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The Virtual Innovation Eco-System: Building Global Business Anywhere

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Imagine two young Japanese innovators; let's call them Hanako Sato and Taro Yamada. Let's assume that Hanako and Taro have a disruptive idea for a high growth start-up business and that this idea shows real potential. They are driven, ambitious and both dream of building a global business that will change the world. Finally, let's assume Hanako and Taro were born and grew up in the city of Fukuoka, located on the island of Kyushu in southwestern Japan. In order to pursue their dream and bring their idea to market, Hanako and Taro are going to have to survive the difficult period in the early stage of the life cycle of a company known as the "Valley of Death"; the period between the initial capital contribution and the company generating a steady revenue stream.[3] In order to be successful in this challenging task - after all, many businesses will fail at this

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early stage - Hanako and Taro will need to raise a significant amount of money. But this need for money raises a series of daunting questions: "*Who* should we turn to for investment?"; "*What* kind of money do we want to attract?"; "*When* is the right moment to seek investment?"; and, "*Where* should we locate our company, if our dream is to build a global business?"

This last question - we will refer to it as the "Where question" - is perhaps the most important of all, not least because it will determine the available options for answering the other questions. Research has consistently shown that over the last three decades Silicon Valley has been *the* place to go.[4] It has consistently ranked as the best location for launching a new business enterprise with global aspirations. Silicon Valley attracts the most funding; it is the most connected; and it offers the most opportunities for both innovators and entrepreneurs. Silicon Valley has represented the best bet for anyone with serious aspirations of creating a global business in the high growth sector of the innovation economy.[5]

Over recent years, however, this picture has become somewhat blurred.[6] If deal growth is examined, for example, it can be shown that new innovation eco-systems are rapidly developing in many urban centres: Beijing, Bangalore, Tokyo, Seoul, Shanghai, and Stockholm to take a number of important - and obvious - examples.[7] Moreover, innovation eco-systems are also emerging in

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[3] *See* Janke Dittmer, Joseph A. McCahery and Erik P.M. Vermeulen, *The Balance Between Exploration and Exploitation in the "New" Venture Capital Cycle: Opportunities and Challenges*, in Uriel Sterner, Barak S. Aharonson and Terry L. Amburgey, Exploration and Exploitation in Early Stage Ventures and SMEs (2014).

[4] *See* Leslie Berlin, *Silicon Valley Then and Now: To Invent the Future, You Must Understand the Past*, MEDIUM (blog) (May 1, 2015); Sam Altman, *Why Silicon Valley Works*, SAM ALTMAN (blog) (November 3, 2014); CBInsights, *The Black Swan Effect - Why Silicon Valley Is a Tech Venture Capitalist's Best Bet* (blog) (November 26, 2013).

[5] *See* Deborah Perry Piscione, Secrets of Silicon Valley: What Everyone Else Can Learn From the Innovation Capital of the World (2013).

[6] *See* Andreessen Horowitz, *Software and Overcoming the Randomness of Birthplace*, a16z Podcast (with Sten Tamkivi) (May 2015).

medium and even small-sized cities.[8] A "start-up community" is increasingly seen as a necessity for every city, as it provides a reliable means of job creation and economic growth.[9] Although many of these new innovation systems may be small in scale - at least when compared to the Behemoth that is Silicon Valley - it is equally clear that more and more high risk venture capital deals are being put together far from California and that the correct answer to the "*Where* question" is becoming much less obvious. A global business really can begin anywhere.[10]

Starting a global business in a provincial Japanese city has become a real possibility for ambitious and talented innovators like Hanako and Taro. Fukuoka is now a candidate as a possible location for a start-up with global ambitions. Of course, this adds to the complexity of the choices facing Hanako and Taro. They like Fukuoka; after all, it is their hometown and they have strong roots tying them to the region. And establishing a globally oriented business in Fukuoka is no longer as far-fetched as it once might have seemed.

But is it smart? Does setting up in Fukuoka represent a smart choice for Taro and Hanako and what factors do they need to consider in making such a commitment a success? This is the question we want to examine in this paper. More generally, what we propose to do is to ask what the experience of business

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7 *See* CBInsights, *The Next Silicon Valley* (blog) (November 7, 2014).

8 *See* Yasuyuki Motoyama and Karren K. Watkins, *Examining the Connections within the Startup Ecosystem: A Case Study of St. Louis*, KAUFFMAN FOUNDATION RESEARCH SERIES ON CITY, METRO, AND REGIONAL ENTREPRENEURSHIP (September 2014); George Deeb, *Comparing Startup Ecosystems: The Midwest vs. Silicon Valley*, FORBES (April 2, 2014); Rip Empson, *Startup Genome Ranks The World's Top Startup Ecosystem: Silicon Valley, Tel Aviv & L.A. Lead the Way*, TECHCRUNCH (November 20, 2012).

9 *See* Ronan Dunne, Nathalie Boulanger, Teppo Paavola, Marco Patuano and Stephen Collins, *An Open Letter to Support the Scale-up of the Startup Ecosystem in the EU*, STARTUP EUROPE PARTNERSHIP (November 21, 2014); Julian Kirchherr, Gundbert Scherf and Katrin Suder, *Creating Growth Clusters: What Role for Local Government*, MCKINSEY & COMPANY (July 2014).

10 *See* Hunter Walk, *Silicon Valley Is Still Best Place to Build a Startup But…*, HUNTER WALK (blog) (February 2, 2015); Chris Hexton, *The World on Your Terms: Why You Can Start a Successful Business Anywhere*, THE FETCH BLOG (July 5, 2014); EMILY NAGLE GREEN, ANYWHERE: HOW GLOBAL CONNECTIVITY IS REVOLUTIONIZING THE WAY WE DO BUSINESS (2010).

creation in Fukuoka might teach us about the challenges of building a startup and innovation eco-system today? What can we learn from the recent experience of Fukuoka about the recipe-for-success in building a global business?

The obvious (and appropriately skeptical) response to this question might be to ask "Why Fukuoka"? A provincial city located in Japan - an economy widely seen as consistently underperforming over the last two decades - might not seem to be the most promising case study for understanding innovation in a global economy. Moreover, Fukuoka is far from the traditional economic centres of Japan, such as Tokyo, Osaka or Nagoya. Overcoming such skepticism is a difficult task. Nevertheless, we believe that Fukuoka's recent experience is instructive for a number of reasons.

Firstly, the city is a vibrant regional centre with pre-existing capacities in a number of important sectors of the contemporary economy, particularly emerging technologies such as automotive, semi-conductor, biotechnology, robotics, gaming and social media.[11] In addition, the city is well-situated (mid-way between Tokyo, Shanghai and Seoul), with a strong infrastructure and - unusually in a Japanese context - a young demographic profile.[12]

Secondly, with the support of the national government, both the city and prefectural governments have adopted a number of measures that aim at facilitating business building and expansion. These measures have met with some initial success in terms of attracting new business and a "buzz" around the idea of a "start-up" city.[13] There is a broad agreement that innovation eco-systems depend on two capacities, namely a capacity for innovation and a capacity for

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[11] *See* Fukuoka Foreign Investment Promotion Center, *Fukuoka Central to Success*, Invest Fukuoka (April 2013).

[12] *See* Fukuoka City, *Fukuoka, an Asian Business Hub* (2012).

[13] *See* J.T. Quigley, *Japan's Most Startup-focused Mayor Wants to Turn His City into an Entrepreneurial Hub*, TechinAsia (blog) (July 30, 2014).

business building.[14] Both seem to be present, at least in a nascent form, in the Fukuoka region. As such, we are not dealing with a "tabula rasa", but a regional economy with a strong local base, distinct character, and enormous potential for growth.

Thirdly, Fukuoka is not Tokyo, nor is it in the US. This is important; too often the US experience or that of regions close to global cities such as Tokyo, has been the focal point of the discussion. Such a focus obscures what we want to suggest is the most important challenge for regions seeking to develop their regional economy, namely how to identify and maximise local advantage by connecting the local eco-system to the capacities, resources and opportunities of the emerging global or "virtual" innovation eco-system. Business building, and particularly business expansion, increasingly depends on expertise and capacities that function at a global level. Below, we will use the metaphor of the "Cloud" to characterise various key features of this global innovation eco-system. We believe that the idea of the virtual eco-system as cloud-like construct can make a helpful contribution to the debate.

A final reason for considering Fukuoka is more personal, but nevertheless important; one of us is a long term resident of the city and the other is a frequent visitor who has practical experience with building a regional innovation eco-system in the city of Eindhoven in the Netherlands.[15] Both of us believe in the enormous potential of Fukuoka. Moreover, Eindhoven provides a helpful point of reference, as it is similarly situated to Fukuoka both in terms of its position in

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[14] *See* Andreessen Horowitz, *Creating New Silicon Valleys - There's No Magic Bullet, But…*, a16z Podcast (with Fiona Murray) (May 2015).

