



# Japan in the Bay Area

## Collaboration and Transformation

December 2019

## Acknowledgments

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We deeply appreciate the encouragement for this project provided by the Consulate General of Japan in San Francisco, and the support given by World Innovation Lab (WiL) for the Institute's Japan research activity. Larry Greenwood, President of the Japan Society of Northern California, contributed valuable expertise on trade and community issues.

The Economic Institute also wishes to thank the following individuals who contributed their time and ideas to this effort through personal interviews:

Yushi Akiyama, Vice President, Corporate Strategy & Business Development, Hitachi America, Ltd.

Patrick Bray, Senior Director, Pacific Vision Partners

Chris Burry, Co-CEO, US Market Access Center

Dennis Clark, Managing Director, Strategic Venture Partnerships, Honda Innovations

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Richard Dasher, Director, US-Asia Technology Management Center, Stanford University

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Takeshi Ebihara, Founding General Partner, Rebright Partners

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Hiroyuki Haraguchi, Vice President & General Manager, Industrial Products Division, Canon USA

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Takeo Hoshi, Former Director, Japan Program, Shorenstein Asia-Pacific Research Center (APARC), Stanford University

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Surya Josyula, Director of Business Development, Fujitsu Laboratories of America

Michi Kaifu, CEO, ENOTECH Consulting

Shinnosuke Kameyama, Director General, NEDO Silicon Valley

Kazuki Kaneuchi, Manager of Business Development, Softbank Telecom America Corp.

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Yoichi Koyanagi, COO, Fujitsu Laboratories of America

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Seiji Miyasaka, Head of US Investment Team, Sparx Asset Management Co., Ltd.

Mack Nakagawa, Vice President, NEC Corporation of America

Norio Nakazawa, Chief Executive Director, JETRO San Francisco

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Koji Takaichi, President & CEO, Hitachi America, Ltd.

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Tomochika Uyama, Consul General of Japan in San Francisco

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# Contents

<b>Introduction.....</b>	<b>2</b>		
CHAPTER 1		CHAPTER 5	
<b>A New Chapter in Bay Area-Japan Relations .....</b>	<b>4</b>	<b>Japan’s Economy: The Sun Also Rises .....</b>	<b>38</b>
A Wide-Ranging Focus on Innovation .....	5	Japan’s Rise in the 1960s–1980s .....	38
Venture Capital: Independent and Corporate .....	7	Japanese Investment in the US Surges in the 1980s.....	40
Partnerships With Bay Area Startups and Institutes..	8	The “Lost Decades”: A Quiet Transformation .....	42
CHAPTER 2		Abenomics: “Japan is Back” .....	43
<b>New Priorities: An In-Depth Look at Japan’s Evolving Corporate Presence in Silicon Valley .....</b>	<b>9</b>	Society 5.0 .....	47
Firms With Long-Standing Presences.....	10	Embracing Transformation .....	49
Firms Recently Entering Silicon Valley .....	16	CHAPTER 6	
Venture Capital Supports Innovation .....	19	<b>A Shifting Landscape for Trade .....</b>	<b>51</b>
Corporate Venture Capital .....	21	Trade Relations .....	55
SoftBank: Disrupting Silicon Valley .....	22	CHAPTER 7	
CHAPTER 3		<b>Foreign Direct Investment: A New Focus on Synergies .....</b>	<b>59</b>
<b>Japan’s Broad Ties with the Bay Area .....</b>	<b>24</b>	US-Japan Two-Way FDI .....	60
Government Representation .....	24	California-Japan Two-Way FDI .....	62
Voluntary Business Associations.....	25	<b>Conclusion .....</b>	<b>64</b>
Community Organizations .....	26	<b>Notes .....</b>	<b>65</b>
University Relationships and Exchange Programs... 27			
Civic Exchanges .....	28		
The Japanese American Community and Cultural Ties .....	29		
CHAPTER 4			
<b>Japan’s Deep Roots in the Bay Area .....</b>	<b>32</b>		
Japan Opens to the World .....	32		
Meiji Restoration and Early Ties to the Bay Area ....	33		
Discrimination Against Japanese Immigrants .....	35		
War and Japanese American Dislocation.....	35		
Reconciliation and Reparation for Japanese Americans .....	36		
US-Japan Relations Re-established: The San Francisco Peace Treaty .....	36		
The Postwar Japanese American Community.....	36		
Establishment of the US-Japan Council .....	37		

## Introduction

Japan's ties to the Bay Area date to the region's earliest days, when the first Japanese diplomatic mission to the United States sailed through the Golden Gate, making landfall in San Francisco in 1860. Since then, the San Francisco Bay Area has served as an important anchor for Japan's economic presence and partnerships in the United States.

Today, the Bay Area plays an increasingly important role in Japan's strategic economic future, as large firms and industrial groups shift to embrace outside partnerships in the pursuit of high-value activity in software, platforms, and services. Underlying this shift is the concern that many of Japan's core manufacturing industries face disruption by technological change, much of it originating in the Bay Area. As Japan's economy endeavors to transform by embracing digitalization, open innovation, and deeper engagement with entrepreneurs, collaborations with Bay Area companies are increasingly seen as critical to Japanese firms' future competitiveness. The visit of Prime Minister Abe to the Bay Area in 2015 was a pivotal event in this process, demonstrating the high importance placed by Japan on developing strategic partnerships in the region. That visit, which included a public address at Stanford University, visits to major Bay Area companies such as Tesla and Facebook, and meetings with leading technology executives,<sup>1</sup> reflected a surge of Japanese corporate interest in Silicon Valley, and the beginning of a new chapter of deep engagement.

The latest burst of activity between Japan and the Bay Area is best understood as the newest in a series of transformations in both economies, as they have moved from being direct competitors to increasingly important collaborators. These transformations have occurred in several phases, anchored in the two countries' respective macroeconomic performances and corporate strategies.

In the 1970s and 1980s, as the Japanese economy boomed and its firms burst into global markets, industries in the Bay Area, including semiconductors, electronic components, consumer electronics, and automobiles, were disrupted by Japan's manufacturing

pro prowess. Japanese automotive companies challenged the US industry through efficient production processes and superior quality. Consumer electronics companies such as Sony also raised the bar on quality, while innovating through new products like the Walkman, which made access to music both compact and portable. As Japan's trade surplus with the US escalated to become the largest with any country, Japan became the target of intense pressure from American firms lobbying the US government to negotiate better terms for trade and market access, opening an era of trade friction.

Then, as the Japanese economy faltered following its asset bubble burst in 1990, Bay Area firms, driven by the computer industry, surged back to lead the global high-tech sector. Bay Area firms innovated new ways to create value through software, platforms, services delivered through the internet, and manufacturing strategies employing global workforces tied through IT.<sup>2</sup> Within twenty years, numerous Bay Area firms grew to become the most valuable companies in the world—a crescendo of entrepreneurial activity and open innovation in which the Silicon Valley region became a world leader.

In the 2000s, as the spectacular rise of China captured the attention and imagination of companies around the world, including those in the Bay Area, Japan's presence in the Bay Area seemed to wane. The economic stagnation experienced in Japan during the "lost decade" of the 1990s persisted, and Japanese companies were not seen as the fearsome competitors they once had been. Many pulled back their operations, and interest in Japan within the Bay Area's business community declined.

Yet, despite its overall slow economic performance punctuated by recessions during the 1990s and early 2000s, Japan was quietly transforming: it took a gradual and incremental path of reform and restructuring rather than a sudden and dramatic process that would entail massive internal dislocation.<sup>3</sup> Japan remained one of the world's largest and wealthiest economies, and without driving inequality levels up significantly, its firms slowly

reduced personnel and invested in research, technology development, and expanding operations globally. All the while, Japan remained an important market and partner for Bay Area companies such as Intel, Apple, Google, Facebook, Salesforce, Oracle, and Cisco.

Today, Japan is undergoing accelerated change with the development of an active startup ecosystem and a growing venture capital industry. Large companies are opening up to startups and are creating new partnerships in Silicon Valley to engage with entrepreneurs and develop open innovation strategies.<sup>4</sup>

Japan is also attracting renewed US interest due to the shifting geopolitical environment in Asia and in what is now being called the Indo-Pacific region (which includes Asia but also extends to India). As trade and political tensions with China have increased, some US companies are questioning their future there. Meanwhile, the US-Japan relationship remains firmly anchored in the US-Japan Security Alliance, an association reaffirmed by successive administrations on both sides. Economic considerations remain paramount but have a larger context: shared commitments to democratic principles and the rule of law provide a foundation that anchors Japan firmly within the framework of historical US allies and strategic partners.

