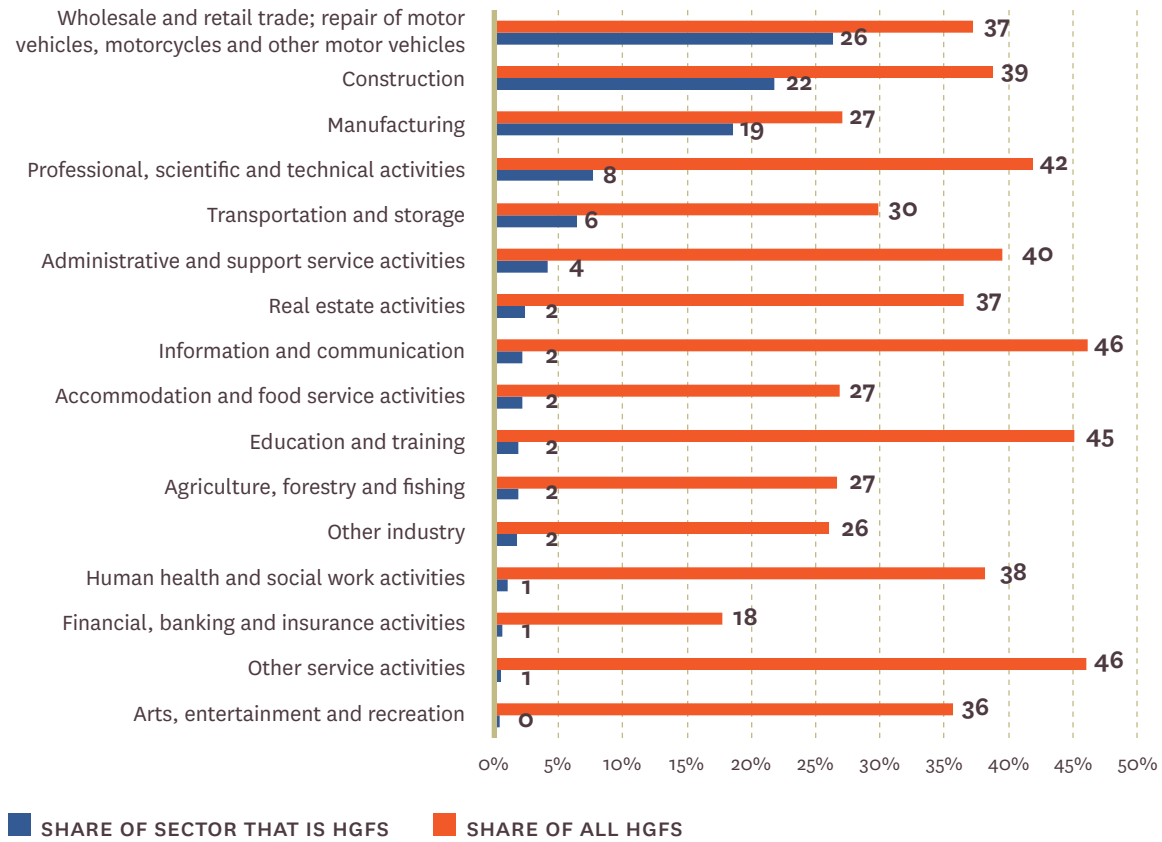
FIGURE 36: A. HGFS BY AGE, 2020; B. HGFS BY SIZE, 2020



SOURCE: Authors' calculations based on data from the General Statistics Office.

The service sector had the highest concentration of HGFS. This included information and communications technology (ICT), professional services, other services, and education. The sectors with the largest absolute numbers of HGFS were also the largest sectors in the economy—retail, construction, and manufacturing. However, when looking at sectors where HGFS make up a relatively higher share of firms within the sector, HGFS are concentrated in higher value-added services sectors: information and communication (46 percent of all firms are HGFS); other services (46 percent of all firms) education and training (45 percent); and professional, scientific, and technical services (42 percent) (Figure 37). In the 2021 Provincial Competitiveness Index (PCI) firm survey, firms in sectors with higher concentrations of HGFS reported lower licensing burdens and less time spent on licensing and registration than firms in sectors with lower concentrations of HGFS. However, firms in sectors with a higher share of HGFS reported more challenges in finding skilled employees and accessing finance than those sectors with lower shares of HGFS.

FIGURE 37: HGFS BY INDUSTRY, 2020

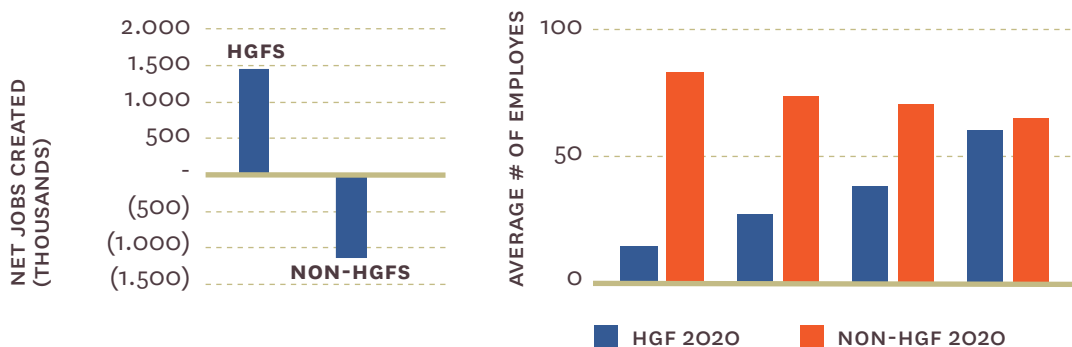


SOURCE: Authors' calculations based on data from the General Statistics Office.

HGFs are the driving force for employment growth in the Vietnamese economy. From 2017 to 2020, HGFs created a net of 1.4 million new jobs, while the rest of the Vietnamese private sector (including foreign-owned enterprises and SOEs) lost 1.1 million jobs (Figure 38a).²⁴ The average HGF in the 2020 cohort grew from 15 employees in 2017 to 60 employees in 2020, while the average 2020 non-HGF shrank from 83 employees in 2017 to 64 employees in 2020 (Figure 38b). This finding is in line with the recent analysis of HGFs in developing countries from Grover, Medvedev, and Olafsen (2019), which found that the net change in employment in the analyzed countries would have been negative without the positive contribution of HGFs. See Box 9 for more information on HGFs' contribution to private sector development around the world.

²⁴ More research is needed to determine the reasons behind this job loss, which could be also attributed to the start of the pandemic period.

FIGURE 38: A. NET JOB CREATION HGFS VS NON-HGFS, 2017–2020; B. EMPLOYMENT GROWTH IN 2020 COHORT OF HGFS VS. NON-HGFS, 2017–2020



SOURCE: Authors' calculations based on data from the General Statistics Office.

Box 9:

HGFs' contribution to private sector development

High-growth firms (HGFs) are powerful engines of job and output growth globally. Several studies have found that on average HGFs account for a small share of firms in the total, less than 20 percent across all studies, but produce up to 80 percent of all new sales and jobs in those countries (Table 3). In most of the countries studied, net job creation would be negative without the positive contribution of HGFs.



Table 3: Impacts of high-growth firms globally

| COUNTRY(S) | STUDY | CONTRIBUTION TO JOB CREATION |
|--|-----------------------|---|
| 11 lower- and middle-income countries globally | Grover et al. 2019 | 20 percent of firms create 80 percent of all new sales and jobs |
| US | Acs and Mueller, 2008 | 2–3 percent of all firms create most of the jobs in the private sector. |
| OECD | Schreyer, 2000 | HGFs create 50–60 percent of new jobs in OECD countries |
| Korea | Jo Deok-hee, 2011 | Top 10 percent of HGFs create 31.5 percent of new jobs |

In addition to job creation, HGFs can create positive spillovers to non-HGFs. While evidence for horizontal (same sector) spillovers is mixed, being a buyer from or a supplier to an HGF has

shown to improve firm performance across a wide range of indicators (including employment, wages, productivity, and profitability) in several studied countries.

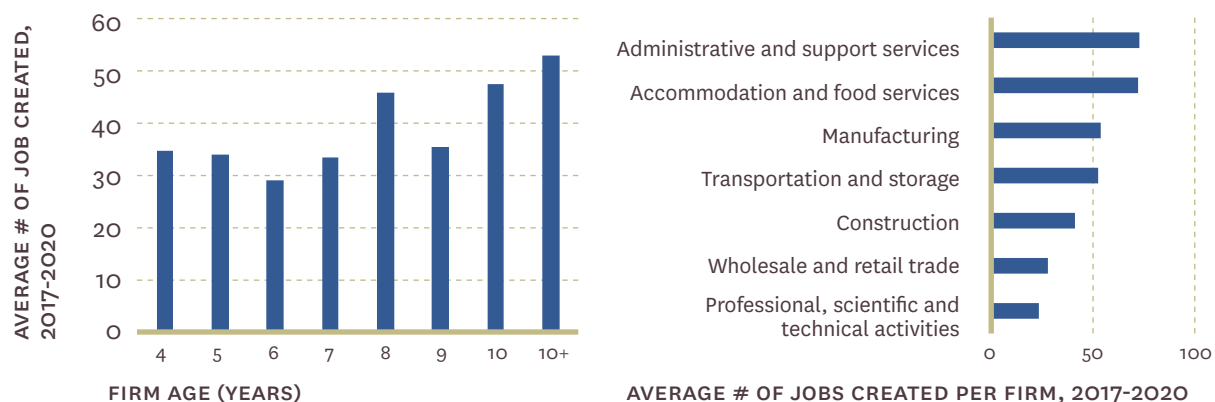
While HGFs tend to be younger than the average firm, they are rarely new entrants to the market and have been generally in operation for at least a few years before starting on a high-growth trajectory. HGFs are also generally mid-sized firms and do not always appear in the same sectors across countries.