[15] "Brainport" is a business location centred around Eindhoven in the Netherlands. This initiative is considered very successful in terms of R&D spending, the production of patents and job creation. In 2011, companies invested EUR 2.1 billion in research and innovation, which resulted in the production of 42% of the total patents (approximately 1,100 patents) that were registered in the Netherlands. More than 60,000 industry jobs were created in the region. For more, see William Pentland, *World's 15 Most Inventive Cities*, Forbes Magazine (July 9, 2013).

the national economy (i.e. provincial city operating in the shadow of a global hub, Amsterdam/Tokyo), local advantage (i.e. a focus on new and disruptive technologies) and the proactive attitude of local politicians and regulators keen on developing the regional economy around a strategy of facilitating business building in high growth sectors.

Focusing on a provincial Japanese city, such as Fukuoka, encourages us to think about realising the new opportunities available for someone like Hanako and Taro in the context of a global economy characterised by the diminishing significance of borders. In that sense, what we want to offer here is not a Japan-specific story. Rather, we want to use the example of one Japanese city to tell what we think is a more universal story about the prospects and possibilities for business growth in the context of a global economy that is innovation driven and oriented around building new business that operate across borders.

Crucially, we believe it is important to tell this story from the perspective of Hanako and Taro, and not from that of government. A recurring theme in the existing discussion on innovation eco-systems is that, to be a success, such an environment ultimately depends on people like Hanako and Taro and not governments. We concur with this view. However, Hanako and Taro, definitely need support, but perhaps not in ways that governments or other commentators on this topic have fully understood. In that sense, we think we have an important message for both national and local governments, as well as the many entrepreneurs and innovators interested in the prospects and possibilities of building global business anywhere.

I. Metaphors for a Successful Innovation Eco-System

In answering the “Where question”, Hanako and Taro need to identify a place where an innovation capacity and a business building capacity are both present. They know that this is most likely to occur in an environment or “eco-system”

that facilitates and supports further innovation and business growth. Ideally, this means setting up in a start-up community that is focused on new technologies and other high growth businesses.[16] So far, a popular model for commentators on innovation eco-systems has been to examine Silicon Valley with its unique combination of dynamic spirit and innovative environment for business creation. Significant investment has been made in seeking to identify the distinctive elements of the Silicon Valley eco-system, as a precursor to transplanting it to other parts of the world. We can think of this as the reverse engineering of a successful eco-system. In the discussion on this issue, various models have been proposed that seek to identify the various "ingredients" or "recipe" for achieving this goal.[17]

A feature of this debate is the on-going search for an appropriate metaphor that can provide both a framework for understanding and a vocabulary for describing innovation eco-systems today. Reading the literature on this topic means entering a world of "rainforests", "religions", "operating systems", "mindsets" and "helixes" ("triple", "quadruple", and "quintuple").[18]

There is something to be said for this approach; after all, metaphors can provide a reference point for innovators like Hanako and Taro searching for a passage through the "Valley of Death", as well as policy makers seeking to provide a sustainable infrastructure that will maximise opportunities and feed regional economic growth. But can such metaphors provide genuinely meaningful guidance for Hanako and Taro in their search for an answer to the question of where they should set up their business? What do they discover when they start consulting this literature?

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16 *See* Michael Schrage, *How Innovation Ecosystems Turn Outsiders into Collaborators*, Harvard Business Review (April 30, 2014).

17 *See* Victor Hwang, *To Replicate Silicon Valley's Success, Focus on Culture*, The Washington Post (April 26, 2012).

18 *See* Fred Wilson, *Silicon Valley: A Place or A State of Mind?*, AVC (blog) (July 7, 2014).

A. Silicon Valley is a rainforest

Take Victor Hwang and Greg Horowitt's metaphor of the "rainforest".[19] In identifying the factors necessary to replicate Silicon Valley, Hwang and Horowitt emphasise the importance of a culture in which uncontrolled interactions routinely occur between talent, capital ideas, and opportunities, i.e. the essential elements in any innovation eco-system. In this account, innovation is an unplanned and spontaneous event - a feature of the ecology of a rainforest - that is contrasted with the planned production of an industrial economy. Sure, weeds will emerge in the rainforest, but so will all-manner of wonderful new species of flora and fauna. Seeding, cultivating, and nourishing the unforeseeable possibilities of such encounters is the key to promoting innovation. It is the existence of a highly developed rainforest eco-system that gives Silicon Valley its distinctive identity and competitive advantage.

This emphasis on the creative potential of spontaneous connectivity and uncontrolled encounters between key players within an innovation eco-system is an important insight for understanding the success of Silicon Valley. Moreover, the value of connecting is a theme that is frequently found amongst commentators on this topic.[20] The benefits of collaborative relationships include the pooling of resources, group problem-solving, expanded sources of learning, development of shared expertise, enhanced innovative capacities, and the creation of new opportunities. Moreover, new collaborative experiences create momentum and facilitate even more ambitious projects as parties learn how to cooperate productively and build mutual trust. Traditional economic perspectives, focusing on self-interest, short-term gains and isolated "one-shot" transactions, have neglected the possibilities of this kind of spontaneous cooperation.[21]

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[19] *See* Victor W. Hwang and Greg Horowitt, The Rainforest (2012).

[20] *See* Andrew Wathey, *Ensuring Our Research and Innovation Ecosystem Thrives*, University Alliance (blog) (March 13, 2015); Ruprecht von Buttlar and Steve Hoey, *Building a Regional Approach to Innovation Ecosystem Assets Assessment*, World Technopolis Association (2014).

[21] *See* also Erik P.M. Vermeulen, *Corporate Governance in a Networked Age*, WAKE FOREST LAW REVIEW (2015).

Collaboration rarely runs smoothly and it inevitably creates new difficulties, but it is worth it. Open networks produce net gains for all participants.

A potential limitation with the Hwang and Horowitt argument is that many regions simply don't have an open, spontaneous culture conducive to the growth of a rainforest. In such an environment, the kind of change being advocated may take a long time to implement. Engineering cultural change is a long-term project that may not yield results for many years, possibly decades. It also seems unclear whether and how uncontrolled encounters - or cultural change of any kind - can be stimulated by the state. And rainforests may not thrive everywhere. They may only flourish in those regions where certain cultural pre-dispositions - an openness to the new and a willingness to embrace failure, for example - are already present and only need to be nurtured. Something additional is going to be required for those regions that do not possess the pre-existing - but untapped - potential to grow a rainforest.

Moreover, the metaphor of the rainforest does not seem to offer much in the way of practical guidance for Hanako and Taro in their attempts to find the best location for building a global business and navigating the "Valley of Death". Every rainforest is going to have a distinctive character and how do Hanako and Taro decide *which* rainforest best suits their needs? The "Rainforest Scorecard" that is offered by Hwang and Horowitt provide criteria for evaluating the implementation of a rainforest, but it all seems somewhat subjective.[22] Finally, the focus of the rainforest approach seems to be centred on generating innovation and much less concerned with getting an idea to market or helping founder-innovators like Hanako and Taro in building a successful business. The implication seems to be that the process of business building will be an inevitable

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[22] *See* Victor W. Hwang, The Rainforest Blueprint, How to design Your Own Silicon Valley, Unleash an Ecosystem of Innovation in Your Company, Organisation, or Hometown (2013); Henry H. Doss and Alistair M. Brett, The Rainforest Scorecard: A Practical Framework for Growing Innovation Potential (2015).

outcome of having a rainforest. This may be the case, but we would suggest that something more tangible is required in order to give Hanako and Taro the confidence to commit to a particular region.

B. Silicon Valley is a religion

A second metaphor for understanding innovation eco-systems is that of a "religion". Brad Feld, for example, has picked up on this idea and asked whether it makes sense to describe Silicon Valley in such terms.[23] He has suggested that the "religion of Silicon Valley" can be described as a collection of beliefs, cultural systems, and worldviews that has narratives, symbols, and sacred histories. Again, this is a belief-focused view of what makes Silicon Valley special. Acknowledging the importance of belief, narrative and symbols in the construction of an eco-system is important. And the religion metaphor nicely captures the idea of proselytism - the act of seeking to convert people to the faith - which also seems to be a feature of Silicon Valley.

However, as Feld himself observes, there are certain dangers in believing that "my way is the only way".[24] Moreover, religion tends to be resistant to change - particularly regarding fundamental beliefs - and in most cases refuse to countenance any questioning of the status quo or existing leadership. None of this seems entirely appropriate to the realities of contemporary innovation eco-systems. And as with the "rainforest" metaphor, the idea of Silicon Valley-as-religion seems to fall short in providing tangible guidance for Hanako and Taro in answering the "Where question". The risk of using religion as a metaphor is that it simply carries too much baggage and with its connotations of the supernatural, there is a danger that it mystifies the process of identifying the elements of a successful business or eco-system and obscures the practical

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[23] *See* Brad Feld, *The Religion of Silicon Valley*, FeldThoughts (blog) (April 20, 2015).