This is a good time, therefore, to reconsider the US economic relationship with Japan and its potential for new and invigorated partnerships. The Bay Area and Silicon Valley will play a unique role. As a highly globalized economy with strong ties to Asia, and as the global epicenter for innovation, entrepreneurship, and technological change, the Bay Area serves as a key resource for Japan's strategic shift, extending the scope of interaction well beyond traditional patterns of US-Japan trade and investment. This is evident as Japan has moved from being not just a competitor but also to being a deep collaborator, through research as well as integrated services and supply chains and growing venture capital activity.

The opportunities that Japan presents for the Bay Area are unique. While Japan continues to face challenges, the wealth and scale of its economy, its advanced research and technological capacity, and its proven capacity to innovate point to strong potential for alignment. Japan is also emerging as a laboratory for how to technologically address the challenges of an aging society and a shrinking workforce. This report examines the key points of alignment between the economies of the Bay Area and Japan and the scope for potential cooperation.



## A New Chapter in Bay Area-Japan Relations

We are currently entering a new chapter in the relationship between the Bay Area and Japan. The connection has deep historical roots and is anchored in the broader US-Japan diplomatic, trade, and immigration-driven relationship, as seen in subsequent sections of this report. This new chapter is driven by a surge of interest by Japanese companies in “harnessing” Silicon Valley by entering into collaborative relationships and becoming a part of the region’s economic ecosystem of fast-growth startups, venture capital, and open innovation. This surge of interest is an outgrowth of domestic changes within Japan, as its economy restructures toward a new model that is more open, diversified, and globally oriented than before.

Japanese interest in the Bay Area grew as the rise of IT companies began to disrupt Japanese industries in areas that were previously their strengths. For example, Apple’s iPhone and Google’s Android operating system, originating from Silicon Valley, undermined a highly sophisticated domestic Japanese cellular telephony market, in which mobile handsets could connect to the internet, take pictures, download applets, play music, and receive television broadcasts almost a decade before the iPhone was introduced in 2008.<sup>1</sup> The smartphone revolution that spread from Silicon Valley firms throughout the world also disrupted several other previously distinct industries in which Japanese firms were global leaders, such as cameras (Canon, Pentax, Konica Minolta), portable

music players (Sony, Sharp, Kenwood), car navigation systems (Pioneer, JVC, Panasonic), camcorders (Sony, Panasonic, etc.), copiers (Ricoh, Canon, Fuji Xerox), scanners (Canon, Epson), point of sale (POS) terminals (NEC, Fujitsu), portable electronic dictionaries (Sony), multifunctional personal digital assistants (PDAs) (Sharp), and others.<sup>2</sup> Silicon Valley’s cross-national production networks also led to the rise of Asian suppliers of semiconductors, LCD panels, and other electronics components from South Korea, Taiwan, mainland China, and Southeast Asian countries.<sup>3</sup>

The current wave of activity in the Bay Area by large Japanese firms is in some ways a resurgence of their corporate presence after a lull, since many had retreated in the early 2000s after the “dot-com” bubble burst in the US and following the 2007–2008 global financial crisis. The current resurgence, however, is taking new forms that are different from previous historical patterns.

Today, the focus of large Japanese corporations’ activity in the Bay Area centers on establishing or extending branch offices creating R&D operations; investing into venture capital firms as limited partners (LPs); creating their own corporate venture capital (CVC) funds; exploring new types of partnerships and collaborations with startups; and engaging in new forms of partnerships with universities.

Numerous Japanese citizens have also set up venture capital funds in Silicon Valley, attracting investments

from large Japanese corporations. Their goals are usually not only to provide investment returns but also to help the Japanese companies engage with Silicon Valley startups and to drive internal cultural and organizational shifts.

A growing number of notable startups founded in Japan, now at various stages of growth, are opening offices for R&D and sales in the Bay Area. Japanese entrepreneurs residing in Silicon Valley have also produced in the Bay Area a wave of “Japanese startups” in which one or more of the founders is a citizen of Japan.<sup>4</sup>

## A Wide-Ranging Focus on Innovation

Many large Japanese companies are establishing branch offices in the Bay Area. The numbers are unclear because these presences often take the form of a previous branch office registered as a subsidiary of the company’s US operations headquartered elsewhere in the US. Many of these branch offices withdrew at some point over the past twenty years, leaving only the registration. They were then revived in the early to mid 2010s. The previous branch offices were most often focused on sales to the US market and bringing Bay Area company products or services to Japan. However, the current wave, which sometimes takes the form of presences within incubators, such as Plug and Play, or within the offices of a venture capital firm, are focused on collaborating with Silicon Valley startups and IT companies.

A wide range of industries are represented in this trend.

### Trading Companies

Major trading companies Mitsubishi Corporation, Sumitomo Corporation, ITOCHU Corporation, and Marubeni Corporation, as well as smaller firms such as Okaya, all have offices in the Bay Area. Many have had a presence in the Bay Area since the 1980s and 1990s, when they engaged in bringing Silicon Valley companies, such as Sun Microsystems, NetApp, and other software and hardware companies, to the Japanese market. Many are continuing to bring Silicon Valley companies to Japan but are now also focused on

partnering with Silicon Valley startups and investing in venture capital funds as limited partners or setting up their own CVC funds.

### Finance

Japan’s three “mega-bank” financial groups, Tokyo Mitsubishi UFJ Financial Group, SMBC Financial Group, and Mizuho Financial Group, all have Bay Area offices focused on creating new value through partnerships around fintech and other startups. These banks, the product of mergers that produced mega-banks, have had long presences in the Bay Area, particularly in San Francisco, with a branch of Sumitomo Bank (its first branch in the United States) opening in 1916 to engage in commercial banking to support trade.<sup>5</sup>

Other banks, such as the government-owned Development Bank of Japan, send employees to Stanford University to better understand the Silicon Valley economic ecosystem. Even regional banks such as Hamamatsu Iwata Shinkin Bank in Shizuoka Prefecture and Hokkoku bank in Ishikawa Prefecture have operations or employees focused on harnessing Silicon Valley.

Insurers such as Tokio Marine, Sompo Japan, and MS&AD Insurance Group are also growing their presences in the Bay Area to engage in creating new value. Tokio Marine has invested in multiple venture capital firms starting in 2015, posting several employees to the region and acquiring a stake in Silicon Valley auto insurer Metromile. Sompo Japan has grown its Silicon Valley office rapidly, and MS&AD has invested into a fund of funds, NetService Ventures Group (also known as NSV Wolf Management, LLC), co-founded by a Japanese citizen with a long career in Silicon Valley.

### Automobile and Automotive Suppliers

Automobile companies have had a long historical presence through sales and R&D offices, with Toyota once jointly operating the NUMMI manufacturing plant with General Motors in Fremont (at a facility that is now owned by Tesla). The new wave of efforts to create value in ways that can only be done in Silicon Valley has led

companies including Toyota, Honda, Nissan, Mazda, Suzuki, and Mitsubishi Motors, as well as Yamaha Motors and major automotive parts suppliers such as Denso and Aisin, to create new offices and send personnel to the region.

Toyota created a new subsidiary, Toyota Research Institute (TRI), hiring a top US researcher in the area of robotics to lead the institute and aggressively hiring people from companies such as Google to develop automated assisted driving, robotics, and other technologies. TRI also set up an investment fund and has active collaborations with universities in several locations in the US, including Stanford. Honda created an acceleration lab that provides startups with access to its automotive engineers and automobile prototypes to enable collaboration. Suzuki invested into a Silicon Valley venture capital firm and has sent waves of executives and upper management to get training in how to create value through design thinking. Yamaha Motors created a venture capital and research laboratory, conducting joint projects with

SRI International and partnering with startups in areas including agricultural technology.

