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Advancing Free Trade
for Asia-Pacific **Prosperity**

High-Growth, Innovative Companies in APEC Economies: Support Programs and Policy Recommendations

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1. A brief overview of support programs for high-growth companies in APEC economies

In recent years, high-growth, innovative companies have attracted the attention of specialists in the field of industrial policy. Economies across the world are engaged in discussions regarding the expediency of various tools and methods used by the authorities to stimulate development, as well as attempts to implement comprehensive programs and tools to create the most favorable conditions for the development of these businesses. Terminological and occasionally meaningful discrepancies exist; in some economies, it is more common refer to support for high-growth, innovative companies, while others use the term “hidden champions” introduced by the German researcher Hermann Simon. Whatever terms are used, however, most experts today recognize these dynamic companies as the most important element in an economy.

Next, we will present a brief overview of the main government programs and projects designed to stimulate and support the growth of innovation-technological, high-growth, companies (HGC) implemented in several APEC economies.

Programs and mechanisms implemented in the Republic of Korea to support HGC as well as other companies and hidden champions

The Republic of Korea represents the best example of the implementation of a wide range of HGC support programs and tools at the economy level. Korean developers of strategies for economic development have created an artificial synthesis of two approaches. The first is the implementation of traditional government policies to stimulate the development of HGCs, including soft market mechanisms and tools currently recognized as useful across several economies. The second is to employ alternative methods for accelerating *hidden champions* (alternatively, *future innovative champions*) based on the conceptual ideas of Hermann Simon and his followers.

Since 2014, at least seven different HGC programs and projects in Korea have been deployed (by the economy authorities) to stimulate the growth of the most promising mid-level technological companies, with the goal of creating a powerful cohort of *global domestic champions* made up of global small- and medium-sized enterprises (SMEs). Many of these measures largely duplicate one another, however, or utilize similar tools and mechanisms in their practical implementation.

Two of them, *the Global Hidden Champion Promotion Program* and the *World Class 300 Project*, were directly supervised by the Small and Medium Business Administration (SMBA) of Korea, the first being the former, officially launched in 2010. Four similar programs were launched at about the same time, funded by the Ministry of Commerce, Industry and Energy of Korea (MOTIE). The newest program in terms of implementation, *Export Hidden Champion*, was developed under the patronage of the Industrial Bank of Korea (run by the economy authorities). Currently, the most active program is *World Class 300*, jointly supervised by several government departments and development institutions (Ministry of Trade, MOTIE, and SMBA), and the direct operator project is the Korean Institute for Advancement of Technology (KIAT).

The ultimate goal of *World Class 300*¹ is to create a powerful stratum of 300 global players in Korea. From 2011 to 2014, just over 150 companies were selected. In 2015, 30 companies were added to the list, followed by another 50 new participants in early 2016. By the end of 2016, about 235 Korean companies were participating in the project. Each project participant was provided extensive and diverse measures of support for a ten-year period, counted for each of the companies individually, followed by official entry confirmation into the elite list.

The general *customized package service* for selected companies under *World Class 300* currently includes 27 different tools and mechanisms, addressed below.

In addition to active support of *World Class 300*, KIAT has also participated in the *Future Global Champion* program (official name in English, although a more accurate translation from Korean would be *Global Innovative Companies*) since 2013. This second program was oriented towards exports and aimed at bringing trust companies up to annual export sales of at least 100 million USD² and transforming them into “specialized global leading companies in the world market” in their industry niches.

At the end of June 2015, two key projects, *World Class 300* and *Next Global Champ*, officially merged into a joint program, roughly translated from Korean as “Global Level of Growth³.” Selection of new companies and participants is planned on the basis of uniform criteria and approaches.

In July 2017, the Korean SMBA officially announced that 36 new companies were accepted⁴ into the joint *Global Level of Growth* project. According to the most recent information, following the results of a competition that took place in mid-2018, another 41 companies were selected⁵ for participation in a second round of the program.

Chinese Taipei Project Mittelstand Award

Over the past decade in Chinese Taipei, the notion of support for promising technological HGCs underwent significant development. New initiatives to support domestic HGC were officially announced for the first time in August 2012 at a special government meeting, during which a priority task was formulated. Over the next few years in Chinese Taipei, the emergence of 100 strong, mid-level HGCs (similar to German “*mittelstand*” companies, or *hidden champions*) was planned, in the hopes that these companies would become world market leaders in variously specialized niches with the help of the innovative technologies and products they develop.

