



INNOVATION POLICY TO PROMOTE MSME GROWTH

BEST PRACTICES AND IMPLICATIONS FOR VIETNAM
AND OTHER APEC DEVELOPING ECONOMIES

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THE APEC-CANADA GROWING BUSINESS PARTNERSHIP is a four-year initiative jointly implemented by the Asia Pacific Foundation of Canada (APF Canada) and the Asia Pacific Economic Cooperation (APEC) Secretariat. Funded by Global Affairs Canada, this initiative helps build the potential of micro, small, and medium enterprises (MSMEs) to promote poverty reduction and sustainable economic growth in the APEC region.

The Partnership offers best practice tools, ideas, knowledge and critical connections derived from Canadian experience, tailored to local APEC markets. The current economies of focus are: Indonesia, Peru, the Philippines, and Vietnam. The focus areas of the Partnership aim to address key challenges faced by MSMEs and aspiring entrepreneurs from APEC developing economies in the areas of technology and innovation, market access, human capital, and social entrepreneurship, with an emphasis on the crosscutting themes of women, youth, governance and the environment.

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FOREWORD

Both innovation and MSMEs (micro, small, and medium enterprises) are recognized as major sources of economic growth (Oughton, Landabaso, and Morgan, 2002; World Bank, 2010; World Bank/International Finance Corporation [IFC], 2010). Therefore, governments around the world have established various regulatory frameworks and policies on using innovation to support MSME development. Some of the measures include providing funding for MSMEs' innovation projects, promoting university-MSME cooperation networks, and procuring from innovative MSMEs (IMC World Wide, 2016; World Bank and Ministry of Planning and Investment [WB and MPI], 2016).

In preparing this report, to develop a benchmark for comparative analysis, we collected and assessed policies from various economies to outline best practices in innovation policy to drive the growth of the MSME sector. To aid in the determination of best practices, we reviewed literature and conducted interviews with key stakeholders in multiple economies. Against this, the current situation of innovation policy development and implementation in Vietnam is analyzed as a case study. While Vietnam has been considered an economy with high growth potential, it has several major barriers to MSMEs' innovation, such as limitations in its ability to scale and capacity for technology absorption (WB and MPI, 2016). Considering the best practices identified, we propose several recommendations to promote innovation and MSME development in the country. Concurrently, we make generalizations to other related developing country contexts across the APEC region.

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ABBREVIATIONS

ADB	Asian Development Bank
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CIEM	Central Institute for Economic Management
FDI	Foreign direct investment
FIRST	Fostering Innovation through Research, Science and Technology
FTA	Free trade agreement
GCI	Global Competitiveness Index
GDP	Gross domestic product
GII	Global Innovation Index
ICT	Information and communication technology
IP	Intellectual property
IPR	Intellectual property right
KONEX	Korea New Exchange
MOST	Ministry of Science and Technology
MPI	Ministry of Planning and Investment
MSME	Micro, small, and medium enterprise

N/A	Not available
NATIF	National Innovation Fund
NIS	National Innovation System
R&D	Research and development
RTA	Regional trade agreement
S&T	Science and technology
SME	Small and medium enterprise
SMEDF	SME Development Fund
STEM	Science, technology, engineering, mathematics
STI	Science, technology, and innovation
VINASME	Vietnam Association of Small and Medium Enterprises
VC	Venture capital/venture capitalist
VCCI	Vietnam Chamber of Commerce and Industry



INTRODUCTION

Micro, small, and medium enterprises (MSMEs) and innovation are among the most important issues in political dialogues around the world. MSMEs often make a large contribution to economies, both developing and developed (World Bank/IFC, 2010). Subsequently, a key focus of policymakers around the world is developing the MSME sector. At the same time, innovation supports transforming an economy from one stage of development to another. It can revolutionize the way people think, work, and consume, and contribute to better living standards. It also helps an economy grow and strengthen (Oughton, Landabaso, and Morgan, 2002).

One of the key factors for the success of MSMEs is innovation (Love and Roper, 2015). Innovation helps MSMEs improve their productivity and produce better and less expensive products, enhancing their competitiveness in an increasingly demanding and fast-paced global market. Despite the liability of their small size, young, small firms with high growth potential are generally more innovative than larger companies (Hoffman et al., 1998; Lerner, 2009). MSMEs also contribute to development, gearing innovation toward solutions for social problems by supporting gender equality, youth empowerment, and environmental sustainability (Adegun, 2013; Datta and Gailey, 2012; Revell, Stokes, and Chen, 2010).

Despite their strong relationship, however, MSMEs and innovation are often treated separately in policymaking. The literature on MSME innovation generally focuses on internal, firm-level factors of innovation, leaving external, macro-level factors that support MSME innovation inadequately explored (Lu, Tsang, and Peng, 2008; Radas and Božić, 2009). MSME innovation within the developing economy context is also much less studied than in developed economies (Hadjimanolis, 2000; Radas and Božić, 2009; Zeng, Xie, and Tam 2010).

Vietnam is one of the developing economies where the issues facing MSME innovation have been increasingly discussed in policy dialogue in the last few years. The Vietnamese economy's status has recently jumped from low to lower-middle income (World Bank, 2017), and is now facing questions about how to avoid the middle-income trap and how to develop the economy further without increased exploitation of natural

resources and cheap labour that would result in deteriorating environmental and social standards. Focusing on using innovation for MSME growth will be one of the keys to achieve this goal (WB and MPI, 2016). However, as previously noted, there has been little research on MSME innovation at the macro level, and this is true too for Vietnam. Few publications have explored MSME innovation in Vietnam, with even fewer looking at innovation policy for MSMEs. This issue is shared by many developing economies across the APEC region.

This study reviews best practices around the world, explores how innovation policy can help promote MSME development, and describes the status of Vietnam's innovation policy for MSMEs. With this basis, the study provides recommendations for relevant innovation policy for Vietnam in particular and developing economies across APEC in general to improve their MSME development.

MSMES AND INNOVATION

MSMES DEFINED, AND THEIR ROLE IN ECONOMIC GROWTH

DEFINITION OF “MSME”

From a policy perspective, micro-enterprises are sometimes included and sometimes excluded from the general definition of small and medium-sized enterprises (SMEs). For example, China, India, and Malaysia have a specific criterion for micro-enterprises, distinguishing them from small and medium ones, while Indonesia, Japan, and Singapore define SMEs as all companies whose size falls below certain limits (United Nations Economic and Social Commission for Asia and the Pacific, 2012). The difference lies in the legal registration status between the two. Generally, SMEs refer to formally registered companies, while micro-enterprises can mean companies from informal sectors (Asian Development Bank [ADB], 2014). However, “MSME” and “SME” are often used interchangeably in both policy and academic discourse (Berisha and Pula, 2015).

MSMEs are categorized by different measures, such as the number of employees, value of assets, revenue, and sales. For example, according to the World Bank’s definition of MSMEs, micro-enterprises have up to 10 employees, small enterprises have 10 to 50 employees, and medium-sized enterprises have 50 to 300 employees (Sarkar, 2016). In Vietnam, the definition of MSME includes (a) enterprises from small, family-run businesses to those with fewer than 200 employees, and (b) enterprises with either revenue of less than 300 billion VND per year (about US\$15 million) or capital assets of less than 100 billion VND (about US\$5 million) (Vietnam SME Support Law of 2017). Since the measurement caps for MSME definitions differ across countries, in this report, we do not strictly conform to any definition but rely on each country’s definition when quoting best practices, and we use Vietnam’s definition when analyzing Vietnam.

DEFINITION OF “STARTUP”

According to Blank and Dorf (2012), a startup is “a temporary organization in search for a scalable, repeatable and profitable business model.” They are new companies characterized by innovation and growth orientation (Sarkar, 2016). As a result of such characteristics, a startup is a risky business and is often in need of financial investment

(Thiel and Masters, 2014).

Based on the MSME definition's criteria of employment, assets, revenue, or sales, generally, startups fall into the MSME sector. However, most often these criteria do not explicate the characteristics of startups as they do with MSMEs. In the startup world, a more popular criterion is startup value, as a startup could be valued at millions or billions of dollars without making a single dollar of profit, or even revenue. This is illustrated by organizations such as Uber and Grab, both loss-making startups whose value has skyrocketed with investment after investment. Pinterest is another startup without revenue with a similar value range (Yarow, 2014).

Yet, despite the clear differences between MSMEs and startups, startup policy is often made by offices or departments in charge of MSME policy. For example, in the US, where the startup environment is well developed, the Small Business Association is still in charge of making startup policy.

ROLE OF MSMEs IN THE ECONOMY

MSMEs are seen as an important channel of job creation (Al-Mubarak and Aruna, 2013) and as a means of poverty alleviation (de Kok, Deijl, and Veldhuis-Van Essen, 2013). Since MSMEs appear in more geographical areas than large firms, they contribute to better income distribution (Pham, 2016).