Importantly, high growth is rarely a permanent state for firms; fewer than 15 percent of firms are likely to repeat a high-growth episode. This has important policy implications—rather than targeting existing HGFs, which may not achieve HGF status in future years, policy makers should focus on improving conditions to enable more firms to become HGFs through support for innovation, agglomeration and network economies, managerial capabilities and worker skills, global linkages, and access to finance.

SOURCES: Grover, Medvedev, and Olafsen (2019); Acs and Mueller (2008); Schreyer (2000); Jo Deok-hee 2011; authors' elaboration.

Older HGFs and HGFs in manufacturing and services sectors tend to create more jobs on average than other HGFs. Looking at HGF job creation by firm age and sector, HGFs that have been in operation eight or more years tend to create more jobs than younger HGFs (Figure 39a). Of the sectors where HGFs created more than 50 jobs from 2017–2020, firms in the administrative services, accommodation, and manufacturing sectors added more jobs on average than those in other sectors (Figure 39b).

FIGURE 39: A. HGF AVERAGE JOB CREATION 2017–2020 BY FIRM AGE; B. HGF AVERAGE JOB CREATION IN SELECT SECTORS, 2017–2020

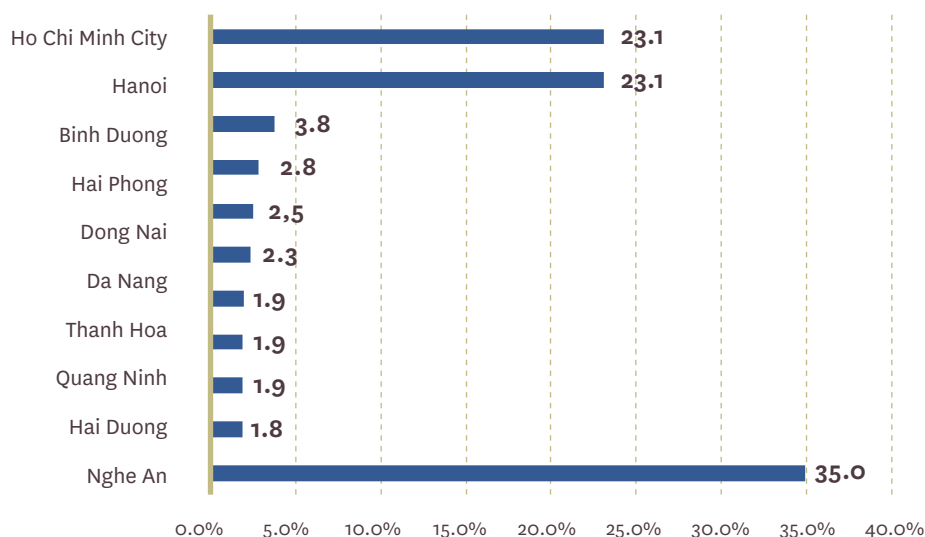


SOURCE: Authors' calculations based on data from the General Statistics Office.

NOTE: The figure on the right shows those sectors where HGFs created more than 50,000 jobs from 2017–2020.

HGFs are highly concentrated in Ho Chi Minh City (HCMC) and Hanoi. Much like the general population of firms, HGFs are concentrated in Viet Nam’s two largest cities, each with 23 percent of all HGFs in the country in 2020. No other province has more than 4 percent of national HGFs (Figure 40). This suggests that policies concentrated on just HCMC and Hanoi would cover almost one-half of current and future HGFs, maximizing the efficiency of public resources. That said, there would also be a need to support HGFs in other cities and provinces across the country to reach a more balanced distribution. Previous studies of HGFs show that globally there is no clear regional pattern in the distribution of HGFs; they are likely to emerge in both highly urbanized areas, as well as in accessible rural areas (Stam, 2005; Grover, Medvedev, and Olafsen 2019).

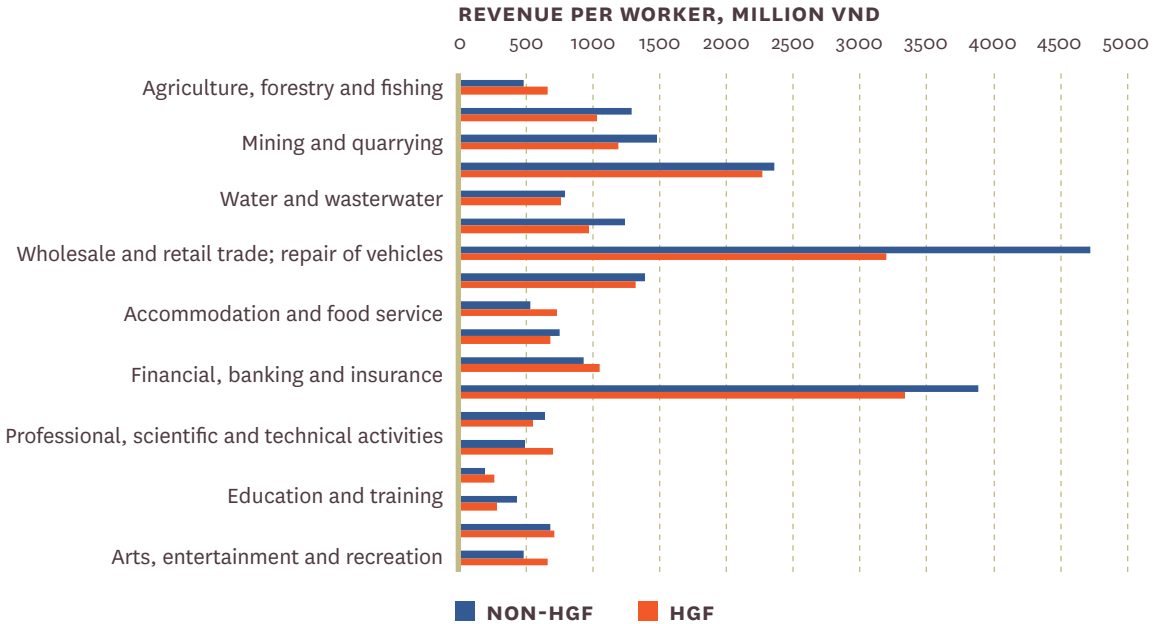
FIGURE 40: SHARE OF HGFs BY PROVINCE, 2020



SOURCE: Authors’ calculations based on data from the General Statistics Office.

HGF status is not, however, well correlated with higher productivity. In 2020, HGFs generated on average less revenue per worker than non-HGFs (Figure 41). Non-HGFs in the wholesale and real estate sectors generated more revenues per worker than HGFs, but HGFs were more productive in a number of services sectors, including accommodation and food, education, finance, administrative services, entertainment, and other services.

FIGURE 41: REVENUE PER WORKER IN HGFS AND NON-HGFS, 2020



SOURCE: Authors' calculations based on data from the General Statistics Office.

Evidence on HGFs in other countries suggests that the relationship between an HGF status and productivity is not clear-cut.

This reflects multiple factors that affect firm-level productivity, including the quality of management and labor skills, use of technologies, digital systems, or size of R&D investment, and make causality difficult to establish. In addition, revenue-based productivity measures may reflect higher firm-level efficiency but also, for instance, higher margins driven by less robust market competition, and thus lead to different economic interpretations. A causal link between being HGF and being more productive seems to exist for some countries (like Hungary or Ethiopia, as argued by Grover, Medvedev, and Olafsen [2019]), but in other cases it depends on specific country circumstances. Among other factors, rapid growth in employment in HGFs may mechanically reduce productivity growth during the expansionary period, which could have been the case for Vietnamese HGFs covered in this study. That said, episodes of fast growth may lead to longer-term productivity improvements. Du and Temouri (2015) show, for instance, that British HGFs are more likely to report faster total factor productivity (TFP) growth after their growth episode. Similarly, in the case of Ethiopian firms, a high-growth event was positively correlated with faster TFP growth later on, especially for top performers (Grover, Medvedev, and Olafsen 2019).

HGFs appear less likely to participate in global value chains (GVCs) than non-HGFs, although the evidence is not conclusive.

In 2020, HGFs were significantly less likely to export or have outsourcing contracts with a foreign partner than non-HGFs; however, in 2018 and 2019, while HGFs were still less likely to export or have outsourcing contracts, the differences were not statistically significant. GVC linkages (for both HGFs and non-HGFs) in 2020 may have been affected by disruptions in the global economy due to the COVID-19 pandemic.

In 2020, HGFs were less likely to engage in innovation activities or adopt new technologies than non-HGFs, but more years of data are required to understand these dynamics. In 2020, HGFs across most sectors were less likely to engage in innovation activities, use software in management or production activities, or use automation in their business processes. Exceptions to this were HGFs in the health and education sectors, which were more likely to engage in innovation activities than non-HGFs. However, these data are based on the General Statistics Office's annual Enterprise Survey, which did not include questions related to innovation and technology adoption prior to 2021. Given that the 2021 survey²⁵ occurred during the COVID-19 pandemic, additional years of data will be required to establish whether the 2020 cohort of HGFs are representative of Vietnamese HGFs in their innovation and technology adoption patterns.

