
Exploring new growth paths for technology SMEs

REDDAL

**UN APCTT-ESCAP regional workshop on
new paradigm in technology transfer and
commercialization**

Ghaziabad, India, July 8-10, 2019

Key messages

National industrial policy is important, but can have unforeseen consequences – lessons from South Korea

Vietnam has chosen a more open approach – but is facing challenges of building competitiveness for its domestic companies

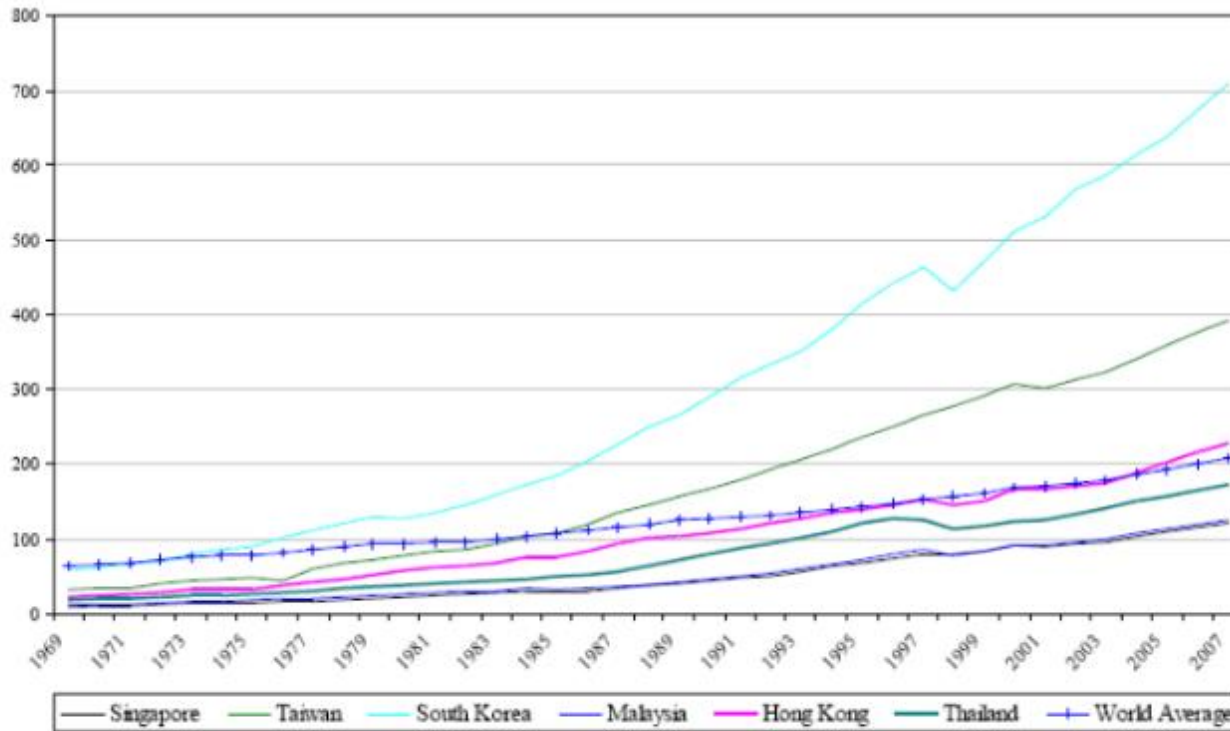
Manufacturing led growth and employment is coming to an end – and automation will hit the workforce of developing countries also in services

SMEs need to define their own growth strategy – driving own R&D, combining global network with local insights, and leveraging digital channels can be powerful

Among similar nations, Korea's growth rate has been stunning and is only surpassed by China

Countries with highest GDP growth (excluding China)

Real GDP



Prepared and copyright by Gene Shackman
The Global Social Change Research Project
<http://gsocology.icaap.org>

Data from USDA
The International Macroeconomic Data Set
<http://www.ers.usda.gov/Data/Macroeconomics/>

Source: Prof. Jaehoon Hahn, Yonsei University, *Introduction to the Korean economy and society* (lecture).

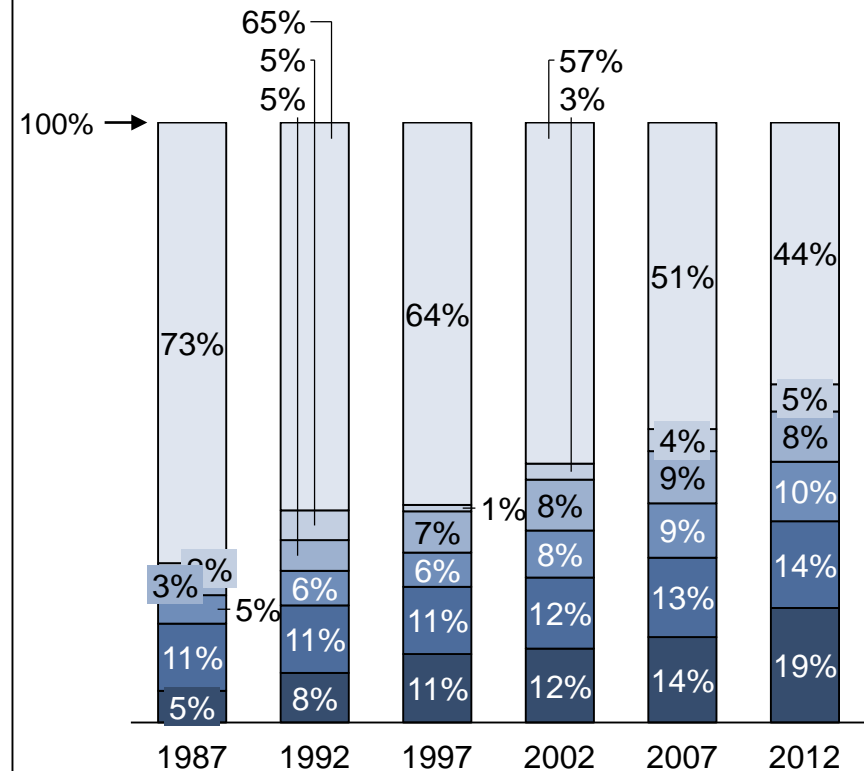
Korea used interventionist/protectionist strategy to drive manufactured goods exports by subsidizing target industries and related chaebols

Korean growth and industrial policy

Guided capitalism model

Period	Main policy direction
1950s	<ul style="list-style-type: none"> • Import substitution • Price stability
1962-1971	<ul style="list-style-type: none"> • Policy shift to export promotion (EP) • Expanding SOC³
1972-1981	<ul style="list-style-type: none"> • Heavy and Chemical Industrialization under EP • Administered credit allocation • Import substitution of parts and components
1982-1991	<ul style="list-style-type: none"> • Industrial rationalization • Initial liberalization and opening • Shift to private sector initiatives
1993-1998	<ul style="list-style-type: none"> • Deregulation • Globalization (capital and foreign exchange liberalization) • Fairness and transparency in industrial and trade policy • Technology based industrial policy

Chaebols' assets as a share of top 200 corporate assets (1987-2012)

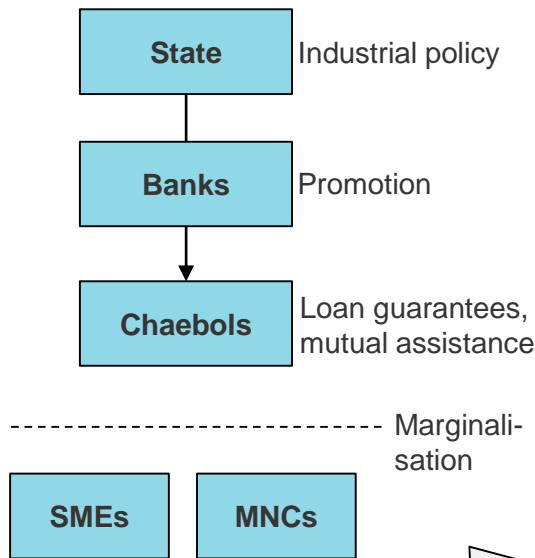


¹ Includes LG, GS, LS and their affiliates; ² includes Samsung, Shinsegae, CJ and Hansol; ³Social overhead capital such as roads, schools and hospitals.
Source: ERRI, 재벌 및 대기업으로의 경제력집중과 동태적 변화분석; Ahn, The outward-looking trade policy and the industrial development of South Korea.

