

# BEYOND SILICON:

## AN INCLUSIVE INNOVATION MODEL FOR SOUTHEAST ASIA

Should countries in Southeast Asia aim to be “another Silicon Valley”? Which aspects of Silicon Valley should feature in local innovation policy, and which should be avoided? Is there a Southeast Asian model of innovation that builds on the specific assets of the region? How can innovation be supported in ASEAN in order to achieve broader aims, such as the Sustainable Development Goals (SDGs) and a more inclusive notion of innovation than that of “silicon”?

# 1. Rethinking the “let’s build another Silicon Valley”

The reference point for an innovative cluster of startup activity has, since the 1980s, been Silicon Valley. Motivated to spur economic growth through greater innovation and job creation, governments across a remarkable range of geography, culture, regime type, and size pursue Silicon Valley-inspired innovation policies. Silicon Valley, though, is the confluence of a unique set of historically-specific factors. It got its name in 1971 due to growing prowess in designing and manufacturing semiconductors – of which silicon is an integral insulator – which power computers, smart phones, and other electronic devices.

The emergence of the Valley has been attributed to the military-industrial-university complex around Stanford University and the Defense Advanced Research Projects Agency (DARPA), which was supported nationally by an enabling regulatory system tax rate and the availability of funding for growing firms (i.e. the SBIC program and a ruling in 1979 that allowed pension funds to invest in venture capital). Its status as a global beacon of innovation has been reinforced by the emergence of tech giants such as Facebook and Google.

As economic activity is increasingly conducted in mobile and digital ways, the desire to have a local Silicon Valley grows even greater, across developed and emerging economies alike. To unpack each element of Silicon Valley's success in order to produce it at home, government representatives from around the world send officials on Silicon Valley study trips. Many return enthused to develop specific elements of the model, including technical universities and science parks. They focus on replicating what Silicon Valley represents now, rather than the twists and turns in its 70-year evolution, and pay too little attention to how the formula could be improved or adapted. Evidence of the fervor comes in the shape of the proliferation of "Silicon" or "valley" monikers, invoked by more than 40 locales around the globe (including Silicon Roundabout in London, the Silicon Savannah in Kenya, and Chilecon Valley in Santiago). In China, both Shenzhen and Zhongguancun have been dubbed China's Silicon Valley, though analysts acknowledge the very different path needed to achieve their technological proficiency. In ASEAN, headlines regularly declare that either Vietnam, Indonesia, or Singapore are now "Asia's Silicon Valley".

**In this thoughtpiece we are encouraging policymakers in ASEAN to:**

- **Strive to evolve their approach to development in purposely distinct ways from Silicon Valley; the Silicon Valley model has its faults, not least its inequality and exclusionary tendencies. "Move fast and break things" is not necessarily a good recipe for sustainable development.**
- **Aim to direct their innovation efforts towards inclusivity and the achievement of the SDGs, so that innovation comes from, and is applied by, wider society.**
- **Design innovation policy for, and by, the local context, putting effort in acknowledging and boosting the exciting and distinctive solutions that are emerging in ASEAN that promote inclusiveness.**
- **Aim to innovate how innovation policy is developed, by including different components of society - including the most marginalised - in the developing, testing and roll out of new policy initiatives.**

## 2 Contextually rational policies perform best

Silicon Valley can't be copied – nor should it be. Policymaking that attempts to suppress the local context by adopting an international “best practice” does not outperform. Rather, policies are effective when they reflect the local context (or what could be called the “contextual rationality”). This means developing policies that fit the local economy, social values, and approach of the government, and not copying tools used elsewhere. For example, when Singaporean policymakers studied the Israeli model for boosting venture capital (the Yozma fund), they adapted it to be a tool for attracting world-leading venture capitalists to Singapore. This fit with the long-established approach of bringing top international companies as a means of transferring knowledge locally.

The key insight is that policymakers need to have the confidence to do things differently than others, even – or especially – revered models such as Silicon Valley. Rather than deploy funds and accelerators that copy the Silicon Valley approach, the promotion of high-capacity entrepreneurs should be done in a manner that fits the local policymaking context. For instance, the Malaysian government created “MAVCAP” (Malaysian Venture Capital Management Berhad) in 2001 as a crucial new venture capital investor in the country's information and communications technology ecosystem, as it had been deemed that insufficient investment for this sector was undermining the potential of aspiring entrepreneurs.

# 3 Silicon Valley-styled innovation drives inequality and exclusion

Silicon Valley’s social ills shouldn’t be copied. The production of disruptive innovation by a select set of the population means that ever-greater wealth will be bestowed upon an elite few; for instance, reports estimate that the IPOs of just six technology firms in 2019 (Uber, Lyft, Palantir, Pinterest, Airbnb, and Slack) will generate a \$230 billion windfall, creating 6,000 new millionaires. According to Bloomberg’s analysis of U.S. Census data in 2017, San Francisco has the highest gap between the average incomes for rich (top 20%) and poor (bottom 20%) households.

