

Japan's Startup Ecosystem: From Brave New World to Part of Syncretic "New Japan"

Kenji Kushida

1. Introduction

This paper asks the following: what does Japan's startup ecosystem look like now, how did it develop, and where is it headed? These are critical questions because high-growth startup firms are now recognized as potential drivers of growth, innovation, and productivity gains for advanced industrialized countries (Gornall and Strebulaev, 2015; Wiens and Jackson, 2015).

Japan's historical postwar economic "catch-up" model revolved around a focus on large firms, which successfully delivered rapid economic growth and relatively high levels of social equity from the late 1950s through 1990 (Okimoto and Rohlen, 1988). However, since 1990, Japan's economic growth stalled and the country experienced multiple recessions. Many of the factors that had been considered beneficial to Japan's economic success such as long-term employment and stable corporate groups, were subsequently blamed for its slow growth. This was accentuated when new digital technologies brought new logics of competition and new global market dynamics with the rise of other Asian countries. The need to create a vibrant high

growth startup ecosystem in Japan, contrasting that of the postwar large-firm centered model, therefore became one of the key foci of Japan's policy and social goals since the mid-1990s.

In the mid-1990s, when Silicon Valley was the focus of entrepreneurial dynamism worldwide, Japan's startup ecosystem faced numerous barriers on almost all fronts. With the political economy optimized for favoring large firms, the Japanese regulatory structures and social norms hindered activities in the fundamental areas underlying a Silicon Valley-style ecosystem, including financing, labor market, industry-university ties, industrial organization, and other ecosystem players.

From the late 1990s onwards, the Japanese government enacted a series of legal changes that improved the regulatory environment, lowering many of the barriers to creating a vibrant startup ecosystem in areas of financing, employment, M&A, and industry-university ties. At the same time, Japan's gradual economic structural shift and performance crises at many large firms began feeding the startup ecosystem by lowering the relative

attractiveness of large firms. As the Information Technology (IT) sector grew, it also embraced high labor mobility, as did the growing presence of foreign firms. Social norms began to shift, making it startups a more attractive career choice.

Currently, Japan's startup ecosystem is more vibrant, with a greater potential to have a larger impact on Japan's economy as well as industries worldwide, than the past few decades. In terms of size, the amount of venture capital investment has followed US upturn and downturn cycles, and is still miniscule compared to Silicon Valley, but sizable compared to Germany, France or the UK. Initial Public Offerings (IPOs) are far smaller than those in US, but this also means that startups that do IPO get stable funding sooner, at the cost of potential breakneck growth that a pre-IPO firm may be capable of. Pre-IPO valuations are lower than in Silicon Valley, which makes M&A cheaper, and although M&A activity is still limited, it has grown considerably. More importantly, new patterns have emerged, such as Japanese robotics firms purchased by large Silicon Valley firms such as Google. The sectoral variety of Japanese high-growth startups is broad, with notable highly valued startups hailing from sectors including biotech to gaming, media, logistics, "Fintech", artificial intelligence, and others, focused both on consumer and business target areas. Tokyo remains the largest focal point of startups in Japan in a variety of sectors, but within Tokyo, the startup ecosystem does not have a single central geographic center. Finally, there is a new breed of entrepreneurs who grew up during Japan's slow-growth era who never experienced Japan's high growth era that ended in 1990, at least as part of the professional workforce. Many of the high-flying Japanese startups were founded by elite university graduates that would have, in previous eras, entered civil service or large firms.

Global technological opportunities such as the advent of global-scale Cloud computing that provides low-cost, scalable computing resources on demand, and the advent of smartphone platforms that have global reach, have accelerated startup ecosystems worldwide, including Japan (Kushida et al., 2015). The disruption of Japan's domestic limited mobile Internet platforms actually helped link its domestic startup ecosystem, which had been previously trapped in the domestic market, to access global markets.¹ Japan's startup ecosystem is also more international than ever before, with a new wave of Japanese startups that are forging strong ties to Silicon Valley, with some receiving Silicon Valley financing and others establishing branches in Silicon Valley.