Korea pursued substitution, while Malaysia, Taiwan and Vietnam pursued complementary strategy – the choice had effects on SMEs

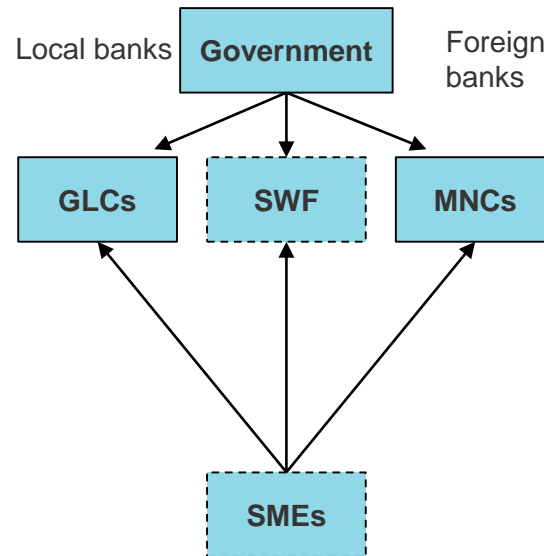
Comparison on national growth models

Korea (substitution strategy)

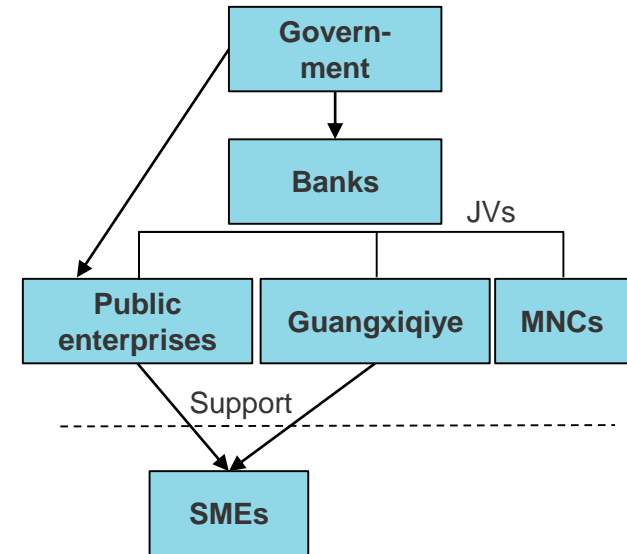


Unlike Japan, Taiwan and Singapore, Korean model required large outside financing (debt and other funding).

Singapore and Malaysia (compl. strat. – int'l model)



Taiwan and Vietnam (compl. strat. – semi-int'l model)



Vietnam pursues a semi-international complementary strategy similar to Taiwan, yet with emergence of local conglomerates and weaker links to SMEs.

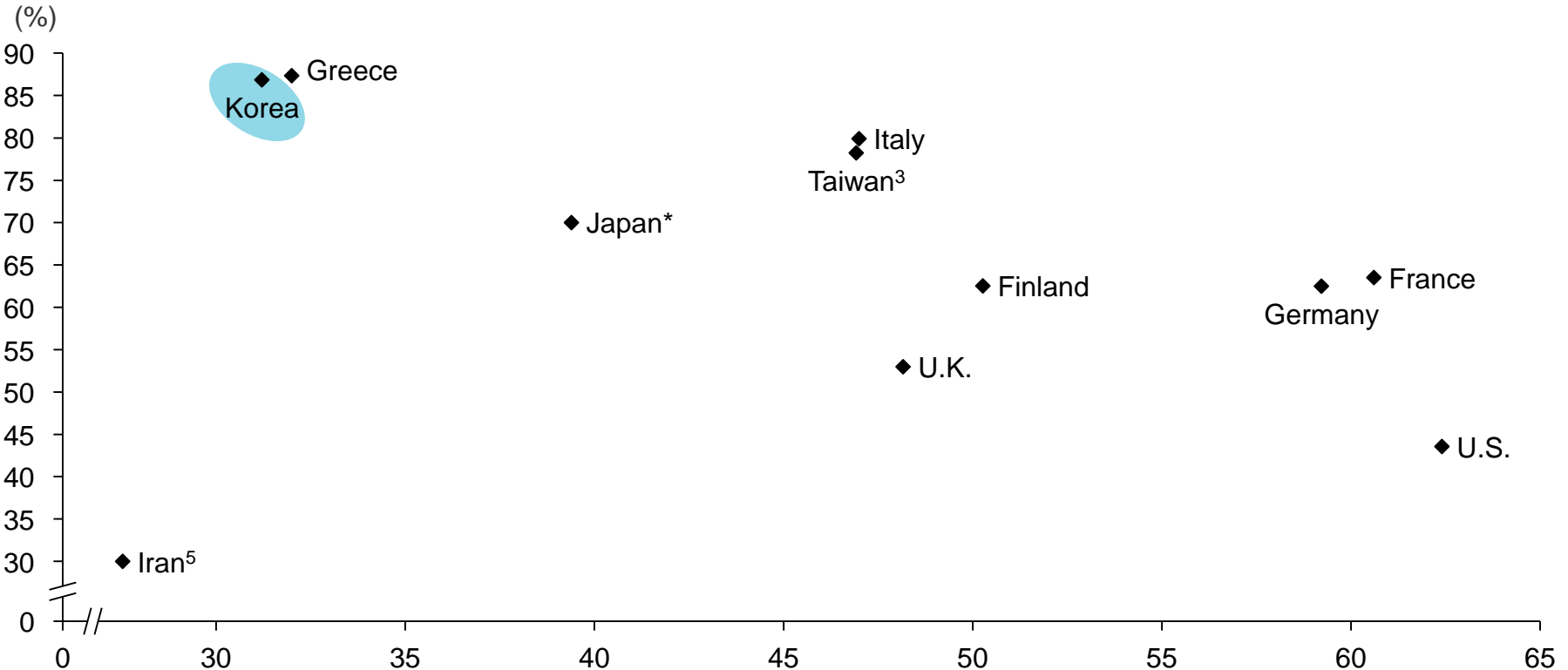
Note: MNC = multinational company, SME = small and medium sized enterprise, GLC = government linked company, SWF = sovereign wealth fund, SOE = 100% state owned enterprise, Guangxiqiye = local business groups; China applies a modified substitution strategy, leveraging JVs to expediate tech transfer process.

Source: Shin, Chang, *Restructuring Korea Inc.*, pp. 11-22; Ha Thanh, Nguyen & Klaus Meyer (2004); Van Chung, Vu (2015); Reddal analysis.

Yet a burning issue of Korean economy is that the SME sector is extremely inefficient and employs a large share of the population

SMEs contribution to overall economy by country

SMEs share of total employment² in 2012**



GDP per hour worked¹ in 2015*

(PPP)