## Technology, IT, and Components Firms

Large Japanese IT, technology, and components firms NEC, Fujitsu, Hitachi, Toshiba, Kyocera, Nomura Research Institute, Panasonic, and Furukawa Electric have had long presences in the Bay Area, mostly for supporting sales of their products to the US market, conducting R&D, and bringing Bay Area firms and technologies to Japan. Currently, each of these companies and their subsidiaries has devoted personnel and resources to strategically cultivating ties with Silicon Valley firms.

Other major technology and equipment firms have established presences in Silicon Valley with the explicit purpose of finding new ways to create value. HVAC manufacturer Daikin has created a new Silicon Valley office and lab, and firms such as IHI have invested into local venture capital firms, have sent employees, and have grown to create their own offices.



Opened in April 2019 near Highway 101 in Silicon Valley, Hitachi's new Santa Clara Square building is home to the company's regional corporate headquarters, its global headquarters for digital business, and its Global Center for Social Innovation.

Components manufacturers and process technology specialists such as Screen Holdings, Omron, and Nitto Denko also have employees in Silicon Valley.

Newer Japanese firms that began as startups but are now mainstream large Japanese corporations, such as Rakuten and SoftBank, have also been active. Rakuten has purchased several Bay Area companies in M&A transactions and has invested in a wide variety of others, including Lyft. SoftBank Communications has purchased and partnered with several firms, and SoftBank founder Masayoshi Son's large venture capital investment fund, the Vision Fund (introduced in more detail in Chapter 2), is significantly influencing the venture capital industry. DeNA also entered the Bay Area with its 2010 acquisition of San Francisco-based mobile social games company ngmoco, thereby making DeNA the world's largest mobile social games platform company at the time.<sup>6</sup> Also in 2010, DeNA founded a corporate venture capital fund enabling it to invest in both Japan and the US.<sup>7</sup>

Other patterns exist as well. Sourcenext, originally a software licensor and importer to Japan, carved a new path when the CEO moved to Silicon Valley while managing his company that remained based in Japan. The company utilized connections in Silicon Valley to produce a hit product that provides instant translation into a variety of languages.

### **Construction, Telecommunications, Airlines, and Transportation**

Construction firms Obayashi, Shimizu, and Kajima have all created offices in Silicon Valley with varying degrees of initial commitment. Obayashi has operated in the Bay Area since the 1970s, and had a construction subsidiary for many years, but created a new office in 2017 to bring together Silicon Valley companies to pioneer applications for construction tech, such as using augmented reality to overlay blueprints with actual images from a construction site.

Telecommunications giant NTT and its various subsidiaries, such as NTT Communications, NTT Data, NTT Comware, NTT DOCOMO Ventures, and several R&D units, have had a long presence in the Bay Area. NTT established a new research center, NTT Research Inc., in East Palo Alto in April 2019.<sup>8</sup>

Japan's two major airlines, ANA and Japan Airlines, also have one or more employees posted within venture capital firms and accelerators/incubators. Their core businesses of operating airline routes have a long history, with Japan Airlines' San Francisco–Tokyo Flight 1 starting in 1954 as its first international route. These new offices and efforts focus on finding new ways to create value beyond the traditional airline business.

Yamato Holdings, Japan's leading transportation and logistics company, also became a member of Plug and Play in Silicon Valley, posting an employee to learn from and partner with the Silicon Valley ecosystem.

## **Venture Capital: Independent and Corporate**

### **Venture Capitalists Engaging Japanese Firms**

A wave of Japanese citizens has created venture capital funds, mostly focused on taking investments from large Japanese companies as limited partners and providing value beyond investment returns. World Innovation Lab (WiL), and DNX Ventures (formerly Draper Nexus) are prominent. Other firms with significant Japanese investors include Geodesic Capital, a fund co-created by former Ambassador to Japan John Roos, and Pegasus Ventures, Scrum Ventures, and fund of funds NetService Ventures, among others.

Large corporate investors into these venture capital funds hail from a wide variety of sectors, composing a who's who of major corporate Japan and even government involvement. For example, limited partners (investors) into WiL include Sony (entertainment and electronics), Mizuho Financial Group (finance), NTT DOCOMO (telecommunications), Osaka Gas (utilities), ANA Holdings (airline), Nissan (automobile), Seven & i Holdings (retail), Dai-ichi Life (insurance), ITOCHU (trading), Kajima (construction), Benesse (education), and Innovation Network Corporation of Japan (a government-led group), totaling almost \$1 billion in investments into its two funds. LPs of DNX Ventures in its three funds include Panasonic (electronics), Hitachi (high technology), Shimizu (construction), Canon (cameras and precision equipment), Komatsu (construction equipment), JXTG Holdings (mining and petroleum), and others.

## Corporate Venture Capital

Numerous large Japanese firms have created their own corporate venture capital (CVC) funds in which they are the sole or primary investor. Many had such funds in the late 1990s and the early-to-mid 2000s but closed them after the dot-com bust in 2000 and during the 2007–2008 global financial crisis. Older funds that remain active—some with headquarters in Japan but with significant offices in the Bay Area—include ITOCHU Technology Ventures (established in 2000), DOCOMO Capital (established in 2005 and merged with DOCOMO Innovations in 2015) Presidio Ventures by Sumitomo Corporation (1998), Takeda Ventures (2001), and KDDI Open Innovation Fund (2009). Newer ones include Yamaha Motor Ventures (2015), Acario Ventures by Tokyo Gas (2017), Conductive Ventures (Panasonic, 2018), and Toyota AI Ventures (2019).

The typical size of these CVC funds is around \$100 million, and they generally focus on investing into Silicon Valley startups that have potential synergy with the corporation.

## Partnerships With Bay Area Startups and Institutes

Large Japanese companies are also attempting to harness the Silicon Valley ecosystem by partnering with Bay Area startups, research institutes, and universities in new ways.

For example, starting in 2014, Komatsu, a leading Japanese construction equipment firm with a global presence, partnered with Skycatch, a San Francisco based drone startup, to generate 3D maps of construction sites. Now deployed throughout Japan and offered globally starting in 2018,<sup>9</sup> the partnership's high-precision solution dramatically reduces the effort and cost of surveying construction worksites and dynamically managing the construction process. Komatsu's partnerships with Bay Area startups focused on the automated piloting of vehicles have led to subsequent deployment tests to create autonomously driven agricultural applications of equipment traditionally limited to construction, such as bulldozers and wheel loaders.

Yamaha Motors partnered with SRI International to create the MOTOBOT, a humanoid robot that can autonomously drive a motorcycle.



Yamaha MOTOBOT Ver. 2, exhibited at the Tokyo Motor Show 2017



# 2

## New Priorities: An In-Depth Look at Japan's Evolving Corporate Presence in Silicon Valley

Japanese companies have had a substantial footprint in the Bay Area since the 1970s, initially through trading companies as intermediaries. Today, their presence has expanded and diversified, reflecting the Bay Area's role as the world's leading technology and innovation hub and the perception in Japan that future growth and competitiveness will depend on the capacity of Japan's major companies to transform by embracing open innovation methods and adapting more rapidly to fast-moving changes in technology and customer expectations.

According to a 2018 JETRO (Japan External Trade Organization) survey of companies operating in 26 counties in Northern California, the count of Japan-based companies in the region is the highest since the survey was first developed in 1992. The 913 responding companies are spread across many industries, ranging from information technology to the restaurant industry to retail sales apparel, housewares, and food. It should be noted that the record number of Japan-based companies counted is attributable in part to the expansion of the geographic area covered by the survey to include counties in a 100-mile radius of San Mateo, including Sacramento, where 16 (or 1.8%) of the 913 responding companies are located.

It should also be noted that this data captures only responses to a voluntary survey, and does not capture the financial size or the employment footprint of the responding companies.