Also in 2012, under the direct patronage of the Ministry of Economic Affairs (MOEA), the first three-year stage of practical implementation of the new program was launched and named the *Mittelstand Award* (English-German hybrid translation). An autonomous structural unit of MOEA, the Industrial Development Bureau (IDB), was appointed to coordinate the program.

During its first three pilot years, MOEA-IDB selected 10 companies each 2013 and 2014 and 12 companies in 2015. Notably, both small and medium-sized companies were included in the list of participants. In 2015, the *Mittelstand Award* program was officially extended⁶ through 2023.

All the companies participating in the program were offered support of the economy authorities in four key areas: assistance in the professional training of scientific and technical personnel, financial assistance in acquiring modern technological equipment, assistance in obtaining patents and other types of intellectual property, and marketing and consulting support for promoting their products to a global market. These companies also received direct financial subsidies from the economy development institutes and enjoyed a variety of tax incentives, primarily for R&D expenses.

During the pilot stage, the MOEA's direct spending on the *Mittelstand Award* program was quite modest, at 516 million TWD⁷ (about 20 million USD); However, according to IDB analysts, the mediated economic effect of this first triennium was much more substantial; supported companies participating in the program invested a total of 137.6 billion TWD (nearly 5 billion USD) into new production, and these investments led to the creation of almost 13,000 new jobs⁸.

According to the latest official information provided by MOEA, the fourth awards ceremony for *Mittelstand Award*-winning companies was held in August of 2017, wherein 18 new *hidden champions* emerged⁹.

Malaysian Mid-Tier Companies Development Program and Mid-Tier Ramp-Up Program

Malaysia's new long-term economy-wide program for medium-sized HGCs was officially launched in 2014 under the official name *Mid-Tier Companies Development Program* (MTCDP). The MTCDP is served by patronage from the Ministry of International Trade and Industry of Malaysia, and the program is operated and supervised by the economy authorities-owned Malaysia External Trade Development Corporation (MATRADE).

The general outline of this Malaysian program resembles the approach used in the Republic of Korea. It annually selects from among the most promising companies in Malaysia with a clear export orientation. Generally, MTCDP focuses on industrial companies with annual sales in the range of 50 to 500 million RM (equivalent to 12.5 to 125 million USD) as well as service companies with annual sales from 20 to 500 million RM (5 to 125 million USD).

Candidate companies must demonstrate an overall positive trend in economic performance over the course of at least three of the past five years, as well as demonstrate average annual growth rates (CAGR) of at least 5% in its most recent five years of operation¹⁰. The main qualitative criterion for participation in the program is, explicitly, "the availability of innovative potential and the desire to actively expand your business." According to announced benchmarks, the MTCDP program plans to annually select about 50 new dynamically developing (high-performing) companies. Current plans envisage eight company selection rounds, carried out annually until 2021.

The aim of Malaysian authorities, as described by the Minister of Foreign Trade and Industry at the official launch ceremony of the MTCDP program in early 2015, is to create 480 high growth companies, 60 regional champions, and 21,000 new high-income jobs, as well as an increasing exports by a total of 15 billion RM (approximately 3.5 to 4 billion

USD)¹¹.

The annual selection cycles (hereafter referred to as *waves*) of the main MTCDP program are quite specific; Each new wave features a 9-month acceleration program comprising a set of various general and individualized tools and schemes supporting the growth of specialized companies.

Since 2016 the initial *accelerated incentive* scheme for the MTCDP program has been significantly adjusted and supplemented at the initiative of the National Export Council; a new supplementary *Mid-Tier Ramp-Up Program* was launched, meant to serve as a “natural second stage” for companies already participating in the main MTCDP program. The second program received the official status of the *biennial expanded program* and was made mandatory for all MTCDP graduates. The Malaysian authorities came to the conclusion that it was crucial to provide more lasting support to targeted companies.

The *Mid-Tier Ramp-Up Program* was designed to increase the volume of export sales in participating companies by 50% by 2023¹². As of mid-2018, a total of 173 Malaysian SMEs participated in the main MTCDP program; these were included in the results of the first four selection waves, from 2014 through 2017¹³.