[24] *See* Brad Feld, *The Board Operating System*, FeldThoughts (blog) (April 22, 2015); Brad Feld, *Silicon Valley - Religion, Operating System, or Something Else?*, FeldThoughts (blog) (April 24, 2015).

tasks that need to be accomplished in building a business or eco-system.

C. Silicon Valley is an operating system

A third metaphor is the idea of Silicon Valley as an "operating system". Elon Musk is credited with this idea.[25] Musk compares Silicon Valley with Linux in the sense that Silicon Valley is an engineer-driven culture in which there is a flat hierarchy and open communication. This echoes themes found in Hwang and Horowitt about the type of culture that is conducive to innovation. Open communication creates a "best idea wins" culture, which Musk contrasts with more hierarchical structures where the seniority of the person proposing a particular idea determines the adopted solution. It is for this reason, Musk suggests, that the pace of innovation tends to be much faster in smaller companies where looser organisational forms are easier to sustain.

From the perspective of Hanako and Taro, it would be perfect if Fukuoka could "install" something similar to a Linux operating system that encourages both innovation and business building capacities. However, in the same way that some operating systems run more smoothly than others, it is often difficult to know precisely why one is better, without a certain degree of trial and error or knowing in detail what is going on under the hood. *Which* system needs to be installed? And *how* is this to be accomplished? A city may have the political will to adopt an operating system and it may have the resources to do so, but we still need a more detailed "blueprint" as to precisely what needs to be installed.

II. Blueprints for a Successful Innovation Eco-System

Luckily for Hanako and Taro, there are multiple blueprints available to assist in this task. One of the best-known blueprints for describing how an operating

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[25] *See* Connie Lozos, *Elon Musk on Why His Rockets Are Faster, Cheaper and Lighter Than What You've See Before*, PEHUB (blog) (June 18, 2010).

system might work and the elements necessary for success is Brad Feld's "Boulder Thesis".[26] Echoing Musk, Feld has also emphasised how the hierarchies of industrial society have been displaced by networks as the key organisational logic of a modern innovation driven economy. On this account, hierarchies are seen as the enemy of innovation. The main focus of the "Boulder Thesis", however, is the identification of the four elements which Feld identifies as the key to developing a successful start-up community, namely: (i) Ensuring the innovation eco-system is entrepreneur-led (other actors are important, but are "feeders"); (ii) Taking a generational view and maintaining a long term commitment; (iii) Being inclusive and unafraid of failure; and (iv) Ensuring that activities and events (e.g. accelerator programs, start-up weekends etc.) are meaningful and engage the whole community.

Another "blueprint" that has been popular in many jurisdictions seeking to develop an innovation eco-system has been that of "DNA" and the "triple helix".[27] In order to stimulate innovation, this approach focuses on creating an environment in which government partners with large corporations, universities and other knowledge and research institutions. These "triple helix" collaborations are directed at the creation of knowledge-intensive clusters in which the interactions among the different actors drive the transfer of knowledge and provide multiple resources that increase the potential for innovation, growth and value creation.

The "triple helix" approach has proven successful in that it has led to the formation of formal and informal networks of entrepreneurs and other economic actors, thereby increasing the availability of human capital and, more importantly,

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[26] *See* Brad Feld, Startup Communities: Building an Entrepreneurial Ecosystem in Your City (2012).

[27] *See* Henry Etzkowitz and Loet Leydesdorff, *The Triple Helix - University-Industry-Government Relations: A Laboratory for Knowledge-Based Economic Development*, 14 EASST Review 14 (1995).

social capital. This kind of approach has been successfully introduced in the city of Eindhoven - the so-called "Brainport" hub - which was named the "Smartest Region in the World" based on the potency of this partnership between university, government and business.[28]

Despite the benefits of a "triple helix" model, there is a concern that innovation eco-systems such as the "Brainport" hub may not realise their full potential. Experts increasingly point to a missing "fourth helix" (the citizens or user communities) or "fifth helix" (the environment). Eco-systems in Japan, for example, have built on this idea of incorporating citizens. In Fukuoka, the idea of involving citizens as drivers of innovation has been introduced in the form of Innovation Studio Fukuoka, with citizens forming teams that think about innovation to improve the world.[29]

We would simply note that the focus of the "helix" approach is on promoting innovation. The "triple" or "quadruple" helix models, for example, are primarily concerned with developing the innovation capacity, via the inclusion of the university and citizens, but there is a corresponding tendency to neglect the entrepreneurial dimension, namely the equally important task of developing the capacity of building and scaling business.

It seems clear that an innovation eco-system requires both capacities. On the one hand, there is the capacity for innovation, that is to say, the proliferation of disruptive business ideas that can provide the products or service of new start-ups. On the other hand, there is the capacity for entrepreneurship, that is to say the capacity for business creation and development. Crucially, *both* capacities are vital in building a successful innovation eco-system. A successful innovation eco-system needs to attract both innovator-founders and entrepreneurs, as well

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[28] *See* Omar Akhtar, *7 Best New Global Cities for Startups*, FORTUNE (September 19, 2012).
[29] *See* www.innovation-studio.jp

as investors and other service providers (such as lawyers, accountants etc.).

Hanako and Taro are at the end of their trawl through the various attempts at understanding the conditions for a successful innovation eco-system. Unfortunately, in spite of the depth and breadth of the discussion around this question, they can't find an obvious alternative to Silicon Valley where they can confidently locate their business or clear and practical guidance on what is needed in constructing a local eco-system. Perhaps unsurprisingly given the lack of direction, policy makers have not succeeded as often as they have hoped or expected in their attempts at building innovation eco-systems, leaving all stakeholders frustrated with the results.[30]

Hanako and Taro's conclusion may be that although eco-systems might succeed in developing a capacity for innovation they often fail in business building. This is not entirely surprising, as implementing a blueprint for business building is extremely difficult. Whatever blueprint has been adopted, they have not been as effective as Silicon Valley where the whole eco-system is geared around the transformation of great ideas into profitable businesses. Other attempts at building innovation eco-systems have rarely succeeded in developing *both* the innovation and business-building capacities. And without entrepreneurs to build business, investors and other service providers are also unlikely to re-locate to that community. We are left with a "Chicken and Egg" style conundrum: How do we get *all* of the actors necessary for a successful eco-system to converge on one place? And in the absence of such a convergence of talent, resources and services, isn't it difficult for innovator-founders like Hanako and Taro to commit to a particular region?

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[30] *See* Josh Lerner, Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed - and What to Do About It (2009).

III. The Global Innovation Eco-System as Cloud Construct

How then do we resolve this conundrum? How do we simultaneously stimulate the innovative capacities of founders, the business-building capacities of entrepreneurs, and the financial resources and "know how" of investors? To answer these questions, we would like to highlight what we believe is an important new development - the emergence of a global innovation eco-system - and a metaphor for understanding various features of this new phenomenon, namely that of the Cloud. We want to suggest that the emerging virtual innovation eco-system has a cloud-like character that we will characterise as a "cloud construct". Connecting to the resources and capacities of this cloud construct has become vitally important for all actors in the innovation space. We hope that a new way of thinking about this issue can provide a fresh perspective on the challenges facing both innovator-founders - such as Hanako and Taro - seeking to build a global business, as well as policy makers interested in developing a blueprint for a sustainable regional eco-system.

In the context of computing, the Cloud refers to the sharing and dynamic reallocation of resources amongst networked devices. We would highlight three features of Cloud networks that are going to be helpful in describing the distinctive character of the virtual innovation eco-system: Firstly, the Cloud functions as a hub for on-demand information and configurable services for end users that can be rapidly uploaded or downloaded from anywhere in a network. Secondly, the Cloud requires minimal central management or coordination; it develops organically and without centralised control based on the actions of the networked end users. Finally, since devices that are connected to the cloud are pooling resources they no longer require powerful hardware or resources to be stored on the local device. Rather, resources and capacities can be seamlessly retrieved as and when it is necessary.

We would suggest that the emerging virtual innovation eco-system has the

following features:

A. The virtual innovation eco-system as cloud construct offers new opportunities for mobility and global connectivity

In a globalised, interconnected economy in which frictionless movement is the "new normal", the innovation space takes on a global character and innovators, entrepreneurs and investors have a new degree of mobility and freedom in pursuing opportunities wherever they arise.