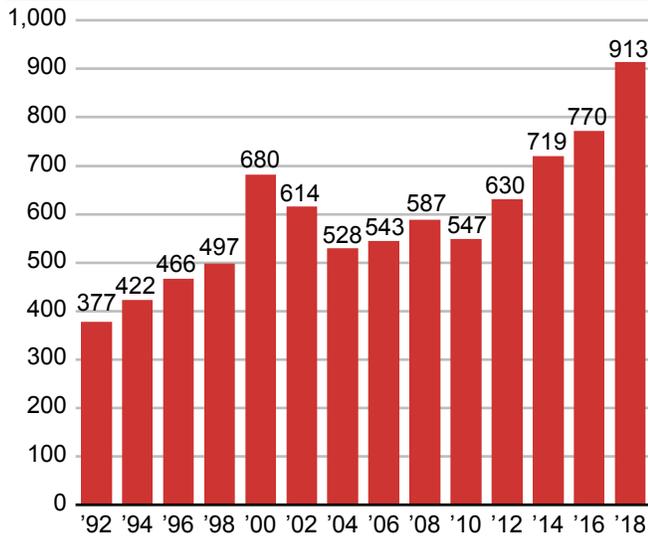
Of the 913 companies, 45.3% are in services, with 44% of those companies in information systems. The survey also found that 44.5% of the Japan-based companies operating in the region are in Santa Clara County, with 39.2% of those companies in San Jose. This correlates with Japan's large footprint in technology, which is heavily concentrated in the county.<sup>1</sup>

A Japanese banker who leads a team in Bay Area sees trends in the composition of Japanese businesses operating in the region: "When NUMMI [New United Motor Manufacturing Inc., a joint venture between Toyota and General Motors that until 2010 manufactured cars in Fremont] was here, there were lots of manufacturers from the automotive sector. Today, we see very few manufacturers outside the food sector; most companies now come for R&D or to collaborate with startups. Companies starting new businesses in the region today focus mostly on IT and software." Another trend he sees is toward M&A, with more Japanese companies growing in the region through acquisitions.

**EXHIBIT 1**

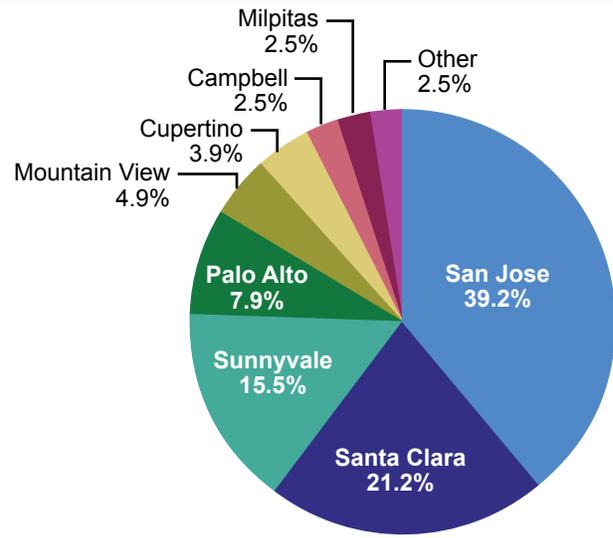
**JETRO’s 2018 count of Japan-based companies operating in Northern California is the highest since its survey began in 1992, and of the 913 companies counted, 44.5% are in Santa Clara County.**

**Number of Japan-Based Companies Operating in Northern California, 1992–2018, count of companies**



Source: JETRO San Francisco

**City-by-City Shares of Santa Clara County Japan-Based Companies Operating in Northern California, 2018, percent**



Visualization: Bay Area Council Economic Institute

## Firms With Long-Standing Presences

Examining how companies with long presences in the Bay Area transformed their strategies illustrates how the overall relationship between the two regions has evolved.

### Mitsubishi Corporation

Mitsubishi Corporation (Americas) has seen its Bay Area presence evolve from a San Francisco Branch, originally established in 1954 to promote machinery and equipment exports in the US, to its innovation center based in Palo Alto today. When the defense aerospace sector drove a growing share of its business from the 1970s through the 1980s, Mitsubishi Corporation opened a liaison office in Palo Alto to support satellite equipment and aerospace-related equipment trading business and from there gradually expanded its business with semiconductor-and-computer-related high-tech partners in Silicon Valley.

In the 1990s, Mitsubishi Corporation faced a new strategic challenge when innovation in computing shifted from hardware—the company’s existing business—to software. With computing democratized and shifted to mass production of PCs, Mitsubishi Corporation’s effort to shift its focus to software fell short of a major commitment. Later in the decade, e-commerce appeared to present a new set of business-to-business opportunities, but again Mitsubishi Corporation failed to carve out a significant niche in the software market. After the 2001 dot-com bust, the Silicon Valley Branch struggled to find its feet.

A key transition came in 2016 with artificial intelligence (AI) and the Internet of Things (IoT). As Europe embraced Industry 4.0 and the idea of a Fourth Industrial Revolution, Mitsubishi Corporation embraced digitalization as its core Silicon Valley focus. With this, as Executive Vice President Tsunehiko Yanagihara describes it, came a cultural challenge: “When I started leading the Silicon Valley Branch in 2016, I realized that working in Silicon Valley required a different approach

from how companies typically function—which is very closed and not open. But in Silicon Valley, you need to be open to the environment. If you're closed, you'll never have a relationship to the system you're trying to tap into. That's the first thing I realized: be open. The second thing I realized was that we had to broaden our approach by relying not just on ourselves but also the capacity of other Japanese companies."

The result was M-Lab, established in 2016 with a group of 10 other Japanese companies that share the Mitsubishi Corporation (Americas) Palo Alto office. While pursuing their individual activities, they also collaborate, developing new ideas for corporate leadership and engaging the region's startup community. Some of the companies are part of Mitsubishi Group (NYK Line, Kirin, Mitsubishi Electric, MUFG Bank, Mitsubishi Motors, Tokio Marine, and JXTG Nippon Oil & Energy) but others are not (Asahi Kasei, Fujifilm, and INTEC).

In 2019, Mitsubishi Corporation established a Chief Digital Officer position in Tokyo to strengthen the digital capabilities of the vertically-oriented business groups within the company and to coordinate the overlapping activities. Each business group has its own digital representatives at M-Lab in Silicon Valley, and some have corporate venture arms targeting the distinct verticals. The business development teams engage startups, through investment or other collaborations, with the goal of either adopting new technologies or creating new companies in Japan. Externally, M-Lab actively engages with Stanford University, including its d.school, and is developing ties with UC Berkeley. Other partners include 500 Startups, SBI, Fogarty Institute, and the Institute for the Future, which situates the company in the region's thought leadership ecosystem. Mitsubishi Corporation (Americas) established a Boston Branch in April 2019, which works as an extension of M-Lab, to cover high-tech innovation in the Eastern US and Canada. With the goal of capturing and aggregating global value holistically, M-Lab is also collaborating with offices in Tel Aviv and Shenzhen.

In addition to its own investments into startups, Mitsubishi Corporation also is the General Partner in Geodesic Capital. In order to support the growth of its portfolio companies, the firm's teams in Silicon Valley and Tokyo utilize their experience and networks to help

US entrepreneurs expand into Asia, starting with Japan. Acting as a window into Silicon Valley for its investors, Geodesic Capital aims to "bridge" the US and Japan.

To advance its mission of internal innovation, Mitsubishi Corporation hosts a classroom five times a year in Palo Alto where approximately 30 junior and mid-level employees per session plus staff of other M-Lab companies come from Japan and elsewhere to participate in week-long Silicon Valley orientation and training programs.<sup>2</sup>

## **Hitachi**

Founded in 1910 as a machine repair shop for a mining site, and with over 290,000 worldwide employees, approximately 800 subsidiaries, and \$85 billion in revenue today, the Hitachi Group produces IT-enabled social innovation solutions; major market segments include industrial systems, mobility, smart life, industry solutions, energy, electronics, telecommunications, and IT. Product lines are diverse, including railway and energy equipment, elevators and escalators, construction and mining machinery, scientific and healthcare products, automotive parts, industrial and electronic equipment, and highly-functional materials and components. The company entered the US market in the 1920s by exporting electric fans; since then, Hitachi America has evolved from an import-export office to a strategy center for North America. Today, it operates 88 group companies with over 21,000 employees, with both R&D and manufacturing operations done locally.

The Bay Area is home to 10 Hitachi business units with 1,100 employees. While not the largest center of employment in the US (the largest headcounts are in the manufacturing centers of the Midwest), the Bay Area anchors the company's digital and innovation activity. Its new Santa Clara headquarters is home to Hitachi America, including its R&D activities, the group's regional corporate headquarters, and Hitachi Vantara, the company's global headquarters for digital business. Hitachi Chemical and Hitachi High Technologies America are located nearby in Silicon Valley.