The overall context of Japan's economic remodeling since the 1990s, within which the current trajectory of Japan's startup ecosystem is embedded, is best characterized by that of "syncretism." Syncretism refers to the simultaneous coexistence of distinct traditional, hybrid, and new economic characteristics and organizations (Kushida et al., 2014). While some areas remained traditional, such as regional banks and small-medium industries, new areas emerged, including the massive entry of foreign firms into previously protected areas of the economy, and a new high growth startup ecosystem. Other areas hybridized, combining traditional and new features, such as holding companies enabling financial institutions to enter various sectors, legal changes that allow for more diverse corporate governance structures, and increased variation in employment structures. The point of the concept syncretism, however, is that not everything hybridized; instead the distinct traditional, new, and hybrid areas remain. Japan's evolving startup ecosystem, the topic of this paper, is part of the "new" areas of development.

¹ This phenomena of Japan's mobile content ecosystem and advanced platform services being trapped in the domestic market has been referred to as "Galapagos" or "leading without followers" (Kushida, 2011).

2. Silicon Valley and Startup Ecosystems: Intellectual and Institutional Foundations

Silicon Valley's startup ecosystem has provided the intellectual and economic driving force behind a focus on high-growth startup firms and the institutions that support an environment to foster such an ecosystem. Despite experiencing a major bubble in the late 1990s, and a smaller one in the mid-2000s, high growth Silicon Valley startups have transformed technological trajectories, disrupted existing industries, and produced some of the world's wealthiest companies in a short amount of time.²

The Silicon Valley-style "high growth startups" we are interested in are those attractive to venture capitalists, who operate at a different logic than traditional investment portfolios in Wall Street-style private equity or hedge funds. Top Silicon Valley venture capitalists (VCs) are not interested in typical steady growth firms, even if they may be growing at a healthy ten percent or even fifty percent per year, for example. Top tier VC portfolios are expected to produce one or two startups that account for the performance of the entire portfolio, of say 100 firms or so. VCs are in turn competing against each other vigorously for such returns (Thiel and Masters, 2014). Therefore, for VCs, identifying the truly fast growth firms is critical, and once the one or two firms are identified, the rest of the portfolio is sold off or folded. For a ten year fund, the first five years or so may have negative returns, but since the investors (limited partners) are locked into the ten year fund, so what matters is the performance at the end of the term, rather than the fund's performance at any given time. In the last few years of the fund, incredible rapid growth from the one or two high growth startups produce high returns for the entire portfolio. This is the type of "high growth startup" that we should

focus on, since it is the logic that produced firms such as Yahoo, Google, Tesla, and the plethora of Silicon Valley firms that have generated profound industrial and technological shifts, as well as revenue and employment.

Since most analyses of startup ecosystems around the world implicitly or explicitly benchmark Silicon Valley, this paper will next take the key institutional features of Silicon Valley, then compare the same characteristics in Japan over time. However, anywhere compared to Silicon Valley along the parameters making Silicon Valley successful always produce the same conclusion: even if there have been improvements, there is a large gap between place X and Silicon Valley. This in of itself is not such a useful conclusion, so this paper will focus on concrete patterns and characteristics.

The institutional foundations of Silicon Valley can be summarized as the following (Kenny, 2000; Dasher et al., 2015): A) financial system centered on venture capital; B) a labor market providing high quality, diverse, and mobile human resources; C) industry-university-government interactions that generate streams of innovative ideas, products and processes; D) an industrial organization in which large, established firms and small startups grow together; E) a social system that encourages entrepreneurship; and F) professionals such as law firms and accounting firms that assist the establishment and growth of startups.