Despite their positive contribution to job creation, Vietnamese HGFs do not seem to be a reliable source of the much-needed productivity growth. Their export and innovation performance are also insignificant. This underscores the need to orient Viet Nam's enterprise support policies toward (i) firm upgrading through improved access to knowledge, technology, management skills, financing, and human capital, and (ii) firm entry through addressing the complementarities needed for the development of a dynamic entrepreneurial ecosystem. To address the latter, it is important to rigorously assess the needs of innovative entrepreneurs and growth-oriented firms and identify the key impediments to their growth.

²⁵ The 2021 Enterprise Survey questions cover firms' economic activities and outcomes in 2020.

Appendix D: Review of IP and Technology Transfer Framework

INTRODUCTION

This analysis was conducted with the aim of examining the legal and regulatory system in Viet Nam to encourage technology transfer and intellectual property development. These sources may include academic research, ministry papers, conference reports, and respected news outlets. Since the report is based on secondary sources, it is likely to have some limitations, including a lack of information on how legislations and policies are being implemented and on issues raised at the institutional and individual levels.

Key findings from this analysis include:

- Problematic treatment of R&D activities originated from state-funded projects that do not produce IPRs immediately
- Inconsistency among legislation and regulations governing the autonomy exercised by higher education institutions and research institutes
- Regulations preventing public employees from establishing and managing private enterprises
- The egalitarian distribution of the state's fund to public research organizations
- The inconsistency in incentives for researchers and lecturers to engage in IP and knowledge transfer activities.

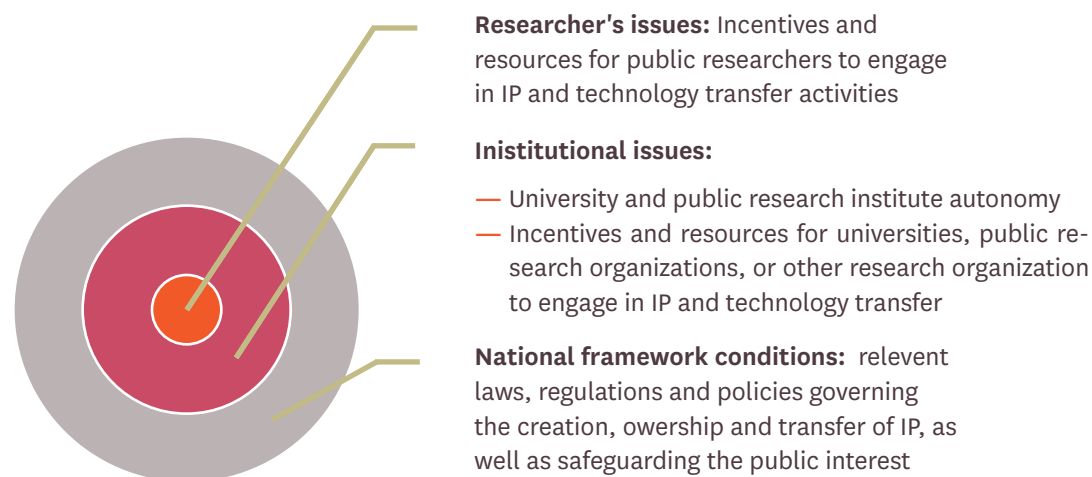
The analysis consists of three sections: an analytical framework, an analysis of Viet Nam's existing legal and regulatory framework for intellectual property and technology transfer, and recommendations to address the bottlenecks that exist in regard to intellectual property and the transfer of technology in Viet Nam.

ANALYTICAL FRAMEWORK

The framework for study, which is adapted and modified from Aridi and Cowey (2018), focuses on three layers of legal and policy issues relating to IP and technology transfer: national, institutional, and individual (researcher) (see Figure 42). The outermost layer consists of the national legal documents under which a university or public research institution would function. This covers laws, regulations, and policies governing the development, ownership, and transfer of intellectual property, as well as protecting the public interest. Institutional issues, which are positioned in the middle, are concerned with university and public research institute autonomy, as well as incentives and resources for universities and public research organizations to participate in IP

and technology transfer. Finally, the inner layer regulates and incentivizes researchers to produce intellectual property and engage in other technology transfer activities.

FIGURE 42: ANALYTICAL FRAMEWORK



SOURCE: Adapted from Aridi and Cowey (2018).

We argue that it is essential to evaluate all three levels, since legal documents at the outermost layer should foster a healthy atmosphere and eliminate uncertainty for IP and technology transfer operations. Meanwhile, policies at the institutional level are equally significant since they provide resources and determine how universities and public research organizations may utilize those resources. As all activities are conducted by individuals, regulations and incentives for research are also a crucial factor. If researchers are constrained and/or not rewarded, technology transfer cannot occur.

The Evolution of Viet Nam's intellectual property and technology transfer framework

The regulatory framework governing the IP and technology transfer activities in Viet Nam is established by two main laws: the Law on Intellectual Property and the Law on Technology Transfer.

The IP framework is one of Viet Nam's fastest-growing legal systems. Before 2005, Viet Nam's IP laws were scattered over multiple sub-law documents.²⁶ This resulted in a fragmented and

²⁶ "Hoàn thiện chính sách, pháp luật về sở hữu trí tuệ - góp phần đưa hệ thống sở hữu trí tuệ của Việt Nam lên chuẩn mực thế giới - TIN TỨC-SỰ KIỆN - CỤC SỞ HỮU TRÍ TUỆ." https://ipVietNam.gov.vn/tin-tuc-su-kien/-/asset_publisher/7xsjBfqhCDAV/content/hoan-thien-chinh-sach-phap-luat-gop-phan-ua-he-thong-so-huu-tri-tue-cua-viet-nam-len-chuan-muc-quoc-te (accessed Nov. 22, 2022).

overlapping set of regulations, which was incompatible with IPR standards required for all World Trade Organization (WTO) members under The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

In accordance with the commitment to join the WTO, the first Law on Intellectual Property No. 50/2005/QH11 was passed in 2005. This was the initiative to integrate several legal instruments into a single, unified specialized legislation that satisfies all of the TRIPS Agreement and other bilateral and multilateral IP treaty criteria. The Intellectual Property Law was then amended three times by Law No. 36/2009/QH12 in 2009, Law No. 42/2019/QH14 in 2019, and Law No. 07/2022/QH15 in 2022. The first two aforementioned amendments focused on rewriting a number of articles that were not fully compatible with international treaties such as the Berne Convention on the protection of literary and artistic works, the UPOV Convention on the protection of new plant varieties, and the bilateral trade agreement between Viet Nam and the United States, as well as resolving issues pertaining to the novelty of inventions, the protection of geographical indications under international treaties, the legal value of trademark contracts, IPR protection measures, and so forth.²⁷

The third amendment is considered as the most comprehensive reform ever in response to a series of IP commitments made during the period of integration from 2010 to 2018. One key change of the law is the inclusion of Article 86a. Instead of assigning the ownership to IPRs (invention patents, industrial designs, layout designs, and plant varieties) as the result of scientific and technological tasks funded by the state budget on a case-by-case basis, the law now automatically assigns this right to the implementing organization and without requirement of reimbursement. Other amendments covered by Law No. 07/2022/QH15 includes (i) ensuring clear regulations on authors, copyright holders, performers, and related rights holders in cases of copyright and related rights transfers; (ii) encouraging the creation, exploitation, and dissemination of patents, industrial designs, layout designs, and plant varieties resulting from state-funded scientific and technological projects; (iii) facilitating the process of copyright and related rights registration and processes for establishing industrial property rights; (iv) ensuring a sufficient and balanced level of IPR protection; (v) strengthening the efficacy of IP support activities; (vi) improving the efficiency of IPR protection activities; and (vii) ensuring the fulfillment of Viet Nam's international IP protection obligations.²⁸

Meanwhile, the Law on Technology Transfer is the most essential law governing and managing technology transfer activities in Viet Nam. The first version of Law No. 80/2006/QH11 was enacted in 2006; it was the first law to clearly establish the degree of autonomy with which domestic firms might negotiate technology transfer agreements.²⁹ Nonetheless, over the course of its execution, this law revealed numerous flaws. Particularly, provisions on measures to encourage and promote technology transfer, such as technology market development; the transfer of technology results

²⁷ Ibid.

²⁸ "Luật sửa đổi, bổ sung một số điều của Luật Sở hữu trí tuệ: Tạo lập môi trường kinh doanh lành mạnh và cạnh tranh." <http://vjst.vn/vn/tin-tuc/6377/luat-sua-doi--bo-sung-mot-so-dieu-cua-luat-so-huu-tri-tue--tao-lap-moi-truong-kinh-doanh-lanh-manh-va-can-tranh.aspx> (accessed Nov. 22, 2022).

²⁹ "Thực trạng chuyển giao công nghệ tại Việt Nam trong những năm qua." <http://ncif.gov.vn/Pages/NewsDetail.aspx?newid=21838> (accessed Nov. 22, 2022).

from state budget research projects; mortgage of state-owned assets for conducting technology transfer activities; and encouraging enterprises to adopt new technologies, continue to be more general statements than effective instruments since many measures have not been enacted in practice due to the absence of guiding decrees and circulars. In addition, several provisions are obsolete or invalidated by newly passed laws addressing related issues, such as the Law on Intellectual Property amended in 2009, Law on Science and Technology (2013), Investment Law (2014), Law on Corporate Income Tax (2014), or Law on Statistics (2015) (MOIT 2016).