Consider the following changes in the global investment landscape. Firstly, Silicon Valley investors are increasingly looking beyond the borders of the US in search of new deals and opportunities. These venture capital investors, for example, are seeing something unique in other regions that they cannot find in Silicon Valley. The "post-financial crisis" increase in outbound investment, particularly to China and India illustrates this shift (see Figure 1).[31]

Secondly, "outside" investors are increasingly looking to invest in Silicon Valley. Consider the data on Japanese investment inbound Silicon Valley (see Figure 2). Thirdly, other types of fund - such as mutual funds, hedge funds, private equity funds and corporations - have changed their business model and are increasingly willing to invest in high-risk start-ups, particularly outside the US.[32] Traditional Venture capital funds no longer represent the primary source of capital for such start-ups (see Figure 3).[33] Hedge funds, mutual funds and sovereign wealth funds are increasingly investing in the venture capital asset class. Finally, all of

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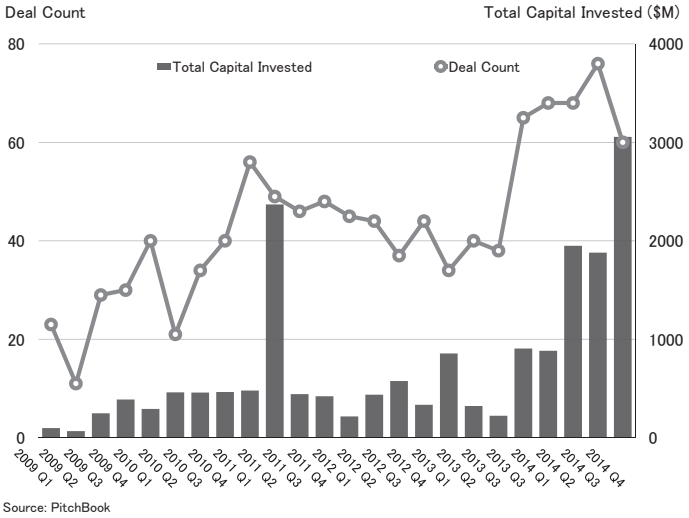
[31] *See* CBInsights, *More US VCs Pile Into Asia's Tech Startups Every Year* (blog) (June 4, 2015); CBInsights, *The Q1 2015 Asia Tech Report: A Data-driven Review of Q1 2015's Financing Activity to VC-backed Asian Tech Companies* (2015).

[32] *See* CBInsights, *India Tech Startups Attracting More than VCs. Hedge Funds, Mutual Funds & Other Crossover Investors Jumping In* (blog) (May 25, 2015); CBInsights, *The Big Money Moves Abroad: Tiger Global, Coatue and Digital Sky Shift 79% of New Investments Outside U.S.* (blog) (June 8, 2015); CBInsights, *The Top 10 Asian Corporate Investors in Tech* (blog) (June 11, 2015).

Figure 1: Outbound "Silicon Valley Investments" in Asia (2009-2014)



Source: PitchBook

these investors are collaborating with one another to an unprecedented degree. Figure 4 shows how the top-25 Silicon Valley-headquartered investors in Asia do not only make more and more investments, but also increasingly involve new Asian co-investors in their deals.

A similar pattern of global mobility driven by the pursuit of new opportunities can also be found amongst the "talent", i.e. the innovator-founders and entrepreneurs. People like Hanako and Taro - are becoming more mobile in the pursuit of new connections and opportunities. Within the virtual innovation eco-system there are emerging hubs of expertise concentrated in particular places and particular sectors of the innovation economy. Take the example of Los Angeles and the film industry.[34] Innovators from all over the world with an

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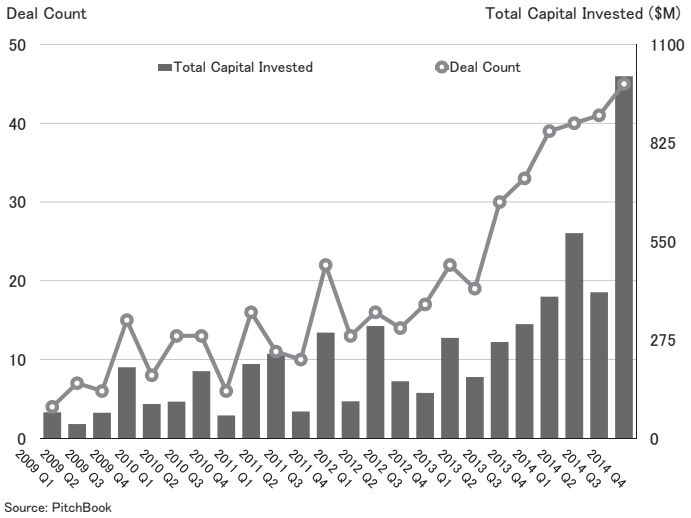
[33] *See* CBInsights, *Hedge Funds Compete For Startups* (blog) (April 3, 2015)*;* CBInsights, *The Rise of Hedge Funds and Mutual Funds in Tech Startup Investing in Two Charts* (blog) (March 5, 2015).

[34] *See* Mark Suster, *There's Something Going On In L.A.*, TECHCRUNCH (October 8, 2014).

Figure 2: Inbound "Silicon Valley Investments" from Asia (2009-2014)



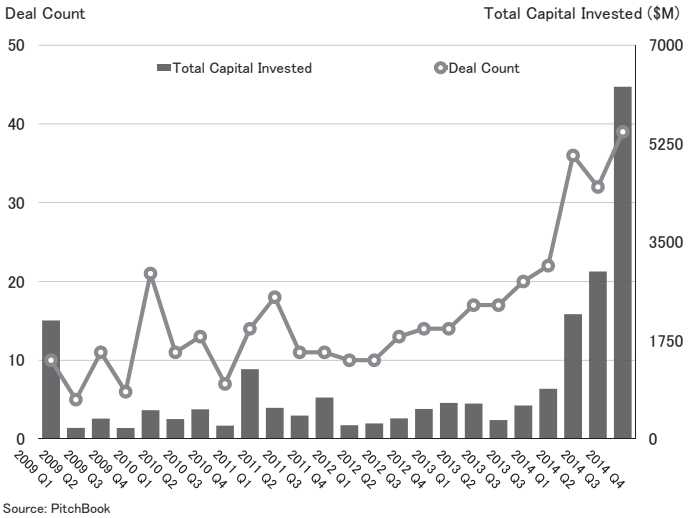
Source: PitchBook

interest in movies converge on Los Angeles drawn by the capacities and resources of the region. This results in the creation of clusters of excellence that, in turn, draw in entrepreneurs, investors and service providers from across the globe with expertise or skills in that particular field. This process is then fed by private initiatives that seek to accelerate this process of global connectivity by bringing together geographically disparate innovators with similar know how and expertise. The Tofu Project, for example, seeking to link Japanese and US innovators working in similar fields would be an example of such scheme.[35]

Taken together these developments represent a significant shift. They reveal the emergence of a global innovation space in which capital and talent pursue opportunities wherever they find them, and in which there are multiple new opportunities for collaboration. Geographical borders no longer matter or, at least, they matter far less than was previously the case. What matters, however,

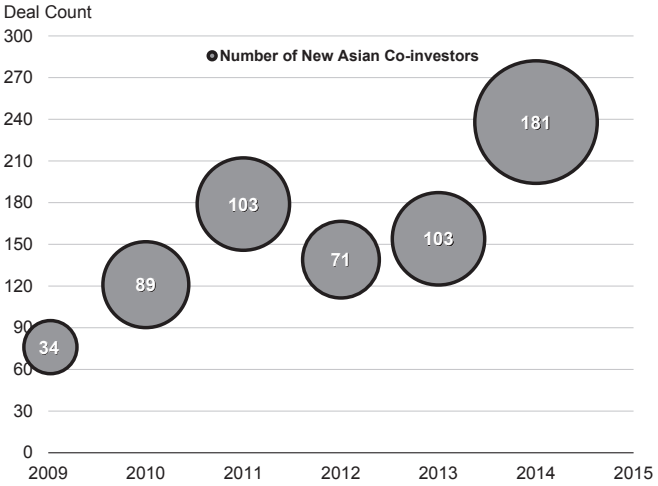
[35] http://thetofuproject.org

Figure 3: The Rise of Hedge Funds and Sovereign Wealth Funds in Startup Investing



Source: PitchBook

Figure 4: Top-25 "SV-headquartered" Investments in Asia with Asian Co-investors (2009-2014)



Source: PitchBook

is being in a position to connect to this global network in order to take advantage of the new collaborative opportunities wherever and whenever they arise.

B. The virtual innovation eco-system as cloud construct is constantly absorbing new information and capacities that can be accessed by other connected "users" anywhere in the network

The global innovation eco-system is constantly expanding as more actors, information, and capacities are absorbed into the cloud. There is an unprecedented degree of diversity - in terms of background, experience and know how - within the innovation economy. The effect of this diversity is that the virtual eco-system constantly "learns" and creates upgrades. As new capacities are constantly being uploaded, the virtual innovation eco-system evolves. The consequence is that the virtual eco-system is constantly becoming "smarter" as different actors constantly learn from one another. Crucially, the availability of this "know-how" is now, in principle, possible from anywhere, as long as the end users are hooked up to the innovation system.