3. Japan's Large-firm Centered Postwar Economy: Success Followed by Disruption, Silicon Valley Dynamics of Competition

Japan's large-firm focused postwar political economic model was essentially at the opposite end of each of these features: A) bank-centered, then

² For example, in 2015 Apple and Google had the highest market capitalizations, as well as the most cash held, of all companies in the world (Gornall and Strebulaev, 2015).

financial market enhanced financial system; B) long-term employment and seniority wages; C) corporate in-house R&D with limited university-industry ties; D) industrial organization focused on keiretsu structured centered on large firms; E) a social system focused on channeling the best and brightest to large firms; and F) lack of differentiation between traditional low growth small-medium firms and the potential for high growth startups. Thus, given this overall economic structure, it is not surprising that Japan's startup ecosystem with characteristics resembling Silicon Valley was slow to develop.

The period when Japanese firms arguably had the most impact on global competition was in the late 1970s and 1980s. The production paradigm of "lean production" from Japan's automobile sector affected manufacturing industries worldwide, Japanese firms were leaders in the semiconductor industry, they succeeded in commercializing numerous nascent technologies invented in the US, and they invented new product categories such as the pocket calculator and Walkman portable cassette player (Womack et al., 1991; Johnstone, 1999).

Many of the large competitive Japanese firms, notably Sony, Panasonic, Honda, and others were founded in the early postwar era. However by the 1970s and 1980s, the Japanese economic model was not conducive to founding high growth startup firms. This was not seen as a problem until an asset bubble burst in 1990, with Japan entering a prolonged period of slow economic growth punctuated by several recessions.

Silicon Valley and computer industry firms created new dynamics of competition. Modular architecture shifted the value from final assembly to constituent elements (Baldwin and Clark, 2000), and platform-based competition, enabled platform providers to benefit from third party products (Gawer and Cusumano, 2002). Winners from the computer industry, followed by computer networking, then

the Internet, were most Silicon Valley venture capital backed startups.

American firms that adjusted successfully did so by pursuing high value through software, by embracing "open innovation" in which innovations outside large companies were brought in through M&A and working with startups (Chesbrough, 2003). They also pioneered cross-national production networks that enabled "designed in California, manufactured in China" production, even for high end IT products.

4. Japan's Startup Ecosystem: How it was in the 1990s

Observers of Japan's nascent startup ecosystem in the late 1990s noted the following (Imai, 1998). A) Venture capital markets were nascent, and since venture capitalists can only get returns through IPO or M&A of the startups they invest into, the lack of an IPO market or M&A activity made it unattractive. Moreover, most venture capital funds were created and operated by existing financial firms whose salaried employees were investing on behalf of the companies, leading to risk-averse portfolios that did not follow the logic of finding a couple truly massive growth firms. B) Japan's labor market for startups was constrained and illiquid, since the best talent went to large firms. C) University-industry-government linkages were weak in terms of spinning out startups, especially since the nation's top universities such as University of Tokyo, Kyoto University, and Tsukuba University were national universities, and faculty were public servants, constrained from working outside the university. Most universities had very little experience licensing technology outside as well, with Technology Licensing Offices lacking personnel and resources. D) Large firms were overwhelmingly engaged in "closed innovation," and seldom relied on M&A or purchasing products and services from startup

firms, making it difficult for startups to find crucial early, large customers. E) Entrepreneurship was not supported by Japan's social norms, with elite career paths limited to large firms and top government agencies, while joining startups was considered a second or third tier option. IT entrepreneurs of the late 1990s even discovered the need to sometimes convince the dubious parents of prospective new graduate hires that the latter were not making severe career mistakes. F) There was relatively little support ecosystem for startups, with accountants and lawyers having little if any experience with high growth startups, and little ability to play the roles of

deal-maker, advocate, advisor, and other functions that Silicon Valley professional firms provide.

Many observers' images of Japan's startup ecosystem remained frozen at this time. Yet, major changes have occurred since.

5. Japan's New Startup Ecosystem

As seen from mid-2016, Japan's startup ecosystem has developed considerably, as many of the characteristics of the overall economy have transformed to create a new environment.