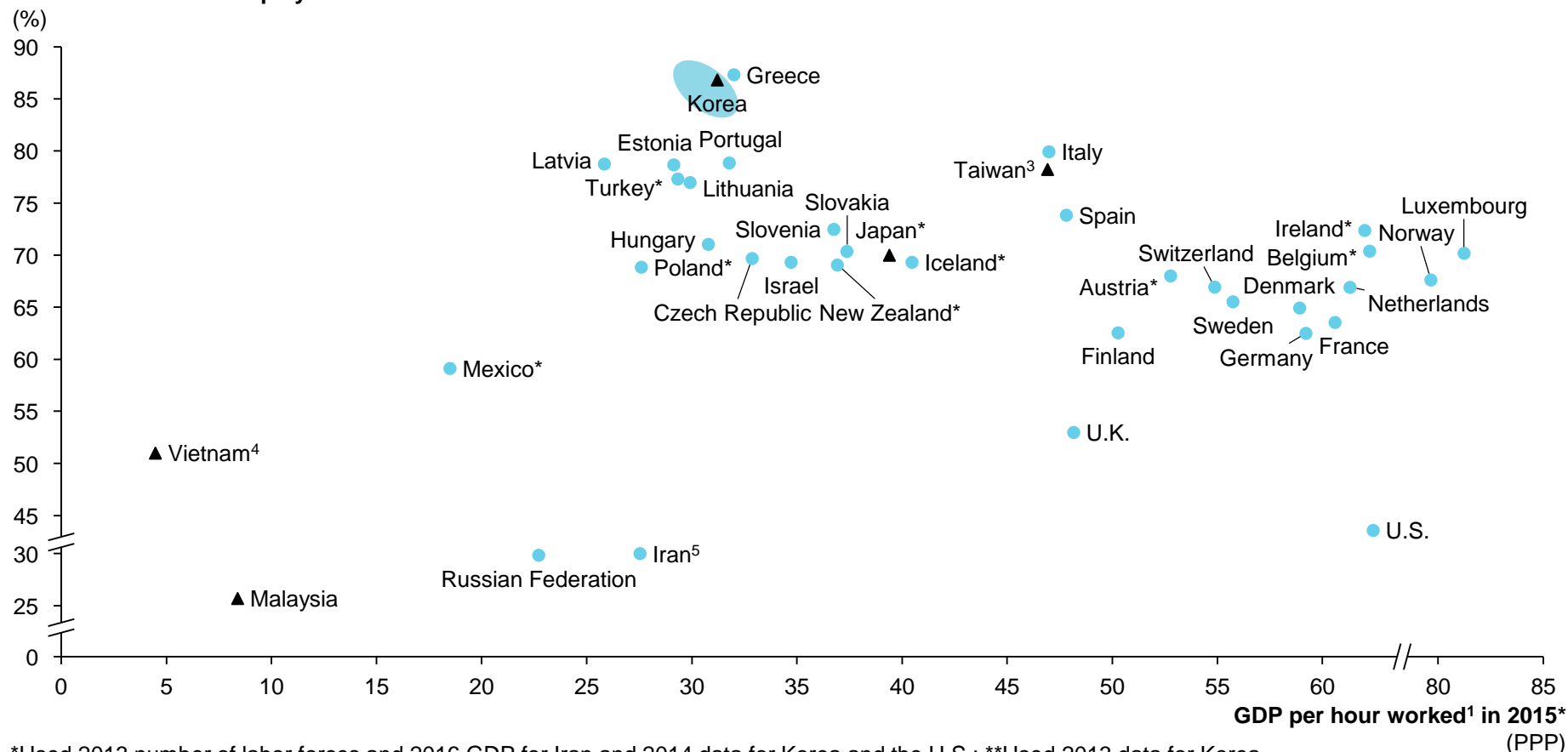
*Used 2013 number of labor forces and 2016 GDP for Iran and 2014 data for Korea and the U.S.; **Used 2013 data for Korea.

Source: ¹OECD, *Compendium of Productivity Indicators* (2016); ²OECD, *Entrepreneurship at a Glance* (2015); ³Ministry of economic affairs of the R.O.C and The conference board total economy database; ⁴General Statistics Office of Vietnam; ⁵ Statistical Center of Iran (www.amar.org.ir).

Even in global terms, Korean SMEs poor productivity and role in employment stands out

SMEs contribution to overall economy by country (full list of countries)

SMEs share of total employment² in 2012**



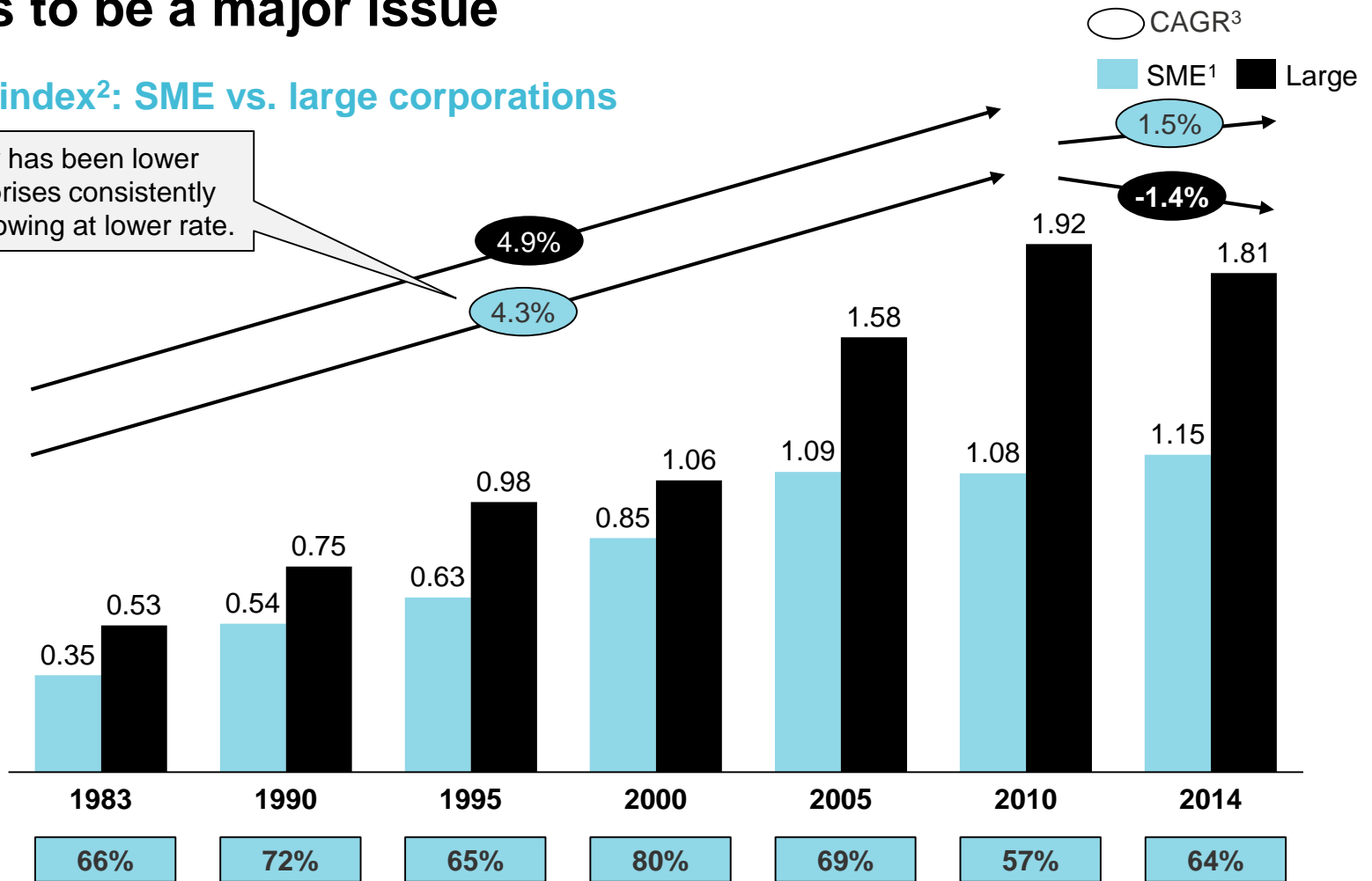
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Productivity gap between Korean SME and conglomerates continues to be a major issue