MSMEs also play a large part in domestic and international value chains. They are the suppliers, the manufacturers, the contractors, the retailers, and the service providers (Sarkar, 2016). They are also more flexible than larger firms, with more fluid adaptability to change prices and product volume, which serves as a buffer for economic shocks (Le, 2016).

MSME development can also help empower women and youth by tackling various social issues such as food security, poverty, health, environment, and education.

DEFINITION OF INNOVATION AND ITS ROLE IN THE ECONOMY

There are different definitions of innovation (García-Morales, Matías-Reche, and Hurtado-Torres, 2008; Figueroa and Conceicao, 2000; Freeman and Engel, 2007; Salavou, 2004; Zahra and Covin, 1994). However, this report uses one of the most common definitions of innovation, used in academia and policymaking throughout the world. This definition, from the Oslo Manual, defines innovation as the implementation of a new or significantly improved product (i.e., good or service), or process (i.e., methods of production and service of delivery); a new marketing method

(i.e., packaging, sales, and distribution methods); or a new organizational method in business practices, workplace organization, or external relations (Organisation for Economic Co-operation and Development [OECD] and Statistical Office of the European Communities, 2005). This definition is also used as a guideline for defining innovation in Vietnam's Science and Technology (S&T) Law of 2013. Innovation can be characterized by types of innovation (e.g., open or closed), degree of novelty (e.g., radical or incremental), impact (e.g., on individuals, firms, industry, society), or source (e.g., technical or non-technical) ("Innovation definition and fundamental," n.d.).

Innovation is a major source of productivity, growth, and employment (Oughton, Landabaso, and Morgan, 2002). It helps develop solutions for social and environmental problems and challenges. Innovation plays a role in all stages of development by creating and diffusing new technologies and processes; however, different types of innovation play different roles at various developmental stages ("Innovation definition and fundamental," n.d.). In the earlier stages of development, incremental innovation associated with the adoption of foreign technology plays an important role, while in the later stages of development, high-technology R&D-based innovation matters more (OECD, 2011). The main actors that make innovation happen are (1) universities and research institutions; (2) innovative firms; and (3) the public sector (individuals, organizations, and communities). In order for innovation to happen, these actors should not work alone but in collaboration, and be active in knowledge and technology transfer ("Innovation definition and fundamental," n.d.).

RELATIONSHIP BETWEEN MSMEs AND INNOVATION

MSMEs are sources of both innovation supply and innovation demand (World Bank, 2010; Warnke et al., 2016). On the demand side, MSMEs are constantly in need of novel technologies to enhance their competitiveness. On the supply side, MSMEs are the ones that create innovation to supply the market. Among MSMEs, small, young firms are considered to be agile and more likely to be innovative than larger firms (Hoffman et al., 1998; Lerner, 2009).

Technology and innovation are believed to be the main drivers of MSME growth. Empirical evidence has shown that the higher the innovation capability of a firm, the better both its financial and operational performance (Saunila, 2014). Innovation is especially important for MSMEs to survive and grow in an increasingly competitive and globalized market (Radas and Božić, 2009).

SECTION 2

BEST PRACTICES IN INNOVATION POLICY FOR MSME DEVELOPMENT

MSME innovation is affected by multiple levels of factors — institutional-level, macro-level, meso-level, and micro-level — as illustrated in Figure 1 below. In this report, we will analyze and propose policies directed at individual factors in each level.

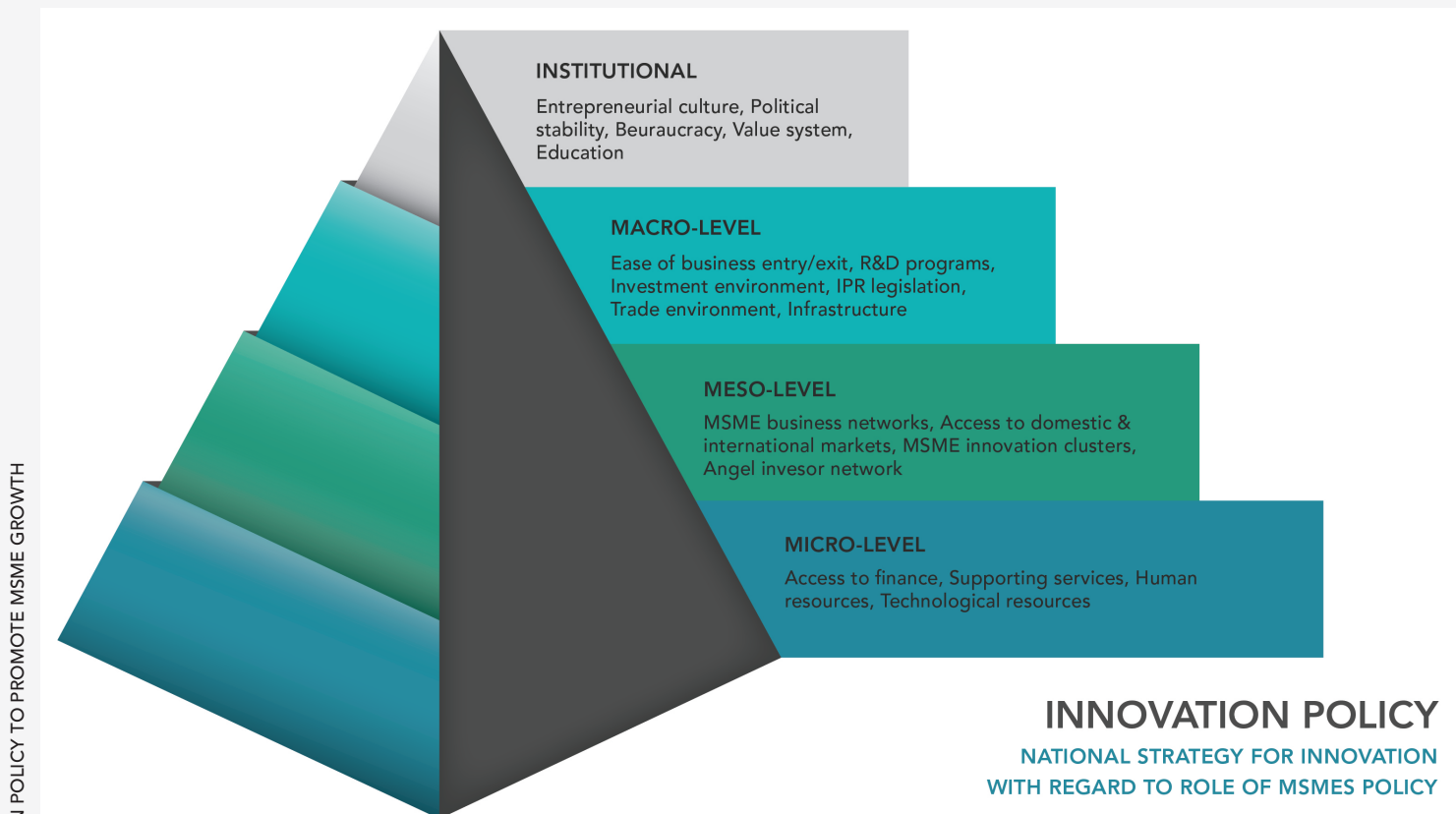


Figure 1. Levels of factors that affect MSME innovation. Adapted from Autio, Kronlund and Kovalainen (2007).

NATIONAL STRATEGY FOR INNOVATION

The first important part of innovation policy is setting a clear, long- visioned, and achievable national strategy. This strategy should align with economic and social planning objectives, and the national development strategy in general. If MSMEs are recognized as an important part of the innovation system, then the innovation system design should put MSMEs at the centre.

Many countries have put much effort into building national innovation strategies that reflect their national advantages, as well as ambitious goals to become leaders in innovation in their respective regions and the world. For example, China has set specific targets to become a world leader in innovation by 2020 by encouraging the private sector to engage in innovation and by decentralizing public R&D funding to local governments. Meanwhile, Singapore is focusing on becoming a smart nation, with

BOX 1. SINGAPORE: A VISION FOR A SMART NATION

- 2006:** The establishment of the Research, Innovation and Enterprise Council, chaired by the prime minister and the National Research Foundation: a high-level coordination and strategizing effort.
- 2011:** The fifth national R&D plan — the Research, Innovation and Enterprise 2015 Plan (RIE2015) (2011-2015) — espoused, for the first time, differentiated open innovation strategies targeted at the different enterprise segments that make up Singapore’s economy (it especially recognized the role of SMEs in economic growth). Under RIE2020, R&D investments are divided into four thematic domains: advanced manufacturing and engineering, health and biomedical sciences, urban solutions and sustainability, and services and digital economy.
- 2014:** The Smart Nation Initiative is launched by the prime minister on November 24, 2014. It comprises various projects to realize the capability of STI in four key areas, including health, living, mobility, and services. It looks forward to transforming the lifestyle of citizens via projects such as self-driving vehicles, contactless payment, robotics, smart homes, and a smart city.
- 2017:** The government intends to spend over SGD1.7 billion on the Smart Nation Initiative.

projects such as smart homes and smart cities (see Box 1 below).