According to the latest information on the MATRADE website, at the end of January 2019, another 60 companies participated in the fourth and fifth waves (42 in the fifth wave) of the MTCDP, undergoing “accelerated training” upon completion of the 9-month program, bringing the total number of Malaysian SMEs who received assistance under this program to 212¹⁴.

New initiatives to support HGCs in Singapore

In February 2017, an official report was published by the Committee on the Future Economy (CFE), an interdepartmental government body of Singapore that had been established a year earlier upon a direct initiative from Prime Minister Lee Hsien Loong to develop a long-term economic strategy for this economy over a ten-year period.

One of the main recommendations contained in this report was to develop a set of measures providing Singapore's growing companies with additional *customized support* to stimulate the promotion of their products and services in overseas markets and facilitate the entry of these companies into leading positions in the world¹⁵.

At the same time, the Ministry of Industry and Trade of Singapore (MTI), together with two key development institutions, IE Singapore and Spring Singapore, officially announced the launch of a special program of combined financial and non-financial support for HGCs selected from the most promising innovative companies demonstrating a steady dynamic of market development, and having at their disposal advanced technological developments and a comprehensive strategy for increased global business growth¹⁶.

The immediate reaction to the CFE's official recommendation was the creation of the Makara Innovation Fund (MIF) in April, with a declared capital of 1 billion SGD (about 743 million USD). The initiative to create the MIF was the first of several practical steps in

implementing an ambitious government project IP Hub Master Plan, which considers intellectual property as the main driver of further economic growth in Singapore. The MIF is a joint project of the Intellectual Property Office of Singapore (IPOS) and the local private investment company Makara Capital.

Main MIF activity includes investments in small-to-mid cap companies with an effective and secured portfolio of intellectual property/technology/know-hows/differentiated sector/industry positioning and strong pan-Asian growth potential¹⁷. The range of MIF investments in portfolio companies is estimated to be somewhere in between 30 million and 150 million SGD.

New technological solutions for urban development were given preference, such as logistics, safety, waste management, as well as advanced technologies including artificial intelligence, big data, cybersecurity, nanotechnology, fintech, alternative energy sources, health care, and biomedicine, among others. According to MIF management preliminary plans, over the next few years, 10 to 15 of the most promising innovative companies in Singapore are expected to receive investments from the fund.

It is also worth noting that in 2017 in Singapore, another complementary information and advisory support program for domestic HGCs was launched, supervised by IP ValueLab (IPVL), a specialized division of IPOS for enterprise interaction, and a private international consulting company EverEdge Global Ltd. (IPVL-EverEdge) advisory services. This program is designed to provide *intensive specialized support* to more than 150 local innovative companies with high growth potential, assisting with IP strategy, corporate governance, commercialization of technological developments, and assistance in promoting their products and services in foreign markets over a three-year period¹⁸.

Canadian HGC Support Programs in Quebec

In Canada in mid-2015, two authorities-run support programs for HGCs have been carried out simultaneously, both launched in the French-speaking province of Quebec. The first, officially called PerforME, was directly coordinated by the regional government (Ministry of Economy, Innovation and Export of Quebec, MESI), while the second, Adrenalys, was funded by a private consortium led by local consulting company Ascendis¹⁹.

The PerforME program was directly funded by five different Quebec non-governmental investment organizations: the Quebec Deposit and Investment Fund (Caisse de dépôt et placement du Québec), the CSN Foundation (Confédération des syndicats nationaux), the Investissement Québec financial corporation, the Capital régional et coopératif investment fund (CRCD) and the Quebec Workers' Solidarity Foundation FTQ (Fonds de solidarité des travailleurs du Québec).

With its total declared budget estimated at 50 million CAD²⁰, each of the five co-investors provided 10 million CAD as a direct investment in authorized capital for the participant companies. However, all of them reserved the right to choose specific projects from the general pool of approved applications.

At the core of PerforME was a selection process based on projects; that is, not on a

comparative assessment of the candidate companies themselves, but rather on the evaluation of specific investment projects/ideas offered by these companies. The duration of support for each of the approved projects was not to exceed three years. The first *wave of competitive selection* under the PerforME program officially took place in June 2015. As a result, 28 projects, one each from 28 companies, were chosen for participation in the program²¹. Subsequently, the curators of this long-term program conducted yet another six *qualifying waves*, and, as of the beginning of 2018, a total of 228 projects had been selected for participation²².

