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Right up our Valley: Why Singapore ought to quit copying Silicon Valley

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Singapore tried it. South Korea tried it. Russian, Vietnam and India are all following suit.

It seems that when it comes to encouraging innovation and invention, the "standard approach" in every country that Edward Jung has come across, is one that attempts to replicate Silicon Valley.

Jung is the co-founder and chief technology officer of *Intellectual Ventures*, a firm dedicated to the funding, creation and commercialisation of inventions. He spoke at SMU's [Institute of Innovation and Entrepreneurship](http://www.smu.edu.sg/institutes/iie/About%20IIE/Overview.asp) (<http://www.smu.edu.sg/institutes/iie/About%20IIE/Overview.asp>) Distinguished Speaker Series, "[Innovation megaprojects – A 21st century model for innovation and economic development](http://www.smu.edu.sg/institutes/iie/emailer/dss_20100517.htm)" (http://www.smu.edu.sg/institutes/iie/emailer/dss_20100517.htm). Before starting up *Intellectual Ventures* with *Microsoft* colleague Nathan Myhrvold, Jung was also former chief architect and advisor to executive staff at this world's largest software company, former consultant to *NeXT Computer*, *Apple* as well as the *Open Software Foundation*.

From his perspective, it is not too difficult to understand why some countries might chase after the Silicon Valley dream. The Valley, after all, is synonymous with the glamorous world of high-tech wizardry and is one of world largest wealth generating machines. Just on its own, Silicon Valley boasts a gross domestic product of US\$100 billion, US\$26 billion in exports and 1.5 million high-income jobs. Beyond just figures, there is also a growing list of brand names and products from the Silicon Valley ecosystem that need no introduction: *Hewlett-Packard*, *Intel*, *Cisco Systems*, *Apple*, *Oracle*, *Google* and *Facebook*, to name a few. Many more can be expected to emerge in the years to come.

An "inefficient" Valley

As a concept, or as an environment, the Valley is indeed seductive. Yet, nobody has been able to replicate it, said Jung – or at least not on a similar scale – for "those guys" have been doing it since the 1950s. In an eye-brow raising comment, Jung added that Silicon Valley actually functions "inefficiently".

He explained that the fundamental concept permeating throughout is one of "letting a thousand flowers bloom", where anybody with an idea, a plan, and a bit of money can start a company. Needless to say, not every start-up can be successful. Even in a good year, 10,000 companies will fail, and there may be only one huge success every few years. This hard reality is something that most governments and banks will balk at accepting.

Moreover, the anti-establishment culture of Silicon Valley thrives on "disrupting the world with single companies". Starting small is almost a religion. "Many things are not good using the Silicon Valley way," said Jung. For example, you cannot build the Integrated Resorts (Singapore's two recently-completed casino-anchored developments) by sending 1,000 entrepreneurs out there with shovels and see who builds the best resort development.

This same approach cannot apply to larger, complex issues either – like how to build a first-world healthcare system, or deploying an alternative energy supply chain. It is almost comical to imagine a small cluster of people, huddled inside a garage turned home-office, discussing plans to reform education institutions for the 21st century. Too big to fail? Too small to succeed, perhaps.

To be in good company

While the story of the Wright brothers' building of an aircraft in a shack may have been called "innovative" during its time, it takes a lot more to earn that same title today – a hypersonic airplane, at least. "[Grand] ideas are harder to realise; the scale is beyond the scope of single companies and requires new collaboration," said Jung. Instead of trying to push uphill, for something that is culturally alien to Singapore, he suggests a different model: Innovation megaprojects.

From Jung's perspective, innovation megaprojects might just be right up Singapore's alley, as it requires the mapping of a vision, thorough planning, and fastidious project management. These are the strong areas of the country, he said, citing several factors: One, unlike in many other countries, big projects in Singapore are more likely to stick to schedule and within budget. Two, there is financial transparency, as well as a sound policy and regulatory

framework. Three, Singapore has a teamwork culture. These are important advantages, said Jung, especially in light of some of the common reasons that account for a number of US-based megaproject failures.

How do "innovation megaprojects" work?

First, you start with the identification of a major problem that would be of interest to a large number of stakeholders and customers. For example, create a First World healthcare system that won't go bankrupt under the stress of chronic diseases and an aging population. A so-called "prime contractor" would then articulate the vision, plan, come up with standards, and take charge of project management.

Next, the prime contractor goes to the "invention network" to look for the individual ideas that can be pulled together to solve the problem. According to Jung, whose company has worked with many companies and inventors, "the invention network is already in good shape. There are lots of inventions out there just waiting to be integrated."