Opened in 2015 as a platform for collaboration on big data analytics with strategic partners in academia and industry, the R&D division of Hitachi America includes

labs focusing on IT platform systems, network systems, user experience design, and data systems, with verticals spanning energy, IT, healthcare, and financial services. Industrial partners from the oil and gas, rail, automotive, and other sectors come there to collaborate on digital transformation and problem solving. Hitachi America's R&D team of close to 100 focuses on co-innovation through customer interaction. The center in Silicon Valley serves as the headquarters of Hitachi's Global Center for Social Innovation, with connecting global sites in London, Tokyo, Beijing, and Singapore.

Historically known for industrial machinery, hardware, and manufactured products, Hitachi is now moving toward a solutions strategy that leverages its IoT and analytics platform known as LUMADA to address major societal issues such as urban infrastructure, smart manufacturing, energy, and transportation, as identified in its Sustainable Development Goals. In Japan, this links to Society 5.0, an industrial transformation strategy driven by Keidanren, Japan's leading industrial association, and represents a planned transition from a product company to one based more on services. It also reflects a change of direction for R&D, from a product-out orientation to one that is market and customer-driven.

As described by Hitachi America President Ken Takaichi, the company is looking to drive growth through innovation, primarily from the Bay Area: "Globally, the US is the major innovation market, and the Bay Area is leading the innovations that address the big societal problems. It's a market with abundant opportunities for implementing cutting edge technologies." The region offers a rich playing field. Hitachi collaborates with corporate partners such as Oracle and Google, and with accelerators such as Plug and Play, and invests in startups through venture firm Geodesic Capital, which helps speed internal innovation by identifying innovative startups. It has research relationships with Stanford University and UC Berkeley, focused on data analytics (computer, robotic, automotive, fintech), and positions itself for thought leadership through engagement with the World Economic Forum's Center for the Fourth Industrial Revolution, based in San Francisco's Presidio, which addresses issues such as open innovation, AI, machine learning, blockchain, and cross-border data flows.<sup>3</sup>

## NEC

NEC Corporation of America is a leading global technology integrator. It operates four facilities in California locations, including Santa Clara, Sacramento, San Jose, and most recently Glendale. Sacramento, with approximately 100 engineers, is home to a technology team focused on biometrics (face, fingerprint, iris), primarily for government clients. The core technology comes from Japan, while engineers in the Sacramento office focus on customized applications. The Glendale office focuses on enterprise solutions for public and private sector clients—in aviation, airports, theme parks, hotels, resorts, and casinos—all of which can benefit from biometric applications.

In addition to sales and business development, NEC's Santa Clara office, with approximately 40 employees, focuses on incubation and on developing new technology for partners, primarily around hardware. The lab in San Jose, part of NEC Labs America, works on AI, big data, security, networking, and sensing, as well as on systems technology.

Part of the company's Bay Area role involves exploring relationships with emerging companies, providing feedback to headquarters on where US markets are moving, and building customer experience solutions. Two new Bay Area-based business units are global: AI-enabled data science analysis automation platform provider dotData and NECX, an incubation test bed. Together, they are designed to speed business development through a quicker, leaner cycle than would normally be possible through traditional business units. NECX works with Bay Area accelerators and investors, including Playground and Singularity.

NEC America Vice President Mack Nakagawa sees the Bay Area as the global frontrunner in digitalization, with companies in aviation and other sectors rapidly deploying systems. Through its California facilities, the company operates as a solutions center for the US market, and is also creating new standards for global deployment, including in Japan.<sup>4</sup>

## Fujitsu

Fujitsu was one of the earliest Japanese companies to create a lab in Silicon Valley, opening its first facility in

1993. Like other companies, it recognized the speed with which innovation was occurring and the importance of establishing a long-term presence in the region. Fujitsu Lab's primary focus, through partnerships and its own research, is developing cutting-edge technologies for future Fujitsu products and services. From initial work on CAD (Computer Aided Design), its focus has evolved to include AI, blockchain, big data, and software, with quantum computing and cryptography on the horizon. Active collaborators have included Stanford University and UC Berkeley, as well as labs such as PARC and SRI.

In addition to large research partners, Fujitsu Labs also engages startups as a way to influence and develop the company's product lines; it has a presence at and collaborates with Plug and Play, a relationship that provides a sense of what startups are working on and where technology is trending. Vehicles such as pitch days help it to identify startups whose products could provide new offerings for Fujitsu customers or benefit partners in Japan. To engage startups more strategically, Fujitsu works with the venture firm DNX Ventures (formerly Draper Nexus), which invests in startups on behalf of the company's business units.

With approximately 50 employees in Sunnyvale, the Silicon Valley facility also collaborates with Fujitsu labs in Toronto and Fujitsu group company Fujitsu Intelligence Technology Limited in Vancouver, focusing in particular on AI and quantum research. As another instrument for engaging with the region, for the past eleven years the company has hosted a Fujitsu Laboratories of America Advanced Technology Symposium, which focuses on technology innovation in the IT industry and is attended by 400–600 scientists, startups, partners, and customers coming from the US and Japan.

Other Fujitsu subsidiaries in the Bay Area include the North American sales and marketing arm Fujitsu America and its component arm Fujitsu Components America.<sup>5</sup>

In 2015, Fujitsu established the Open Innovation Gateway (OIG) in its Sunnyvale office, focused on partnering primarily with existing large Japanese corporate clients of Fujitsu to co-create and identify new opportunities, create new business models, and test new ideas and strategies. OIG was inspired by the founder of OIG attending a research group organized by Professor Henry Chesborough from the University

of California Berkeley, who coined and popularized the term and concept of "open" innovation.<sup>6</sup>

## Toyota

The Toyota Infotechnology Center was opened in Mountain View in the early 2000s as an outpost to look at how IT would impact the future of the automotive industry.

In 2016, however, Toyota dramatically increased its commitment to enter the Silicon Valley ecosystem, creating the Toyota Research Institute (TRI), which started with a \$1 billion five-year investment. Today, TRI is home to 300 employees, with facilities in Ann Arbor, Michigan; Cambridge, Massachusetts; and Los Altos, California, its headquarters. Each of the three research centers is closely connected to leading regional universities such as Stanford, MIT, and the University of Michigan. Research with Stanford is primarily through the Stanford Artificial Intelligence Lab-Toyota Research Center. The collaborative effort is focused broadly on automated driving, advanced materials discovery, and robotics, including fields such as human-computer interactions, intelligent systems, machine learning, and visual computing.

With TRI now assuming the role of the company's technology research center, Toyota Infotechnology Center's focus has shifted to cars that will be sold in the near future and has been integrated into Toyota Motor North America, Toyota's sales and manufacturing business based in Plano, Texas.

Beyond its university partnerships, the Institute's presence in the Valley is driven by the idea of disruption. TRI's former chief liaison officer Yas Kohaya observes, "There's disruption in the automotive industry, and it's important for us to be where disruption is happening. We need access to people who are highly talented, with knowledge of the latest technologies such as AI. TRI is set up to be a long-term presence that will enable the company to attract the best talent and be more agile and innovative than its headquarters structure would normally allow."

The company expanded to create a \$100 million corporate venture fund, Toyota AI Ventures, which has operated in the area for two years and recently

announced plans for a second \$100 million fund. Approximately 20 companies have been funded in the last two years, in areas including autonomous driving, big data, robotics, and AI.<sup>7</sup>

## Honda

Honda came to Silicon Valley in 2003 with the establishment in San Jose of the Honda Research Institute, USA, a computer science research laboratory which today focuses on technologies such as autonomous systems, human-machine interaction, robotics, and computer vision.<sup>8</sup> A corporate venture arm followed in 2005.

In 2011, the company accelerated its focus on startups with the creation of the Honda Silicon Valley Lab (HSVL),<sup>9</sup> and in 2017 it created a new company from the Lab, Honda Innovations,<sup>10</sup> to drive transformative collaboration by partnering with companies of all sizes, from startups to global brands and design and development communities.