Consider US investors again as an example. In addition to capital, investors often provide advice in business development for start-ups. The process of providing advice to start-ups in China or India, for example, results in the acquisition by US investors of new knowledge and expertise (e.g. knowledge about innovator-founders in China, India, etc.).[36] This new knowledge is uploaded into the virtual innovation eco-system. Moreover, since US investors are increasingly keen to have a permanent presence in emerging markets they establish offices in new multiple locations. Again, an effect of having such regional offices is that they gain local knowledge, which is also uploaded into the virtual innovation eco-system. The same process also occurs in the opposite direction. For example, in the case of Japanese investors in the US, the

[36] *See* Hortense Tarrade, Cross-Border Venture Capital Investments: Why Do Venture Capital Firms Invest at a Distance? (2012).

experience with US start-ups gives Japanese investors new knowledge and expertise. A final example would be the effects of the blurring in the business models that has occurred between venture capital and private equity funds.[37] As private equity becomes increasingly active in the high-risk start-up market, new skills and know how that were previously not part of the innovation eco-system can be absorbed into the system.

A similar dynamic can be seen with pre-seed accelerator funds. These networks of investors and mentors provide valuable advice for start-ups on product development, strategy, and marketing.[38] The most effective accelerators are those that are most closely connected to the virtual innovation eco-system, as they have the largest pool of information on which to draw in providing advice. Accelerators that have little access to this pool of information will struggle to survive. In contrast, globally connected accelerators enjoy a strategic advantage that allows them to flourish.[39] Consider success stories like Startupbootcamp HighTechXL in Eindhoven (which gained momentum after they were covered by Techcrunch).[40] The accelerator has succeeded as a result of its global online footprint and diverse range of experiences. From the point of view of Hanako and Taro, they would be much better off choosing an accelerator that is globally connected as such an accelerator is better placed to provide access to multiple resources of follow-on investments within the virtual eco-system.

These simple examples all illustrate the emergence of a global repository of information, experience and know how. Knowledge and capacities from

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[37] *See* Fred Wilson, *What VC Can Learn From Private Equity*, AVC (May 15, 2015).

[38] *See* Tomio Geron, *Top Startup Incubators and Accelerators: Y Combinator Tops With $7.8 Billion in Value*, FORBES (April 30, 2012).

[39] *See* Yael Hochberg, Susan Cohen and Dan Fehder, *The Top 20 Start-up Accelerators in the U.S.*, HARVARD BUSINESS REVIEW (March 31, 2015; Mark Lennon, *The Startup Accelerator Trend Is Finally Slowing Down*, TECHCRUNCH (November 19, 2013).

[40] *See* Natasha Lomas, *Europe-Based Hardware Accelerator, High Tech XL, Targets IoT, Robotics, Graphene, Med-Tech & More*, TECHCRUNCH (Augustus 21, 2013).

throughout the system are constantly being uploaded into this repository. This repository is not centrally controlled or coordinated. And whilst we shouldn't be naive in assuming that such knowledge and expertise is automatically open to everyone, there is a surprising degree of openness and sharing within the global innovation eco-system, at least for those that are in a position to connect. This is, in large part, a result of the vast online footprint (web pages, social media, blogs etc.) of the virtual innovation eco-system.

C. The virtual innovation eco-system as a cloud construct facilitates "disruptive learning" & a "disrupting of the disruptors"

One of the most important features of the virtual innovation eco-system is that as it acquires new knowledge and constantly adapts, it tends to disrupt the traditional way of doing things. New knowledge and experience acquired from all over the world provides the resources for unsettling existing practice and developing new alternatives. An irony of the virtual innovation eco-system is that it unleashes a process where the disruptors themselves are now constantly being disrupted. The global innovation space is in a state of constant agitation as existing practices are constantly being challenged, undermined and re-imagined. Moreover, knowledge of such adaptations can be rapidly disseminated throughout the system facilitating a constant process of disruptive learning.

There are various examples of the transformative effects of the virtual innovation eco-system on Silicon Valley. Mark Suster and Brad Feld, for example, took to their respective blogs to explain the downside risks for start-ups when issuing convertible notes. They had heard of a number of start-ups falling prey to the deceptive aspect of this type of security.[41] Rather than letting other entrepreneurs figure it out for themselves, Suster and Feld took it upon themselves to explain the problems with convertible notes and how they can create problems (a

[41] *See* Brian Park and Erik P.M. Vermeulen, *We Know the Savior… and It Is Them: The Future Face(s) of Venture Capital*, Working Paper (2015).

full-ratchet effect) if follow-on investors value the start-up at a lower price per share.

Another example includes the gradual removal of "heavy pref" laden term sheets in favour of less investor-protectionist terms, a development which also originated out of the sharing of information on blogs.[42] More generally, investor favourable terms are being exchanged out for more founder favourable clauses in term sheets as well. Interestingly, the law firms with the most knowledge of this problem - Wilson Sonsini Goodrich & Rosati, Cooley, or Fenwick & West - all shared information on how senior liquidation preferences, participating preferred shares, and high liquidation preference multipliers continue to decline at a steady rate. London-based venture capitalist Passion Capital published a term sheet that ditches the legal jargon in favour of "plain English" that is more understandable for all parties involved.[43]

Finally, venture capitalists started to adopt a more corporate model. Consider Andreessen Horowitz' full service agency with dedicated functional experts that helps its start-ups with everything from business development, hiring, to marketing. Or the Union Square Ventures' Opportunity Fund that works in tandem with their core funds by only deploying capital in existing portfolio companies, allowing the fund to capture more of the upside upon the exit event without taking on additional management fees from its limited partners. The list goes on amongst the notable and upcoming venture capital firms out there.[44] In each case, an accelerated process of disruptive learning has opened up new ways of doing things.

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[42] *See* Erik P.M. Vermeulen, *How to Identify the Best Venture Capital Funds*, MEDIUM (blog) (April 11, 2015).

[43] *See* Steve O'Hear, *A Term Sheet Written in Plain English?*, TECHCRUNCH (June 20, 2013).

[44] *See Disrupters DIsrupted,* THE ECONOMIST (May 16, 2015).

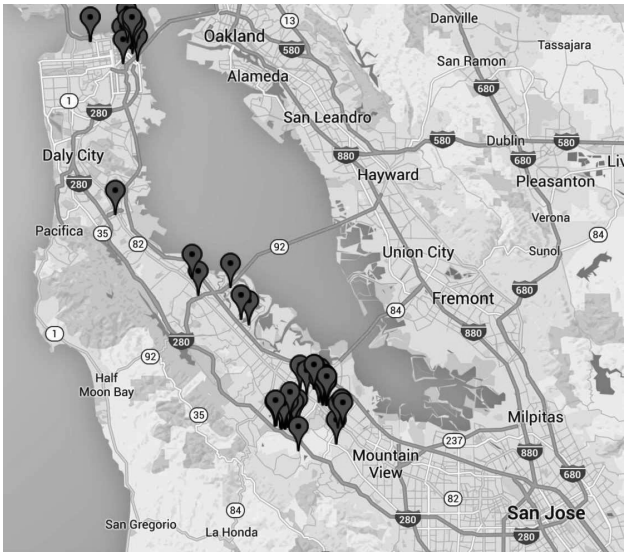
D. The virtual innovation eco-system as a cloud construct opens the possibility of leaner and more agile local eco-systems

One important consequence of the emergence of a virtual innovation space is that "local" innovation eco-systems are no longer self-contained, autonomous regions and it is a mistake to think of them in this way. Within the global innovation eco-system, everything and everywhere is now connected, or at least has the potential to be connected, and this means that understandings of the locality and proximity of regional innovation systems needs to be re-thought (see Figure 5).

This isn't to say that place no longer matters. The best-case scenario for any local innovation eco-system is that it can become an important hub in the global eco-system (see Figure 6). However, it is vitally important for any regional eco-system to be in a position to utilise the capacities and resources of the global system. As such, policy makers and commentators need to realise that the key to success for a local eco-system is to develop and maintain a strong connection with the virtual eco-system.

Recall that a core feature of the Cloud in a computing context is that it facilitates the seamless retrieval of information and capacities, and that there is no longer the need to re-invent or locally store information and capacities. However, this potential can only be realised if you are connected with the Cloud. What many innovation eco-systems are tempted to do is to try to set up everything locally, e.g. to create local angels, local venture capital, a local tech-park etc. There is a risk in believing that everything has to be present locally in order to succeed. But in a networked age, this is a misguided view that results in a lot of time and energy being wasted in creating capacities that could just be "downloaded" from the virtual eco-system. As such, the virtual eco-system facilitates leaner and more agile local eco-systems, or at least it can do if the potential savings of connecting are recognised and the local eco-system is sufficiently well-connected to the global system.