The second Quebec program, Adrenalys, implemented as the normal scheme of direct/targeted support for BRK, seemed to offer more extensive financial support as compared to PerforME; initially, its ideologists officially designated a total amount of 150 million CAD. Of this sum, 100 million CAD was provided by the Banque Nationale du Canada (the sixth largest commercial bank in Canada), and the remaining 50 million CAD by the Québec Workers Solidarity Fund (Fonds de solidarité FTQ). As noted on the official website of the program, all selected companies were supposed to be supported for two years, with the possible further extension of support. At the end of May 2015, the main selection of participants for the program was carried out (to encompass 2015 to 2017), followed by a narrowing of the selection to 25 companies.

It should be mentioned that the organizers of the Adrenalys program focused specifically on the fact that, in addition to financial support from the two main investment institutions, all selected companies would also be provided large-scale export support on a *pro bono* basis. A package including free consulting services was also provided that, according to official information on the program's website, amounted to about 4.5 million CAD. In July 2018, the Adrenalys progressed to its the second phase; another 30 promising Quebec SMEs had been selected to participate in the new funding cycle (2018 through 2020), with the total amount of financial support increasing to 200 million CAD²³.

Mexican program HIEP

The new High Impact Entrepreneurship Program (HIEP) was officially launched in 2013 by the National Institute of Entrepreneurship under the Ministry of Economic Affairs of Mexico (INADEM). The HIEP program was initially designed to enable the economy authorities to assist innovative SMEs by providing them grants as equity subsidies that amounted to, on average, about 170,000 USD.

HIEP finances both start-ups and scale-up HGCs and provides subsidies of between 70% and 80% of their total investments in information technology, software, certification, consulting and professional services, as well as procurement of their technological equipment²⁴. For scale-ups, the total amount of grants can potentially reach up to 5 million MXN (about 280,000 USD).

Program developers implemented strict selection criteria. Main candidates were initially only companies with high growth potential and innovative products, services or business development models. In 2016, the program designated a preliminary selection of 1000 companies. After conducting a peer review procedure wherein two panels were involved independently of each other: first, a *traditional panel* of experts from among government departments and second, a *specialized panel*, consisting of both private business

representatives and venture capital companies. This list was cut by about half, and finally, around 200 firms were identified to receive grant support.

An interesting feature of the program was that in addition to the companies selected for participation, a *control comparison group* was also formed that included companies that had failed to progress through the second stage of the selection. The first preliminary results of the HIEP program based on the assessment of the *comparative efficiency of the economic indicators* between supported companies and the control group are expected to be evaluated in early 2019²⁵.

Russian High Growth Tech Companies project for HGC support

In June 2016 in Russia, a new priority project, *High Growth Tech Companies*²⁶ was officially launched after an initiative sent down by the Russian Ministry of Economic Development. The project's goal was to "ensure the rapid growth of domestic private high-tech export-oriented companies, leaders in terms of development, and assist in the formation of transnational Russian-based companies."

Part of this project entailed providing support to participant companies by assisting them in gaining access to existing support tools through various development institutions, in addition to providing information and advisory support for projects and helping them develop their activities within the Russian economy and expand into the global market.

The Ministry of Economic Development of the Russian Federation also expects to significantly improve the overall economy regulatory environment by removing certain administrative barriers that hinder growth. Continuous support from the economy authorities, both financial and non-financial, for companies receiving it should improve the conditions under which such assistance is provided, for their subsequent use by all Russian high-tech enterprises.

As part of this project, the Project Council was formed from experts from the Ministry of Economic Development of the Russian Federation together with external experts, representatives from the Ministry of Industry and Trade of Russia, the Ministry of Education and Science of Russia, the Russian Venture Company, the Agency for Strategic Initiatives, the Higher School of Economics, the Russian Export Center, the Russian Direct Investment Fund, the Innovation Assistance Fund, and the Industry Development Fund, among others.

The selection of companies for the *High Growth Tech Companies* project is based on Russian growth ratings of high-tech companies referred to as "TechUp" (or "TekhUspek" in Russian)²⁷, which has been used since 2012 with the support of the Russian Venture Company. Among the potential candidates are Russian companies with annual revenues of 400 million to 30 billion RUB, which have demonstrated high rates of development, have significant innovative potential, their own competitive products and services, as well as ambitions to expand their activities to foreign markets in the next 5 years.

According to the results of the third wave of selection, which ended in December 2018, the total number of companies participating in the *High Growth Tech Companies* project increased to 84 (another 22 participants were added to 62 companies selected during previous stages in 2016 and 2017)²⁸.