Productivity index²: SME vs. large corporations

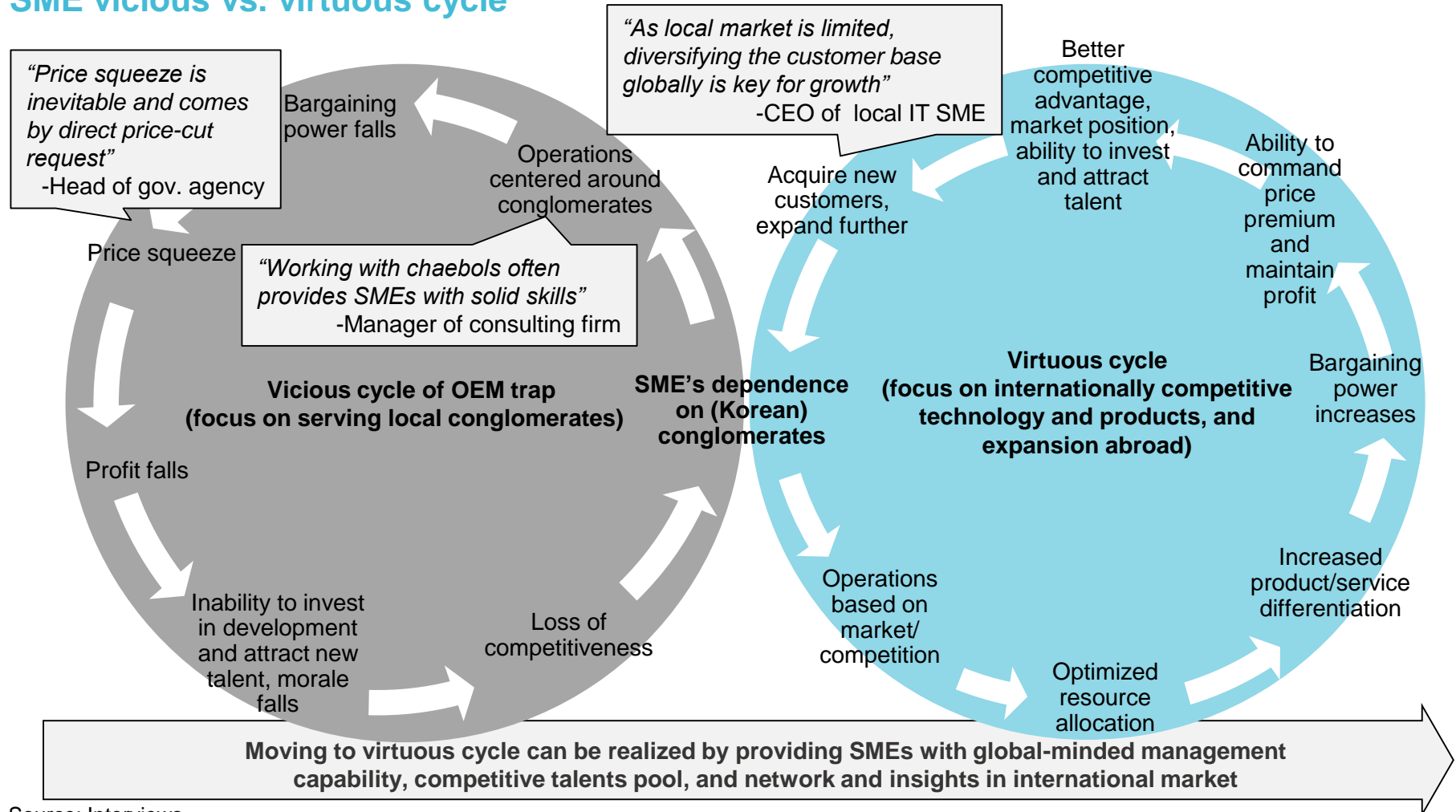
SME productivity has been lower than large enterprises consistently and has been growing at lower rate.



Note: ¹SME includes companies with 10 – 300 employees; ² Total productivity index, including labor and capital; ³Compounded annual growth rate.
Source: KEIT (2017).

Korean SMEs are often locked in vicious cycle, as SMEs are complacent with their role as supplier – transition to virtuous cycles requires internationalization

SME vicious vs. virtuous cycle



Source: Interviews.

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Vietnam has chosen a more open approach – but is facing challenges of building competitiveness for its domestic companies

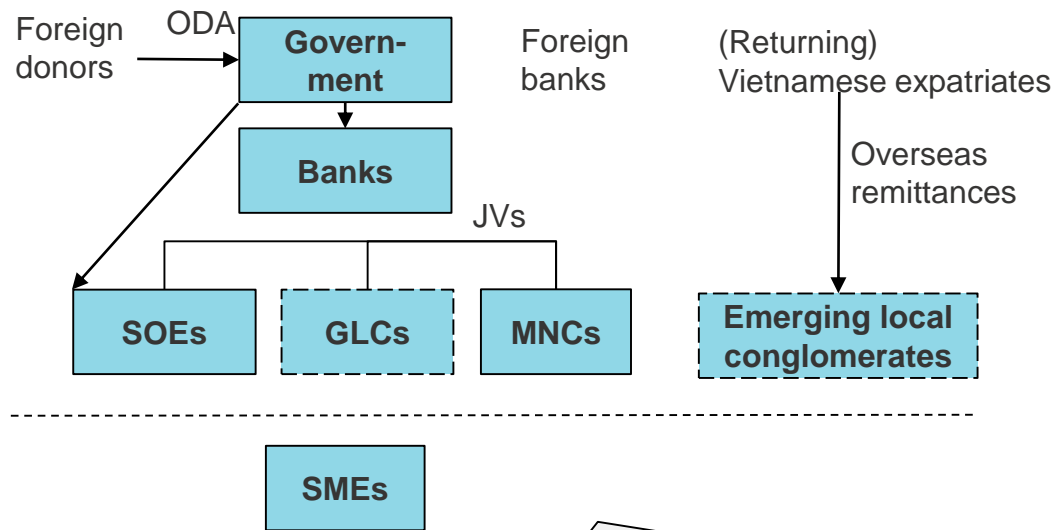
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SMEs need to define their own growth strategy – driving own R&D, combining global network with local insights, and leveraging digital channels can be powerful

Vietnamese growth model does not emphasize building strong local companies to substitute MNCs nor strong SMEs to complement

Comparison on national growth models

Vietnam (compl. strat. – semi-int'l model)



Both SOEs and MNCs play a significant role in the Vietnamese economy, typical of a semi-international model. Linkages with SMEs are weak as their capabilities are not strong enough to participate in the value chains.

Comments

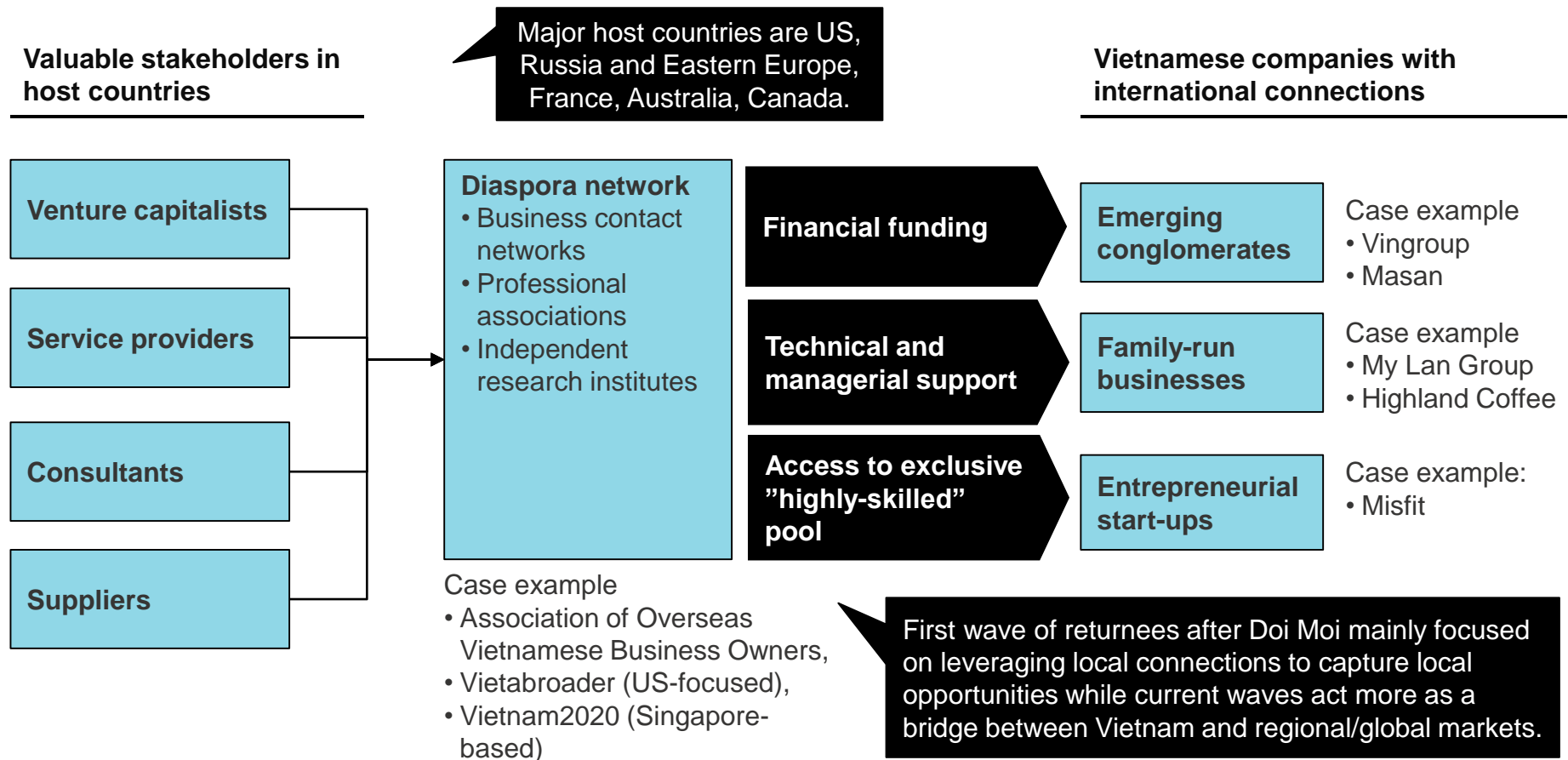
- The Vietnam model is closer to Taiwan, with JV between SOEs and MNCs a common practice because of government equity/license requirements in sensitive sectors and unique access to local knowledge and natural resources
- Vietnamese SOEs are not only owned but also managed by respective line industries/local governments with strong political patronage
- Recent privatization and restructuring efforts of SOEs are slowly turning them to GLCs, which are closer to the Singapore model
- Recent reforms since 1986 "Doi moi" and influx of overseas remittances from Vietnamese expatriates have also encouraged the emergence of a few local conglomerates

Note: MNC = multinational company, SME = small and medium sized enterprise, SOE = 100% state owned enterprise managed by respective line ministries or local governments, GLC = government linked company as result of SOE privatization.