Honda Innovations operates globally and has two primary vehicles.<sup>11</sup> Honda Xcelerator is an open innovation platform focusing on IoT, AI, human-machine interface, connected vehicles, and enterprise IT, which helps startups co-develop, test, and refine products and services through funding for prototype testing, collaborative workspace, and mentoring. The Honda Developer Studio primarily focuses on location-based services, vehicle data, and in-vehicle commerce and enables developers to work directly with Honda engineers to create apps more quickly.<sup>12</sup> Phillips 66, for example, is working with the Studio to create in-vehicle fuel payment integration for Honda vehicles.<sup>13</sup>

## Canon

Canon, in the Bay Area since 1985, started with a focus on camera sales and field support for semiconductor manufacturing equipment. Industrial products sales and support remain the core focus of the business division headed in Silicon Valley.<sup>14</sup>

In 2014, however, Canon added a strategy to create value from the Silicon Valley ecosystem. It established a San Jose Innovation Hub and began working with startups. It also became one of the numerous Japanese

large corporate LP investors into DNX Ventures. Canon's new initiatives support research collaborations with both Stanford University and UC Berkeley.

## Obayashi

Construction giant Obayashi has had a long presence in the Bay Area, since 1979, to conduct a variety of construction projects. Its first contract in the US was a tunnel project on the north shore of San Francisco, and it has since conducted major construction projects around the San Francisco area, such as the Golden Gate Bridge seismic retrofit in 2008–2013 and the San Francisco Transbay Transit Center construction in 2009–2018. Despite its long history and location in the Bay Area, until recently Obayashi never felt a part of the high-tech or IT business ecosystem of Silicon Valley.

In 2017, after around two years of planning, Obayashi opened its Silicon Valley Ventures and Laboratory (SVVL),<sup>15</sup> along with a collaboration office and R&D garage, to research startup and technology trends in the construction sector, invest directly, and develop joint projects with construction tech businesses. Through the annual Obayashi Challenge, the Laboratory identifies and collaborates with promising startups—in fields such as automated fabrication, 3D printing, space exploration technology, energy efficiency, and mobility<sup>16</sup>—through joint development projects that give the startups access to Obayashi operation sites, data, and networks.

## ITOCHU Corporation

ITOCHU Corporation, one of Japan's largest trading companies, established its Silicon Valley office in 1990 with the aims of promoting business development by supporting the expansion of US tech companies into Japan, creating investment opportunities either as an LP or as a direct investor, and conducting research projects including investment analysis and identification of business and technology trends. To date, it has invested in over 45 venture capital funds, networked with some 3,000 companies through VC investments, and initiated multiple business partnerships.<sup>17</sup> Among its most recent collaborations is a 2018 reseller partnership agreement with San Francisco-based Spire Global Inc., a space-to-cloud analytics company that uses satellites to provide maritime, aviation, and weather tracking.

The two companies are working together to increase the speed and quality of space-based data used in weather prediction, en route flight optimization, and transportation data analytics.<sup>18</sup>

## Mitsui & Co.

Mitsui & Co., Ltd., a leading trading company with a global workforce of more than 42,000, operates 3 regional business units (Americas, Europe-Middle East-Africa, and Asia-Pacific) and 15 product headquarters business units with a focus on metal and mineral resources, machinery and infrastructure (including mobility), chemicals, energy, lifestyle (food, retail, healthcare), and IT and communications.<sup>19</sup> The company's recent Medium-Term Management Plan recasts Mitsui as a "group that incubates and develops new businesses" by "drawing on a diverse pool of talented professionals." This follows a business model shift, begun fifteen years ago, from a traditional trading company model to a more investment-oriented model, which typically involves Mitsui taking a minority share in joint ventures and leveraging their assets, specialized

knowledge, and networks. Most recently, this shift involves not just "connecting" businesses but also "creating" them, with the goal of becoming more "disruption-proof and entrepreneurial."<sup>20</sup>

In August 2018, Mitsui combined its innovation-focused activities into Moon Creative Lab, an innovation hub headquartered in Palo Alto with a branch office in Tokyo. Moon's exclusive focus is on incubating and developing new businesses, in partnership with Bay Area design firm IDEO. Its Palo Alto facility is an external company affiliated with the parent company that is physically separate from Mitsui's offices. As part of its innovation strategy, Moon seeks out projects that lie beyond the parent company's investment criteria, enabling it to implement and discard new business models more rapidly. Mitsui employees whose ideas get picked by Moon become entrepreneurs-in-residence and can work on their ideas full time, without having to fit their entrepreneurial activity around their main jobs. Projects currently underway are focused on blockchain, biotech, space, aging, and automation.<sup>21</sup> Companies that are successful may become part of Mitsui or can be spun out.



Branding for some of Japan's major technology companies tops the facade of the Yureka Building, Shinjuku, Tokyo, August 2012

## Firms Recently Entering Silicon Valley

### Rakuten

Rakuten, founded in 1997 in Japan, developed rapidly in the 2000s to become Japan's leading electronic commerce and internet company. Beginning in 2005, the company expanded in the US by acquiring numerous companies, and in 2017 it consolidated many of its North American operations to a headquarters in San Mateo, creating its US incubation office. Rakuten has acquired and invested in a range of Bay Area companies, including San Francisco-based premium video site Viki in 2013, Palo Alto-based consumer Internet company Slice Technologies in 2014, and San Francisco-based cash-back service Ebates (for \$1 billion). Rakuten employs over 2,600 people in its 13 US locations. The purpose of its US incubation office is to share information internally with other parts of Rakuten and to engage in business development, networking, and new business creation.

Rakuten's US incubation office also manages or works closely with Rakuten's four CVC funds: Rakuten Ventures (\$200 million), Rakuten Fintech Fund (\$100 million), Rakuten Global EC Fund, and Rakuten Mobility Investments.<sup>22</sup> The Fintech and Mobility Investments funds are based in Silicon Valley, and Rakuten's notable investments include ride share company Lyft and online payment services company WePay.

In April 2018, Rakuten opened the Rakuten Institute of Technology, a \$21 million research center located in its San Mateo headquarters, that is a US market hub for research in data science, data mining, neuro-linguistic programming (NLP), and AI/machine learning in the e-commerce marketing space.<sup>23</sup>

### Tokio Marine

A major global insurer, Tokio Marine has approximately 20,000 employees in Japan. In 2016, Tokio Marine began allocating significant resources to its strategy to establish a presence in Silicon Valley and became a limited partner investor at World Innovation Lab and DNX Ventures. While starting with one employee, in 2016 Tokio Marine was able to use the resources at

Draper University as part of its investment into the Draper-related venture capital firm to host a conference examining the future of insurance and technology in an era of automated driving—before automated driving and insurance became a popular topic. The event, InsuranceX, brought together various US, Japanese, and European automotive and insurance companies, and numerous startups joined a pitch contest. This enabled Tokio Marine to rapidly establish interpersonal networks that would have otherwise taken a long time to cultivate, and it established the company's name in the Silicon Valley insurance technology community.<sup>24</sup>

Tokio Marine then expanded its presence. Now with a San Francisco Bay Area team of six, the Tokio Marine Silicon Valley Lab focuses on technology scouting, particularly around insurance (insurtech) and fintech. This includes looking for startups through collaboration with WiL (World Innovation Lab, in which Tokio Marine is an investing corporate partner) and DNX, through accelerators like Plug and Play, and through conference attendance and association with university groups such as the Stanford Silicon Valley–New Japan Project. The company does not have a corporate venture arm but has a startup investment budget, enabling it to invest from its balance sheet in promising startups. Strategic investments have been made in the US, Japan, and Europe.

Beyond technology scouting, the Silicon Valley Lab also tries to bring Silicon Valley's innovation culture back to corporate headquarters. Deputy Head of Digital Innovation Ted Ohkuma says that while there is a recognition that corporate culture needs to change, it is not easy to change such a large organization. While the CEO understands what's required, there is often less flexibility and understanding at the general manager and middle management levels. But a change mindset needs to be realized at all levels, from the board of directors, to senior executives, to varying management levels.

In a recent Tokio Marine corporate innovation program, two teams of officers were invited from Japan headquarters and the US to come to WiL's Silicon Valley office, with the goal of finding innovative solutions to a business challenge they had been working on. From the week-long design thinking workshops, mentoring

by the WiL team, meetings with startups, and customer development sessions, the groups were able to identify new solutions they might not have been able to come up with before.

In addition, the Lab pursues opportunities to create new businesses, not only in insurtech, but also in sectors such as mobility. New business opportunities could be in risk management in those sectors, or could be something outside of insurance and risk, as long as they align well with the company's mission to promote security and safety.<sup>25</sup>

## **Suzuki Motor Corporation**

Suzuki Motor Corporation established a presence in the Bay Area in 2016, with the role of serving as a technology listening post for headquarters. Part of that role involves assessing a range of next-generation technologies and solutions, including autonomous driving, electric vehicles, and shared mobility, as well as agritech, fintech, and advanced manufacturing and supply chain.