POLICIES TARGETING INSTITUTIONAL-LEVEL FACTORS

Policies that affect institutional-level factors will set the framework conditions for innovation to take place. The prominent success factors for MSME innovation at the institutional level include: political stability that ensures a safe and sustainable environment for innovation investment in the long term; an entrepreneurial culture that embraces failure and encourages entrepreneurial activities; value systems that honour innovation and entrepreneurship; a level of bureaucracy that is clear of red tape and administrative burdens to businesses; and an educational system that can build a strong generation of highly skilled innovators. A well-functioning institutional framework can help reduce uncertainty, risk, and transactional costs associated with MSME innovation activities.

Political stability is one of the key indicators contributing to the Global Innovation Index (GII). It is not a coincidence that top players in the GII ranking table have higher places in the political stability ranking and vice versa. Some data extracted from the 2017 GII ranking report are below:

GII RANKING REPORT 2017				
GII RANKING	NATION	GLOBAL INNOVATION INDEX	POLITICAL STABILITY INDEX SCORE	POLITICAL STABILITY INDEX RANKING
1	Switzerland	67.69	95.64	3rd
2	Sweden	63.82	87.25	17th
3	Netherlands	63.36	86.40	21st
4	U.S.A	61.40	80.80	31st
5	United Kingdom	60.89	77.35	40th
6	Denmark	58.70	85.48	25th
7	Singapore	58.49	93.85	6th
8	Finland	58.49	89.03	11th
9	Germany	58.39	81.19	30th
10	Ireland	58.13	86.33	22nd

Table 1: GII Ranking report 2017

Note: Data on GII rankings from Cornell University, European Institute of Business

Administration and World Intellectual Property [Cornell, INSEAD, and WIPO] (2017). Bureaucracy could limit a country's capacity to drive up innovation. Therefore, many countries have established measures to reduce bureaucracy. An example is Portugal, where the government initiated the Legislative and Administrative Simplification Programme (Simplex) integrated within an e-government initiative, aiming to quickly reduce administrative burdens and increase the efficiency of public services (OECD, 2008). Thailand is another example: here, the SME Promotion Committee, established under the SME Promotion Act and chaired by the prime minister, has the mandate of setting strategy and coordinating policies across the government (OECD, 2011).

On the points of education, value system, and entrepreneurial culture, India is a noteworthy example. In India, one of the key foundations for the country's innovation capacity is its strong educational system. India has a number of world-class universities and research centres, such as the Indian Institute of Science, Indian Institute of Technology, and Indian Institute of Management. The higher education system in India also has exceptional performance in scientific publication output and citations (Cornell, INSEAD, and WIPO, 2015). India is also considered to have a very entrepreneurial culture compared to other G20 nations (Ernst & Young, 2011). The government's recently announced comprehensive plan to support the startup ecosystem (Startup India) also indicates a value system conducive to innovation and entrepreneurship.

POLICIES TARGETING MACRO-LEVEL FACTORS

Macro-level factors such as ease of business entry and exit, intellectual property rights (IPR) legislation, R&D programs, infrastructure, investment environment, and trade environment play an important role in driving innovation capacity in MSMEs.

- Ease of business entry and exit: shorten and simplify the business registration and business bankruptcy declaration process. As an example, Singapore and Hong Kong are renowned for being easy places to set up businesses. Anyone may open a company in approximately three working days in both Singapore and Hong Kong ("Doing Business — Singapore vs Hong Kong," n.d.).
- IPR legislation: help MSMEs, especially innovative ones, protect their valuable IPR through strong IPR regulation and enforcement. In Hong Kong and Singapore, there are strict regulations regarding intellectual property protection, and various dispute resolution channels are available ("Doing Business — Singapore vs Hong Kong," n.d.).

Another practice is the EU funding for four IPR help desks staffed by experts who provide free advice and training sessions on intellectual property (IP) issues (European

Commission, 2006). The European IPR help desk offers tailored advice to researchers and European SMEs participating in EU-funded research projects and to SMEs involved in international technology transfer processes. Three specialized help desks support European SMEs in China, Southeast Asia, and Latin America.

- Investment environment: create favourable procedures and incentives for investors. Several policies might be as follows:
 - + Introduce tax incentives for entrepreneurs, so that newly established companies can reinvest the tax reduction amount back into the company. For example: for newly established high-growth businesses, India exempts the corporation tax for three years (Startup India) (Financial Act 2016 of India). Singapore established corporate tax exemption for startups with lower than SGD100,000 revenue, and a lower tax rate of 8.5% (compared to the normal 17% corporate tax) for startups with SGD100,000-300,000 revenue (“Corporate tax rates,” n.d.).
 - + Introduction of tax incentives for venture capital investors (including angel investors, accelerators, or VCs), in order to attract investments into startups. For example: Australia grants 10 years of capital gains tax exemption for investments in startups (<http://www.innovation.gov.au/page/tax-incentives-investors>), and the United States provides angel investors with tax credit schemes for investments in startup companies (Bell, Wilbanks, and Hendon, 2013).
 - + Establish a stock market specifically for innovative companies, with fewer requirements and conditions for the companies to be listed. In July 2013, Korea set up KONEX, a securities exchange exclusively for SMEs and venture companies. It reported over 116 companies listed there by the end of 2016 (“KONEX,” n.d.).
- Trade environment: create a fair and supportive trade environment for MSMEs to join international markets. In the 1990s there were almost no regional trade agreements (RTAs) that had SME-related provisions, but by 2015, 136 out of 270 RTAs included such provisions (World Trade Organization, 2016). SME-related provisions found in RTAs are commonly in the categories of (1) promoting cooperation on SMEs and (2) specifying that SMEs and/or programs supporting SMEs are not covered by the RTAs’ obligations provisions. Other types of SME-related provisions found in limited RTAs regard government procurement, trade facilitation, electronic commerce, intellectual property, or transparency. Currently, the Japan-Thailand economic partnership agreement is the RTA with the highest number of SME-related provisions, mainly regarding IP and

- cooperation in the field of SMEs.
Infrastructure: provide for the need of MSMEs to innovate and grow. Singapore, for instance, is famous for its “One-north” master plan. This provides research and office space for hundreds of companies, startups, and research institutes, encouraging different stakeholders of the innovation ecosystem to collaborate and transfer knowledge (“One-north,” n.d.) (see further in Box 2 below).
- R&D programs: provide MSMEs with substantial amounts of money and support to develop technological innovation. For example, in Malaysia, multiple innovation incentives are provided for both the public and private sectors through its R&D programs under the Ministry of Science, Technology and Innovation.

BOX 2. SINGAPORE: THE ONE-NORTH MASTERPLAN

In 2001, with the vision for a smart nation direction, the government conceived the idea of the One-north master plan to catalyze the growth of research-intensive hubs in the biomedical sciences, the physical sciences, and engineering, where researchers from the public and private sectors could co-locate.

Currently, under One-north, there are many developments such as Fusionopolis, Mediapolis, Vista, Wessex, Rochester Park, Nepal Hill, Pixel, JTC LaunchPad, and Biopolis. Each serves as a hub for the development of a specific purpose, such as Fusionopolis focusing on ICT development or Biopolis boosting the biomedical industry. Over a vast area of land covered with the idea of connectivity, One-north aims to nurture the growth and sustainability of connections between researchers and entrepreneurs, between universities and industries, and between R&D and commercialization. In October 2015, with the completion of Fusionopolis Two, the One-north vision reached a meaningful milestone. Fusionopolis Two is a vibrant and dynamic hub that is home to over 250 companies, 600 startups, 16 public research institutes, and five corporate universities and institutes of higher learning. Together these make up an internationally diverse community of 16,000 scientists, researchers, and innovators coming from both the public and private sectors.

POLICIES TARGETING MESO-LEVEL FACTORS

Meso-level factors that affect MSME innovation mainly include: MSME business networks, MSME innovation clusters, angel investor networks, and access to domestic and international markets.