Source: Shin, Chang, *Restructuring Korea Inc.*, pp. 11-22; Ha Thanh, Nguyen & Klaus Meyer (2004); Van Chung, Vu (2015); Reddal analysis.

Growing ties with returning "Viet Kieu" and Vietnamese diaspora networks overseas foster valuable "soft factor" spillovers in terms of knowledge, skill and human capital

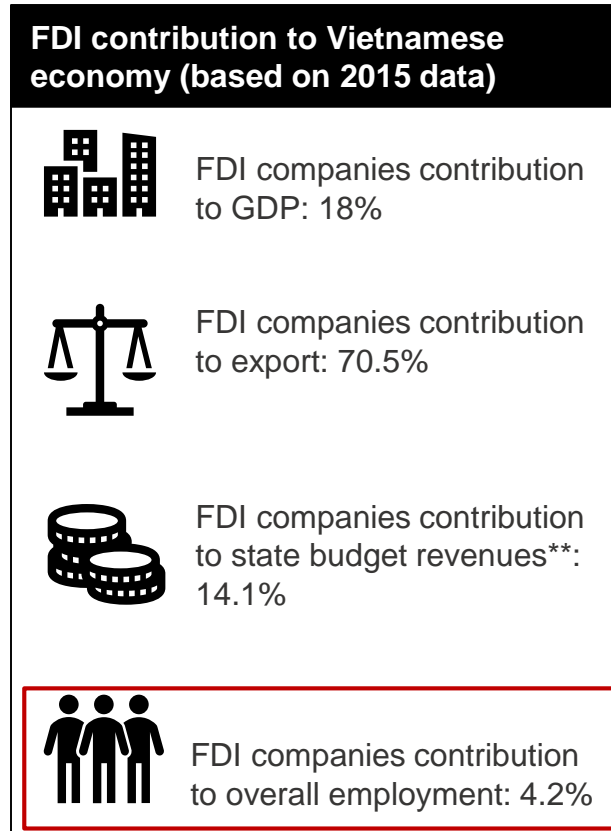
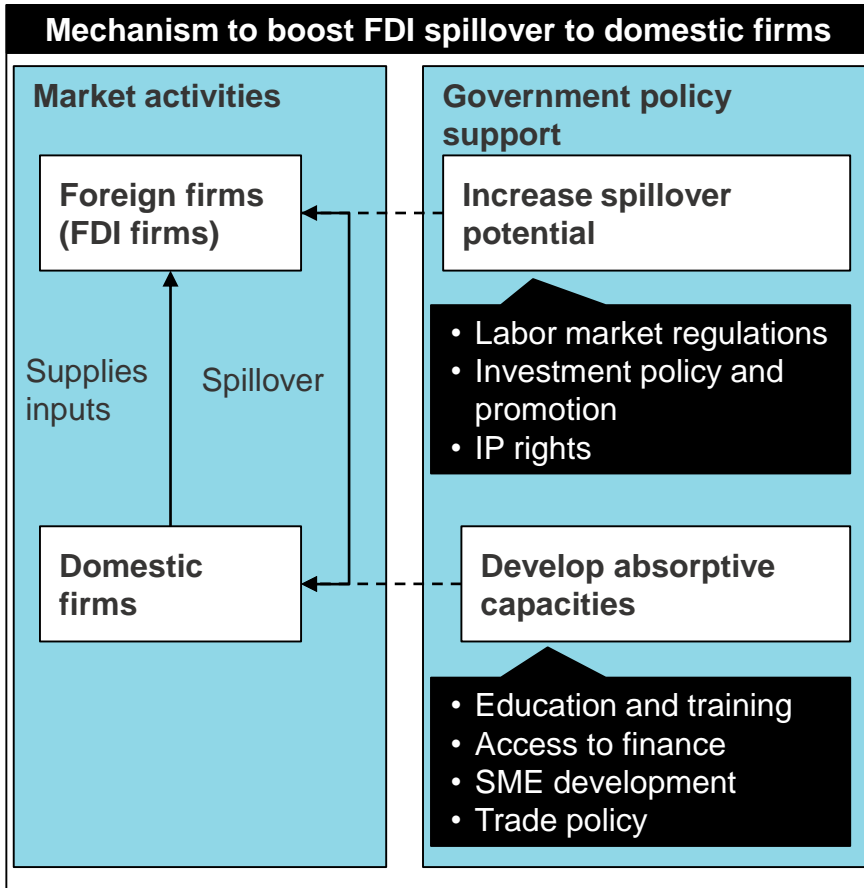
Leveraging international connections for acceleration – Vietnamese diaspora networks



Source: Pham (2010), Reddal interviews (2017), Reddal analysis.

Government policy aims to help local SMEs to become supplier to MNCs

FDI spillover framework and policy implications

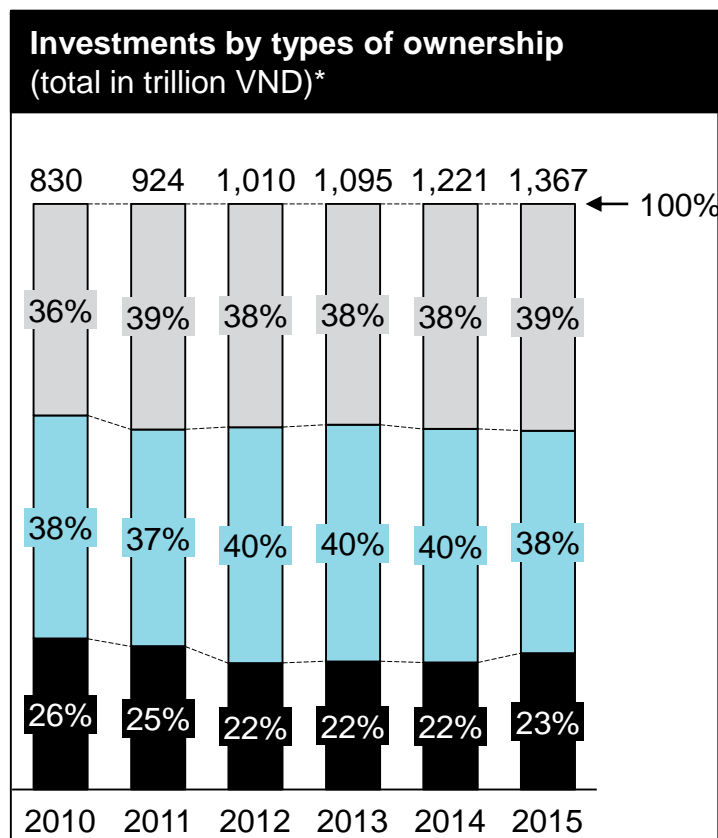


Source: Newman et al., *European Economic Review* 76 (2015), Reddal analysis.