Figure 5: Traditional "Proximity" View of Silicon Valley

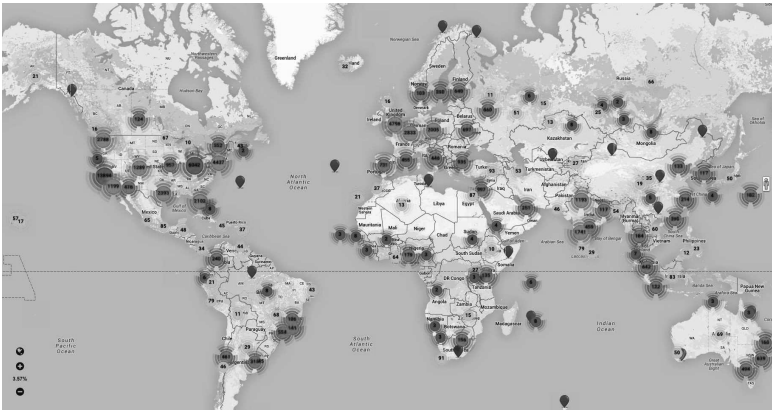


Markings: Location of renowned Silicon Valley venture capitalists. Source: startupblink.com

Markings: Start-ups in San Francisco and Silicon Valley (June 30, 2015). Source: startupblink.com

It is important to stress that any start-up community has the potential to connect to the cloud construct. Of course, certain countries enjoy natural advantages but start-up communities from as far afield as Nairobi, Tel Aviv and Bangalore have reaped the benefits of an openness and willingness to connect.[45] Nevertheless, the challenge for all the stakeholders within a regional eco-system is to ensure that they are connected and that upgrades generated in the virtual eco-system can be downloaded to their particular locales.

Figure 6: Start-up Hubs in the Global Innovation Ecosystem (June 30, 2015)



Source: startupblink.com

Having introduced in a very preliminary way the concept of the global innovation eco-system as a cloud construct, let's return to Hanako and Taro: What does this way of conceptualising innovation eco-systems mean for innovators like Hanako and Taro as they consider how to cross the "Valley of Death"? More generally, what are the implications of this Cloud metaphor for a city like Fukuoka that is seeking to develop a start-up community?

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[45] *See* Malissa C. Blohm, David Cummins, Vinay Narayan, Dalton J. Wright and Yinyin Wu, *Far From Silicon Valley: The Entrepreneurial Gap in Emerging Markets*, The Lauder Institute (April 2014); Martin Pasquier, *Who Has the Biggest…? A Review of Pharaonic Startup Ecosystems Projects*, INNOVATIONINSIGHTS (blog), August 27, 2014.

We would suggest that the solution to both questions is to be found in connecting the local eco-system to the virtual eco-system, and that the success of individual firms as well as local innovation eco-systems in general is going to be determined, to a large extent, by how willing and successful it will be in this task. The key to success in building a global business is to ensure a robust and durable connection to the capacities, experience, & "know-how" contained in the virtual innovation eco-system.

IV. Fukuoka Now: Canvasing the Eco-System

Let's assume that we are able to convince Hanako and Taro that we are on to something with this idea of the virtual eco-system as a cloud-like construct. What can they do to connect to the resources and opportunities offered by this global eco-system?

They could, of course, relocate to Silicon Valley. After all, Silicon Valley still represents the best point of access to the virtual innovation eco-system (see Figure 7).[46] Nevertheless, this option is becoming harder and harder.[47] Not only are the costs of relocating prohibitively high,[48] but immigration and visa requirements are increasingly stringent.[49] Moreover, starting from zero in an unknown part of the world, far from home makes no sense when they don't have any network in California. And anyway, Hanako and Taro like Fukuoka. They don't want to begin again when they already have strong ties with their home city.

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[46] *See* Vivek Wadhwa, *Silicon Valley Can't Be Copied*, MIT Technology Review (July 2013).

[47] *See* Armando Biondi, *Silicon Valley Has Evolved - It's Not About Startups Anymore*, VentureBeat (blog) (August 14, 2014); Eliot Brown, *Tech Expansion Overruns Cities in California's Silicon Valley*, The Wall Street Journal (April 27, 2015).

[48] *See* Shira Ovide, *Tech Boom Hits San Francisco Rental Prices*, The Wall Street Journal (June 26, 2012); Pete Carey, *Bay Area Rents, especially in Silicon Valley, Are on the Rise*, San Jose Mercury News (July 21, 2011).

[49] *See* Raven Jiang, *Revisiting Silicon Valley's Obsession with Immigration Reform*, The Stanford Daily (January 4, 2015).

So what can Hanako and Taro do? Our advice would be to canvas the current situation in Fukuoka and ask themselves the following questions: What are the unique features of Fukuoka that can add value to the global innovation eco-system? To what extent are innovators, entrepreneurs, investors and service providers in Fukuoka already connected to the global innovation eco-system? Does Fukuoka have the potential to connect even more closely to the global innovation eco-system? And what can we (Hanako and Taro) ask the government to do in order to help this process of connecting us – and the local start-up community, more generally – to the global innovation eco-system?

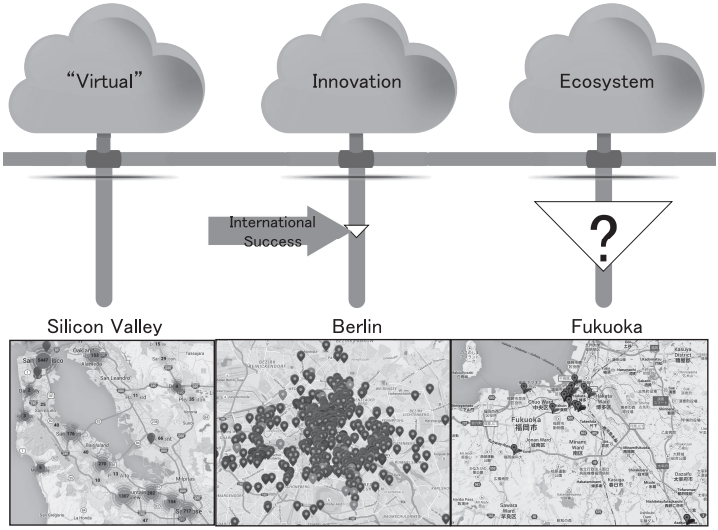
A. "Local DNA" & the unique selling points of a region

Although we inhabit a rapidly globalising economy, locale – place – still matters. Within the virtual innovation eco-system there are concentrations or hubs of talent and expertise and these hubs are clustered, in particular places. Silicon Valley - and the US more generally - remains the most important hub of the global eco-system. The Valley, for example, is characterised by a particular expertise in computer related technologies, as well as being a hub of venture capital. And other places in the US, such as Los Angeles or Boulder, Colorado, are hubs with special expertise in other fields. Outside the US there are similar clusters of innovation. Eindhoven, for example, has strengths in hardware, largely as a result of the presence of Philips and its spin-out companies in the area.[50] Beijing is now the 2nd largest venture market in the world (less than 20% of the size of the US, but rapidly expanding) with expertise in gaming, cloud and education. Similar clusters of expertise can be found elsewhere and new clusters are constantly popping up.

The local character and path dependencies of a region are a valuable resource. The construction of a regional eco-system needs to be built - at least, initially - on existing capacities, what we would call the "local DNA" or "unique selling

[50] http://www.startupdelta.org/techhubs/

Figure 7: Fukuoka and the "Virtual" Innovation Ecosystem



points" of a particular region. In the short term, it makes no sense to attempt to replicate other regions, but rather to ask how can existing areas of expertise add value to the global eco-system.[51] The danger is that potentially exciting developments at the local level fizzle out as result of a failure to connect with the virtual eco-system, leading to frustration and disappointment. In this respect, time is a crucial and ever diminishing resource. Many commentators speak of building a start-up community as a multi-generational project and - of course - it is important to retain a long-term view. However, the risk of failing to connect local advantage with global capacities is that a destructive skepticism can gain traction and that progress can falter and stall.

From Hanako and Taro's point of view, the best-case scenario would be that Fukuoka is so unique that the virtual innovation eco-system comes to Fukuoka

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[51] *See* Marc Andreessen, *Turn Detroit into Drone Valley: How to Build Innovation Clusters Beyond California*, POLITICOMAGAZINE (June 15,2014).

in order to absorb the unique qualities of the region into the cloud. What then are Fukuoka's unique selling points? Hanako and Taro immediately reel off a number of features of the region: Location of the city (midway between Seoul, Shanghai and Tokyo); demographics (a young, growing population, unusually for Japan): high quality of life (consistently ranked amongst the most liveable cities in the world); excellent infrastructure (e.g. excellent public transport, centrally located airport with direct flights to Asia, Europe and the US, good universities etc.); digital and creative; a strong local economy; and, attractive natural environment (located between sea and mountains).

But are these features enough to attract the virtual eco-system to Fukuoka? Or, is something else required? In order to find answers to these questions, Hanako and Taro need to canvas the start-up community more closely in order to find out more about what is happening right now in the Fukuoka start-up scene.

B. The prevalence of local innovators, entrepreneurs & investors already connected to the virtual eco-system

As Hanako and Taro start to look around Fukuoka, one key question they will need to ask is how many founder-innovators, entrepreneurs and investors are already hooked up to the virtual innovation eco-system? They know that pre-existing tie-ups between local entrepreneurs and global resources can only be of benefit to them in their efforts to build a business in Fukuoka. This builds confidence, both on the local side, but also from the perspective of the virtual eco-system. It also creates space for the spontaneous connectivity and serendipity that everyone agrees is so vital in creating a business, as well as a start-up community.[52] What their initial canvasing exercise reveals is that there is a lot of activity and innovation in Fukuoka, as well as a number of global success stories.