In order to address these issues, the revision of the Law on Technology Transfer, No. 07/2017/QH14, was enacted in 2017. Article 36 stands out among the 2017 amendments to the Law on Technology Transfer, which adds a number of solutions such as: assigning ownership rights to scientific research and technological development results; regulation on distribution of profits obtained from results of state-funded scientific research and technological development; encouraging the announcement of the results of state-funded scientific and technological activities; and supporting linkages activities between research institutions and enterprises in adopting new technologies resulted from state-funded scientific research and technological development.³⁰ Ultimately, it is anticipated that new measures altered and added to the law would facilitate the link between various actors within the national innovation system, such as state agencies, academic institutions, businesses, and intermediaries, in order to boost technology transfer activities.

THE CURRENT STATUS OF INTELLECTUAL PROPERTY AND TECHNOLOGY TRANSFER FRAMEWORK

FRAMEWORK FOR GOVERNING OWNERSHIP OF RESEARCH RESULTS DERIVING FROM STATE-FUNDED PROJECTS

The current legal framework for governing ownership of research results deriving from publicly sponsored projects in Viet Nam is set by the Law on Science and Technology (2013) and three main legal documents concerning the transfer of rights to public-funded research results, including the Law on Technology Transfer (2017), Decree No. 70/2018/ND-CP on management and use of properties formed through implementation of scientific and technological tasks funded by the state's budget, and the amended Law on Intellectual Property, No. 07/2022/QH15. This framework has provided a clear legal avenue for dealing with direct and immediate outputs funded with the state's budget. However, the situation is not the same for indirect or non-immediate outputs derived from research projects funded with the state's budget, which may create legal and financial risks for private entities who receive the state's funds.

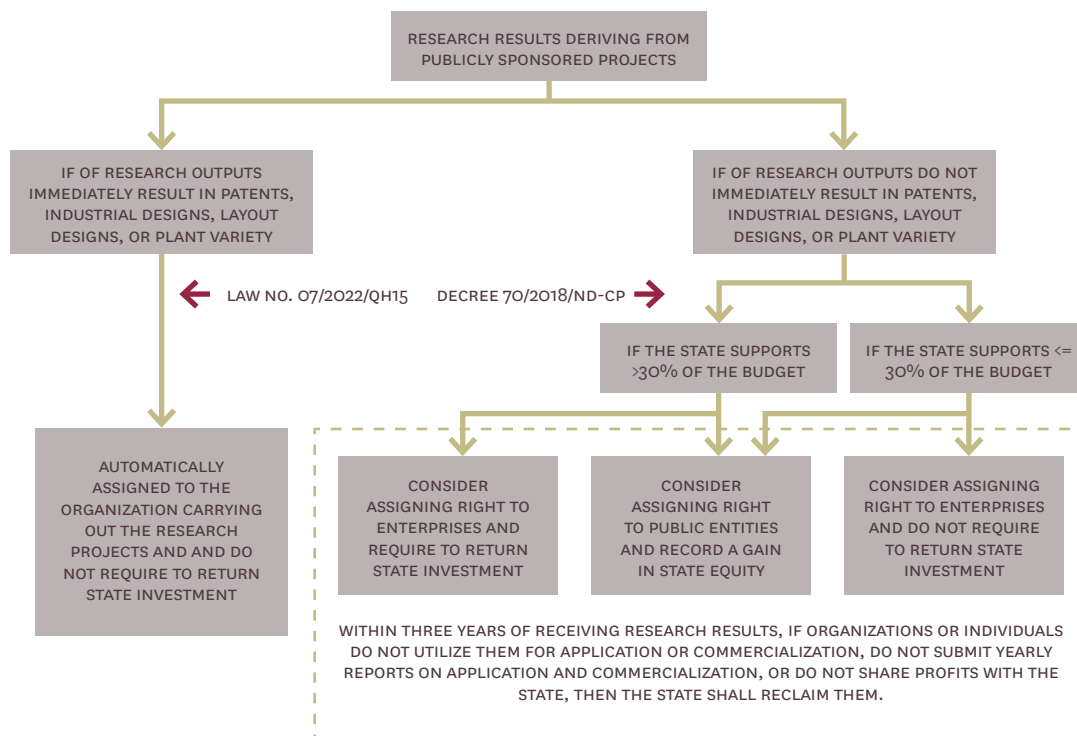
Article 41 of the Law on Science and Technology (2013) stipulates that the right to own or use the results of scientific research and technological development shall be assigned to organizations or people that invest money and other resources in the execution of scientific and technological projects. Regarding the resources funded with the state budget, the Minister of Science and Technology represents the state owner of national scientific and technological task performance results; ministers, heads of ministerial-level agencies, government-attached agencies, other central state

³⁰ "NHỮNG ĐIỂM MỚI CỦA LUẬT CHUYỂN GIAO CÔNG NGHỆ 2017." <https://quochoi.vn/tintuc/pages/tin-hoat-dong-cua-quoc-hoi.aspx?ItemID=36405> (accessed Nov. 22, 2022).

agencies, and provincial-level people’s committees represent the state owner of ministerial, provincial, and grassroots scientific and technological task performance they have approved.

Three other legal documents, including the Law on Technology Transfer (2017), Decree No. 70/2018/ND-CP, and Law No. 07/2022/QH15, provide a legal framework to assign the whole or part of the right to own or use scientific research and technological development results funded by the state budget. Figure 43 outlines the route to deal with specific cases in terms of the type of outputs and the proportion of the state’s budget contributed to research projects.

FIGURE 43: REGULATIONS REGARDING OWNERSHIP OF RESEARCH RESULTS DERIVING FROM PUBLICLY SPONSORED PROJECTS



SOURCE: Authors’ compilation.

Regarding the type of research outputs, the assignment of ownership rights for research projects that generate IPRs (in the form of patents, trademarks, copyrights, industrial designs, geographical indications, trade secrets) as direct and immediate output shall be regulated by the terms of the amended Law No. 07/2022/QH15 on Intellectual Property. Particularly, Article 25 specifies that the ownership of these type of research outputs from scientific and technological tasks, except in the field of defense and national security, shall be automatically assigned to the organization carrying out the research projects, and it is not necessary to pay back state funds. Also, there is no obligation for the recipient of the right to apply or commercialize research results within the three-year timeframe.

Meanwhile, the assignment of ownership rights for research that generates output yet to grant IPRs and need further development shall conform with the rules of the Law on Technology Transfer (2017) and Decree No. 70/2018 ND-CP.³¹

Particularly, according to the Law on Technology Transfer (2017), on the case-by-case basis, the government—the legal owner of public funded research results—can transfer the ownership of scientific research and technological development results funded by the State’s budget according to the following principles:

- If the government supports the budget for performing scientific research and technology development tasks for an organization which invests in material, technical facilities, and finance, and concurrently acts as the organization to chair the performance of such scientific research and technology development tasks, the government shall transfer the ownership of results of such scientific research and technology development tasks to this organization (Article 36.2.a).
 - If the government supports the budget for performing scientific research and technology development tasks on the basis of collaboration between an organization which invests in material, technical facilities, and finance, and an organization to chair the performance of such scientific research and technology development tasks, the government shall transfer the ownership of results of such scientific research and technology development tasks according to the agreement between the parties (Article 36.2.b).

Decree No. 70/2018/ND-CP was issued to provide more specific guidance for the implementation of provision of the Law on Technology Transfer (2017) on assigning rights to scientific research and technological development results. Particularly, state-funded research results may be assigned to both private and public groups on a case-by-case basis. Article 22.2 specifies that if private firms get the right, they must reimburse the state-funded investment if the state gives more than

31 In Viet Nam, the management of public-funded research outputs yet to grant IPRs is of major concern to policymakers. According to a study by the Vietnamese Ministry of Science and Technology, less than 10 percent of publicly financed research in Viet Nam results in IPRs. Moreover, even if it is not feasible or has not yet be ready to file for IPRs, many products resulting from state-funded scientific research projects may still be transferred and sold. The Viet A company’s COVID-19 test kit is a standout example. This is a product of a state-level scientific research project funded by the Ministry of Science and Technology. Despite the absence of a patent, this product was still transferred to Viet A for mass manufacturing. When policy makers learned that this corporation committed several crimes while conducting research and distributing this product, various issues were raised by the public. For example, why was the research product transferred to Viet A company? How to determine the market price of products derived from results of publicly funded research? Does the Viet A company share profits from selling test kits to the state?

30 percent of the total funding for a research project. If the recipient of the right is a public organization, the entity will report a gain in state equity. Furthermore, the decree requires that within three years of receiving rights on research results, organizations or individuals must utilize them for application or commercialization, submit yearly reports on application and commercialization, or share profits with the State, otherwise the state shall reclaim them.

FRAMEWORK FOR GOVERNING THE TRANSFER OF IPS DERIVED FROM STATE-FUNDED PROJECTS

Public research institutions and universities in Viet Nam may apply various schemes to exploit intellectual properties derived from state-funded projects. The Law on Science and Technology (2013) provides that the organization or individual(s) that receives the rights to the results of a state-funded research project may use, license, and transfer the right of use, as well as contribute funds to start a business based on such discoveries. However, there are caveats, from creating startups to commercializing research outputs.