The focus on “moving fast and breaking things” and the view of technology as by definition a force for good (rather than an opportunity to be shaped) often neglects the broader societal implications of innovation. Take for example the controversy around the environmental impact of many ride sharing platforms, or their repercussions on labour conditions and inequality.

Is this the model we want to promote? If we could design a brand new system, wouldn’t we strive to design one that would better distribute wealth, both demographically and spatially? Silicon Valley is increasingly criticized for its lack of diversity, for being a motor for societal inequality that enshrines social biases in technology. For instance, if facial recognition algorithms are fed with more images of light-skinned people, they would be less apt to recognize darker complexions. The wholesale embrace of entrepreneurial values espoused by Silicon Valley leaders normalizes, and even praises, precarious labor conditions. There have been other successful modes of development and innovation promotion that place social stability and equality at the core, such as Japan’s post-war developmental state. Analysts point to Japan’s low CEO-to-average-worker salary ratio as evidence of society’s commitment to equity; in 2014, for example, this ratio was 67 in Japan, in comparison to 354 in the United States.

Recognizing that there is not a necessary trade-off of between excellence and equity, the aim of being Southeast Asia's Silicon Valley could mean a hub of groundbreaking innovations, produced by a diverse workforce, that solves local problems and boosts social inclusion in a sustainable way.

Studies offer social and cognitive support for advancing diversity and inclusion in the production of innovation. Socially, widening participation – by gender, ethnicity, age, sexual orientation, socio-economic status, those with disabilities, and geographically – in the production of innovation, helps to better distribute the spoils.. There are also cognitive benefits from diverse workplaces. McKinsey's 2018 Delivering through Diversity report found that, amongst the 1000 companies studied, those in the top-quartile for gender diversity on executive teams were 21%. When it comes to diverse groups designing future-shaping innovations, such as artificial intelligence algorithms that will transform the way societies function, diverse groups are more creative in their solutions, and also less likely to bake demographic biases into the systems they develop. The applications for this are immense, as such innovations increasingly shape job recruiting, to policing, to insurance underwriting, and medical testing.

Inclusive innovation policy centers on the state's role in promoting greater societal distribution in the production and consumption of innovation. Governments promote social capital in innovation for otherwise marginalized citizens – according to gender, ethnicity, socio-economic, and geographic attributes – to help boost their inclusion in producing innovation. This includes competitions, role model campaigns, and targeted funding. Exciting solutions, distinct from the Silicon Valley approach, are emerging in ASEAN to impede the tendency for innovation promotion to cause further inequality.

# 4 Three things that government should consider to promote inclusive innovation

Policymakers that are interested in promoting inclusive innovation could be well served by:

- A. Embracing a developmental state approach,
- B. Promoting innovation that is contextual, and not only technological, in orientation, and
- C. Including citizens in innovation policymaking.

## A. **Embrace the role of the state as “developmental” in nature**

Imagine the state setting directional thrust and marshaling resources to advance social purpose and capacity building. This means giving the state license to operate with the same intentionality in intervention as in the classic “developmental state” model, as epitomized by Japan and, later, Korea, in funding, incentivizing, and coordinating capacity-building and firm competitiveness. Rather than the state partnering primarily with conglomerates, in the contemporary context, the developmental state partners with, and boosts, startups, social enterprises, open innovation systems, grassroots innovators as well as, importantly, innovators in the public sector itself.

This is in contrast to the (supposed) non-directional approach of the US/Silicon Valley. In going “beyond silicon” in intention and sector, the alternative approach is to identify key priorities and then innovate in designing policies to deliver on those aims. Strategies could include investing in “social R&D”, which invokes research and development processes to solve social challenges, and increasing science and technology spending to boost specific capabilities, with demographic and spatial distribution in mind. More directed investment can catalyze broader efforts: as Kai-Fu Lee argued in his book, *AI Superpowers* (2018), the largest impact of the Made in China 2025 initiative was its multiplication of AI efforts across the country.



## B. Innovation is contextual

There are exciting models of contextual innovation emerging in South-east Asia and China.