- MSME business networks: establish and support the operation of MSME business networks, encouraging the exchange of ideas, experience, and mentorship. For example, Spain created the Innovative SME Network in 2005 to encourage networking among SMEs through the web (Autio, Kronlund, and Kovalainen, 2007). In the UK, the government provides funding support to the Overseas Business Network to help MSMEs export to international markets (<https://www.neechamber.co.uk/international/overseas-business-network-initiative>).
- MSME innovation clusters: establish and support innovation clusters that provide MSMEs with shared innovation infrastructure and promote intensive interaction between MSMEs and research institutions within the clusters to enhance knowledge and technology flow. For example, Canada has started the Innovation Superclusters Initiative, with a budget of around C\$950 million to spend between 2017 and 2022 with the aim to increase business expenditures on R&D, generate new companies, and commercialize new products, processes, and services that position firms to scale, that nurture growth-oriented firms, and that strengthen collaborations between the private, academic, and public sectors (“Innovation Superclusters Initiative,” n.d.).
- Angel investor networks: create a network of high-net-worth and professional individuals that leverage their finances, knowledge, and experience in the business environment to help MSMEs grow faster and more sustainably. Lerner, Schoar, Sokolinski, and Wilson (in press) explore the rise of angel investing and compare it to venture capital. Two main findings are, “The angel group outperformed the venture capital industry overall” and, “Startups funded by angel investors are 14% to 23% more likely to survive.” Naturally, angel investor networks are created by the need from the market. A government can introduce tax incentives as a catalyst to accelerate the formation of angel clubs and eventually angel networks (European Commission, 2017).
- Access to international markets: enable MSMEs’ expansion into foreign markets by providing expertise and assistance. One such case is the Canadian Technology Accelerator Initiative (C\$5M). This initiative was created in 2009, with the establishment of centres in major tech hubs around the world. Canadian tech companies can benefit from a wide range of services, such as mentorship and

advice from industry leaders in the foreign market, office space in technology centres shared with other entrepreneurs and innovators, access to potential investors, and connections and networking in the technology business community (“Evaluation of the Canadian Technology Accelerator ,” n.d.).



Access to domestic markets: create a government program to procure MSMEs’ innovative products. In the European Union, government procurement, especially in terms of driving innovation forward, has been widely applied. For example, the establishment of three specific public procurement networks dedicated to innovation: Enprotex (procurement of protective clothing for workers in the public sector, like firefighters, police officers, and medical rescue personnel) (<http://www.ifv.nl/adviesenininnovatie/Paginas/Enprotex.aspx>); Sci-Network (a Sustainable Construction and Innovation Network that creates cross-border innovation-driven benchmarks within public construction and regeneration) (<http://www.sci-network.eu/home>); and LCB-Healthcare (low-carbon healthcare) which fosters collaboration on country-based pilot projects for low-carbon buildings and materials in the health-care industry) (LCB-Healthcare Project, 2011).

POLICIES TARGETING MICRO-LEVEL FACTORS

Access to finance, human resources, technological resources, and supporting services are the main factors in this level.



Access to finance: governments can support MSMEs’ innovation activities by improving their access to finance through financial measures such as grants, loans, equity finance, and credit guarantees (see examples in Table 2 below). For startups, grants for the pre-seed and seed stages from government programs are widely available; for example, the Start-Up Chile Program provides US\$30,000 in no-equity prize money and up to US\$60,000 follow-on investment for startups in the program (<http://www.startupchile.org>). Other examples are government equity financing, government co-financing with private VCs, for example, the Yozma Program by the government of Israel (<http://www.yozma.com>), the Singapore SG Fund (www.startupsg.net), and a government fund of funds such as that set up by the Indian government in the Startup India Scheme (<http://startupindia.gov.in>). Some countries have also legalized equity-based crowdfunding platforms to better engage community investment in startups: for example, in 2012, the US government issued the Jumpstart Our Business Startups (JOBS) Act, which sets out compliance standards for crowdfunding platforms (<http://www.sec.gov/spotlight/jobs-act.shtml>).

COUNTRY	TYPE OF FINANCE	DETAIL	PROGRAM/ ORGANIZATION
CHINA	Fund/loan/equity investment	<p>Startup capital. Targets small firms for new product development and pilot production. Maximum US\$160,000 per project (or US\$320,000 for key projects).</p> <p>Loan interest subsidy. Maximum US\$160,000 per project (or US\$320,000 for key projects).</p> <p>Equity investment. Targets a limited number of projects with a high level of technology, innovation capacity, and market potential in emerging industries. May not exceed 20% of the registered capital of the investee company.</p>	China's Innovation Fund for Small Technology-based Firms (Innofund)
NEW ZEALAND	GRANT	<p>Help commercialize technology from public institutions to private sector.</p> <p>Size: NZD8.3M per year.</p> <p>Funding for each project: maximum two years with maximum NZD250,000.</p>	Pre-seed accelerator fund
SINGAPORE	GRANT	<p>Up to 50% funding support for hiring external experts to improve management and operations.</p> <p>Up to 50% funding support to manage IPR.</p>	Local enterprise technical assistance scheme

Table 2. Examples of best practices for government support of access to finance

Note: Data on government support of access to finance for China from Innofund (<http://www.innofund.gov.cn>), for New Zealand from the Ministry of Business, Innovation & Employment (<http://www.mbie.govt.nz>), and for Singapore from SPRING (<http://www.spring.gov.sg>).

Human resources: improve MSMEs' human resource quality by providing technical assistance and innovation training programs for technical workers and management levels. For example, Australia has delivered the Smart SME's Innovation Commercialization Program, which focuses on building commercial skills and capabilities (Department of Industry, Innovation, Science, Research and Tertiary Education, n.d.). In terms of developing innovative startups, training supports may target both entrepreneurs, like the SPRING program in Singapore (<http://www.spring.gov.sg>), and startup trainers, like the Innovation Partnership Program which trains trainers in Vietnam (<http://ipp.vn>) (more examples in Table

COUNTRY	POLICY	DETAIL
CANADA	New Performance Measurement Framework to Support Canadian Incubators and Accelerators. Canadian Technology Accelerator Initiative.	Provide expertise and assistance for startups to access international markets.
JAPAN	Public Industrial Technology Research Institutes, or Kohsetsushi centres.	Provides Japanese SME manufacturers with a range of services including technology guidance; technical assistance and training; networking; and testing, analysis, and instrumentation. Encourages skills and capability-based competition among Japan's prefectures, incentivizing the prefectures to realize economic growth by helping local businesses grow.
AUSTRALIA	Smart SME Innovation Commercialization Program.	Build necessary skills and capabilities to help MSMEs commercialize their innovation.
The United States	Manufacturing Extension Partnership (MEP).	MEP has over 1,300 technical experts focused on solving manufacturers' challenges and identifying opportunities for growth. MEP is partly a special training program, the Innovation Engineering Management System, which includes a digital toolset, online collaborative workspace, and formal curriculum to help US manufacturers innovate and grow.

3).

Table 3. Examples of best practices for training and advisory supports

Note: Data on training and advisory support for Canada from the Canadian Technology Accelerators Initiative (<http://www.international.gc.ca/trade-commerce/cta-atc/index.aspx>), for Japan from Shapira (1992), for Australia from the Department of Industry, Innovation, Science, Research and Tertiary Education (n.d.), and for the US from Manufacturing Extension Partnership (<https://www.nist.gov/mep>).

Another way to absorb and develop human capital is to attract highly skilled labour from abroad through measures such as entrepreneur visas and favourable remuneration

COUNTRY	NAME OF PROGRAM	YEAR INTRODUCED	GUIDELINES
UK	UK tier 1 entrepreneurship visa	2008	Three-year residency permit (except for the Prospective category, which is six months). Requirement of maintenance varies.
Ireland	Startup entrepreneur program	2010	Two-year residency permit, renewable for three additional years. Requirement: access to €75,000 in funding.
Italy	Startup law, Italia startup visa	2012, 2014	One-year residency permit. Requirement: access to €50,000 in funding. Allows the applicant to collect a self-employment visa through an online fast-track channel with no application cost in less than 30 days.

packages for high-skilled diasporas. Some policies are detailed in Table 4.

Table 4. Examples of entrepreneurship visas

Note: Data on entrepreneurship visas for the UK from Gov.uk (<http://www.gov.uk/tier-1-entrepreneur>), for Ireland from Department of Justice and Equality (<http://> <http://>

● www.inis.gov.ie/en/INIS/Pages/immigration-permissions), and for Italy from Italia Startup Visa Initiative (<http://italiastartupvisa.mise.gov.it>).

Technological resources: provide measures to improve MSMEs' internal technological resources such as supporting their technology upgrades and measures to help MSMEs find external technologies such as supporting research collaboration and providing innovation vouchers.¹ For example, in 2015, the government of the Philippines established the Small Enterprise Technology Upgrading Program, which provides MSMEs with a comprehensive package of technology acquisition, product standardization, and design support (<http://ncr.dost.gov.ph/index.php/programs-and-services/technology-transfer-services/setup>). In another example, the Irish government provides multiple collaboration incentives such as €5,000 innovation vouchers for MSMEs to explore business opportunities or problems with registered knowledge providers as well as maximum €200,000 for companies to work with research institutes in joint research programs (<http://www.enterprise-ireland.com/en/Research-Innovation/Companies>).

Supporting services: provide multiple services to help MSMEs innovate, commercialize their innovation, and grow. For example, the Commercializing Emerging Technologies program in Australia subsidizes up to 80% of costs including marketing, commercialization, and IPR management service (<http://grantsspectrum.com.au/comet>). The Irish government provides a comprehensive online tool for MSME support which covers a wide range of services from helping MSMEs develop a business plan and set up a business to finding them mentorship and helping with hiring (<http://www.localenterprise.ie/Discover-Business-Supports/Supporting-SMEs-Online-Tool>).