According to the Law on Science and Technology (2013) and the Law on Higher Education (2018), public research institutions and universities are permitted to create enterprises, including startups and spin-offs. Nevertheless, Enterprise Law (2020), the Law on Public Employee (2010), and the Law on Anti-Corruption (2018) prohibit government employees from managing businesses. Therefore, employees of public research institutions and universities cannot serve on the boards or as directors of the startups and spinoffs they founded. Another challenge to public research institutions to start or invest in a business is the requirement to maintain state assets in state-owned enterprises (regulated by Decree No. 91/2015/ND-CP). As a consequence, public research institutions find less incentives to create startups and spin-offs even if they are enabled to do so.

Furthermore, the transfer of IPs derived from public-funded research projects need to comply with the regulations on profit distribution prescribed by Law No. 07/2022/QH15, Decree 76/2018/ND-CP, and Decree 08/2014/ND-CP. In some particular cases, the recipient of the right must share the profit with the government in proportion with the investment of the state, which discourages implementing organizations to commercialize research findings.³²

Particularly, there are three profit-sharing mechanisms in corresponding with the output of state-funded research, including (i) research results granted IPRs in the form of patents, industrial designs, layout designs, (ii) research results in the form of plant variety, and (iii) IP research results yet to grant IPRs.

For state-funded research, which results in IPRs such as patents, industrial designs, or layout designs, the distribution of after-tax profits obtained from the use, licensing, transfer of rights, or capital contribution of intellectual property as a result of scientific and technological tasks using the state budget follows these principles (according to Article 135, 136 of Law No. 07/2022/QH15):

³² In most of the cases, the state's investment contributes a majority of research financing, hence the state's profit share is substantial.

- Payment to the author (researcher) a minimum of 10 percent and a maximum of 15 percent of the profit before tax that the owner of the right earns from the use of the patent, industrial design, or layout design, or a minimum of 15 percent and a maximum of 20 percent of the total the amount the owner receives in each payment received for licensing the right to use a patent, industrial design, or layout design before paying tax as prescribed.
- For scientific and technological tasks for which the state supports up to 30 percent of the total capital, the profit after tax and after paying the author’s remuneration, shall be used according to the financial management regulations of the organization.
- For scientific and technological tasks for which more than 30 percent of the total capital is supported by the State, after paying remunerations to the authors, the remaining profit after tax shall be used as payment to the broker (if any) according to the brokerage contract but not more than 10 percent.
- In case a science and technology task is entirely funded by the state budget, at least 50 percent of the remaining profits shall be used to invest in scientific and technological activities at the organization; the remaining profits shall be used according to the financial management regulations of the organization. In case a science and technology task is invested with multiple capital sources, the remaining profit shall be divided among the parties in proportion to the proportion of capital already contributed to the task. The portion of profits corresponding to the State’s capital contribution shall be used by the presiding organization according to the above.

The distribution of after-tax profits obtained from the use, licensing, transfer of rights, or capital contribution of plant variety as a result of scientific and technological tasks using the state budget follows the below principles (according to Article 191, 191a of Law No. 07/2022/QH15):

(1) (i) A minimum of 10 percent and a maximum of 15 percent of the pre-tax profit earned by the right holder from using the protected plant variety; (ii) A minimum of 15 percent and a maximum of 20 percent of the total amount received by right holder in each payment due to the transfer of the right to use the plant variety before paying tax as prescribed; and (iii) A minimum of 20 percent and a maximum of 35 percent of the total amount that the right holder receives from the first transfer of the right to a plant variety before paying the prescribed tax and is not entitled to receive any further payment for the next transfer.

(2) For scientific and technological tasks for which the state supports up to 30 percent of the total capital, the profit after tax and after paying the author’s remuneration shall be used according to the financial management regulations of the organization.

(3) For scientific and technological tasks for which more than 30 percent of the total capital is supported by the state, after paying remunerations to the authors, the remaining profit after tax shall be used as:

In case a science and technology task uses the entire state budget, at least 50 percent of the remaining profits shall be used to invest in scientific and technological activities at the organi-

zation; the remaining profits shall be used according to the financial management regulations of the organization. In case a science and technology task is invested with multiple capital sources, the remaining profit shall be divided among the parties in proportion to the proportion of capital already contributed to the task. The portion of profits corresponding to the state's capital contribution shall be used by the presiding organization according to the above.

For state-funded research resulting outputs yet to grant IPRs, the distribution of after-tax profits follows the below principles (according to Article 17, Decree 76/2018/ND-CP, and Article 42 Decree 08/2014/ND-CP):

- (1) A minimum of 30 percent of the after-tax profit earned from commercialization of result of public-funded scientific and technological tasks to the author (researcher);
- (2) Payment to the broker (if any) according to the brokerage contract but not more than 10 percent;
- (3) The remaining profit after (1) and (2) shall be divided among the parties in proportion to the proportion of capital already contributed to task (including the State).
- (4) The remaining profit after (1), (2), and (3), shall be used as below:

Spending up to 50 percent of the remaining profit for investment in science and technology activities or the science and technology development fund at the organization. The rest shall be used according to the financial management regulations of the organization.

FRAMEWORK FOR SAFEGUARDING THE PUBLIC INTEREST IN TRANSFER OF PUBLICLY FUNDED TECHNOLOGIES (RESTRICTIONS OR PRIORITIZED RECIPIENTS FOR THE TRANSFER OF PUBLICLY FINANCED TECHNOLOGY)

In general, it may be interpreted that Viet Nam's legal framework gives priority to assign the rights on results of publicly funded research projects to the implementing entities. According to Decree 70/2018/ND-CP:

- Priority is given to assigning rights in the form of recording an increase in assets to organizations responsible for the performance of tasks, including state agencies, public administrative units, armed forces units, Communist Party agencies, and sociopolitical organizations to research and develop technology, as well as apply to commercialize research results.
- Priority is given to assigning ownership rights in the form of recording an increase in state capital to the organization performing the task, which is an enterprise with 100 percent state capital.
- Priority is given to assigning ownership rights to the implementing organization that requests to receive ownership rights and pay back the public funding.

However, there is one exception. The right to publicly funded results must conform with Law No. 07/2022/QH15 if the scientific and technical tasks relate to the field of national defense and security. In particular,

- If a research project is entirely sponsored by the state budget, the government has the right to file patents, industrial designs, and layout designs.
- If a project is supported by a variety of financial sources, including the public budget, the proportional share of intellectual property rights must belong to the government corresponding to the proportion of the state budget.

AGENDA TO REVISE/UPDATE RELEVANT LAWS/REGULATIONS

According to the Ministry of Science and Technology, it is expected that four revised laws on the field of science and technology will be submitted to the National Assembly for approval in the upcoming years. These include the Law on Science and Technology, Law on Technology Transfer, Law on Atomic Energy, and Law on Measurement. The first law that will be revised is the Law on Science and Technology. However, the policy process is still in the debate phase, therefore, there is little information on the authority's position on amending the above laws.

In addition, the Ministry of Finance is preparing the decree revising and augmenting a number of Decree No. 70/2018/ND-CP provisions. Specifically, the new revised decree should address a number of issues with the previous version. The most significant change would be the adjustments of an inconsistency with Law No. 07/2022/QH15, which permits the automatic assignment of the right to register patents, industrial designs, layout designs, and plant varieties that are the result of state-funded scientific and technological projects to the organization carrying out the research projects without a return of public funds. It would also specify if the assets resulting from scientific and technical projects funded by the state are the final output of the research process or intermediate products since it poses the question of how to proceed if the research results create a “worthy” intermediate output rather than a final output. Moreover, the new decree needs to deal with problems rising in many cases where the implementing organization does not obtain the right to public-funded results but there are no regulations on the transfer of these assets to other organizations and it is unclear whether the research result may be transferred to another entity.

INSTITUTIONAL ISSUES

THE AUTONOMY OF UNIVERSITY AND PUBLIC RESEARCH INSTITUTE IN INTELLECTUAL PROPERTIES AND TECHNOLOGY TRANSFER

LEGAL FRAMEWORK

Academic autonomy, financial autonomy, and organizational and personnel autonomy are used here to describe a bundle of rights authorized by the government to public university and research organizations to make decisions in specific areas, particularly on IPs and technology transfers. Autonomy is essential because it provides universities and public institutions with the necessary degree of independence from outside interference to carry out internal governance, the alloca-

tion of financial resources within the organization, the creation and use of non-public financial resources, the recruitment of personnel, the development of standards for learning and research, and the freedom to organize research and teaching.³³

There are numerous documents concerning the autonomy of public universities in Viet Nam (Resolution 14/2005/NQ-CP issued on November 2, 2005; Decree 43/2006/ND-CP issued on April 25, 2006; Decree No. 115/2005/ND-CP issued on September 5, 2005; Resolution No. 77/NQ-CP of 2014; Decree No. 16/2015/CP issued on February 14, 2015; and Law on Higher Education 2018). Among these, the Law on Higher Education (2018) is the most powerful legal foundation in the present setting. The law provides that public universities have (i) Academic autonomy and professional autonomy include promulgating and organizing implementation of quality policies and standards, offering new programs, enrollment, training, scientific activities, and domestic and international cooperation, (ii) Autonomy over organization and personnel include promulgating and organizing implementation of internal rules and regulations on organizational structure, personnel, list, standards, and benefits of each position; employing and dismissing lecturers and other employees, and deciding executive and managerial personnel in the higher education institution, and (iii) Financial autonomy includes promulgating and organizing implementation of internal rules and regulations on sources of income, management and use of assets and sources of income, attracting investment, tuition fees and scholarships, and other policies.