For instance, the “Liter of life” project in the Philippines. The brainwave is to fill recycled plastic bottles with water and chlorine and install them in the roof of homes; when sunlight hits the bottle it provides off-grid light. This innovation, which means people no longer need to rely on electricity to produce indoor lighting during the day, was not the result of R&D, government labs, or the like. Instead, an entrepreneur identified a real inhibitor to local activity and developed a new product using existing materials in a novel way. In Indonesia, “waste banks” flip waste management on its head. Households make “deposits” of garbage sorted by category (i.e. organic and non-organic) and receive monetary value in their bank account. The banking approach incentivizes households’ thoughtful collection and disposal of waste. The waste is then sold on to collectors, and the local neighborhood has cleaner streets and money to invest in new community features, like playgrounds. In China, since 2017 Alibaba has piloted “Taobao Villages” as a means of reducing rural poverty; the initiative gives training in e-commerce (i.e. logistics and service) to clusters of farmers, who are encouraged to sell their local produce and specialties through the platform.

Policymakers would be well served in investing resources in understanding the specific conditions that made those innovation possible and the specific needs that they arose from.

Whilst inspiration can be drawn from elsewhere, strictly adhering to international best practices and trying to replicate them is unlikely to be a successful strategy. A premium should be put on accelerating learning and adaptation to local circumstances, by institutionalising approaches like testbeds and rapid prototyping, that allow to quickly understand how local conditions might influence a model imported from abroad.

Being able to better understand the “innovation DNA” of ASEAN countries could be the basis for concerted innovation diplomacy efforts.

## C. Include citizens in the policy

Typically, governments produce draft policies that they then share for public consultation. By this time, the policy agenda has long been set and the room for maneuver is limited. Truly inclusive innovation policymaking would look very different. It would mean speaking to a range of citizens in order to set the agenda, then developing potential solutions for the challenges and opportunities identified. In addition, a more inclusive policy process would allow those who are impacted (marginalized groups, for instance) to assess the policy’s performance.

This could be coupled with innovations in policymaking, such as adopting agile management techniques and running pilots before scaling an initiative. Harnessing behavioral economic insights innovation, policymakers could experiment with ways in which different groups respond: do particular ways of communicating elicit different responses from women, minorities, or the rural population? More responsive approaches like this could bolster the extent to which the needs of diverse communities shape the innovation policy agenda and, in turn, the extent to which innovation policy serves society in an inclusive manner. The result? It may be that the various demographics and regions similarly push for policy that strives to get to the moon, but the how and who of the mission would look qualitatively different than the eponymous moonshot.

Key recommendations	Action items
Embrace the role of the state in setting a direction for innovation	<ul style="list-style-type: none"> <li>• Define the social purpose of the state’s promotion of innovation and put innovation at the heart of achieving the SDG agenda</li> <li>• Create a full “menu” of policies – according to long-term and short-term objectives</li> <li>• Not everyone wants to become a startup or an entrepreneur - support different models of innovation (e.g. by investing in social R&amp;D)</li> </ul>
Remember that innovation is contextual	<ul style="list-style-type: none"> <li>• Design policies that promote innovation beyond “silicon” and high technology activities</li> <li>• Map citizen driven innovation that arose when specific, contextual needs where not met</li> <li>• Embrace agile testing approaches (e.g. testbeds) that allow to adapt innovations from elsewhere to local circumstance</li> <li>• Put efforts in articulate and document context specific innovation approaches and methodologies</li> </ul>
Include citizens throughout the policy process	<ul style="list-style-type: none"> <li>• Encourage a variety of citizens in setting the innovation policy agenda</li> <li>• Involve citizens in the process of assessing policy performance</li> <li>• Encourage citizen participation to broaden the public understanding of innovation dynamics</li> </ul>

# 5 Conclusion: strive for local and inclusive innovation promotion

**To harness the promise of innovation that is both productive and inclusive in Southeast Asia, two imperatives are crucial to keep in mind.**

First, government policy needs to go beyond the ambition of replicating Silicon Valleys. Governments that truly prioritize inclusive innovation will design policies that fit the local context – the local, contextual rationality – in terms of how the government works, the industrial structure, the human resources, and society’s needs. The objective would be to build on competitive strengths, and promote innovation that advances local productivity and society. Also, policymakers can be poised to think of innovation more broadly than the silicon chips for which Silicon Valley gets its name. Innovation occurs – and is essential to boosting productivity – in all sectors, not only information technology.

The second imperative is design policies with diversity and inclusion as core goals. Think of innovation beyond the “rising tide raises all boats” and instead think about the potential for innovation to drive the greater participation – and contribution – of those currently underrepresented in high value-added activities. This could include “social R&D funds” in Myanmar, and Singaporean “smart nation” policymakers working to design efforts that promote artificial intelligence as a tool for addressing social challenges.

There are emerging models of inclusive innovation. They aren’t perfect: there’s still room for greater diversity and inclusion, for better fit with local context, and in articulating unique aims, but they represent an important alternative to the pursuit of simply aiming to replicate the good and bad of Silicon Valley.

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