Step three is for the prime contractor to obtain the necessary permits or long-term contracts that will allow the parties involved to commit resources to the project without fear of competitors swooping in to kill their game. This was how it worked with the two integrated resorts in Singapore, where Las Vegas Sands and Genting hold exclusive ten-year licenses to run casinos here, which assures that their multi-billion investments are not vulnerable to sudden changes in the competitive environment.

Finally, the prime contractor should sub-contact other companies to develop the technology, products and services that are necessary to solve the problem. According to Jung, this "sub-contractor" approach to innovation is very different from the way that innovations are generated in Silicon Valley.

And well does he know it. This avid inventor, who holds more than 100 patents worldwide, with more than 900 patents pending, outlined the Valley process as such: an inventor goes to a company with a new invention, like wireless capability for example, and requests that the company implements the product or integrates it into their existing products. As the company would then have to take on the risk of financing product development and taking it to market, it would tend to take a sceptical view of such cooperation.

On the other hand, if armed with a megaproject, the prime contractor can approach a company with an offer for them to be part of a seven-year programme, say, for example, on human healthcare, that will bring in \$10 million of revenue to the company, so that research and development is "de-risked". The company can sell their products to all the hospitals in Singapore and any other customers elsewhere; on the condition that they will have to incorporate wireless capabilities into their products for integration with other diagnostics. Such propositions are more likely to get companies co-operating.

"They see a seven-year contract in it and they are much more willing to rework that. This is a contract-driven standards process, not a political one, which is much more compelling for companies... because you brought customers and revenue in," said Jung. So in such a way, innovation megaprojects encourage cooperation.

The long-term contract acts as a huge magnet to draw in companies that, normally, would not consider cooperating or integrating their technology. It also draws companies for want of tapping into the revenue and market that comes along with the contract. It is the easiest way to create new product lines and companies, or, in other words, generate intellectual property and encourage entrepreneurship. The prime contractor takes the bulk of the risks, rather than the inventors or innovation companies. Cooperation also allows the companies to tackle much more complex problems than they normally would be able to, as small individual companies.

Making a difference

Innovation megaprojects also create jobs. Unlike small start ups that cannot afford to hire an army, megaprojects can, and do, as they require a whole plethora of skill sets and expertise. The long-term nature of the projects also encourages training as it makes it worthwhile for educational systems to be built around it.

Furthermore, such megaprojects also leverage on the other parties' intellectual properties and create revenue opportunities from global licensing of inventions. In other words, while it is possible to compete with Silicon Valley, Jung notes that the better way is to leverage on what has already been done in the Valley and other countries like Japan or Europe. Since others have already sunk investments in research and development and venture capital, there is no need for Singapore to do so. Instead, Singapore can import the technology after it has been proven.

"Rather than taking it at the R&D stage or the venture capital stage, let's take it after venture capital, when they are dying to find some revenue, or they are really wanting to integrate their product with some other problem, which can't really be done in the US because the costs are so prohibitive, and [because the US manages megaprojects] so badly," he said.

Ultimately, the largest benefit of an innovation megaproject is the creation of standards, as compared to just creating one product or solution that solves the problem in a trivial way. By creating standards, you create a "technology infrastructure". New "tenants" can move into, and build on the platform to "grow" the technology, thereby generating long-term wealth. The experience and know-how gained from the management of talents, skills, technology, and collaboration through such a project also forms a kind of intellectual property that cannot be easily replicated.

To illustrate, Jung gave the example of medical diagnostics. Today, it is possible to understand better, how the human body works through diagnostics over a lifetime. This vision is not new. "You can find any diagnostic and hook it up to a wireless phone and have it built into an informatics system – it's not difficult," he said.

Yet, "the problem is, if you don't set a standard, all you have for all that effort, is one diagnostic. But if you can design the programme so that it sets the standards where the next generation of diagnostics and future generations of IT can plug into it, then you have created something much more interesting and durable," he said.


Playing to the country's strengths


Innovation megaprojects require efficient financing, a coming together of the local and global, new and old companies, minimal innovation risks, as well as revenue and market access – all of which plays to Singapore's strengths, Jung noted.

For the Singapore economy, innovation megaprojects will leave a larger, more inclusive economic impact, leveraging on planning strengths, and a predictable success matrix. For companies, it reduces the risks commonly associated with new product development, encourages standards integration, and creates first-mover advantage. For the inventors, it helps promote valuable inventions, scales up the commercialisation of inventions, creates durable standards, and favours a gradual problem-solving approach.

So while there are certainly some attributes in Silicon Valley that are worth emulating, "you don't want to under-accentuate the strength of [Singapore's] vision, plan and project management," Jung concluded.

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