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[52] *See* Jay Winder, *How Tokyo is Different to Silicon Valley*, MakeLeaps (blog) (November 2014).

Take the global success stories. Nulab, Inc., for example, was established by Masanori Hashimoto and two co-founders in 2004 and has grown to be an international player in the field of collaborative services: *Back Log,* a project management tool; *Cacoo*, a diagraming tool for drawing diagrams in real time and *Type Talk* for collaborative chat.[53] The head office is still in Fukuoka, with branches in Tokyo, Kyoto, Singapore, Taiwan, and, more recently, New York.

Level 5 would be another example.[54] Founded in 1998 by Akihiro Hino, this gaming company has become one of the top ten gaming companies in Japan and - with its Professor Layton series of games for the Nintendo DS - a major gaming player. More recently, they have expanded into the field of anime. As with Nulab, they have not moved their head office to Tokyo or elsewhere, but have remained a Fukuoka-based company.

Aside from these success stories, even a quick search of publicly available information on entrepreneurship in the region allows Hanako and Taro to generate the following map of start-ups in central Fukuoka (Figure 8).

This is all very encouraging and shows that there is an "active" start-up scene. Similarly, if one compares Fukuoka with other cities in Japan, one discovers that, outside of Tokyo, Fukuoka has most start-up activity of any Japanese city (Table 1).

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53 https://nulab-inc.com/about/;http://www.disruptingjapan.com/japan-startup-masanori-hashimoto-nulab/

54 http://www.level5.co.jp/index.php

Figure 8: Startup Companies in Fukuoka

Table 1: Online Footprint - Japanese Startups (searching TechInAsia's article history up to May 2015)

Cities	Online Startup Stories
Fukuoka	225
Osaka	215
Kyoto	195
Sendai	38
Sapporo	32
Okinawa	14

Source: TechInAsia

However, if Hanako and Taro perform a similar search of investment activity, they may be disappointed. In spite of these success stories and the relatively high levels of entrepreneurial activity, the investment picture is somewhat different. One does not see high rates of international investment in Fukuoka nor does one see high rates of investment from Tokyo. In fact, using publicly

available data on the main entrepreneurial activity databases (Crunchbase, Mattermark, PitchBook & AngelList) only three significant investments in Fukuoka-based start-ups were revealed between 2009 and 2014: JAFCO (a Tokyo investment fund) invested $2.9 million in i3 Systems. CyberAgent invested $83,000 in Imanee and an angel investor invested $30,000 of seed capital in Fukuoka start-up Yamap. Moreover, whereas 393 Tokyo companies registered on the start-up platform AngelList in June 2015, there was not a single Fukuoka company listed.

Rather, the focus of Fukuoka start-ups seems to be on bootstrapping and building a company with personal finances and early stage operating revenue. *Nulab*, for example, used this form of financing.[55] And although this can be a successful model with various advantages when compared to other modes of financing (founders can retain control, for instance), it exposes founders to a much greater degree of financial risk and may not provide the necessary levels of investment for the company to survive the "Valley of Death".

Hanako and Taro might find this relative absence of investors somewhat disconcerting, particularly as they launch their business. Having read the literature on start-up communities they are aware of the importance of connecting to the resources of the virtual eco-system. They now know that it is important not to be afraid of global venture capital or investment from established national corporations. The success of both individual firms, as well as local eco-systems, is going to be directly affected by whether such fears can be overcome. Mistrust of existing Tokyo-based elites or of foreign influence - particularly in the form of foreign venture capital - is understandable, but the risks are worth it. This is not a "zero-sum" game situation in which the gains of investors are going to be at the expense of founders. Connecting with global venture capital

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[55] *See* J.T. Quigley, *This Bootstrapped Japanese Startup Is Proof That You Don't Need To Be in Tokyo to Go Global*, TECHINASIA (July 11,2014).

creates new mutually beneficial collaborative possibilities that are necessary in order to build a thriving global business. In that sense, it is important not to stop at Tokyo but to expand cooperation and to build connections with global accelerators and other actors, particularly those with ties to Silicon Valley and other global hubs of expertise.

C. The role of government in feeding the "buzz" & creating an innovation space

Ideally, the leaders of the process of connecting the local eco-system with the global eco-system should be the entrepreneurs themselves. However, this is where entrepreneurs often need help. This task of bringing the Local DNA to the world is where so-called "Conductors" come in.[56] Conductors can be thought of as particularly important type of "feeder" in Brad Feld's sense of the supporting cast of an innovation eco-system. Conductors are crucial in performing two crucial tasks. Firstly, they facilitate multi-layered connections between all actors within an eco-system, as well as between local, national and global eco-systems. Secondly, they feed the "buzz" around the idea of a start-up city by "shining a light" on what is going on in the local scene and creating a space in which entrepreneurship can flourish. In this regard, conductors are crucial architects of successful innovation systems.

Who performs this function? Ideally, highly successful serial entrepreneurs already connected to the national and world innovation systems can "give back" to their hometown in this way. Assume Hanako and Taro go on to become hugely successful. Maybe they will relocate their business to Tokyo or Silicon Valley, but we shouldn't be afraid of this. Firstly, success breeds success and, secondly, people often give back to the community that made their success possible. Giving back can take the form of financial donations, but also can

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[56] *See* Andreessen Horowitz, *Creating New Silicon Valleys - There's No Magic Bullet, But…*, A16Z PODCAST (with Fiona Murray) (May 2015).

involve a mentoring role. Robert Huang, for example, a prominent alumnus of Kyushu University made a large contribution to the university that created QREC with the intention of creating a venture business laboratory.[57]

However, in provincial cities such as Fukuoka or Eindhoven, the number of entrepreneurs well-connected to the global innovation eco-system and able to perform this type of "mentoring" function may not be sufficient. The state therefore has an important role to play in this regard. Local and national government are particularly well-positioned to perform this supporting role, as are universities. The primary function of government on this type of account is therefore the indirect facilitation of multi-layered connectivity between the local start-up scene and the virtual eco-system.

So what do Hanako and Taro discover when they look at local and national government activity in Fukuoka? They discover that there is a young, populist mayor - Soichiro Takashima - who has staked his political reputation on the idea of Fukuoka as a start-up city. Mayor Takashima seems to understand that feeding the buzz around this vision of Fukuoka is at least as important as regulatory reforms aimed at the "top down" planning and control of business creation. As such, he seems to be creating a space for a sustainable local start-up scene. Commentators have noticed how successful Fukuoka has been; when startups from other Japanese cities become big, they tend to move their headquarters to Tokyo. Those from Fukuoka, however, tend to open an office in Tokyo but continue to keep their base in Fukuoka.[58]

Moreover, by constantly talking about Fukuoka as a start-up city, the Mayor is performing a crucial function in fuelling the creation of a social movement around the idea of business building in Fukuoka. This is where civil society - the

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[57] http://qrec.kyushu-u.ac.jp

[58] *See* Tim Romero, *Masanori Hashimoto - Nulab*, Disrupting Japan (blog) (December 23, 2014).

so-called "fourth helix" - comes into play. It is often argued that civil society can provide incentives to the innovators, entrepreneurs and state actors to drive economic, social and environmental innovations to the market faster and more effectively.[59] The movement functions as inspiration pushing people to join the eco-system. A "bottom up" social movement that sustains and feeds the nascent eco-system is vital, and local government can play a key role in driving such a movement.

The risk for any early-stage innovation eco-system is that a few setbacks can destroy everything. A successful innovation system depends on the belief and participation of the wider population, but there are also risks in dreaming big. For example, in the late 2000s, Amsterdam had a "dream" of exploiting Euro membership to becoming a global financial centre that could "overtake" London, but the dream fell flat after initial progress was slower than hoped.[60] A few failures or disappointments allow skepticism to overwhelm progress and confidence can be quickly eroded. Eco-systems are fragile and skepticism is everywhere, especially amongst incumbent elites. A social movement built around the narrative of a start-up city can provide a certain degree of insulation against failure.

Moreover, local government also need to place a greater emphasis on connecting local innovators with the global eco-system and this kind of strategy involves a paradigm shift in how governments conceptualise the issue of international cooperation. Governments - both local and national - have long recognised the importance of international connections in developing local economy and have often tried to identify regional partners elsewhere in the world in order to develop capacities and create synergy effects through such cooperation. Such

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59 *See* Elias G. Carayannis, Thorsten D. Barth and David F.J. Campbell, *The Quintuple Helix Innovation Model: Global Warming as a Challenge and Driver for Innovation*, 1 Journal of Innovation and Entrepreneurship 2 (2012).