Table 1. Silicon Valley startup ecosystem characteristics compared to Japan in mid-1990s, and Japan in 2016

Silicon Valley startup ecosystem characteristic	Japan in the mid-1990s: impediments	Japan in 2016: changes that facilitate startup ecosystem
Financial system: venture capital	Bank-centered, traditional financial markets	New small cap financial markets, growing VC industry, rise of independent VCs
Labor market: fluid, diverse, highly skilled	Long term employment with seniority ties creating illiquid labor markets. Best and brightest locked into large firms for entire career	Increasing labor mobility, especially in IT sector and with foreign firms. Lower prestige and opportunity with large firms
Industry-University-Government ties	Numerous formal regulatory constraints	Active efforts by universities, private venture capital, and government to spin out successful startups with university technology
"Open" innovation with large firms and small firm symbiosis	Closed innovation with large firms in-house R&D and uninterested in business with startups	Firms more interested in open innovation, participation in VC funds, business with startups.
Social system encouraging entrepreneurship	Entrepreneurship seen as low prestige vis-à-vis large firms and government	Rising attractiveness of entrepreneurship as large firms enter competitive crises, increases cases of successful startups
Professional services ecosystem	Small size of professional ecosystem	Law firms and accounting firms setting up startup-focused practice areas to foster and benefit from growing startup ecosystem

Table 2. Venture capital investment amounts (billions USD)

	2010	2015
Japan	1.29	1.11
Germany	0.97	0.87
France	0.80	0.84
UK	0.79	0.62
Israel	0.41	0.65
South Korea	0.96	1.78
EU Total	4.26	5.91
US Total	23.52	59.70
Silicon Valley	9.39	27.76

Source: Venture Enterprise Center, GVCA, BVCA, AFIC, IVC Research Center, KVCA

*Note that UK's data is as of 2014.

Japan's venture capital industry developed significantly. While the size remains far smaller than that of the US or Silicon Valley, the amounts are actually greater than other notable advanced industrialized countries such as France, Germany, and the UK.

The most important qualitative shift in Japan's venture capital industry has been the rise of independent VCs. The historical dominance of financial institution funds was criticized for not incentivizing investors to pursue high returns. By 2015 and 2014, however, the largest amounts of capital invested in new funds were for independent funds. In 2015, it was 35%, followed by corporate venture capital (CVC) at 28% and financial institution VCs at 18%. For the previous year, independent VCs received 42%, with CVCs receiving 43%. Some examples of independent VCs include World Innovation Lab, Globis Capital Partners, B Dash

Ventures, and others.

An important driver of Japan's VC growth was the creation of small capitalization markets in the late 1990s. Two competing small cap markets were created in 1999, providing a stable source of exits in which VCs could realize returns from their investments. The relative cost of listing in Japan's small cap markets, Mothers and JASDAQ, is far lower than other Asian markets, and the scale is far smaller than the US NASDAQ (Riney, 2016). On the one hand, this hinders truly large high-growth firms from emerging, since once firms are listed at a smaller scale, they tend to become more risk averse and pursue stable rather than exponential growth. On the other hand, since it is easier to IPO in Japan than in the US, Japanese VCs may actually face a more predictable exit strategy environment (Riney, 2016).

The Innovation Network Corporation of Japan (INCJ) is a noteworthy government-spearheaded attempt to spark investments in Japan's startup ecosystem. Established in 2009, it was a 300 billion yen fund with 286 billion from the government and 14 billion from 26 corporations which include Japan's major corporations including Toyota, Canon, and many from the Sumitomo and Mitsubishi groups. Additional government guarantees of 1800 billion yen in loans enabled the INCJ to invest approximately 2000 billion yen total. The lifespan of INCJ is fixed at 15 years, and it is run by a mix of government officials and private sector participants. While some analyses may view this government-spearheaded fund as simply crowding out potential private investments, it may also be viewed as having a legitimizing effect for startups and other venture capital firms such as WiL that have received INCJ investments.