Foreign conglomerates led FDI has been a major contributor to Vietnam's national level indicators, but its spill over effect is limited

FDI investments and spillover effects in Vietnam

Non-state State FDI



FDI contribution to Vietnamese economy (based on 2015 data)



FDI companies contribution to GDP: 18%



FDI companies contribution to export: 70.5%



FDI companies contribution to state budget revenues**: 14.1%



FDI companies contribution to overall employment: 4.2%

Reflections

- FDI has been focused on industrial manufacturing sector
- It has contributed significant amount to GDP development
- However, its contribution to employment has been very limited
- IMF assumes that most employments have been made through subcontractors and suppliers to the FDI companies; however, the competitiveness of these companies have much room for improvement

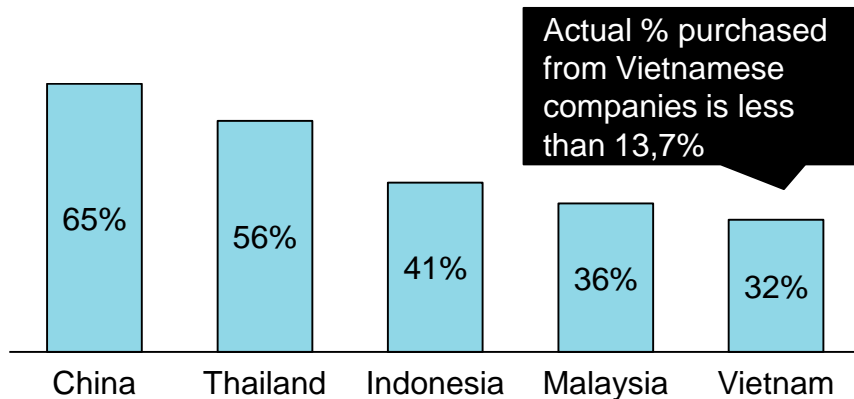
*As of 12/31/2015; **As of 2014.

Source: Vietnamese General Statistics Office, Ernst and Young, *Private equity briefing: SEA* (2016); OECD, *Investment Policy Review of Vietnam* (2016); IMF (2002).

Localization rate and local (Vietnamese) supplier quality assessments highlight the competitiveness issue of Vietnamese players

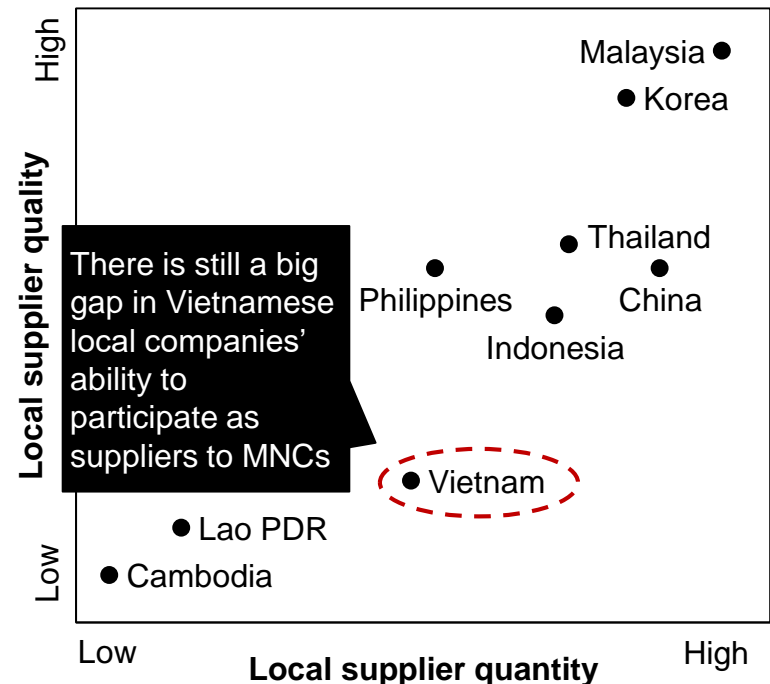
Competitiveness of Vietnamese suppliers

Localization rate* of Japanese-invested manufacturers by country, 2015



- Out of 32% Japanese local sourcing in Vietnam, 45% was sourced from Japanese companies operating in Vietnam and 14% from Taiwanese companies operating in Vietnam
- Low localization rate has directly affected Japanese invested companies' profitability in Vietnam
- Vietnam has been cooperating with Japan since 2000s to build supporting industries but have failed to realize two planned supporting industrial parks after 14 years

Local supplier quantity and quality**, 2015



*Localization rate is defined as % of raw material and intermediary goods sourced locally, **Based on OECD ranking of 140 countries.

Source: JETRO annual survey, OECD, press articles.

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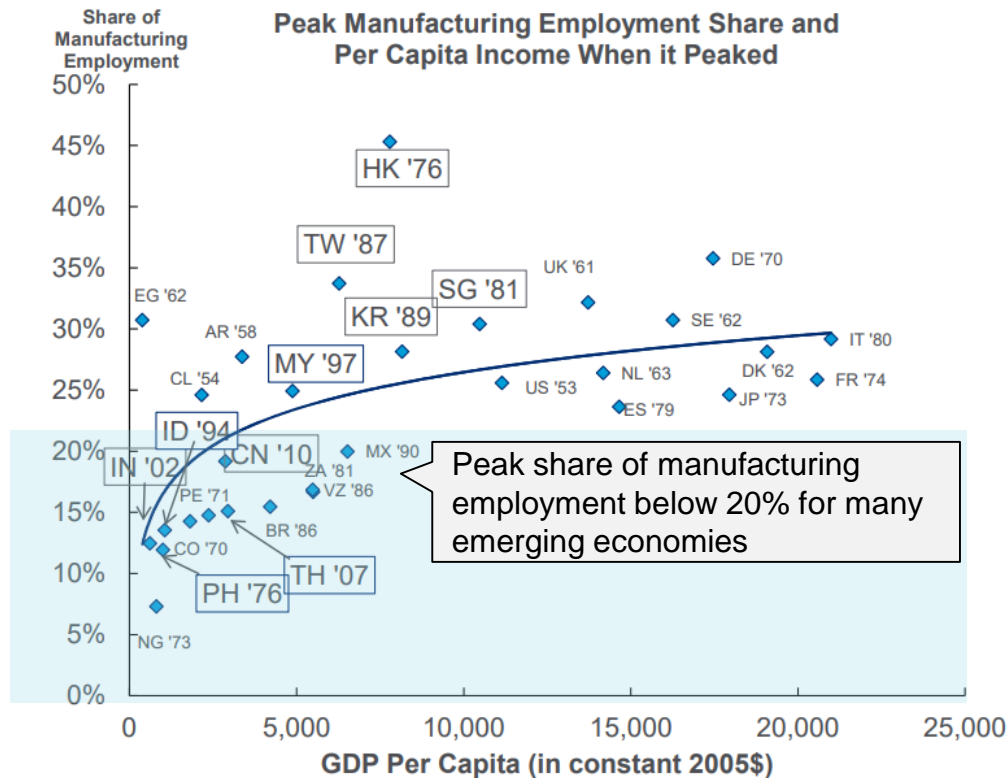
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SMEs need to define their own growth strategy – driving own R&D, combining global network with local insights, and leveraging digital channels can be powerful

Avoiding OEM trap is even more critical for SMEs in developing nations – advantage in manufacturing, arising out of cheap labor will diminish

Peak manufacturing employment share and GDP per capita when it peaked Percent, constant 2005 USD



Observations

- Trade has induced productivity gaps to close faster than gap in income as manufacturers must follow similar international standards
- Manufacturing is becoming less labor-intensive also in developing economies; thus peaked share of manufacturing employment has declined
- Automation coupled with additive manufacturing making OEMs from developing economies risk becoming redundant

Source: GGDC-10 Sector database, World Bank Development Indicators, Citi Research in "Technology at work v2.0: The future is not what it used to be."