60 *Holland Financial Centre Disappoints the Sector: FD*,DutchNews.nl (July 11, 2012).

efforts have often resulted in the formalisation of cooperation between governmental units, for example, the conclusion of MoUs or other types of partnership agreement. This strategy of trying to identify regional partners with whom a particular region has common interests makes a lot of sense from the point of view of policy makers who are familiar with the logic of employing a top-down approach to solving problems. However, governments may not be very good at selecting suitable partners and the result of such an approach may be an inefficient use of resources. As Hwang and Horowitt have observed a centrally controlled approach to international cooperation seems likely to fail. Instead, government should concentrate on an indirect approach aimed at facilitating cooperation between those local actors most central to the success of a regional innovation eco-system - namely innovator-founders - with entrepreneurs and investors that are well-integrated into the global eco-system.

In this regard, it is crucial that government fears about possible loss of control need to be set aside. Connecting to the virtual eco-system can only have a positive impact on nascent innovation systems such as Fukuoka. Moreover, Fukuoka will make the cloud smarter as resources and capacities are absorbed. Such a process encourages a mutually beneficial relationship between the local and global, which opens more doors for innovators, entrepreneurs and investors.

At a national level, the Japanese government has also taken some important measures. A key plank of so-called "Abenomics" has been the creation of a number of special economic zones (SEZs).[61] The list includes Japan's well-known cities, such as Tokyo and Osaka-Kyoto-Kobe. Fukuoka was selected to attract fast-growing companies by offering tax benefits and modified labor laws. These deregulatory measures aim to provide incentives to entrepreneurs to

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[61] *See* Jonathan Soble, *Japan To Pursue Reforms in Six Economic Zones*, Financial Times (March 28, 2014).

relocate to particular regions within Japan. Moreover, by structuring the zones in different ways, a degree of regulatory competition between the zones is introduced - what we might think of as policy "experimentation" - that allows policy makers to identity the key factors in promoting economic success.

The rationale for such local deregulation seems clear. By confining such measures to a particular region, the expectation is that investment and talent will migrate into those regions and that a flourishing economic eco-system will emerge. The resulting synergies between the various stakeholders stimulate sustainable regional economic growth. The positive economic effects experienced at a local level then seep over into the rest of the economy thus benefiting the nation as a whole. The earlier preferential treatment of the special zone is thus justified on the grounds that it ultimately brings benefits to all.

And yet, perhaps the real importance of SEZs may be that they shine a light on innovation and entrepreneurship and add to the buzz around the idea of local innovation. Again, the regulatory aspect may be less significant. Certainly, if one looks at the details of the Fukuoka SEZ, it appears that many of the initially proposed measures were diluted as a result of internal opposition from various government ministries.[62]

Nevertheless, it is important to recognise that a potential risk with this strategy is that the competition that is introduced into the system is actually unhealthy in that it undermines the spirit of collaboration that builds connections both within Japan (between local eco-systems), but also between Japan and the virtual eco-system. SEZs may feed the kind of zero-sum game thinking that is less likely to create collaborative possibilities and more likely to simply feed mistrust and suspicion.

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[62] *See* Caslav Pejovic, *Japanese Labor Law: Challenges* Ahead, Working Paper (2015).

D. Service providers & the creation of a commercial framework to bring a great idea to market

Hanako and Taro's canvassing of the Fukuoka scene would also need to focus on the presence of service providers willing to provide the kind imaginative thinking necessary in designing a commercial framework for transforming a great idea into a great business. Let's take the example of lawyers as an indicative example of what service providers can do in order to add value to a particular start-up scene.[63]

The problem for lawyers is that there is often an in-built reluctance to becoming involved with start-ups. This may be a result of the disconnect between the costing structures and staff practices of the tradition law firm business model. Loss-leading clients - such as start-ups approaching the "Valley of Death" - are never going to be an attractive proposition as prospective clients, at least for more traditional law firms. And yet, as Michael Stern has graphically observed, law firms played a crucial role in the early history of Silicon Valley:

"But steep discounts, deferred fees, equity in lieu of cash, a light drafting pen and even lighter billing pencil were all tools the Valley firms could and did deploy. This earned the derision (oh ye careless cowboys, lacking research, rigour, adequate boilerplate or relationships with regulators) and ethics baiting (isn't owning stock in a client a potential conflict of interest?) of our big-city brethren. But we were the ones creating the commercial framework for our clients' new products and services to get to market."[64]

Moreover, lawyers can be vital in connecting founder-innovators to early-stage

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[63] *See* Ronald J. Gilson, *Value Creation by Business Lawyers: Legal Skills and Asset Pricing*, 94 THE YALE LAW JOURNAL 244 (1984); Lisa Bernstein, *The Silicon Valley Lawyer as Transaction Cost Engineer*, 74 UNIVERSITY OF OREGON LAW REVIEW 239 (1995).

[64] *See* Michael Stern, *Viewpoint: Isaacson's "The Innovators" Leaves Out the Lawyers*, THE RECORDER (December 10, 2014).

money.[65] This also seems to have been the experience in Silicon Valley, where the law firms functioned, firstly, as a bridge between innovators and venture capital, and, secondly, as a bridge between innovators and Wall Street. Moreover - as the above quote emphasises - lawyers played a crucial role in designing the commercial framework in which technology businesses operate. In developing this framework, there was a degree of openness and a sense of being engaged in a collective endeavour. In this way the benefits of competition and sharing were combined in order to identify the best business model, contract clauses and negotiating strategies.

However, when Hanako and Taro check the Fukuoka scene they don't find an online footprint indicating the presence this type of lawyer. Of course, if Fukuoka is able to connect to the resources of the virtual eco-system there is no need to re-invent the wheel, but some local capacities are necessary, at least in the early stages of business building.

IV. Lessons Learned

The narrative of Hanako and Taro has allowed us to think about the challenges of building a global business from the perspective of two innovator-founders based in Fukuoka. Now that they have ended their journey, what lessons have they learned about creating a global business in an innovation economy and building a flourishing start-up community in a provincial Japanese city.

Perhaps the first lesson is that it makes no sense to attempt to recreate Silicon Valley in Japan. Rather, Fukuoka must look to develop local capacities. The "local DNA" or "unique selling points" of the region have to provide the foundation for the regional innovation eco-system. In this regard, Hanako and

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[65] *See* Andrew Romans, The Entrepreneurial Bible to Venture Capital: Inside Secrets from the Leaders in the Startup Game (2013).

Taro are confident that Fukuoka has huge potential: a "liveable city" possessing strong infrastructure (transport, education, public services), safe and clean environment, existing industries with capacities in key technologies etc.

And yet, these are not sufficient conditions for building a global business or innovation eco-system. In addition, we need "conductors" - especially local government, universities, and other service providers - to shine a light on this process and to create momentum around the idea of a start-up community. From this, a broader social movement can emerge, in which citizens - civil society - embrace the narrative. This social movement affords a degree of protection against the business failures that will inevitably occur.

But still we need more. Central and local government need to employ a range of mechanisms that aim at indirectly stimulating "bottom up" activities that feed the eco-system. These can be regulatory (removing red tape), but more important are events, programs, support, information etc.

All of this can be found in Fukuoka. But all of the above is still not enough. Crucially, connections with the global innovation system are under-developed. In the context of a global, inter-connected economy, the primary challenge in developing a global business, as well as a local innovation eco-system, is to unlock, local entrepreneurial advantage by connecting with the resources (capacities, know how, experience, as well as capital) contained within this global innovation system. As we saw, the virtual innovation eco-system has a cloud-like character that facilitates leaner and more agile local eco-systems. At least, it can do if the local eco-system is sufficiently well-connected to the global system. The risk lies in believing that everything has to be developed locally in order for a region to be successful, and that connecting with the global network is neglected.

How then are connections forged with the virtual innovation eco-system? What

should Fukuoka do in this regard? One can start with more international events, developing the online footprint of the region, more English language blogging, more participation at an international level to raise the profile of Fukuoka. But even this may not prove to be enough. Perhaps the most important step is to get serious about outside investment. Bootstrapping is not the best model for navigating the "Valley of Death". One important strategy is to partner up with Tokyo. This is crucial as investors there are already relatively well-connected to the virtual eco-system and can provide a gateway to global resources and capacities. Building competition between the regions of Japan makes no sense and feeds an unhealthy zero sum view in which one region's gains are another losses, rather than regarding each other as partners in a bigger game.

At the end of their journey, Hanako and Taro now realise what needs to be done and they have some ideas about how to do it. But they have also realised something equally important, namely that *they* have to take responsibility for this project. Government and other institutions can be important partners, but in the end, this is not a task for government, either local or national. Rather, it is a task for entrepreneurial individuals with ambition, drive and innovative ideas for business. Hanako and Taro realise that it is their responsibility to ensure that Fukuoka is connected to the virtual innovation eco-system, as pursuing this goal both serves their own private interest, but also the interest of the region as a whole. What is good for them is good for Fukuoka. They realise they have a mission: the task of connecting the potential of the local with the capacities of the global.

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