However, the Law on Higher Education (2018) clashes with several other legislative documents, resulting in numerous hurdles to the autonomy of public institutions of higher education in engaging in scientific research and technology transfer. First, the preservation of the controlling body (such as line ministries or provinces—Decree No. 115/2005/ND-CP) has diminished the efficacy of independent operations. Thus, despite autonomy, the decision on new establishment, merger, division, separation, and dissolution of departments, as well as on functions, duties, and operations of public universities must adhere to very complex processes and procedures. Not only that, while the Higher Education Law (2018) stipulates that the School Council, an administrative organization representing the school ownership,³⁴ has autonomy to approve the annual financial plan, including for science, technology, and innovation activities, State Budget Law No. 83/2015/QH13 requires public entities to estimate budget revenues and expenditures within the scope of their assigned responsibilities and report to management agencies. In addition, the Law on Higher Education (2018) specifies that institutes of higher education may utilize public land for commercial operations, leasing, and business operation contracts. In order to do this, universities are required by Decree No. 151/2017/ND-CP to submit a report to the controlling body for review and submit a writing project to the Ministry of Finance or the provincial Department of Finances for decision-making. In addition, the rules for using public property for business activities, leasing, or business cooperation still employ ambiguous language and do not specify which assets and

³³ Bộ giáo dục và đào tạo, “TỰ CHỦ ĐẠI HỌC: Kinh nghiệm của một số nước trên thế giới và khuyến nghị cho Việt Nam,” CHƯƠNG TRÌNH KHOA HỌC CÔNG NGHỆ CẤP QUỐC GIA. <http://chuongtrinhkhgd.moet.gov.vn> (accessed Dec. 21, 2022).

³⁴ The School council members include (i) The principal, deputy principals, the Party Committee Secretary, the Union's president, the Secretary Communist Youth Union of Ho Chi Minh City, the representatives from a number of faculties, the representatives from the authorities in charge of the higher education institution; and (ii) A number of members working in education, science, technology, production, and trading (Article 16.3).

under what circumstances they may be used for these purposes. Moreover, owing to issues with the Law on Public Employees that public employees must have a Vietnamese nationality, autonomous higher education institutions are unable to hire foreign specialists with extensive expertise as their staff. Furthermore, the Law on Higher Education (2018) stipulates there are preferential policies for organizations, enterprises, and individuals investing in science and technology at universities, but these measures do not exist yet. Neither Investment Law nor any sub-law regulation such as Decree No. 99/2019/ND-CP on detailing Law on Higher Education 2018, provides specific guidance on them.

Meanwhile, for public S&T organizations, even though the government has issued Decree 60/2021/ND-CP on the financial autonomy mechanism of the public service units, Decree 120/2020/ND-CP on organizational structure, Decrees No. 16/2015/ND-CP stipulating the autonomy mechanism of public administrative units; and Decree No. 54/2016/ND-CP stipulating the autonomy mechanism of public S&T organizations, public S&T organizations still face significant obstacles in the process of implementing the autonomy mechanism. Currently, with the introduction of Decree 60/2021/ND-CP, Decree 54/2016/ND-CP has ceased to be in effect. Thus, for public S&T organizations, there are new legal provisions pertaining to financial autonomy (Decree 60/2021/ND-CP) and autonomy in organizational management (Decree 120/2020/ND-CP). However, legal provisions pertaining to autonomy in task performance, personnel management, and international cooperation are still lacking. In addition, Decree 120/2020/ND-CP and Decree 60/2021/ND-CP are applied to all public administrative units and include provisions that arguably are not actually compatible with the characteristics of an S&T institute which is associated with a number of somewhat risky assets and investment activities. Moreover, in contrast to universities with steady and substantial income from teaching activities, many public research institutions are primarily focused on fundamental research, policy research, and state-assigned responsibilities, with little chances to provide services to businesses. Therefore, forcefully changing the operating model into an enterprise operating model similar to that of conventional businesses is deemed inappropriate for S&T organizations due to the difficulty of securing recurring costs independently.

In short, current policies have not generated a significant drive to increase the independence of public S&T entities. There is a lack of regulation on the autonomy in task performance, personnel management, international cooperation, and remuneration for highly competent researchers. The compensation structure for public institute employees is still based on coefficients and rankings, and not on job position or work efficiency. Furthermore, just like universities, public institutes still do not have full control on the management and use of assets; since assets and land-use rights have not been given, institutions cannot utilize assets to generate funds, engage in joint ventures, and form collaborations doing research. Last but not least, there are existing incentives for organizations that are autonomous; however, they are not implemented in practice. For example, some public research institutes have not yet benefited from tax incentives that are already given to science and technology enterprises.

CASE STUDY OF HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY FOR SUPPORTING IP AND TECHNOLOGY TRANSFER

The Hanoi University of Science and Technology (HUST) is among the first public institutions to conduct a pilot program in accordance with Resolution No. 77/NQ-CP on pilot policies for public universities issued in 2014. According to HUST's website, its goal is to become a multidisciplinary, research-focused institution in accordance with regional and worldwide norms. To fulfill this objective, HUST has a variety of IP and technology transfer initiatives.

In terms of IP management, HUST issued Decision No. 3086/QĐ-ĐHKB-KHCN dated December 31, 2011, regulating its scientific and technological activities and Decision No. 1355/QĐ-ĐHKB-KHCN dated May 19, 2014, adjusting Article 6 of Decision No. 3086/QĐ-ĐHKB-KHCN.³⁵ According to these decisions, HUST owns and manages the rights to intellectual property, which includes products created in its labs and research facilities utilizing state budget, foreign collaboration, and university funds³⁶. This comprises (i) all scientific works and technological advancements applied to production areas; (ii) new machines and equipment; and (iii) initiative, technical improvements, inventions, new technological processes, new technical solutions, patents, utility solutions, trademarks, industrial designs, and copyrights. In the case of projects combining university resources with external funding, the ownership and right to management will be negotiated on a case-by-case basis.

HUST also has its own regulation on the distribution of profits from technology transfer. In particular, for project that results in IPs yet to be granted patents/certificates, the profit after tax will be divided into a 4/3/3 ratio. 40 percent of the payment goes to the state budget, 30 percent to the university, and 30 percent is used to reward the author(s) who directly implements the topic or project; the total reward amount cannot exceed VND 100 million per project. The excess of VND 100 million shall be distributed to HUST's welfare fund. On the other hand, for the project producing IPRs, profits are distributed based on the agreement between HUST and the author(s) depending on the absolute value (in money) of the product and in accordance with the Law on Intellectual Property and the Law on Technology Transfer (see Table 4).

³⁵ This is the most recent legal document we found publicly on HUST's website: <https://hust.edu.vn/vi/news/cap-truong/quyet-dinh-so-1355-qd-dhbk-khcn-ngay-19-5-2014-121128.html>.

³⁶ In fact, it can be seen that the document conflicts with Decree No. 70/2018/ND-CP and Law No. 07/2022/QH15 where it also claim the ownership of findings from state-funded research projects.

TABLE 4: HUST DISTRIBUTION OF PROFIT FROM TECHNOLOGY TRANSFER

| VALUE OF INTELLECTUAL PROPERTY (MILLION VND) | AUTHOR (%) | AUTHOR'S WORK UNIT (%) | | UNIVERSITY (%) |
|--|------------|------------------------|-------------------|----------------|
| | | DEPARTMENT, CENTER | SCHOOL, INSTITUTE | |
| <100 | 70 | 4 | 1 | 25 |
| 100-1000 | 60 | 6 | 2 | 32 |
| >1000 | 55 | 7 | 3 | 35 |

SOURCE: Decision No. 3086/QĐ-ĐHBC-KHCN.

To assist technology transfer efforts, recently, HUST “established” the Hanoi University of Science and Technology Innovative Startup Investment Fund (BK Fund) and the BK-Technology Transfer Center (BK TTO).³⁷ However, the BK Fund is officially managed by BK Holdings (a single-member limited liability company), not HUST.³⁸ HUST does not contribute capital in cash, but instead contributes the University’s brand and the right to use the brand, equivalent to 15 percent of the fund’s shares. The BK Fund is a startup investment fund that was established in compliance with Decree No. 38/2018, which outlines investments in small- and medium-sized startups. Entrepreneurs and other people who attended HUST invest and donate to the fund. The objective of the BK Fund is to invest in, incubate, and commercialize university technologies, as well as to invest in and incubate enterprises formed by teachers, students, and alumni. In 2022, the BK Fund increased its capital to VND 35 billion, prioritized student-led startup projects, and concentrate on seed-round investments.³⁹

Meanwhile, BK TTO is a partnership between HUST and the business system of BK Holdings via an agreement signed by HUST’s president and General Director of BK Holdings. According to this agreement, HUST actively determines the roles, procedures for initial investment, provision of operations funds, and investments in facilities, and support policies. On the other hand, BK Holdings manages the operations, employees, and finances of BK TTO. The services offered by BK TTO include commercialization of technology, technology evaluation, intellectual property exploitation services, technology transfer, consulting and training, incubation, and FabLab. The activities of BK TTO are closely connected with those of other school departments. Specifically, the BK TTO, the Training Department, and the Research Management Department collaborate to compile and analyze data, give pertinent information, and help faculties in the registration and evaluation of

³⁷ Nội T. đại học B. khoa H., “Toạ đàm ‘Thúc đẩy chuyển giao công nghệ’ - Đưa nghiên cứu vào thực tiễn,” Trường đại học Bách khoa Hà Nội, May 19, 2020. <https://hust.edu.vn/vi/news/tin-tuc-su-kien/toa-dam-thuc-day-chuyen-giao-cong-nghe-dua-nghien-cuu-vao-thuc-tien-516455.html> (accessed Nov. 27, 2022).