Manufacturing share of GDP is declining worldwide – manufacturing export led growth will not be the panacea it used to be

Manufacturing share of GDP Percent

Regions	2000	2005
East Asia and Pacific	19	15
Europe and Central Asia	25	23
Latin America and Caribbean	17	14
North America	16	12
South Asia	15	16
Sub-Saharan Africa	11	11
Tanzania	9	6
World	19	15
Low income	10	8
Lower middle income	17	16
Upper middle income	24	21
High income	18	15

Implications

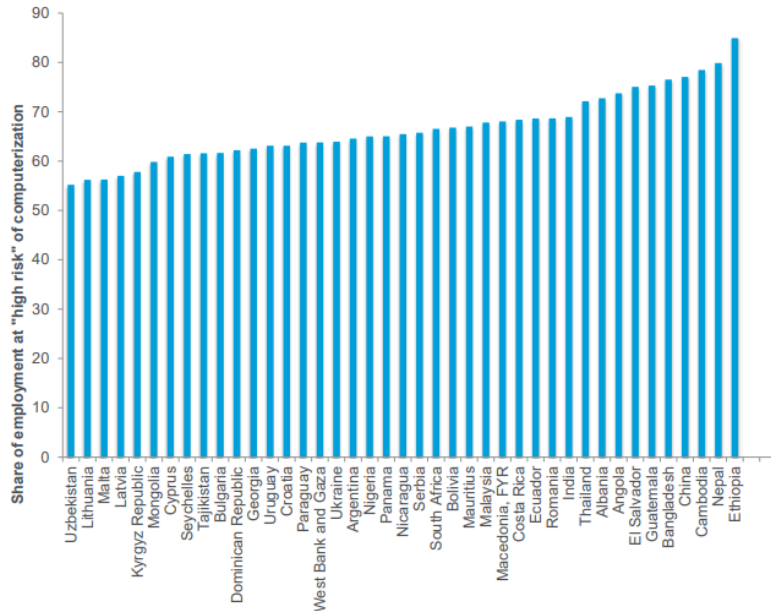
- Share of manufacturing in GDP is declining everywhere in the world
- Stiglitz argues that this is the result of manufacturing productivity exceeding the rate of increase in demand
- 20th century national growth model characterized by export-led growth will not work in the future to the extent it did for East Asian countries
- Developing nations today need to define new national growth strategy that balances industry, services and other parts of the economy

Source: World Bank Development Indicators from Stiglitz, UNU-WIDER Conference Presentation (2018).

Reaching prosperity is getting harder for developing countries – their workforce is more susceptible to automation overall

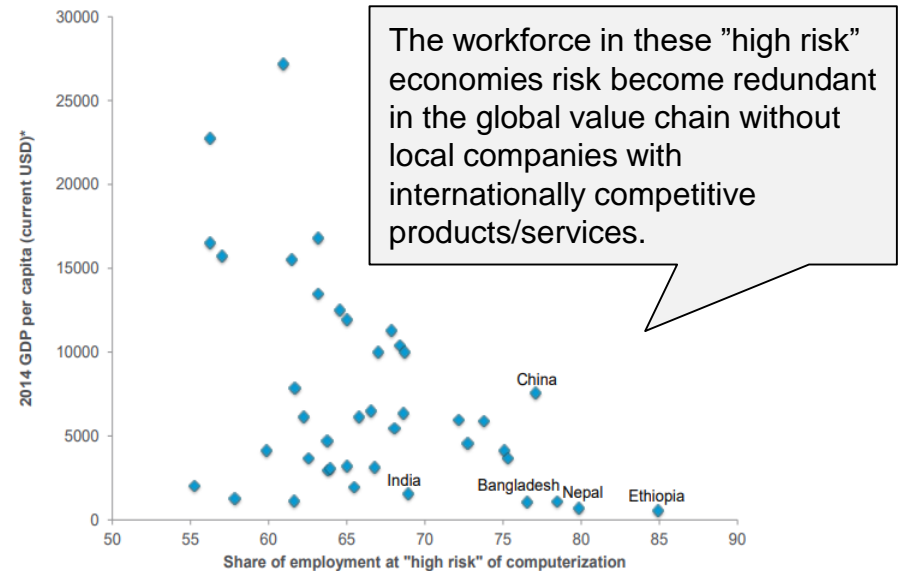
Impact of automation on workforce

Figure 2. Developing Countries Susceptibility to Automation



Source: World Bank Development Report 2016; based on Frey and Osborne (2013) methodology, Citi Research

Figure 3. Countries Susceptibility to Automation is Negatively Associated with their GDP per Capita



Source: World Bank Development Report 2016; World Bank national accounts data.
Note: For Angola and Malta 2013 GDP per capita figures were used, Citi Research

Source: World Bank Development Indicators, Citi Research in "Technology at work v2.0: The future is not what it used to be."

Services can be more easily inserted into global economy, bypassing steps manufacturing went through in sequential internationalization

Internationalization model: manufacturing vs. service

Manufacturing SME	Product based division of labor	Value chain based division of labor	Market based division of labor
	<ul style="list-style-type: none">• Company establishes manufacturing subsidiary in low wage country• Only low-value-added product manufacturing is relocated to the foreign subsidiary• Low wage country is not yet the market for the product• High-value-added product and R&D still remains in the home country headquarter	<ul style="list-style-type: none">• Home country loses competitiveness in manufacturing even in the high-value-added products• Subsidiary undertakes the production of entire product line• The low wage country is not yet the market for locally produced products• Parent firm mainly handles R&D and marketing	<ul style="list-style-type: none">• Low wage country market grows to have large enough in terms of purchasing power for product sales• Subsidiary now handles not only the production but also conducts domestic marketing activities• R&D for improving low-value-added or local-market-oriented products are conducted by the subsidiary
Service SME	Market based division of labor		
	<ul style="list-style-type: none">• When entering the new market, service firms usually focus on attractiveness of the target country in terms of purchasing power for sales• While some localization effort for sourcing may be needed, usual focus is on localizing the marketing		

Source: Lee, *Economic catchup and technological leapfrogging*.

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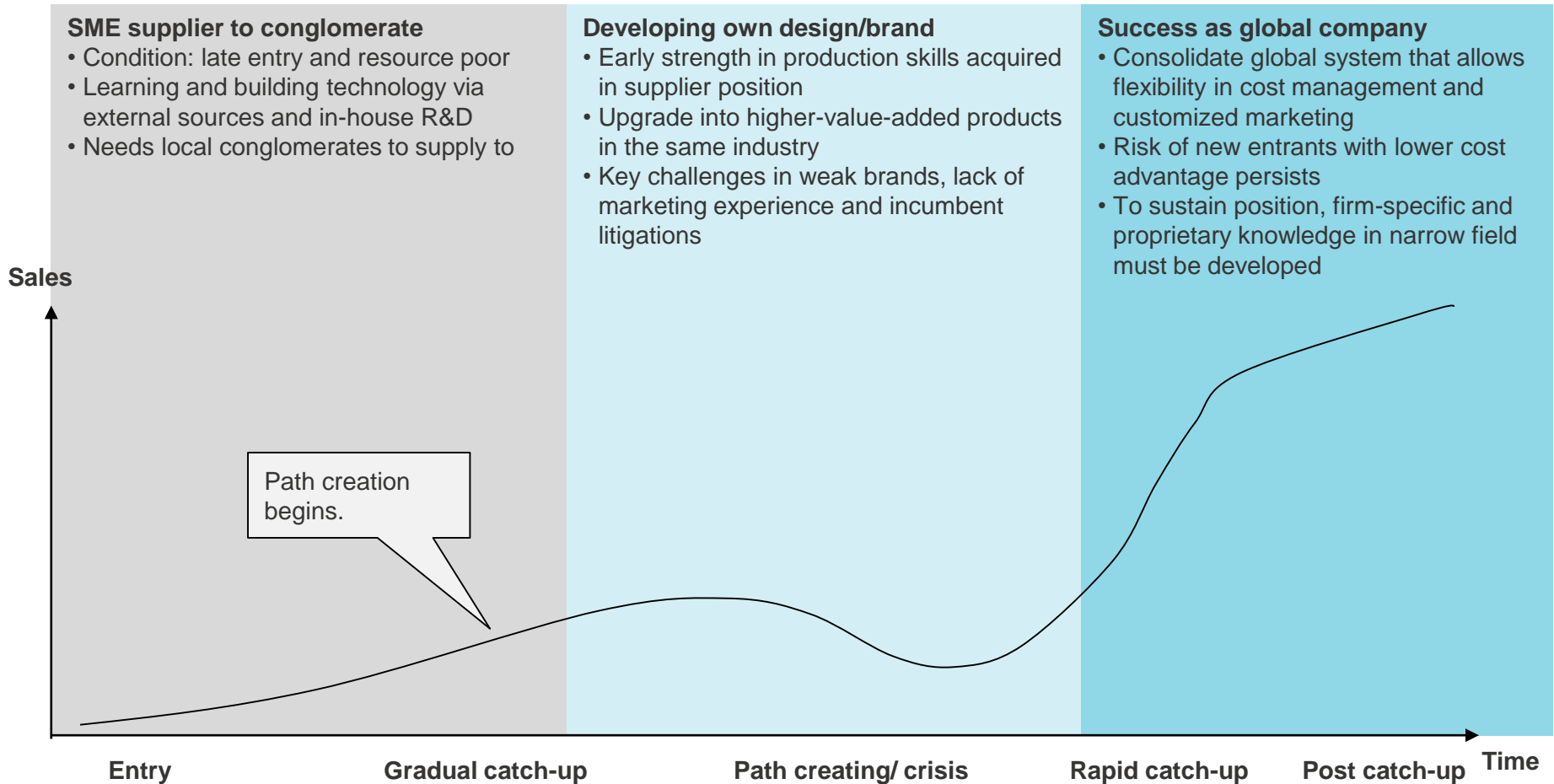
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SMEs in developing nations require a unique path creation strategy, where internationalization is an integral part of success

Path creation strategy for SMEs: from OEM to OBM*






*OEM = original equipment manufacturer, OBM = original brand manufacturer; concepts can be also extended to services

Source: Lee, *Economic catchup and technological leapfrogging*.