As a mobility company, the group faced challenges in the beginning. Looking beyond Japan, however, Suzuki's majority investment in India automotive company Maruti (Maruti Suzuki India Ltd.) has provided a unique connection with India, and hence a competitive advantage. Sumito Kimura, Director of Technology Research, notes, "When we got started in Silicon Valley in 2016, we thought we'd write reports that would be sent to Japan to make things happen, but at the beginning not much did. Then we started to build our network and connect with startups. While Suzuki doesn't have a lot of recognition in Silicon Valley since we don't sell cars in the US market, startups knew us because so many here are led by Indians who know that Maruti Suzuki's market share in India is huge. That has proved to be an advantage, attracting interest and providing a unique connection that helps companies scale in both Japan and India."

Suzuki then started to partner with select startups in developing proofs of concepts (POCs) to see how innovative technologies or solutions could be integrated into their existing product lineup of automobiles, motorcycles, and outboard marine engines. Kimura recalls that in the first year of developing POCs, not

many were approved by headquarters for further development. He and his team started to realize that simply writing reports and working on POCs were not enough. Something else is needed to affect change.

Kimura and his team, through their partnership with World Innovation Lab (in which Suzuki is an investing corporate partner), decided that it was important to affect corporate culture and foster mindset change within Suzuki. Kimura says, "Changing our company culture can empower us to reignite the entrepreneurial mindset of our founder when he started Suzuki back in 1909."

In 2017, Suzuki launched its first series of corporate innovation workshops in Silicon Valley in collaboration with WiL, bringing both younger and more senior managers to the San Francisco Bay Area for one-week programs. During that week, the first two days are spent with Japanese, US, and global companies, such as Honda and SAP, that have successfully gone through a corporate transformation process, gaining insights into how Silicon Valley activities have contributed to their innovation efforts. The group also visits startups to learn about new technology and products. The third day is spent on an interactive design thinking workshop, the fourth day on discussions of how to transform existing business units, and the final day on discussing how they can leverage what they learned back at headquarters. To date, more than 120 Suzuki team members, from junior to executive levels, have gone through this program.

In addition to influencing corporate culture and partnering with Silicon Valley startups, Suzuki also invests through World Innovation Lab in a broad portfolio of startup companies.<sup>26</sup>

## **KDDI**

KDDI, Japan's second largest telecommunications company, holds more than 30% of the mobile market, supporting over 50 million mobile subscribers in addition to providing fixed landline service. It also operates 200 subsidiaries, providing ancillary services across a range of industries that connect to its core telecom business. This includes mobile shops for life insurance, electricity, and other services. Its strategy is to expand KDDI's customer base by transforming the company from a classic telecom into a "life design" company.

KDDI America's activity in the Bay Area is anchored by three locations: a San Francisco office where the investment team is located, a data center in Burlingame, and an office in San Jose that supports existing partnerships with OTT (over-the-top) services companies. KDDI's presence also includes Soracom Global in Menlo Park, a company focused on IoT connectivity, that KDDI acquired in 2017.

Part of its presence focuses on leveraging the innovation coming out of startups, with the goal of strengthening KDDI's brand across multiple industries. To do this, the company invests in startups at all stages. At the seed stage, companies participate in its accelerator, which is located in Japan and provides supporting services but not investment. At middle stages, it invests directly through three corporate venture funds totaling \$300 million (JPY 30 billion). Where in Japan the company often serves as the lead investor, in the United States KDDI participates as a limited partner in broader funding rounds. Other countries where KDDI invests include Korea, Israel, the United Kingdom, and Singapore. As KDDI America's Senior Director of Investments Ken Sobajima describes the approach, "We need help from startups—both technology and new business models. They have ideas, but not assets, and KDDI is rich in assets. So we want to work together."

In Japan, the company operates "Digital Gate," a co-working space in Tokyo for startups. While it hosts events and demo days, the participants are non-resident and use the facility primarily to collaborate. KDDI also collaborates with enterprise partners in Japan that work with KDDI but may or may not be part of its corporate group—including Hitachi, Mitsubishi UFJ NICOS, Google, Microsoft, and Dentsu.

In the Bay Area, startups working with KDDI may be taken to Japan, but only after they have developed sufficiently in the US. Bay Area startups that have received support include Issuu, an electronic publishing platform in Palo Alto; Palo Alto-based Mad Street Den, a provider of artificial intelligence solutions for the retail industry; Halo Neuroscience, a neurotechnology company headquartered in San Francisco; Allganize, a natural language understanding technology company in San Francisco; and online technology news platform Venture Beat also in San Francisco.<sup>27</sup>

## Sony

A wholly owned subsidiary of Tokyo-based Sony Corporation, San Mateo-headquartered Sony Interactive Entertainment LLC (SIE) oversees the PlayStation brand, supporting approximately 1,000 employees in the South Bay and 450 in San Francisco.<sup>28</sup> SIE was formed in 2016 when Sony merged two separate business units, Sony Computer Entertainment (which launched the original PlayStation system in Japan in December 1994) and Sony Network Entertainment International (which was founded in 2010 in San Mateo to provide worldwide network services such as PlayStation Video and PlayStation Music).<sup>29</sup> The consolidation of all PlayStation operations in San Mateo (with regional headquarters in London and Tokyo) signified the importance to SIE of proximity to both the high-growth US video game market<sup>30</sup> and the talent and innovation culture of Silicon Valley.

## Yamaha Motor Company

In 2015, Yamaha established the Yamaha Motor Ventures and Laboratory Silicon Valley (YMVSV)<sup>31</sup> as a combined business unit and corporate venture capital operation. It accelerates the efforts of disruptive innovation startups both through investment and through strategic corporate partnerships that offer access to vehicles, technology, hardware, and other resources. YMVSV focuses its innovation support efforts in the fields of automation and connectivity, IoT, robotics and industrial automation, unmanned systems, precision agriculture, personal mobility and electric vehicles, and life sciences.<sup>32</sup>

## Fujifilm

Fujifilm advances internal innovation through its Open Innovation Hub in Silicon Valley, established in 2015 as its second innovation venue, following the opening of its Tokyo Open Innovation Hub<sup>33</sup> and preceding the 2016 opening of its EU Open Innovation Hub in the Netherlands.<sup>34</sup> Branding itself as a "technology company," not just a photography company, Fujifilm has innovated a wide diversity of products using fundamental capabilities that stem from its core imaging technologies.<sup>35</sup> In addition to its imaging solutions and document solutions business fields, it is now engaged in healthcare and material solutions, providing digital

diagnostic imaging technologies, graphic systems, highly-functional materials, recording media, electronic materials, and industrial products.<sup>36</sup> Fujifilm's Silicon Valley OI-Hub enables the company to engage customers and new business partners in collaboration with its technologists and is aimed at driving the company's innovations through conventional market barriers at an accelerated rate.<sup>37</sup>

## Nomura

In 2017, Japanese investment bank Nomura allocated \$100 million to invest in promising startups and opened a San Francisco innovation office as a base for pursuing co-investment and business partnership opportunities across industries with clients in Japan, Asia, and around the world.<sup>38</sup> Nomura Holdings is the anchor investor for the Dreamers Fund, a startup venture fund launched in 2018 by Japanese soccer star Keisuke Honda in partnership with actor Will Smith<sup>39</sup> to invest in startups that address social issues. Nomura is also pioneering venture debt, an alternative type of startup finance in which the bank provides loans to startups to support the creation of their projects while avoiding stock dilution and also provides connections to Japan for future expansion.<sup>40</sup>

## Venture Capital Supports Innovation

A specialized venture capital community has emerged in Silicon Valley, taking investments from large Japanese companies to go beyond achieving financial returns to actively support and enable their innovation goals and processes.