Table 3. Amounts raised in IPO, small-cap markets in Japan, US

	Average (million \$)		Median (million \$)	
	Japan (Mothers/JQ)	US NASDAQ	Japan (Mothers/JQ)	US NASDAQ
2015	7.6	116.0	3.5	75.0
2014	8.7	121.6	5.7	65.0

Source: Tokyo Stock Exchange, NASDAQ

Labor mobility in Japan for high skilled workers increased significantly, improving the supply of talent pouring into the startup ecosystem. In the late 1990s, the government abandoned the “convoy” system of supporting financial institutions, and a series of failed banks, securities houses, and insurance companies released pools of elite workers into the labor force. At the same time, a rapid increase in the presence of foreign firms added liquidity to labor markets as they hired mid-career workers and introduced norms of high quality workers shifting jobs to advance their careers. The IT industry in particular experienced high labor liquidity among Japanese firms as well, with some high growth startups from the 1990s becoming large by mid-2000s.

Silicon Valley firms in Japan are a new source of entrepreneurs and Japanese startup ecosystem players. The founders of companies such as Wantedly, a social networking-based job recruiting service, and Freee, providing online accounting services for small-medium businesses, had worked at Facebook and Google, respectively. The founders of Soracom, providing a Internet of Things (IoT) infrastructure service platform, had previously worked at Amazon Web Services.

Even in traditional large firms, which traditionally “locked up” much of Japan’s best talent, younger employees leaving to form their own companies have led to some notable startups, absorbing further employees as they grow. Cerevo, for example, a hardware firm that designs products that connect to the Internet to provide functionality was founded by a former employee of Panasonic, drawing engineers from almost all the major Japanese consumer electronics companies, such as Sony, Sharp, Panasonic, NEC, and others. UPQ, a consumer electronics startup founded in 2015 that made headlines by introducing 24 highly aesthetic design products in its first two months, ranging from smartphones to speakers, a glass keyboard, backpack

with built-in battery for charging devices, a chair, and other things. The entrepreneur, Yuko Nakazawa, was in her mid to late 20s, and had initially worked for Casio to design their mobile phones, but left when Casio withdrew from the handset industry.

Industry-university ties strengthened considerably with regulatory shifts and reforms to national university legal structures. Japan’s version of the US Bayh-Dole Act in 1999 enabled government funded intellectual property to remain with universities and research institutes, providing incentive for researchers to commercialize their intellectual property. Measures to support Technology Licensing Offices (TLOs) lowered the hurdles to commercialize technology, and in 2004 national universities became independent organizations, increasing flexibility of employment arrangements and outside consulting for professors and researchers.

Notable Japanese university spinoffs began to appear. For example, Cyberdyne, which grew out of Tsukuba University, produces robotic suits that assist human movement. Founded in 2004, Cyberdyne was a trailblazer, winning numerous awards in Japan and abroad, including the American Society for Artificial Organs, and the IEEE/IR Invention and Entrepreneurship Award. It worked with large German companies received accreditation from the European Commission in 2013, making it the world’s first robotic remedial device. The company went public in March 2014 on the Mothers exchange. Founder Yoshiyuki Sankai did note, however, that had the company been founded in Silicon Valley, it would have grown much faster, since the early funding came from personal assets and bank loans during Japan’s venture capital downturn in the early 2000s.

Spiber, founded in 2007, successfully created synthetic spider silk by decoding the genetic information of fibroin, a protein that is the main component of spider silk. The technology grew out

of a laboratory at Keio University, with then graduate student Kazuhide Sekiyama, along with then-undergraduate Junichi Sugihara making the discovery in early 2007 and starting the company later that year. Given the unfavorable investment climate immediately following the global financial crisis, it took them two years to make a technological breakthrough to produce artificial spider thread and subsequently secure venture capital funding. In 2012, the company entered into an alliance with an auto parts supplier for Toyota, Kojima Industries, and together they set up a factory for mass production.

At an earlier stage, NuProtein, founded by three professors and researchers at Nagoya University, invented a new methodology for synthesizing proteins. Called Protein Synthesis System 3.0 (PSST), compared to conventional methods that utilize e-coli which take about two weeks, PSST claims about fourteen times faster, fifty times the amount of yield, and a far greater array of proteins that can be synthesized. The researchers first made an academic impact by providing proteins synthesize for particular experiments, becoming co-authors on over ten top academic papers in journals such as *Nature*. The business is to sell protein synthesis kits and selling difficult to synthesize proteins such as hormones and membrane proteins, which are expected to be useful to discover new pharmaceutical products. The company received early financial support from New Energy and Industrial Development Organization (NEDO), and won startup pitch contests in Japan and Silicon Valley.