2. Examples of practical mechanisms and instruments of economy authorities-run support used for HGC acceleration in APEC economies

a. Main forms of economy authorities-run support for HGC development in the joint Korean program at the international level

According to the official information provided by KIAT, the overall list of measures to support companies participating in the unified economy-wide program *Global Level of Growth* (comprised of *World Class 300* and *Next Global Champ*) consists of 27 different tools and mechanisms. These mechanisms are divided into two large groups: *special* support measures and *connecting* support measures.

The group of special support measures is coordinated by seven different institutions, but KIAT and the Korea Trade and Investment Promotion Agency (KOTRA) are key players. The first set of measures in this group is R&D support (through KIAT and the Committee on Strategic Intellectual Property) and includes:

- 1.1. Support the development of applied technologies to achieve global status over a term of 3 to 5 years, with a maximum annual financial support from the authorities of 1.5 million USD, half of the total cost of which is to be assumed by the company itself;
- 1.2. Support the implementation of the mandatory strategy for creating patents for companies of the *World Class 300* subprogram; in this area, the support averages to about 80,000 USD for each company.

The second unit constitutes marketing support and is managed by KOTRA. These measures include assistance with accelerating the output of products and services to target sales markets over a five-year term, including comprehensive support for the development and implementation of corporate marketing strategies. The maximum amount of financial support provided by the authorities is 100,000 USD per year, again with the company assuming 50% of the cost.

The third unit is a complex of various financial instruments and support schemes for companies backed by authorized government banks, such as the Industrial Bank of Korea, Woori Bank and Shinhan Bank. These banks provide support in setting up investment funds and subsidiaries abroad, entering the IPO, helping to raise funds from private investments, assisting in managing potential financial risks, and providing preferential targeted loans with rates up to 0.5% per annum.

Finally, the fourth unit consists of education and consulting services, divided into three subsections:

- 4.1. Assistance in the development and implementation of exit strategies for target markets:
 - Support for entering foreign markets through analysis of the current export expansion strategy;
 - Assistance in developing export growth strategies and partial reimbursement of expenses (up to 70%, but not exceeding 15,000 USD for each company) for

marketing programs in the domestic market;

4.2. Support with education and advanced training:

- Free training for managers;
- Courses/seminars on solving management cases for top management;
- Training of marketers in the specifics of target markets, and foreign internships for specialization for company employees responsible for international marketing;
- Staff training; domestic training is free, and staff internships abroad are covered up to 50%.

4.3. Consulting services (Responsibility of the Association of Mid-sized Enterprises of Korea):

- Courses are provided in IP issues, interaction with foreign partners, international taxation, and logistics, at the expense of the economy authorities;
- Intensive consulting for which the company assumes 50% of the cost;
- Banking consulting on general management and international law provided by Woori and Shinhan banks free of charge.

The second large group of support measures for Korean HGCs participating in this program contains *connecting* measures and includes 19 different tools and directions, categorized into five large units. These measures are provided by 17 different government agencies and development institutions of Korea:

Technological unit:

- Preferential conditions and support for designing and developing innovative technologies for *markets of the future*;
- Support for the accelerated development of *global innovative enterprises*;
- Preferential terms and support tools for the development of *mid-level technologies*;
- Preferential access when using *self-service* in the Global Center for the Support of National Enterprises;

International trade and marketing of products and services / foreign investment programs:

- Providing support to companies to participate in international exhibitions;
- Assistance in organizing and conducting mergers/acquisitions with/of foreign companies;

Financial unit:

- Simplified procedures for submitting participation paperwork in the special program *Trade Champ*;
- Export privileges, special credit terms, simplified loans procedures, and low interest rates, among others;
- Benefits when applying for participation in the KDB Global Star program, including simplified requirements for candidates and waiving of the financial audit;
- Preferential measures regarding general financial support and risks and capital insurance;
- Discounted insurance rates and increased insurance amounts;
- Global financial support including financing for subsidiaries abroad;

Consulting unit:

- Preferential support for the strategic development of innovative enterprises;
- Assistance and advice on the protection of intellectual property;
- Preferential consulting on conflict prevention in the area of intellectual property at the international level;

HR/HR policy unit:

- General support in the field of HR development, including online education and training;
- Assistance with training programs and professional development courses for company employees;
- Financial support and advice on hiring highly qualified foreign specialists.

b. Key elements of the HGC MTCDP support program in Malaysia²⁹

The Malaysian MTDCP nine-month program features two main phases. During the first phase, which lasts for the first three months, participating companies undergo a process of in-depth business diagnostics. This audit focuses on identifying future export priorities, target sales markets, and important problem areas that may impede the growth of foreign sales. Elements of this diagnostic include a series of *live interviews* of project advisers with company top managers, as well as their participation in multilateral seminars and meetings with invited foreign experts.