1 Innovation vouchers refer to “small lines of credit provided by governments to small and medium enterprises (SMEs) to purchase services from public knowledge providers (universities, PRIs), promote collaboration and stimulate knowledge transfer, supporting, thereby, SMEs' innovations.” Retrieved from <https://www.innovationpolicyplatform.org/content/innovation-vouchers>.

SECTION 3

VIETNAM'S SITUATION AND IMPLICATIONS FOR DEVELOPING COUNTRIES IN THE APEC REGION

MSMEs have always played an important role in Vietnam, accounting for nearly 98% of the total number of enterprises in the country (over 600,000 enterprises by Q2/2017) in terms of employment force, and 94% of total capital assets. Breaking down the MSME sector:

- 73% are micro-enterprises (with fewer than 10 employees), more than 23% are small enterprises (between 10 and 50 employees), and less than 2% are medium-size enterprises (with between 50 and 200 employees) (Vietnam Chamber of Commerce and Industry, 2017);
- 25% of MSMEs have female owners (Hanoi Women Association of Small and Medium Enterprises and Mekong Business Initiative, 2016) which is much less than the percentage of 38%-47% in developing countries (International Finance Corporation, 2011);
- MSMEs contribute about 41% of GDP, 33% of government revenue, 35% of total private sector investment capital, and 50% of economic growth (Can, 2017); and
- MSMEs account for 77% of the labour force (Can, 2017). In many regional areas, MSMEs have absorbed most of the non-agricultural labour force and used regional natural resources.

The MSME sector of Vietnam has enjoyed many opportunities since the country pursued an open economy in 1986. Numerous trade agreements give Vietnamese businesses access to broader international markets. The improvement in Vietnam's position in the Global Competitiveness Index (World Economic Forum [WEF], 2017) in the last few years is also a sign of better market conditions. WEF (2017) associates this improvement with the increasing level of technological readiness, mainly owing to the large number of fixed-line broadband Internet connections and mobile broadband subscriptions, and the enhanced labour market in the country. These opportunities could partly explain why MSMEs have increased their level of investments as well as product diversity in the last few years (Central Institute for Economic Management [CIEM] et al., 2016).

However, despite the increasing position of the country's overall innovation ranking in the GCI and GII, recent surveys and research indicate a low and declining rate of innovation activities in MSMEs (CIEM et al., 2016). According to the 2014 survey by the General Statistics Office of Vietnam, the average percentage of companies' investment in technology upgrades over revenue is estimated to be around 0.2% to 0.5%. The same survey also shows that Vietnamese companies' R&D spending as a percentage of revenue is on average less than 0.01% (An, 2017), which is relatively low compared to the world average of more than 2.5% and around 4%-5% in Korea, Japan, and the EU. A high proportion of MSMEs do not prioritize or have a strategy for investment in talent or R&D. Further, most of them do not have a culture conducive to employee training and knowledge exchange (Chinh, 2016). Those that innovate do it primarily through upgrading their products; fewer do so through upgrading their production process; and the smallest number innovate by introducing new products (CIEM et al., 2016).

According to a report by the Ministry of Science and Technology, most of the MSMEs in Vietnam are using production technologies that are two to three generations older than the world average (Hai, 2015). In the same report, the ministry posits that 76% of imported machinery and equipment used by MSMEs is from the 1960s and 1970s. Overall, the technology level of Vietnam is much lower than that of many countries in the ASEAN region as well as the world. According to CIEM's 2015 MSME report, the lack of competitive capabilities is one of the main reasons for the low rate of exporting enterprises (below 7%). Further decreasing export potential is the fact that the rate of MSMEs without product and environmental qualification certificates is increasing (CIEM, 2016). As a result, most MSMEs that export are only able to sell raw materials or low-added-value products (Hai, 2015).

MSME innovation in Vietnam faces multiple challenges, including low levels of human resource and technical capability; lack of S&T infrastructure, and technology inputs;

low level of business complexity; financial constraints; heightening competition from domestic and foreign markets (Hoang, 2016; WEF, 2017). From the micro-level perspective, the small size of firms limits economies of scale, innovation development, and technology absorptive capacity. In fact, in terms of size of capital assets, those of an MSME is on average only equal to 1.5% of a state-owned enterprise and 8% of an FDI company (Ho, 2017). The lack of medium-sized companies and poorly developed supporting industries are said to be some of the main reasons that Vietnam has not benefited from technology spillover from FDI (WB and MPI, 2016). Management and human resource quality in Vietnamese MSMEs appears to be inadequate for effective innovation activities.

According to recent research, more than 75% of the labour force in MSMEs have not gone through any professional technical training (Pham, 2016). The research also found that very few people in management positions in MSMEs have received management training, or have a general economic understanding and knowledge of domestic and international business policies. Even MSMEs that want to innovate often lack financial resources and have a hard time accessing finance from banks due to stringent requirements around collaterals, lengthy and complicated procedures, and banks' hesitance to tolerate innovation-related risks (Le, 2016). From the macro-level perspective, the dominance of state-owned enterprises in the market leaves less room for MSMEs to enter government procurement contracts, as well as receiving less incentives for innovation (Le, 2016). The general low level of technology supplies from universities and public research institutions, as well as difficulties in technology transfer processes (WB and MPI, 2016), makes it hard for MSMEs to source needed technology. Slow economic recovery and sluggish performance in global and domestic markets means that there is low demand for many products MSMEs produce. At the same time, prices of raw materials remain high. This situation forces many MSMEs to cut down on their business activities and incur losses (Pham, 2016), which in turn, leaves them even less capacity for innovation.

ANALYSIS OF VIETNAM'S INNOVATION POLICY FOR MSME DEVELOPMENT

Vietnam's general institutional frameworks toward the private sector and MSMEs are relatively complete and comprehensive (Hoang, 2016). The first MSME-specific policy was Decision No. 90, established in 2001. This stipulates general directions for the central and regional governments to support SME development activities. The most important content in this decision is the introduction of the National Agency for SME Development and the SME Credit Guarantee Fund. In 2009, the prime minister issued Decree No. 56 on SME supports, which integrated many mechanisms regarding finance,

credit, technology, training, information and consulting, and market promotion. Besides the decree, MSMEs could tap into different government incentives for general enterprise innovation activities, such as: Decision No. 51 (2003), for supporting ICT companies; and, Decree No. 80 (2007) (and follow-up revisions), on incentives for S&T enterprises, tax breaks for enterprise-level S&T funds, and low tariffs for importing machinery and equipment (among other measures). At the regional level, there are SME technical assistance centres, technological transfer centres, high-tech parks, and public business incubators that provide technical and innovation support for MSMEs.

In 2016 and 2017, the government gave significant attention to the issue of MSME development, especially promotion of MSME innovation. In 2016, the government issued Resolution No. 35 on enterprise development, in which one of the key targets is that by 2020, 30%-35% of enterprises in Vietnam will undertake innovation activities. In 2017, Resolution No. 19 on improving the business environment aims to have 1 million enterprises by 2020, of which 0.5% are innovative startups. Concurrently, the government has established a number of institutions supporting innovation. In 2016, the government launched both the National Innovation Fund (NATIF) and the SME Development Fund (SMEDF). In the same year, the prime minister signed Decision No. 844 to pass the National Program to Support Innovative Startup Ecosystem. In June 2017, the parliament passed the SME Support Law, in which there is a chapter on supporting MSME innovation and innovative startups.

Overall, besides the recent 2016 and 2017 policies directed toward MSMEs, programs to support MSMEs have not achieved as much success as expected. Major contributing causes appear to be the lack of clarity and redundancy in procedures for policy support, and the overlapping roles and lack of coordination among government agencies (Hoang, 2016). MSMEs also lack the information and resources required to undertake the application processes for support and development initiatives and services. As a result, government incentives are often given to larger companies rather than smaller companies in need. Furthermore, the lack of coordination among ministries and departments makes the implementation of such policies difficult.

Table 5. lists the comprehensive innovation policy framework for MSME development in Vietnam

MSME INNOVATION SUCCESS FACTORS	POLICY MECHANISM	SPECIFIC POLICIES AND POLITICAL ENVIRONMENT IN VIETNAM	CHALLENGES
NATIONAL STRATEGY			
National strategy for innovation	Government decisions, resolutions, national planning	Resolution No. 19 in 2016 assigns government to develop the national innovation system, yet no further detail was provided. The most recent five-year plan to support SMEs was set for the period 2016-2020, in which supporting SME innovation is one of the priorities.	Lack of a national innovation system framework and strategy. Positioning of MSMEs in the national innovation system is unclear. Strategies are often not based on reliable data.
INSTITUTIONAL LEVEL			
Entrepreneurial culture	Create media/educational program for society to understand the role of entrepreneurs	Television programs on entrepreneurship, e.g., "Startup Nation," "Startup Wheel." October 13 is recognized as Vietnam Entrepreneur Day to celebrate the role of entrepreneurs in society (Prime Ministerial Decision No. 990 in 2004).	Still little cultural acceptance of risk and failure.
Education	Build a strong technology and entrepreneurship educational system	Technical schools and universities produce a large number of students. In 2017, the government created the national program to support student startups until 2025 (Decision No. 1665).	Higher education quality is still not high compared to regional and world standards. Educational system has not really equipped students with practical skills needed for the workplace.
Political stability	Stable political environment; predictable policy change	A relatively stable political environment.	Unpredictable policy changes following change in government might reduce long-term investment.
Bureaucracy	Simplify administration procedure; one-stop shop; data sharing	The government has deployed a one-stop shop mechanism in some areas, e.g., launching a trade portal in 2017 for businesses to learn about export-import regulations and procedures.	Still a high level of bureaucracy in many government functions.