Japanese non-university research labs, in particular Riken, Japan's largest publically funded research lab, has also produced new basic research that has enabled venture capital backed startups. The most notable is Healios, which licensed a technology developed by Riken researcher Masayo Takahashi to use iPS cells to develop a regenerative therapy for age-related macular degeneration. While the Riken lab methods would cost an estimated \$1 million

per treatment, medical doctor and serial entrepreneur Tadahisa Kagimoto set out to develop a far lower cost line of cells using this technology. Founded in 2011, Healios received approximately 3 billion yen in funding from a group of Japanese firms involved in biopharma, including Sumitomo Dainippon Pharma, Nikon, Shin Nippon Biomedical Laboratories, and Tella. The company listed on the Mothers market in June 2015.

University-related VC funds UTEC (University of Tokyo Edge Capital), and Miyako Capital, affiliated with Kyoto University, have also been actively working to spin out technologies from these Japanese top universities into high growth startups. UTEC was established in 2004, with approximately \$300 million in its funds, with 9 IPOs and 8 M&A exits by the end of 2015 among its 65 portfolio companies. Although still at an early stages of development, Miyako Capital was given \$60 million from Kyoto University in 2015.

In terms of open innovation, large Japanese firms are increasingly embracing buying the services of startups partnering with them, and engaging in M&A. Overall M&A activity, not exclusive to startups, rose from 1707 in 2010 to 2285 in 2014 (Kariyazono, 2015). Newer firms tend to embrace M&A more easily, especially in the IT industry, allowing for new career paths. For example, Yusuke Asakura, a University of Tokyo graduate, worked for McKinsey, then started his own company making pre-smart phone cellular Internet service middleware. That company was purchased by social networking service provider Mixi, and Asakura eventually rose to CEO of Mixi when the latter was facing a downward spiral. Asakura successfully turned around the company, then left to start his next venture—still in his early 30s.

In terms of partnering with large companies, the aforementioned firms such as recruiting service Wantedly, and online business accounting service Freee found favorable environments. For Wantedly,

the need for large firms to recruit new talent, combined with large firms' significant recruiting budgets made Wantedly's subscription prices quite affordable for them, and enabling Wantedly to become profitable early on. Freee was able to enlist 1600 banks to integrate with their services in order to offer accounting services that integrated with banks.

Moreover, it is not only Japanese firms that are buying Japanese startups. While still a rare case, Japanese robotics startup Schaft was purchased by Google in 2013. Schaft was founded by University of Tokyo researchers focused on producing walking robots. Schaft entered the US DARPA Robotics Challenge, making headlines by dominating the trial round. However, once purchased by Google, the latter's philosophical opposition to receiving funding from DARPA, part of the US military, given to the competition's winner, pulled Schaft out of the final competition (Guizzo and Ackerman, 2014). This purchase represents a new pathway for Japanese startups, since top tier Silicon Valley firms such as Google have rarely purchased Japanese startups.

Thus, in terms of "open" innovation and the coexistence of large firms coexisting symbiotically with startups, Japanese large firms are increasingly the source of human capital, they have set up corporate venture capital funds in larger numbers, and they are less hesitant than ever before to partner with startups. Especially for traditional large firms, the challenge remains to make acquisitions an integral part of their strategies, with mechanisms to incorporate human capital that enters the companies through acquisition.