³⁸ According to a report of the Ministry of Education and Training (MOET, 2020), due to the prohibition of public employees to manage private enterprise, “higher education institutions ought to “go around” the law by employing personels not working at their own organizations to be the legal representative for establishing non-state enterprises”. We are not sure whether it is also the case of HUST.

³⁹ “ĐẠI HỘI NHÀ ĐẦU TƯ BK FUND 2021 VÀ HỌP BÁO GIỚI THIỆU MỞ RỘNG ĐẦU TƯ, ỨƠM TẠO - bk-fund.hust.edu.vn,” bk-fund.hust.edu.vn - Invest For Future, Nov. 22, 2021. <https://bk-fund.hust.edu.vn/news/dai-hoi-nha-dau-tu-bk-fund-2021-va-hop-bao-gioi-thieu-mo-rong-dau-tu-uom-tao/> (accessed Nov. 27, 2022).

intellectual property. In addition, departments such as Legal Inspection or Finance and Accounting will assist the TTO Board of Directors with drafting legal papers, financial administration, and managing the Fablab incubator space (Huong et al. 2022).

However, despite this tremendous effort throughout a complex organization structure, technology transfer results of HUST are still modest. HUST got 63 invention and utility solution patents granted by Viet Nam's Department of Intellectual during the period of 2016–2021.⁴⁰ The revenue from science activity and technology transfer in 2021 was just VND12.5 billion or about 1.2 percent of its total revenue.⁴¹

In short, the case of HUST shows that universities and public institutes may exploit their autonomous rights to support their IP and technology transfer. However, due to the landmine in operation management, they find less incentive to support IPs and technology transfers.

INCENTIVES AND RESOURCES FOR UNIVERSITIES AND RESEARCH ORGANIZATIONS TO ENGAGE IN INTELLECTUAL PROPERTY AND TECHNOLOGY TRANSFER

The connections between Viet Nam's educational institutions and the corporate sector remain tenuous. R&D expenditures by Vietnamese businesses are minimal, representing just around 3 percent of public research expenditures. The primary objective of Viet Nam's reforms in the fields of science, technology, and innovation is to enhance technology transfer among the country's academic institutions, government research laboratories, and private firms (Nguyen 2019).

In terms of fiscal incentives, public university and research institutes can contribute capital to establish startups⁴² or science and technology enterprises⁴³ (without managing roles). In that case, those enterprises can enjoy a variety of benefits according to the Law on Supporting Small and Medium Enterprises (2017), Decree 39/2018/ND-CP, and Decree 13/2019/ND-CP. That includes preferential corporate income tax rates, and exemption and reduction of corporate income taxes. Science and technology enterprises are also entitled to land rent exemption and reduction, and export tax and import tax incentives for scientific research and technological development activities.

Meanwhile, the government continues to provide state funds to subsidize the R&D activities of public research organizations. There are two streams of state R&D funding. On the one hand, government funding enables public research organizations to sustain their operations. In general, state funding will cover their spending for wages, utilities, gasoline, maintenance, office space, and communications (Pham 2017). However, the distribution of financing is deemed inappropriate.

40 <https://hust.edu.vn/vi/news/tin-tuc-su-kien/dai-hoc-bach-khoa-ha-noi-duoc-vinh-danh-ngoi-sao-sang-che-ipstar-2021-611797.html>.

41 https://hust.edu.vn/uploads/sys/ba-cong-khai/bka_bm21thong-tin-tai-chinh_signed.pdf.

42 Startups are defined as legally constituted businesses with the express purpose of capitalizing on intellectual property, technological innovation, and scalable business models.

43 Science and technology enterprise means an enterprise that directly conducts scientific research, technological development, and production and business activities based on a variety of products from the results of scientific research and development.

ate, depending mostly on the level of budget disbursements in the previous years, unrelated to output products, and the quality of the research workforce. Consequently, public research organizations are unable to recruit prominent experts involved in scientific and technical research. The approach of distributing money demonstrates egalitarianism, since it does not take into consideration the efficient use of funds (MOET 2020). On the other hand, public research organizations can bid for national, ministry, or province science and technology tasks, as well as research projects under various science, technology, and innovation programs. The assignment of performing these tasks is based on Circular 08/2017/TT-BKHHCN on selection and the direct assignment of organizations and individuals to implement science and technology projects. Accordingly, there are programs which give priority for research cooperation and transfer between enterprises and research institutes and universities, such as the National Technology Innovation Fund, National Technology Innovation Program until 2020, National product development program until 2020, Foreign technology search and transfer program until 2020, or Program on research, training, and construction of hi-tech technical infrastructure until 2020 (NPHTD). In addition, the National Technology Innovation Fund, Science and Technology Development Fund of ministries, ministerial-level agencies, governmental agencies, and provinces provide loans with preferential interest rates, loan interest support, and guarantees to borrow capital for organizations, individuals, and businesses (including public research institutes) to conduct research, transfers, and adoption of technology. In practice, according to a report of World Bank (2021), academic and research institutions, not the domestic private sector, are the primary beneficiaries of science, technology, and innovation programs in the absence of tax incentives. Approximately 31.7 percent of these funds, which were designated to assist business innovation, were allocated to research and academic institutions in 2017 (World Bank 2021, p. 47).

For a nonfinancial support policy, The Ministry of Science and Technology also launched the Intellectual Property Development Program to raise public understanding of intellectual property issues. Common approaches include training activities about intellectual property, helping S&T institutions apply for patents on their innovations, assisting in the creation of IP for geographical indications, and evaluating regional specializations to ascertain whether or not they need protection. It is estimated that 40,000 people had participated in the nearly 1,000 training courses organized by the National Office of Intellectual Property by 2022, all with the goal of increasing knowledge and skills in registration management, exploitation, protection, and enforcement of IP.⁴⁴

In summary, Viet Nam's policy-mix to support universities and research institutions in the development of IP and technology transfer includes many measures, both financial and nonfinancial. However, tax incentives are not really effective; the benefits mainly fall on FDI enterprises. Most budget support policies favor public institutions, but on an egalitarian rather than efficient basis. Nonfinancial measures mainly stop at propaganda and general training on IP and technology transfer, while there is still a lack of professional support for aspects of patent drafting, filing, and so on.

⁴⁴ “Chương trình Phát triển tài sản trí tuệ: Góp phần tạo môi trường khuyến khích đổi mới sáng tạo - TIN TỨC-SỰ KIỆN - CỤC SỞ HỮU TRÍ TUỆ.” https://ipVietNam.gov.vn/vi_VN/web/guest/tin-tuc-su-kien/-/asset_publisher/7xsjBfqhCDAV/content/chuong-trinh-phat-trien-tai-san-tri-tue-gop-phan-tao-moi-truong-khuyen-khich-oi-moi-sang-tao (accessed Nov. 28, 2022).

RESEARCHER ISSUES

Viet Nam's legislation does not prohibit public sector researchers from engaging in technology transfer activities. The Law on Public Employees (2010) enables them to enter into piecework contracts with other agencies, organizations, and units, including private firms. External engagements by public employees may include a variety of activities, such as contributing capital to establish businesses, performing research contracts and paid work for private companies, offering consulting services, and so forth. However, they are still facing some major constraints. As previously stated, Enterprise Law (2020), the Law on Public Employees (2010), and the Law Against Corruption (2018) prohibit public officers from establishing and managing private businesses. Besides, for university lecturers, before spending time engaging in such external activities, they must comply with the minimum teaching hours requirement outlined in Circular No. 20/2020/TT-BGDT. Particularly, they must devote between 200 and 350 hours per year to teaching activities, of which at least 50 percent must be spent teaching in the classroom.

At the institutional level, the measures for motivating academic staff to engage in knowledge transfer vary among universities, particularly between private and public institutions. For instance, according to a number of interviews conducted by the author in July 2021, Lac Hong University, a private university in Dong Nai, has several favorable policies for lecturers collaborating with private companies. They have a department devoted to assisting their researchers with legal issues and payment processes when collaborating with the industry sector. The university also offers researchers with loans in the case that a company requires matching funds. In addition, the university only charges a nominal management fee of 2 percent to 3 percent for every collaboration initiative. On the other hand, lecturers at HUST prefer to engage with private corporations via informal channels, i.e., personal contracts between firms and researchers, as opposed to formal ones, i.e., contracts between company and university due to concerns with the university's lack of support mechanisms for knowledge transfer activities. The management fee, complicated payment, and management procedure are the most often stated factors discouraging them from engaging in research contracts, consulting services, or other technology transfer activities via formal channels.

At the national level, the revised Education Law (2018) includes new provisions, such as "... creating mechanisms and policies to encourage organizations and individuals to invest in science and technology and developing an innovative startup ecosystem in higher education institutions..." and "lecturers are guaranteed conditions to study, participate in science, technology, and startup activities..." whereas the Law on Higher Education (2012) did not include such language. This means that the legislation is geared toward encouraging lecturers who are engaged in scientific research. Furthermore, according to Government Decree No. 73/2015/ND-CP and Circular No. 20/2020/TT-BGDT, lecturers at educational institutions must spend at least one-third of their working time to scientific research, and lecturers at a research-oriented higher education institution are obligated to spend at least one-half of their usual working hours to research activities. However, in reality, these regulations are intended to set a minimum level of working time on scientific research for lecturers, and not to encourage lecturers to do scientific research (MOET 2020).