Past Korean cases show that while OEM experience can expediate the tech transfer, investment in in-house R&D is even more critical

In-house R&D essential for hi-tech SMEs in internationalization – Korean cases

Firm	Products	Incumbent competitors	Tech acquisition sources	Performance
	Embroidery machinery	• Tajima (Japan)	• In-house R&D • Licensing from Belgian firms	Largest market share in the world market
	Helmets	• Shoei (Japan) • Bieffe (Italy)	• OEM • In-house R&D	20% of world market share
	Production equipment for semiconductor and flat panels	• AKT (U.S.)	• In-house R&D • Collaboration with universities	33% world market share

Observations

- HJC leveraged the learnings from their previous position as OEM parts supplier to further develop their own product and brand
- SunStar and Jusung leveraged other channels to expediate the technology acquisition process: licensing and collaboration with academia
- These cases suggest that tech transfer alone is not enough and in-house R&D must integral part to develop competitiveness

Source: Lee, *Economic catchup and technological leapfrogging*.

Misfit combined local capabilities across multiple countries in a unique way to fuel its growth

Leveraging international connections for acceleration: Misfit Wearables

About Misfit (now part of Fossil Group)



- Founded in 2011 by Sony Vu (CEO and President), Sridhar Lyengar and former Apple CEO John Sculley
- Offering: health tracker wearables
- Available in 20 countries (US, Canada Mexico, Brazil, UK, Germany, Italy, France, Switzerland, Spain, Sweden, Russia, Australia, China, Hong Kong, Japan, Singapore, Taiwan, South Korea and India)
- Acquired by Fossil Group at 260MUSD in November 2015

On organizing international operations in Vietnam*

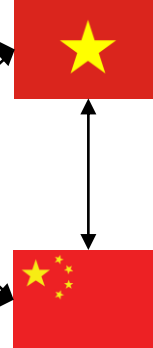
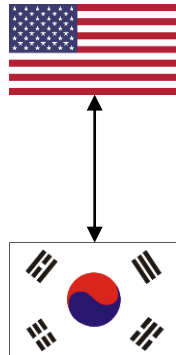
Q: What prompted the decision to have so many employees here [in Vietnam], aside from your background?

Vu: “So we have to get the best talent at the best price. So what we’ve done is optimized our hiring to be in places where we have an unfair competitive advantage”.

Vu: “If you just come here with a mentality, I’m going to get cheap outsourced labor, then that’s exactly what you’re going to get...So we really give them [the Vietnamese staff] a lot of authority...And people rise up to the challenge”.

Leverage the best of each world to gain competitive advantages and scale internal capabilities development fast.

- Product design
- Funding
- Marketing and sales
- Manufacturing



- Logistics and supply chain, operations, finance
- Customer service
- Data science and algorithm development
- Firmware engineering
- Graphic design
- Commercial product development

*Interview with Sonny Vu conducted by CNET in 2015.
Source: Company website, press articles.

Uber's struggles to scale in China, Russia and SEA illustrate that global success of digital services still require local know-how

Lessons learnt from some of Uber internationalization journey

UBER

Uber expansion timeline in selected markets

- Feb 2013 – Uber launched in Singapore, starting its expansion in South East Asia (SEA).
- Jul 2014 – Uber officially launched in China. Also in Russia.
- August 2016 – Uber China merged into Didi Chuxing. Uber China would own 20% of the new entity. Didi to own \$1bn share in Uber global.
- July 2017 – Uber merged its operations in Russia, Azerbaijan, Belarus and Kazakhstan with Yandex. Uber would own 36.6% of the new entity.
- March 2018 – Uber sold its operations in SEA for 27.5% stakes in Grab – a Singapore based competitor.

Source: Press clippings.

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Uber Slayer: How China's Didi Beat the Ride-Hailing Superpower

"We felt like the People's Liberation Army, with basic rifles, and we were bombed by airplanes and missiles."

By Brad Stone and Lulu Yilin Chen | October 6, 2016

Photographs by Ka Xiaoxi

From **Bloomberg Businessweek**

Uber stages retreat in Russia as it merges with rival Yandex

Ride-hailing company makes second embarrassing climbdown after selling its Chinese operations last year

Technology

Grab Vanquishes Uber With Local Strategy, Billions From SoftBank

By Yoonim Lee

March 26, 2018, 10:00 PM GMT+3

UBER EVERYWHERE

Uber's defeat in Southeast Asia calls into question its "barge in" expansion strategy worldwide

By Jiahui Wang • MARCH 26, 2018

Grab focused on building "segmented, localized and tailored service" to foster customer experience and loyalty

Grab localization strategy to succeed in regional expansion

South East Asia special characteristics



- Traffic congestion make motorbike a more convenient and faster choice



- Cash payments are still prevalent in many South East Asian cities



- SEA is a fragmented region with different languages; many still do not speak English



- Durian is a special and popular local fruit in many parts of SEA

How Grab cater to local needs and tastes



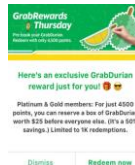
- GrabBike was launched in 2014, two years ahead of Uber Motor



- Grab has traditionally accepted cash payments, long before Uber began to pilot it, first in India in 2015



- Grab launched GrabChat in 2016 with template messages and auto translation for quick communication between drivers and riders



- Grab organized special campaigns/ redeem offer for special treats of high-quality durian

Source: Press clippings.

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Without a dedicated entry strategy, many young companies fell to the pitfalls of relying on the “sales” approach only for short-term gain

Entry strategy approach versus “sales” approach to international markets

	”Sales” approach	Entry strategy approach (go-to-market system)
Time horizons	Short-run.	Long-run (say, 3 to 5 years).
Target markets	No systematic selection.	Selection based on analysis of markets/sales potential.
Dominant objectives	Immediate sales.	Build permanent market position.
Resource commitment	Only enough to get immediate sales.	What is necessary to gain permanent market position.
Entry mode	No systematic choice.	Systematic choice of most appropriate mode.
New product development	Exclusively for home market.	For both home and foreign markets.
Product adoption	Only mandatory adaptations (to meet legal/technical requirements) of domestic products.	Adaptation of domestic products to foreign buyers' preferences, incomes, and use conditions.
Channels	No effort to control.	Effort to control to drive market objectives/goals.
Price	Determined by domestic full cost with some ad hoc adjustments to specific sales situations.	Determined by demand, competition, objectives, and other marketing policies, as well as cost.
Promotion	Mainly confined to personal selling or left to middlemen.	Advertising, sales promotion, and personal selling mix to achieve market objectives/goals.

Without a go-to-market system with entry strategy for a product/target market, a company only has a “sales” approach.

Source: Franklin R. Root, Entry strategies for international markets (2008).

Young technology companies need to build internal R&D capabilities and leverage digital technologies and service platforms to drive growth

Tips on internationalization for technology SMEs



Avoid the OEM trap – being complacent in playing the role of part manufacturers in the global value chain.



Invest in internal R&D to develop internationally competitive technology and products, and expansion abroad.



Over-rely on low-cost advantages without realizing other value-adding advantages from local resources.



Digital technologies make cross-border collaboration more easily, which young companies can leverage to build optimal teams.



Overly ambitious expansion plan, risk stretching themselves too thin over mass expansion without a clear go-to-market strategy/strategies.



Digital and service platforms make scaled internationalization more feasible for young companies with local resources – but local know-how essential for success.



Working together for
successful growth!