Based on the results of the first phase, the program curators, together with company leaders, draw up a *diagnostic report*, which formulates key problems and challenges the companies are currently facing or may encounter in the future. They also provide potential options and mechanisms for solving them, as well as identify the most promising target markets. A *growth plan* is compiled on the basis of this report that contains the company's main goals and objectives for developing target markets, and an updated list of possible mechanisms and tools for *customized* support from the economy authorities.

The second phase of the MTDCP program (months four through nine) focuses on the practical implementation of the prescribed tools and mechanisms to support the companies featured in the *growth plan*.

In their most general form, such tools and mechanisms may consist of the following elements, choices of which are determined by the participating companies themselves:

- Organizing one or two *inspection trips* to economies designated as target sales markets and/or meetings with possible foreign business partners;
- Drawing up of no more than two special reports providing a detailed analysis of these target markets;
- Two to three special seminars on the improvement of export sales techniques;
- Specific measures and schemes for export support;
- No more than two joint events for all participants featuring domestic financial organizations and institutions and/or invited potential investors;
- Tools for technological and innovation support;
- Organizing two roundtable discussions for CEOs of participating companies;
- Three *working sessions* with invited specialists from the MTDCP support team.

Project curators specifically state that throughout the duration of the main program, the CEO and other top managers of companies must allocate at least one working day per

month for direct participation in these various events. Finally, as follows from the special sub-section of the MATRADE document cited here, financial coverage for consulting services was provided only to companies participating in the first two selection waves. Starting with the third wave in 2016, MATRADE only partially covers these costs.

c. Main mechanisms and forms of support in the program PerforME (Quebec, Canada)

In addition to direct financial support for the investment projects of participating companies and direct supervision of each project by a special official representing the Ministry of Economy, Science and Innovation of Quebec (MESI), special *teams to accelerate project implementation* (équipe d'accélération de projets) are created. These teams include representatives from investment funds and institutions directly involved in the program, as well as several Quebec government ministries. These teams, according to the official description³⁰, provide general consulting support, with an emphasis on recommendations to facilitate/accelerate access to external sales markets and to effectively attract investments, “proactively ensure close interaction with ministries and other government agencies to minimization of possible bureaucratic delays³¹,” and “act as intermediaries at various stages of obtaining financing, facilitating the search for additional sources and mechanisms of this financing,” including enabling easier access to existing programs of support at the regional and economy-wide level.

Each MESI company is allocated a special *strategy adviser-adviser* who works with the organization throughout the program implementation period. All participating companies also receive a wide range of additional services bundled into a separate package referred to as *Strategic support and consulting assistance* (Accompagnement-conseil stratégique). This personalized package includes:

- Managerial support and recommendations and advice in developing the overall growth strategy of the company;
- Assistance in the planning and specific content of the business expansion program;
- Analysis and advice on the long-term development strategy of the company;
- Support in the adjustment and possible recovery of the financial unit;
- Assistance in the development of strategies for global market positioning.

Accompanying and consulting support for this scheme provides for comprehensive analysis by external experts of various functional aspects of the companies, with a final presentation to the management of a generalized *diagnostic report*, as well as the joint development by external experts and top management of an *action plan* (plan d'action) that comprises a set of specific, prioritized recommendations to improve the company's efficiency. This *action plan* is considered by program ideologists to be the most important strategic document, and should, ideally, be guided by top management at the company for the full duration of project implementation.

The official web page of the program specifically mentions that the *special support package* includes “obtaining privileged access to various external and internal resources of MESI” (accès privilégié au réseau interne et externe du Ministère). With the assistance of MESI's personal adviser-consultant, companies can obtain additional advice from specialists from various departments and departments within MESI, establish

partnerships with other companies sponsored by MESI, and even seek help from experts from other government departments and agencies.