MSME INNOVATION SUCCESS FACTORS	POLICY MECHANISM	SPECIFIC POLICIES AND POLITICAL ENVIRONMENT IN VIETNAM	CHALLENGES
INSTITUTIONAL LEVEL			
Value system	Provide training for policymakers regarding entrepreneurship and innovation; organize inter-ministerial task force to build and implement policies on MSME innovation support	<p>Country leaders recognize the importance of innovation and national innovation system development (demonstrated through various resolutions and instructions).</p> <p>Few training sessions were organized for improving policymakers' understanding of entrepreneurship and innovation.</p> <p>The Committee to Encourage SME Development was established by the prime minister (Decision No. 1918 in 2010), which acts as a task force among different ministries to build and implement supports for SMEs.</p>	The understanding on MSME innovation development is still not uniform across the ministries.
MACRO LEVEL			
Ease of business entry and exit	Clear regulations that make it easy for businesses to be established and to declare bankruptcy	<p>The Law on Enterprise 2014 aims to standardize the business registration process and make it easier for businesses to be established.</p> <p>In 2017, the Ministry of Industry and Trade announced the removal of 675 sub-licenses for business and investment.</p> <p>The Law on Bankruptcy 2014 aims to ease the process for declaring business bankruptcy.</p>	<p>There are still estimated more than 500 sub-licenses that create hassles for business.</p> <p>The process for bankruptcy declaration is still complicated and takes a long time.</p>
IPR legislation	Comprehensive regulation on IPR protection and focus on effective implementation	IPR law came late (first started in 2005 and revised in 2009) but inherits much from the US and other developed countries' IPR regulations.	IPR enforcement is weak. There is a lack of clarity on criminal penalties for IPR violation.
R&D programs	R&D programs that include both public institutions and MSMEs; give adequate support to the commercialization process	<p>Many research support programs targeting universities, research institutes, and state-owned enterprises; some for MSMEs.</p> <p>Ministerial Circular No. 15 (2014) allows universities, research institutes, and enterprises to receive official ownership and the right to use the results of publicly funded research.</p>	<p>Implementation of research programs has not been very effective. For example, there is no efficient system to check overlapping subjects. Further research funding is not granted for a continuation of the same research. Funding is small and scattered. The funding process is complicated with lengthy and unclear paperwork.</p> <p>No adequate incentives for universities and research institutes to commercialize publicly funded research results.</p>

MSME INNOVATION SUCCESS FACTORS	POLICY MECHANISM	SPECIFIC POLICIES AND POLITICAL ENVIRONMENT IN VIETNAM	CHALLENGES
MACRO LEVEL			
Investment environment	Clear regulation regarding VC registration and operation; tax incentives; financial market for startups	<p>The SME Support Law (2017) allows establishment of private VCs and regional government's co-investment with private VCs.</p> <p>The Corporate Tax Law (2008) allows firms to use a maximum of 10% of their taxable yearly income to establish internal S&T funds.</p> <p>The Technology Transfer Law (2017) allows enterprises' internal S&T funds to invest in innovative startups.</p> <p>S&T enterprises can apply for a corporate tax rate of 10% after being certified; 100% tax break for the first five years and 50% for the next nine years since realizing profit. Other incentives for S&T enterprises including land use and credit access privileges.</p>	<p>Investor tax incentives were discussed in the process of making the SME Support Law and the Revised Tax Law; however, they were not passed.</p> <p>Lack of regulations on crowdfunding and stock market for MSMEs and startups.</p> <p>MSMEs find that the 10% of taxable income allowed to establish S&T fund is too small to carry out necessary innovation activities.</p> <p>The complicated process for being certified as S&T enterprises and claiming incentives wears companies out (by the end of 2016, only 250 S&T enterprises were certified, compared to the goal of 3,000 S&T enterprises by 2015 and 5,000 by 2020).</p>
Infrastructure	Technology labs	<p>Highly equipped core national technology labs and various labs in universities and research institutes exist.</p> <p>S&T Law of 2013 provides incentives for S&T enterprises to get access to the core national technology labs.</p>	MSMEs still hardly get access to public technology labs.
Trade environment	Low tariffs for imported capital goods; stable exchange rate and inflation; free trade agreements (FTA)	<p>ICT import tariff is kept at a reasonably low level.</p> <p>Almost 0% tariffs for import of equipment and machinery that can not be produced in Vietnam.</p> <p>Exchange rate and inflation rate have been stable.</p> <p>Vietnam involved in 16 FTAs.</p>	Heightened competition in the international market.

MSME INNOVATION SUCCESS FACTORS	POLICY MECHANISM	SPECIFIC POLICIES AND POLITICAL ENVIRONMENT IN VIETNAM	CHALLENGES
MESO LEVEL			
MSME business networks	Support the establishment and development of MSME business networks	Vietnam Chamber of Commerce and Industry (VCCI) and Vietnam Association of Small and Medium Enterprises (VINASME) are the business networks directly related to MSMEs. There are also business networks in different industries.	The roles of VCCI and VINASME are not clear and sometime overlap, which might confuse MSMEs.
MSME innovation clusters	Support the establishment and development of business incubators; support MSMEs in accessing facilities in industrial, high-tech parks	SME Support Law of 2017 provides the following: Land rental subsidy for MSMEs in industrial parks, industrial clusters, and high-tech parks. Assign different ministries and regional governments to participate in the establishment of business incubators and technical support centres for MSMEs through private-public partnership model.	More time is required for the policy to be proven effective.
MSME financial networks	Support the establishment and development of different financial networks for MSMEs	N/A	There has not been an effective channel to draw financial resources from society to MSME innovation.
Access to domestic markets	Government procurement	According to the Technology Transfer Law (2017), the government can procure technologies developed by private enterprises if the technologies are beneficial to national social-economic development or security and defense.	Current procurement procedure is too stringent for MSMEs. For example, young innovative MSMEs cannot meet the requirement of certain years of experience in the market. There has not been detailed procedure for MSME procurement from the Technology Transfer Law (2017).
Access to international markets	Export promotion (e.g., promotion of export alliances and exposure tours)	250 industrial and export processing zones. The government often organizes trade tours to introduce creative or innovative products by MSMEs to the international market.	MSMEs still lack finance, adequate human resources skills, and product standardization to join the international markets.

MSME INNOVATION SUCCESS FACTORS	POLICY MECHANISM	SPECIFIC POLICIES AND POLITICAL ENVIRONMENT IN VIETNAM	CHALLENGES
MICRO LEVEL			
Access to finance	Grants, loans, equity finance, and credit guarantees for innovation in MSMEs	<p>27 SME Credit Guarantee Funds since 2001.</p> <p>The National Innovation Fund (NATIF), established in 2016, supports enterprises to develop new technology, update their current technology, commercialize their technology, and hire international experts for R&D projects.</p> <p>According to the Technology Transfer Law (2017), the National Technology Innovation Program needs to give favourable funding for MSMEs to innovate technologies and commercialize research results.</p> <p>The SME Development Fund (SMEDF), also launched in 2016, includes a program to support innovative MSMEs. The loan cap is VND10B (about US\$500,000) and not over 70% of total project investment. The total program value of is VND100B (about US\$5M).</p> <p>SME Support Law (2017) stipulates that local/regional governments, through public financial organizations, can co-fund startups with private investment funds companies with a condition to exit after maximum five years.</p>	<p>SME Credit Guarantee Funds have not been effective. By the end of 2016, charter capital is VND1.462T (about US\$70M) yet the amount of loans guaranteed is only VND361B (about US\$15M). The funds and banks often do not agree on the lending and guarantee conditions and procedure.</p> <p>The harsh punishment for managers of government-owned funds when making investment losses makes it hard for them to select innovative, small, and risky MSME projects.</p> <p>Government has not approved hiring of fund managers from the private sector. Most of public sector managers without real business and investment experience are not likely to be able to manage funds efficiently.</p> <p>The five-year exit requirement for government equity-based investment in startups is not compatible with real-life startup investment practice.</p>
Human resources	Government procurement	<p>There are government-organized trainings for MSMEs.</p> <p>National Program to Support Innovative Startup Ecosystem (Decision No. 844 in 2016) gives funding to improve the capacity of startup-supporting organizations such as incubators and accelerators, and also to organize training and advisory activities for startups.</p>	<p>The quality of government-organized training activities is often not competitive compared to private-sector training services.</p> <p>The process of acquiring government funding support for private training and advisory organizations is often too complicated and lengthy.</p>