The attractiveness of entrepreneurship and working at high growth startup firms has increased significantly over the past two decades. For elite university graduates, the possibility of lifetime careers at large firms are less likely when the longevity of the firms themselves are in question. In the late 1990s, staid financial institutions such

as the Long Term Credit Bank and Yamaichi Securities went bankrupt, most large electronics firms such as NEC, Fujitsu, Sony, and others lost in global competition for semiconductors, telecommunications, and consumer electronics, selling off or shuttering their operations in those areas. Consumer electronics firm Sanyo was sold to Panasonic, with many of its divisions sold to Chinese firm Haier, a massive accounting fraud was uncovered in Toshiba in 2015, and in early 2016, Sharp, once a front-runner in flat panel displays and consumer electronics such as mobile handsets, was sold to Taiwanese firm Foxconn. While stable jobs at large firms continue to be attractive, they are far less so than two decades ago. A list of the universities attended by founders of startups with top fundraising in 2015 reveal that almost all were from elite universities.

Numerous startup pitch contests and major events celebrating high growth startups have been taking place in recent years. Audiences number in the thousands, some are focused on having policy recommendation arms, and they often receive national news coverage. These organizations and events help legitimize and popularize a culture of high growth startups. Some include the annual New Economy Summit, launched in 2013, organized by the Japan Association of New Economy, set up by Japan's largest, listed online commerce company, Rakuten. The New Economy Summit invited prominent Silicon Valley entrepreneurs such as Larry Ellison, founder of Oracle, and the founders of startups such as Dropbox, Lyft, Box.com, and Andy Rubin whose company was bought by Google and became the Android platform. The Infinity Ventures summit, which began in 2009, brings hundreds of companies to Kyoto annually, and is a hub for investors, entrepreneurs, and large firms to meet. Less business focused and inspiration community building events such as Slush Asia, orchestrated by Finnish firm Slush, took place in Tokyo in 2016. From the government, NEDO, which subsidized the

R&D of science and technology-based startups, pitch contest, the NEDO Technology Commercialization Program, featuring startups that entered several rounds of pitch competitions around the country. The first program took place in 2015.

Finally, Japan's startup support ecosystem is maturing, with an increasing number of support actors such as accounting firms and law firms not only providing services, but also actively orchestrating startup-focused events and services. For example, Tohatsu Venture Support, a subsidiary of accounting firm Deloitte Tohatsu, has been supporting weekly "morning pitch" events at 7am in Tokyo since 2011, expanding to other major cities as well. They provide many services to early stage startups free of charge, with the aim of fostering a vibrant startup ecosystem from which they can benefit. The company has also set up a Silicon Valley branch to help Japanese startups enter Silicon Valley.

While there is no comprehensive database of Japanese startups in Silicon Valley, ties between the Japanese startup ecosystem and Silicon Valley are strengthening.³ Several Japanese were part of the programs at top accelerators such as Y Combinator and 500 Startups.

6. Conclusion

This paper has provided an update and broad context of Japan's startup ecosystem as seen in 2016. When compared to Silicon Valley, the ecosystem is still small in scale, but so is virtually every other startup ecosystem. Over time, the overall characteristics, regulatory structures, and social norms of Japan have shifted from being highly unfavorable to a vibrant startup ecosystem, towards a far more supportive environment.

Overall, it is reasonable to be optimistic about

the trajectory of development for Japan's startup ecosystem. Some of the most obvious regulatory barriers were removed, and many of the industrial structural factors have evolved as numerous large firms have entered performance crises and experience uncertain futures. A generational shift is accompanying social normative changes that are becoming more supportive of entrepreneurship and high growth startups. Entrepreneurs and high growth startups are more celebrated in the popular media and in major events more than ever before. And an ecosystem of previously successful entrepreneurs and investors, combined with those that have experience in Silicon Valley and elsewhere, is becoming stronger. While another "tech bubble" burst of sorts centered around Silicon Valley may occur, leading to decreased venture capital financing for the short term, the fundamentals that push towards an increase in the quality and quantity of high growth startups are likely to remain.

In the future, if current trajectories hold, we should expect a growing number of successful startups and some distinctive R&D based and university technology based startups, supported by a stronger ecosystem of startup-related players, combined with more open large firms. Large firms are likely to produce more entrepreneurs who leave to seek better opportunities, and as more leave, the large firms that successfully harness high growth startups are likely to remain more competitive, leading to a positive reinforcement cycle.