3. Policy recommendations for promoting HGIF activity in APEC economies, with consolidated information on HGIF support and on developing the best practices identified during the workshop

One of the main advantages of a market economy is the freedom for entrepreneurship. Economic development is based on mutual relations. However, to realize the directives of the APEC Ministerial meeting of economies and to stimulate innovative development of APEC economies, it is proposed to implement soft-nature programs to support high-growth innovative firms (HGIFs), based on the identification of such firms and the concentration of various organizational support measures around them. These support measures include those related to informing APEC economies about breakthrough technologies and the innovative solutions of such companies, encouraging cooperation with similar companies from APEC economies to increase the number of cooperative projects in the field of innovation and implementing companies and networking.

When implementing economic policy, it is necessary to increase in the number of SMEs and to create numerous new startups. It is also necessary to rapidly multiply the business size of a significant portion of the SMEs (the revenue values and the number of employees). Based on business observations around the world, numerous publications have shown high-growth companies are the main generators of economic activity, providing more than half the regularly created new jobs.

Companies must have access to various measures of economy authorities support for entrepreneurship, not only for assessing the results of the potential projects (ex-ante) but also for evaluating their previous development (ex-post). Thus, companies that have demonstrated high rates of business growth (revenue, employment, export, and market share) in the previous few years will receive access to concessional financing for a specified period and other support tools.

Successfully implementing HGIF programs requires attracting as many different relevant organizations as possible, such as venture funds, educational and scientific organizations, trade missions, business councils, business support associations, and private companies. Given the different approaches to the gender dimension in business, special attention should be given to women's entrepreneurship.

APEC economies are recommended to realize non-financial programs to support HGIF programs, the goal of which is to ensure exceeding the growth of selected domestic private high-tech companies aimed at export expansion. The planning horizon for HGIF projects should not be less than five years. To realize an efficient managing system for the projects, the number of companies should be between 100 to 300 HGIFs. The HGIF programs should have a "soft incentives" nature. The following targets should be achieved from the priority project's implementation: quadrupling the volume of high-tech exports from at least 30 participating companies; increasing the output of at least two companies that have sales of at least \$1 billion a year; increasing the output of at least 10 companies that have sales volumes of at least \$500 million per year; and increasing the amount of innovation projects within APEC economies by 30% each year.

Another area is the application of new technologies in the field of public administration. Technology radically reduces overhead and accelerates all processes in the economy. The practice of using artificial intelligence for the economy's needs exists and is

continuing to be developed. Promoting technology will enable simplifying the analysis of documents and voting forms in elections, and speech recognition and remote identification could be actively applied in APEC economies.

Companies that meet the following qualification requirements could be selected in APEC economies as an HGIF: the firm's (group of companies) revenues should be from \$10 million to \$0.5 billion. Based on these revenue indicators, the companies should be divided into three subcategories:

- Small (from \$10 million to \$20 million);
- Average (from \$20 million to \$0.1 billion);
- Large (from \$0.1 billion to \$0.5 billion).

The average annual growth rate of revenue for the previous five years:

- For small companies, at least 20%;
- For medium-sized companies, at least 15%;
- For large companies, not less than 10%.

During the previous five years, the company should have no more than two periods in which revenue declined by more than 10%; over the previous five years, the company has brought to the market at least one new or substantially improved product/service developed on the basis of its own or acquired R&D results; the revenue share from sales of such new products/services is on average for the previous three years: for small and medium-sized companies, at least 30%; for large companies, not less than 20%. The average R&D costs for the previous three years should be at least 5% of revenue. The average cost of technological innovation for the previous three years should be at least 10% of revenue. The company's minimum age should be four years.

The growth of leading companies will shape the ecosystems around them, including other companies, universities, and infrastructure, stimulating the creation of a fundamentally new social and economic environment. Therefore, supporting the transformation of high-growth companies into "champions" will have a synergistic effect and will form new economy segments.

It is important to focus on HGIFs that are developing disruptive technologies concerning the Internet of Things, artificial intelligence, robotics, quantum technologies, blockchain, advanced production technologies, augmented reality, big data analysis, and cloud computing. Realizing HGIF programs in APEC economies will lead to these companies' development and cooperation.

APEC economies could receive numerous benefits from sustainable growth. Artificial intelligence technologies reveal new regularities and rules, and it is important to focus on developing HGIFs with this technology. Remote authentication systems based on AI will provide obvious advantages in the security field and will offer remote capabilities for banking services.