MSME INNOVATION SUCCESS FACTORS	POLICY MECHANISM	SPECIFIC POLICIES AND POLITICAL ENVIRONMENT IN VIETNAM	
MICRO LEVEL			
Human resources	Talent transfer from public institutes to MSMEs	N/A	There is a discrepancy between the lack of technical/innovation skills in the MSMEs and their abundance in the public sector.
	Getting talent from overseas	The US\$110M project “Fostering innovation through Research, Science, and Technology” (FIRST) co-funded by the World Bank and the Ministry of Science and Technology has three funding groups, one of which is to help SMEs and research institutes to invite overseas Vietnamese experts to join research collaboration in Vietnam.	FIRST program was halted for a period of time. The result is not yet proven. There is no special visa to attract foreign entrepreneurs and experts.
Technological resources	Encouraging technology and knowledge transfer among MSMEs and other stakeholders including public institutions, large enterprises, and other MSMEs	<p>According to the S&T Law (2013), the government prioritizes funding to joint research projects between private enterprises and public research institutions.</p> <p>Local governments’ technology exchanges have the main function of connecting technology supplies and demand but have not proven effective.</p> <p>Some programs from international organizations (e.g., the innovation partnership program between Finland and Vietnam) encourage collaboration among Vietnamese MSMEs and international counterparts.</p>	<p>Level of collaboration between MSMEs and universities and research institutes is still low.</p> <p>There is a lack of incentives to establish and develop efficient technology transfer offices in universities and research institutes.</p> <p>There is a lack of incentives for collaboration between MSMEs and corporations or for collaboration among MSMEs.</p>
Supporting services	SME supporting centres; technology intermediaries	<p>There are publicly funded SME-supporting centres and technology intermediaries (e.g., technical assistance centres and technology transfer offices) throughout the country.</p> <p>Resolution No. 35 in 2016 promotes SME support activities through providing services such as training, consulting, and marketing.</p>	This infrastructure and the expertise of the staff is often not adequate.

Note: Authors compiled data from policies, regulations, reports, and interviews with policy experts from relevant policymaking/implementing agencies including the Ministry of Planning and Investment, the Ministry of Science and Technology, the Ministry of Finance, the Ministry of Industry and Trade, and Vietnam Television.

RECOMMENDATIONS FOR VIETNAM

Based on the current standing of Vietnam’s innovation policy framework, as well as international best practices, this section presents recommendations to improve domestic MSME innovation. The next section addresses general recommendations for APEC developing countries that could also be applied in the Vietnamese context.

A) IMPROVE POLICYMAKING, DEPLOYMENT, AND IMPLEMENTATION PROCESSES

The lack of a national innovation system (NIS) framework and positioning of MSMEs in such a framework makes it hard for government to establish strategies for MSME innovation development. Therefore, it is necessary that the government officially announces the NIS framework as well as its strategy, in which the role of MSMEs as well as the relationship between MSMEs and other innovation stakeholders (i.e., universities, research institutes, large corporations, and investors) is clearly articulated. Only then can the government make comprehensive policies to improve MSME innovation. Concrete long-term strategies could also help reduce the unpredictability of short-term policy change, giving investors more peace of mind when making investment decisions for MSME innovation.

One of the reasons for the low level of implementation efficiency in Vietnam is the lack of evidence-based policymaking. This leads to over-ambitious goals and incentives that might not match the reality of the situation and take adequate measures to address problems (e.g., the case of setting goals for establishing S&T enterprises). Therefore, the government should build a database on MSMEs, containing their characteristics, challenges, and needs. This could be used to make better-informed policy. Policymakers should also engage MSMEs more in the policymaking process, so that policies better reflect their problems and needs. Moreover, to reduce overlap of policies and policy barriers to MSME innovation, there should be a central body that reports directly to the prime minister and is charged with making national MSME development strategy and screening of all government policy drafting, to ensure they align with MSMEs’ needs. With regard to policy deployment, one of the reasons behind the lack of collaboration among ministries and regional departments is that there is nonuniform understanding and limited capacity among government officials within them to support MSME innovation. Therefore, regular training for government officials and inter-ministerial meetings/task forces when making policies for MSMEs is important.

The government should also focus on making the process of policy implementation more transparent and friendly to MSMEs. One way to achieve this would be to

gradually move to an online application and evaluation process, cutting down the resources used on unnecessary paperwork. The government should provide detailed instruction and support for MSMEs to access government incentives, and should carry out ongoing reviews of the effectiveness of policy implementation processes. Grant evaluation should be results based rather than process focused, meaning that MSMEs could be less occupied with getting the right detailed costs and financial proofs of project subcomponents, and more focused on delivering the best impact using government funding.

B) IMPROVE MSMEs' MOTIVATION TO INNOVATE

Lacking understanding of the benefits of innovation is one of the reasons for MSMEs' low level of innovation activities. In combating this, regular promotional seminars and forums, as well as training sessions should be held to help MSMEs understand the benefits of innovation. Moreover, without a direct target for innovation, MSMEs may not have an incentive to innovate. The government should develop a detailed procurement policy for innovative MSME products, especially those that solve social and environmental issues, and help reach national and regional development targets. Reduction of overprotection and funnelling of subsidies to state-owned enterprises and large firms will help open a more level playing field for MSMEs, helping them to build confidence through realization of their competitive advantages in pursuit of innovation. To give MSMEs confidence in the security of their IPR and ownership when developing new technologies and know-how, the government should increase penalties, pursue complaints, and prosecute offenders of IPR violations.

C) IMPROVE MSMEs' INNOVATION CAPABILITIES

MSMEs' innovation capabilities depend strongly on the availability and quality of S&T infrastructure and expertise. The government should focus on improving MSMEs' access to public research infrastructure (such as core technology labs), as well as providing incentives for collaboration between MSMEs and universities and research institutes. One policy to drive collaboration that has proven its effectiveness in other countries is the use of innovation vouchers. Innovation vouchers are also a way to increase the use of publicly funded research by directing research toward the development of practical and needed outcomes. Complementary to this, the government should also focus on establishing strong and effective technology intermediaries to help researchers find the right MSME customers and vice versa.

Beyond incentivizing collaborative endeavours through research vouchers, tax incentives should be given to state-owned enterprises, large domestic firms, and FDI

enterprises to encourage them to procure from MSMEs, and also to collaborate with them in R&D projects, and involve them in innovation training.

Another method for improving MSMEs' innovation capabilities is through an effective mentoring and coaching system. Rather than merely channelling funds to external actors, the government can play a central role in building networks of mentors, as well as supporting activities to match MSMEs with relevant mentors. The government can also impose conditions for gaining innovation funding with requirements to undertake training, mentoring, and coaching to ensure that MSMEs have adequate knowledge, skills, and backing from advisory support to competently carry out their innovation projects.

The government should also allow hiring of experienced and highly qualified personnel from the private sector to run public incubators, accelerators, and technology intermediaries to support innovative MSMEs most effectively.

To alleviate the issue of a lack of qualified human resources, the government should create special skilled labour visas as well as entrepreneur visas for international entrepreneurs to establish businesses in Vietnam. As labour mobility in startups is often high, Vietnamese employees, after gaining hands-on experience from working in international startups, may be more competent to open their own businesses or join other Vietnamese startups. This flow of knowledge and human resources will help to create a vibrant entrepreneurial environment in the country.

Besides technical capabilities, MSMEs also need to improve product design and marketing activities to achieve higher added value. Similar to the idea of innovation vouchers, the government should establish a “design voucher” incentive, which gives MSMEs financial support to source product design and marketing services of their choice.

D) CREATE FINANCIAL INSTRUMENTS THAT ARE RELEVANT FOR MSME INNOVATION ACTIVITIES

As most research stresses the importance of access to finance for MSMEs' innovation activities, the government should create financial instruments that provide MSMEs with better financial access, within the government's budget constraints and limitations. By building a regulatory foundation for crowdfunding platforms, the government will better enable the community to engage in the MSME innovation financing process. While currently existing in limited form, a regulatory basis to expand options through various forms of crowdfunding platforms — reward-based, loan-based, and equity-based — will help MSMEs attract resources more effectively.

Crowdfunding platforms could also have specific focuses, such as raising funds for women and young entrepreneurs, and sustainability projects.

Another way to attract investment for startups is to build flexible investment regulations so that foreign investors can easily invest in innovative Vietnamese startups and take their money out of the country. The government should also establish tax incentives for angel and institutional investors as well as support the establishment of angel investor networks to encourage more venture capital investment.

To incentivize MSMEs to invest in innovation, the government should remove the ceiling of 10% corporate income currently allowed for S&T funds, and also enable different MSMEs to pool investment and resources into these funds to enable collaborative R&D and innovation projects. The government should also build uniform, detailed, and clear procedures for MSMEs to use IP as collateral for easier access to bank loans.