Decree 99/2014/ND-CP, which stipulates investment and promoting scientific and technology activities in higher education institutions, is the most evident document for supporting lecturers and researchers in higher education institutions engaging in IP and technology transfer activities. The following approaches are used to motivate lecturers to conduct scientific research activities: (i) Preferential personal income tax for income from scientific research and technology development contracts in priority and key fields and contracts performed in mountainous, and extremely difficult areas; (ii) Bonus of up to 30 times the common base salary if one article is published in a prestigious international scientific journal on the ISI/Scopus list. Bonuses are deducted from science and technology budget allotted to higher education institutions; (iii) Support 50 percent of the copyright registration charge; and (iv) It is comparable to 20 hours of teaching time if one paper is published in a scientific publication with a scale of one on the State Council of Professorship' list. However, while Decree 99/2014/ND-CP exempts income from scientific and technical activities from personal income tax, there is no guidance on implementing rules from tax authorities or in the personal income tax law, thus this provision cannot be implemented in reality.

Decree No. 40/2014/ND-CP and Decree No. 27/2020/ND-CP on Utilization and Well-Treatment of Individuals in Scientific and Technological Activities stipulate incentive and support policies for lecturers who are leading scientists and outstanding young scientists in higher education institutions. Lecturers in higher education institutions who are leading scientists in their fields of expertise are entitled to policies that encourage and support the establishment of research groups in their fields and funding for the activities of research groups; financial support for participation in national and international seminars and scientific conferences in their fields of expertise; and giving priority to assigning the lead in performing science and research. Meanwhile, lecturers who are talented young scientists in higher education institutions receive benefits such as being prioritized for selection of advanced training, giving priority to assigning the lead in performing science and technology tasks, providing favorable conditions for participation in scientific research to promote and develop professional research orientations, and funding to attend conferences and seminars in specialized fields. However, the applicant must be the head of expertise in a scientific field, a laboratory, or an equivalent position at a higher education institution. After a few years of implementing, there is no record of registration of leading scientists, showing that this policy has not been put into practice (MOET 2020).

Along with Decree 99/2014/ND-CP, Primer Minister's Decision No. 2469 dated December 16, 2016, specified measures to improve scientific research and technology transfer capacity for teachers and researchers in higher education institutions, such as programs on training teachers with doctoral degrees for universities and colleges; programs on training and fostering science and technology human resources at home and abroad with state budgets; and programs on implementation of policies to encourage and create favorable conditions for teachers to publish scientific papers. These measures have yielded remarkable results, such as the formation of hundreds of research groups, teaching-research groups at higher education institutions, the increasing number of lecturers with PhD training abroad, and the increasing number of scientific articles published in international journals. However, the goals of increasing the number of IPs, commercialization of IPs, increasing the number of startups and so forth are still modest (MOET, 2020).

In short, at the researcher level, there still exists a number of barriers not encouraging researchers and lecturers of public universities and research institutions on engaging in IP and technology

transfer such as: regulations on public employees on establishing and managing private businesses; minimum teaching hours requirement for lecturers; the lack of support mechanisms for researchers and lecturers in public universities and research organizations on engaging in IP development and conducting knowledge transfer activities; and the inconsistencies between legislation on incentives for science and technology activities and tax regulations.

DISCUSSIONS AND POLICY RECOMMENDATIONS

Viet Nam has several regulatory instruments governing intellectual property activities and supporting the transfer of technology from universities and research organizations to businesses. Overall, regulatory reforms in this area over the past decade have set up an integrated policy system that promotes intellectual property development and technology transfer, not just stopping at expressing wishes in the Law on Science and Technology, but in the form of concrete measures, both financial and nonfinancial, by a number of ministries, including the Ministry of Science and Technology, Ministry of Education, Ministry of Finance, Ministry of Investment and Planning, and Ministry of Home Affairs. These include:

- Policies on effectively using the state funds for implementing science and technology tasks to generate IPs and promote technology transfer activities (Decree No. 70/2018/ND-CP; Decree 76/2018/ND-CP)
- Policies on stipulating the autonomy mechanism of public S&T organizations (Decree No. 54/2016/ND-CP)
- Policies on promoting science and technology enterprises (Decision No. 13/2019/ND-CP)
- Policies on promoting innovation startups (Decision No. 844/QĐ-TTg; Decree No. 39/2018/ND-CP)
- Policies on promoting science and technology activities in higher education institutions (Decree 99/2014/ND-CP; Primer Minister's Decision No. 2469)

However, as discussed above, Viet Nam's legal system has several inconsistent legal documents that do not match with reality or are difficult to implement in practice. The following are significant legal bottlenecks concerning IP and technology transfer that need to be resolved.

First, the right to research results continues to be governed by Decree No. 70/2018/ND-CP if publicly sponsored research does not immediately generate outputs in the form of IPRs (patents, industrial designs, layout designs, or plant varieties). The sharing of state profits shall be proportional to the amount of state investment, according to Decree No. 70/2018/ND-CP. This suggests that the bigger the degree of finance, the greater the state's benefit. This rule offers no incentive for corporations, public research organizations, universities, or academics to engage in scientific research or technology transfer. In fact, the commercialization of scientific advances and intellectual property requires subsequent huge, high-risk investments after the research process. Investors and businesses will not be incentivized to engage in the commercialization process if they are required to reimburse the government for its financial contribution to the generation of such outcomes. Furthermore, the state's regulation to recoup the money spent in research when assigning rights will not incentivize organizations/individuals, who conduct the research task, to commercialize research outcomes and produce intellectual property. Additionally, the stipulation that companies or individuals must apply or commercialize research discoveries within three

years after acquiring the rights complicates matters for receivers of research results, since many research projects need several years to be effectively exploited.

Second, it is required to integrate the legislation governing the autonomy exercised by higher education institutions and research institutes into a single legal document so that they have a clear guideline to follow. The clash between legal documents on important matters must be resolved, including whether to maintain the controlling entity for fully autonomous organizations, decisions on new establishment, merger, division, separation, and dissolution of departments, financial plan as well as their functions, duties, and operations, market-based compensation for exceptional researchers, recruitment of international researchers, and management of public assets to create and contribute funds to the development of a business.

Third, according to the Law on Public Employees (2010) and the Law on Enterprises (2020), public employees at research institutes and public universities are not permitted to establish or participate in the management and administration of private enterprises; they may only contribute capital to established private enterprises. This rule prevents employees of research institutions and public universities from managing and operating their own spin-off or startup firms. Some universities or public research institutions' staffs are required to quit their existing job if they want to become the CEO of the firm. In actuality, this rule does not encourage competent institution and university personnel to engage in the commercialization of research findings, produce intellectual property, and establish companies.

Fourth, the funding of public research organizations ought to be determined by performance-based funding with metrics related to research activities, intellectual property creation, commercialization, and technology transfer rather than the current system, which bases funding primarily on the number of levels achieved in the preceding year and is unrelated to output products.

Last but not least, it is necessary to revise the legislation and policies supporting scientists' participation in scientific research and technology transfer. The Law on Public Employees should include in the article on salary-related regimes that reward researchers engaging in transfer activities, such as IP creation, licensing, spinout creation, and so forth. Moreover, universities should also consider technology transfer as in addition to research and publication metrics for career advance. In addition, the government needs to provide guidance to execute the incentives included in various documents, such as the exemption of income from scientific and technological activities from personal income tax in Decree 99/2014/ND-CP, but which have not yet taken effect. One last thing, as the Ministry of Education and Training's circular No. 47/2014/TT-BGDT specifies the minimum number of required working hours for lecturers each year, there should be a regulation for lecturers who devote more time to research and technology transfer that allows these additional working hours to be converted into teaching hours.

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Appendix E: List of Interviews

This appendix includes a list of the stakeholders and organizations interviewed by the World Bank team as part of this project.

| STAKEHOLDER/ORGANIZATION | INTERVIEW DATE |
|--|-----------------------|
| Chad Ovel, Mekong Capital | Feb 7, 2023 |
| Vince Vu, Bizzi | Feb 7, 2023 |
| Khanh Tran and Amy Ngo, Touchstone Ventures | Feb 8, 2023 |
| Phi Van Nguyen | Feb 8, 2023 |
| Binh Tran, Ascend Ventures | Feb 9, 2023 |
| Lan Anh Nguyen and Le Hoang Nam, Endeavor Viet Nam | Feb 9, 2023 |
| Vinnie Lauria and Tram Nguyen, Golden Gate Ventures | Feb 9, 2023 |
| Vy Le, Do Ventures | Feb 10, 2023 |
| Earth Venture Capital | Feb 10, 2023 |
| DiaB | Feb 10, 2023 |
| Vu Thi Thuy and Dang Thi Kieu My, ITI Fund | Feb 10, 2023 |
| Do Bui and Nam Le, ThinkZone | Feb 10, 2023 |
| Mandy Nguyen Nhã Quyên, Startup Viet Nam Foundation | Feb 13, 2023 |
| Hieu T. D. Vo, VIISA | Feb 13, 2023 |
| Hoang Duc Trung, Vina Capital | Feb 13, 2023 |
| Hub Langstaff and Quynh-Anh Nguyen, Swiss Entrepreneurship Program | Feb 14, 2023 |
| Ana Le My Ngo, WeAngels Capital | Feb 14, 2023 |
| Nguyen Trung Dung, BK Holdings | Feb 15, 2023 |
| An Additional number of stakeholders over the course of 3 missions to VT | |