It is also important to develop platform solutions in e-commerce and logistics. Digital platforms reduce transaction costs through digital technologies and changes to the division of labor. The IT platform core will be a database of enterprises to benchmark the

productivity levels and a marketplace for companies and consultants who develop corporate programs on productivity. Implementing quantum technologies can completely change big data processing speed, software requirements, information security standards, and, ultimately, business opportunities. Quantum technologies will accelerate information modeling, offer APEC economies new materials (composites and alloys of various metals), synthesize new drugs, and develop quantum communications. The use of digital factories and additive technology, can reduce production speed dozens of times, radically reduce costs, and change the entire economics of engineering. The response to this challenge should create “Factories of the Future.” These factories are digital, smart, and virtual, which will ensure enhanced high-tech production, and they will be achieved through fundamentally new approaches to digital design that use complete mathematical modeling and virtual testing, which will significantly reduce the number of expensive field tests. As a result, the customer will receive a modern high-tech production chain that combines cutting-edge software systems into a single system with a 95% digitalization of production processes.

However, these benefits associated with accelerating innovation may introduce risks related to restructuring the existing system of subcontractor, chain suppliers. Reducing the number of parts in complex systems will lead to the departure of small businesses, and the consequences can be even more critical than in the mass application of robots. Furthermore, when using the Internet of Things and additive manufacturing products, there is no need for goods to cross borders, as they can be printed out after transferring a single computer file on a personal printing device; thus, the traditional rules for customs and tariff regulation will no longer work.

For the efficient integration of subcontractors into global value chains, uniform global standards for the industrial Internet of Things must be developed to establish the compatibility of different IT systems. Using big data for medicine will prevent disease; enable individual approaches to diagnosis, treatment, and rehabilitation; improve data collection and processing; enhance service delivery to customers; and offer recommendations and activities on the basis of commands from the analytical center.

Using augmented reality in industry will increase productivity and product quality, as 3-D modeling and visualization at all production stages will support maintenance operations and the repair of complex equipment, and in the retail sector, the technology will enhance on-line sales, art, and film, even enabling new forms of digital art. The use of robotic services will provide additional features for serving citizens, such as the creation of intelligent assistants. Automated unmanned vehicles can also operate effectively for days at a time.

The implementation of HGIF support programs in APEC economies will allow these economies to concentrate their efforts to ensure sustainable development and the spread of new technologies among developing economies. This, in turn, will improve the quality of life, create new jobs, develop cooperation in high-tech industries, establish stable ties among the scientific and economic stakeholders of the APEC economies, and increase the volume of foreign trade operations.

4. Proposals for developing APEC economies' cooperation in implementing HGIF support programs

The following are recommendations for developing APEC economies' cooperation in implementing HGIF support programs:

- a) Organize regular studies of the phenomenon of high-growth technology companies in APEC economies. It is important to conduct such studies with respect to the companies, developing them in different economies and in different economic conditions. This will create the basis for distinguishing these companies' general and special features. Such studies will not only give a better understanding of these companies' characteristics and their impact on the economic development of economies, they will also serve as a basis for recommendations concerning the development of public industrial policy and the implementation of economy authorities support for these companies.
- b) Arrange and regularly hold meetings (conferences, workshops) as part of APEC to discuss the problems of high-growth technology companies, as well as an economy policy for their support. Such meetings could include a "point of contact," where companies from different economies would meet each other, establish business contacts, and share business development experiences. Every subsequent meeting could be held in the new economy to best represent its companies and to measure their support.
- c) Prepare regular reviews of the best support practices for high-growth technology companies in APEC economies.³² These reviews can present both the analysis results for the companies' development in different economies and an overview of the best support practices for these companies. Furthermore, these reviews can contain cases, describing the development of some companies in different economies and their use of economy authorities support.
- d) Develop methodological recommendations regarding the organization of a selection, support, and monitoring system for the development of high-growth technology companies in APEC economies. These recommendations can offer criteria for company selection, the order and procedure for their selection, the possible directions for the selected companies' support, and the monitoring procedure for the companies' development after receiving support. Recommendations for the coordination structures regarding project implementation and the involvement of both economy authorities-run institutions and private companies may also be suggested to provide the project a private-public partnership.
- e) Establish a project office within one of the APEC forums (or as a separate forum/group) to plan and implement the above-mentioned activities.

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