The current stipulation in the SME Support Law is ambiguous on the conditions and procedure for the government's own equity investment in startups. Based on the experiences of other countries, the government should not invest directly in startups but instead allow for the establishment of a government fund of funds to invest in private VCs, which are better positioned to manage startup investment. One of the most important regulatory changes required for these funds' success is acknowledgement of inherent (potentially) very high risks and acceptance of failure for individual projects. This should be complemented by the government building a clear procedure for dealing with failure of individual funds. Since failure is not a socially and culturally accepted norm, the government should send a clear message to the public and investors that acknowledges the possibility of financial failure of individual projects and funds but also focuses on non-financial success, such as the number of innovations that get tested, the human resources that are trained, and so forth. As well, with the aim of making the most informed and appropriate decisions, relevant experts from the private sector, primarily those with prior investment experience, should be brought in to manage the government fund of funds.

Finally, investors (both private and public) are only interested in investing in startups when there are feasible exit options. The government should consider building procedures for innovative MSMEs and startups to join the existing stock markets, or establishing a specialized stock market for them. Considering the still-emerging state of the stock (and related financial) market in Vietnam, this option might not be currently feasible but is worth developing in the longer term.

IMPLICATIONS FOR APEC DEVELOPING ECONOMIES

Beyond Vietnam, many developing APEC countries share similar challenges in MSME innovation, including a lack of access to finance, inadequate infrastructure, limited innovation capabilities, and ineffective policy implementation (Goyal, 2015). The Global Innovation Index 2015 (GII) report (Cornell, INSEAD, and WIPO, 2015) also pointed out multiple obstacles faced by developing economies in their policymaking process. Limited data, primarily owing to the high level of informality of MSMEs, results in governments' lack of understanding of this sector. Budgetary constraints while dealing with multiple social issues, such as rapid population growth and high rates of unemployment, coupled with significant inequalities, prevent governments from developing a comprehensive innovation strategy. At the same time, many economies rely mostly on low value-added economic activities such as agriculture, raw material extraction, and basic manufacturing. The macro-environment is often not built on strong institutional pillars to support market development and effective regulatory setup, where corruption and bureaucracy easily mar the effectiveness of policy implementation.

According to the same report (GII), a large part of government support goes to large companies with rent-seeking behaviour, rather than smaller companies in need. Universities and research institutions often lose touch with industry, and the quality and functionality of research outcomes seldom meet market demand. Weak IPR enforcement is a deterrent for both public institutions and private companies to invest in innovation activities. Many developing economies provide incentives to attract FDI, but the level of spillovers (in knowledge and technology) received in return could be higher. At the same time, governments often do not spend adequate effort on building domestic companies' absorptive capabilities. Different ministries often work in silos, so that policies are made by one ministry in isolation and are not honoured by other ministries. There are often overlapping policies, but also frequently gaps, with areas that policies have not accommodated. Similar issues in coordination are passed down to regional governments and authorities. Institutional frameworks are based not only on government policies, but on cultural and social norms, many of which are not favourable to innovation and entrepreneurship development, yet are hard to change.

To tackle these challenges and obstacles, various measures can be taken, such as:

- a) Build a comprehensive and regularly updated online database on MSMEs that could help policymakers create policies based on real market demand and suitability for the situation.
- b) Encourage private sector involvement in supporting MSME innovation

development. For example, the government could provide incentives for large corporations to support MSME innovation through corporate procurement programs, corporate startup incubation programs, and training for their MSME suppliers. This involvement of the private sector could lighten the load on government resources.

c) Create joint programs with international organizations (i.e., NGOs, inter-governmental agencies, and foreign governments) to support MSME innovation. By doing so, governments can increase the pool of supporting resources and use international organizations' expertise and best practices.

d) Ensure that investment regulations are more open for international investors to invest in domestic innovative MSMEs and startups; allow them to easily take their entitled earnings out of the country. These open regulations could bring both investment volume and investment expertise from international investors to developing countries.

e) Establish and sustain angel investor networks, support training of local angel investors, and provide suitably placed and adequately equipped venues for angel investors and innovative MSME and startups to meet and explore investment opportunities. By doing so, governments could help increase funding for early stage MSMEs and startups, possibly reducing the rate of startup failure.

f) Incorporate MSME support measures into other national industry support plans, for example, the ICT promotion plan, the manufacturing support plan, etc. This could save government resources and reduce the amount of policy overlap.

g) Reduce unnecessary procedures in MSME grant support initiatives and use independent private-sector actors to judge grant applications. The criteria of these grants are often based on the level of innovation, feasibility, and impact (e.g., expected number of jobs created) of MSMEs' projects. Judging should be done by panels of actors from diverse backgrounds (including domestic and international backgrounds, and including as diverse a range of expertise and experience as possible) to ensure that the most unobscured and objective decisions are made. This will help to ensure financial support is directed to the right MSMEs, and increase spending efficiency.

h) Use government procurement programs to acquire innovative solutions from MSMEs to address national development and social issues, such as inequality, pollution, health care, etc. This will help MSMEs get a foothold in the market,

prove their legitimacy, and increase their motivation for innovation. The government benefits by obtaining appropriate indigenous innovation that addresses domestic issues at a lower cost, in a shorter timeframe, and with better suitability for local needs than international technologies.

i) Increase coverage of IPR protections and efforts in enforcement, and help MSMEs understand the importance of IPR protection. This could increase motivation for MSMEs to innovate, knowing that the benefits from their IPR are protected.

j) Broaden the use of novel assets (such as IP) as collateral to acquire loans, and provide incentives for banks to lend to MSMEs with innovative projects, for example, through governments' MSME guarantee funds. This could increase MSMEs' access to finance for innovative and risky projects.

k) Focus on the development of reliable and future-ready ICT infrastructure that will reach the broader population in a short period of time. This could be a foundation for MSMEs to innovate as well as reaching out to both domestic and international customers more easily.

l) Reduce the time for business registration and make it easier and more convenient for MSMEs to declare bankruptcy. This can help increase the size and vibrancy of the MSME sector, and at the same time will allow inefficient MSMEs to fail fast and channel resources to more productive uses.

m) Use entrepreneurial visas to attract talented foreign human capital. The more international entrepreneurs setting up their businesses in developing economies, the more domestic MSMEs and startups can learn from their practices, creating a healthy knowledge flow.

n) Support export by MSMEs by ensuring a favourable trade environment (i.e., stable exchange rates and various trade agreements) and provide them with necessary funding and consultancy services to expand their businesses overseas. MSMEs that export will have to compete internationally, which will force them to innovate and improve their products regularly.

o) Provide regular training and technical support for MSMEs on innovation development and management. This will help ensure that MSMEs can gain knowledge on both why they should innovate and how to innovate and will have adequate support during their innovation process.

p) Encourage technology transfer from universities and research institutions to MSMEs by introducing innovation vouchers and building effective technology intermediaries. Innovation vouchers will make sure that government funding for MSMEs goes directly to improving their innovation capacity, preventing misuse of funds. These vouchers create healthy competition for universities and research institutes to create better and more applicable technologies for MSMEs. Technology intermediaries will help connect technology supply from universities and research institutes with demand from MSMEs.

q) Monitor and publish annual results of regional and ministry performance against indices that measure MSME support, especially toward MSME innovation. This will increase the transparency of effectiveness of policymaking and policy implementation processes, and support revision of existing practices and initiatives to be more effective.

r) Have a specialized central government body or task force in charge of screening existing and new policy drafts. This will help remove legal barriers for MSME development and gradually improve government policymaking.

CONCLUSION

Recognizing the importance of innovation and MSMEs for economic growth, governments around the world have created various policies to support MSME development and participation in innovation activities. Using a level analysis approach, we have identified best practices in policies targeting institutional, macro-, meso-, and micro-level factors that affect MSME innovation, in both developed and developing countries contexts — from the US, UK, and EU to China, India, and the ASEAN economies. Findings indicate that countries with successful innovation performance in MSME sectors build strong institutional conditions that are conducive to entrepreneurship and innovation. They show that there should be a focus on relevant macro-economic policies such as tax incentives, R&D programs, IPR protection, and innovation-supporting infrastructure, to increase both supply and demand of innovation. At the same time, measures should be taken to enhance MSMEs' innovative capacity, including improving access to finance, provisioning of training and advisory services, and providing incentives for talent attraction and technology collaboration between MSMEs and other innovation stakeholders. Support should also be available to assist MSMEs to gain access to domestic and international markets.

Comparing against best practices, we found that Vietnam's general framework for MSME innovation is somewhat comprehensive. The main challenge that the country faces is its lack of implementation efficiency. This is due to the low quality of S&T infrastructure and publicly funded research results, limited coordination among different ministries and regional governments, high levels of bureaucracy, and a general lack of relevant skills and experience held by personnel in government agencies in charge of MSME innovation support.

Many of the challenges identified in Vietnam are not exclusive to the country, but commonly found across APEC developing economies. Hence, in addition to specific measures to address key issues in Vietnam, we proposed general recommendations that could be applied in these related contexts.

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