*For more figures and data for the points made in this short paper, abridged due to space constraints, please see "Selected Facts and Figures of Japan's Startup Ecosystem," Stanford Silicon Valley – New Japan Project 2016. <http://www.stanford-svnj.org/s/Japan-Startup-Ecosystem-Figures-and-Tables.pdf>

³ The Stanford Silicon Valley – New Japan Project is compiling a database of Japanese startups in Silicon Valley. <http://www.stanford-svnj.org>

References

- Baldwin, C. Y. and K. B. Clark (2000). *Design rules*. Cambridge, Mass., MIT Press.
- Gawer, A. and M. A. Cusumano (2002). *Platform leadership: how Intel, Microsoft, and Cisco drive industry innovation*. Boston, Mass., Harvard Business School Press.
- Chesbrough, H. W. (2003). *Open innovation : the new imperative for creating and profiting from technology*. Boston, Mass., Harvard Business School Press.
- Dasher, R., N. Harada, T. Hoshi, K. E. Kushida and T. Okazaki (2015). "Institutional Foundations for Innovation-Based Economic Growth."
- Feigenbaum, E. and D. Brunner (2002). *Kigyo Tokku de Nihon Keizi no Fukkatsu wo!* [Revive the Japanese Economy with Special Economic Zones!] (English title: *The Japanese Entrepreneur: Making the Desert Bloom*). Tokyo, Nihon Keizai Shinbun Sha.
- Gornall, W. and I. A. Strebulaev (2015). "The economic impact of venture capital: Evidence from public companies." Stanford Graduate School of Business Research Paper (15-55)
- Guizzo, E. and E. Ackerman. (2014). "Who is Schaft, the robot company bought by Google and winner of the DRC?" Retrieved June 1, 2016, from <http://spectrum.ieee.org/autamaton/robotics/humanoids/schaft-robot-company-bought-by-google-darpa-robotics-challenge-winner>.
- Imai, K., Ed. (1998). *Benchazu infura* (The Infrastructure of Venture Companies). Tokyo, NTT Shuppan.
- Johnstone, B. (1999). *We were burning: Japanese entrepreneurs and the forging of the electronic age*. Boulder, Colo., Basic Books.
- Kariyazono, S. (2015). *Japan as a Startup Nation*. US-Japan Venture Capital Conference, Stanford University.
- Kenney, M. (2000). *Understanding Silicon Valley : the anatomy of an entrepreneurial region*. Stanford, Calif., Stanford University Press
- Kushida, K. (2001). "Japanese Entrepreneurship: Changing Incentives in the Context of Developing a New Economic Model." *Stanford Journal of East Asian Affairs* 1(1): 86-95.
- Kushida, K. E. (2011). "Leading Without Followers: How Politics and Market Dynamics Trapped Innovations in Japan's Domestic "Galapagos" Telecommunications Sector." *Ibid.* 11(3): 279-307.
- Kushida, K. E., K. Shimizu and J. Oi, Eds. (2014). *Syncretism: Corporate Restructuring and Political Reform in Japan*, Shorenstein APARC.
- Kushida, K. E., J. Murray and J. Zysman (2015). "Cloud Computing: From Scarcity to Abundance." *Journal of Industry, Competition and Trade* 15(1): 5-19.
- Okimoto, D. I. and T. P. Rohlen (1988). *Inside the Japanese system: readings on contemporary society and political economy*. Stanford, Calif., Stanford University Press.
- Riney, J. (2016). "7 Things Investors & Founders Need to Know about the Japan Startup Ecosystem." Retrieved 2016, June 1, from <http://500.co/japan-startup-ecosystem-founders-investors/>.
- Thiel, P. A. and B. Masters (2014). *Zero to one : notes on startups, or how to build the future*. New York, Crown Business.
- Wiens, J. and C. Jackson (2015) "The Importance of Young Firms for Economic Growth." *Entrepreneurship Policy Digest*, Kauffman Foundation.
- Womack, J. P., D. T. Jones and D. Roos (1991). *The machine that changed the world : the story of lean production*. New York, N.Y., Harper Perennial.