**World Innovation Lab (WiL)** is a US and Japan-based venture capital firm co-founded in 2013 by Gen Isayama, a Stanford graduate and former partner at the US venture firm DCM. Current WiL investors include government entities and leading corporations based in Japan and globally, such as KDDI and NTT DOCOMO in telecom, Suzuki and Nissan in automotive, Japanese airline All Nippon Airways, Sony and JVCKenwood in consumer media and electronics, Mizuho and Daiwa in finance, Tokio Marine Group and Dai-ichi Life in insurance, Hakuodo in advertising, 7-Eleven in retail, Kajijima in construction, and multi-conglomerate

ITOCHU, among others. WiL's initial fund of \$360 million was followed in 2018 by a second fund of \$521 million.

The firm invests both in the US and Japan/Asia, with a particular focus on helping growth-stage US startups enter Japan and the rest of Asia and helping Japan startups expand globally. WiL supports its portfolio companies with hiring of the founding in-country team, as well as market strategy and customer development. Notable exits include the 2018 IPO of Mercari (the largest IPO to date on the Tokyo Stock Exchange and Japan's first unicorn) and the \$181 million acquisition by KDDI in 2017 of IoT data communication platform Soracom (to date, one of the largest startup acquisitions by large Japanese companies).<sup>41</sup> In addition to direct investments in startups, WiL also invests in emerging and established venture capital funds around the world.

Beyond investment activities, WiL also works closely with its corporate investors on the development of their own innovation capabilities through strategic advisory, executive training, and partnerships with leading startups. As part of that collaboration, executives from partner companies called "LPs (Limited Partners)-in-Residence"—15 to 20 at any given time—work in WiL's Silicon Valley offices for 2–4 years. Some may be looking for startups for co-development projects or to use their solutions as part of their digital transformation, while others may be gathering or validating ideas for new business development. There is also a program for executive training which, between WiL's Palo Alto and Tokyo offices, in the past 5 years has trained over 1,000 corporate team members on topics such as design thinking and transformation.

Supporting its corporate partners in their innovation efforts is, in fact, a key part of WiL's mission to be a bridge between startups and corporates across key innovation hubs around the globe. This work is how WiL strengthens its corporate partner network in Japan and throughout Asia, which in turn enables it to offer access to government and corporate resources and partnership opportunities to its portfolio companies when expanding into those markets.

WiL's approach of bridging Silicon Valley startups and corporations parallels a surge in Japan's interest in Silicon Valley that began four years ago when Prime Minister Abe visited the region, followed quickly by

visits from numerous other Japanese government ministers. (In the past, Japanese Prime Ministers had flown directly to Washington, DC only, not stopping in Silicon Valley.) “That started a domino effect,” Isayama observes, “as people came to realize that the world is changing fast and they needed to be here.” Companies in the private sector followed suit. Part of their motivation stemmed from a realization that with the rise of Industry 4.0 and digital technologies in the Valley, next-generation software technologies such as autonomous driving and automation pose threats to Japan’s traditional focus on hardware manufacturing.

On the obstacles that large Japanese companies must overcome to drive innovation, Isayama notes that setting up a Silicon Valley office “isn’t a miracle pill”: companies need to focus on changing corporate culture and decision-making processes. “You’re fighting organizational inertia all the time. The challenge is to help innovative people think out of the box and come up with ideas that solve real problems, and bring these ideas back to their companies, and mobilize teams to take action. This requires multi-level lobbying—not just with the CEO but also with VPs and at the mid-level manager level, where we need support to make sure that open innovation happens. It calls for a lot of interaction, and more importantly, trust building.”

WiL has been supporting the Japanese government in open innovation by engaging with intrapreneurs and change-makers inside companies, in municipal governments, and in small and medium enterprises. Through the annual “Sido” program, in collaboration with Japan’s Ministry of Economy, Trade and Industry, WiL has engaged with almost 3,000 aspiring intrapreneurs and entrepreneurs in the past 5 years, providing pro bono training and mentoring on everything from ideation to customer development and pitch preparation in both Tokyo and Silicon Valley.<sup>42</sup>

**Geodesic Capital**, a venture firm co-founded by former US Ambassador to Japan John Roos, also actively engages Japanese LPs, including major Japanese companies and financial institutions. Roos explains the idea behind the firm’s formation as follows: “During my time as Ambassador, I traveled all over Japan talking about the importance of innovation and entrepreneurship to Japan’s economy. After returning

to Silicon Valley, I found this to be the most deeply disruptive and innovative period in technology I have seen in my career and came to believe that Japan needed a much greater presence here. At the same time, I saw surging interest in Japan among the very best companies in the US.”<sup>43</sup> An investor in growth-stage technology companies in both enterprise and consumer IT, Geodesic has a focus on bridging Silicon Valley to Asia, starting with Japan. Its first fund, totaling \$465 million, was launched in 2016 with Mitsubishi Corporation as an anchor investor. In addition to investment, portfolio companies also receive assistance with market entry into Japan, including finding country managers, customers, and partners, and support in developing go-to-market strategies.<sup>44</sup>

**Pegasus Tech Ventures**, a Silicon Valley-based global corporate venture firm, has a distinct strategy that, instead of inviting corporate LPs to join a pooled fund, creates a separate fund for each LP. As a result, the firm manages over 20 parallel funds, each with its own mandate reflecting the strategic interests of the limited partner. Most limited partners are mid-sized global technology companies that want a Silicon Valley connection but haven’t established their own corporate venture capital funds. Areas of interest span Industry 4.0, robotics, AI, semiconductors, materials science, cleantech, and quantum computing. Although each fund is run separately, Pegasus will generally combine several funds in investments where the strategic interests overlap and then will involve the corporate partners in business development activities that help accelerate portfolio company growth. Assets typically run \$30–50 million for each fund, although some are smaller and some are much larger. Most focus on early-stage (Series A and B) investments in the US, with a heavy emphasis on Silicon Valley. Another Pegasus team operates in Japan with a focus on later-stage, pre-IPO investments in Japanese companies. While the firm operates in a number of regions, including Taiwan and Southeast Asia, its principal ties are with Japan, where most of its 34 corporate partners are based.<sup>45</sup>

**DNX Ventures** (formerly Draper Nexus), another firm with strong Japan connections, operates three dedicated Japan funds (\$50 million, \$175 million, and \$300 million) that invest in both US and Japanese companies. Half of its investors are leading Japanese companies looking

for startups and pursuing innovation. Many, looking not just to support existing business lines but also to build new ones, see Silicon Valley as a critical platform. Partner Mitch Kitamura suggests that Japanese companies looking to engage here “take the passenger seat and let the startups drive. Panasonic’s partnership with Tesla to produce batteries for its electric vehicles is an example, propelling the company to the top rank of battery producers for cars. If the companies share a vision and the partner is successful, both will be.” The main focus for DNX Ventures is on early-stage B2B companies, most recently in fintech, retail, industrial technology, cyber security, and space, shaped by demand from their corporate LPs and partners.<sup>46</sup>

## Corporate Venture Capital

Numerous large Japanese corporations have set up their own corporate venture capital arms, which invest directly into companies as venture capitalists.

**Presidio Ventures**, the strategic venture arm of Sumitomo Corporation, exemplifies the corporate venture funds that are active in the region. Sumitomo, a leading trading company with a 400 year history, today has business units covering (1) media and digital, (2) metal products, (3) transportation and construction systems, (4) other infrastructure (including sustainable energy), (5) living related and real estate, and (6) mineral resources (chemicals, oil and gas). Founded in 1998, Presidio Ventures is the oldest existing Japanese venture capital firm in the Bay Area. It started as an extension of the company’s media and ICT business. Looking for synergies with Sumitomo’s other business lines, Presidio’s investments are currently focused in fields such as IT, IoT, media, fintech, and AI. New partnerships are also being developed, such as HAX Tokyo, a hardware-focused accelerator in Tokyo that has been created in partnership with the SOSV/HAX Accelerator. Another startup partnership has been developed with Plug and Play. A second initiative focuses on digital transformation, with ties to all six of the company’s business units. The digital team operates like an in-house consulting unit that can attach itself to another business unit to accelerate the digital transformation process.<sup>47</sup>

Created in 2016 as the venture arm of Sony Corporation, with offices in the Bay Area, New York,

London, Tel Aviv, and Tokyo, **Sony Innovation Fund** is a \$100 million early-stage fund<sup>48</sup> investing in fields such as AI, robotics, healthcare, fintech, IoT, virtual and augmented reality, and biometrics.<sup>49</sup> Three years on, it has made approximately 50 investments across the globe, of which some 20+ are in the US, with the balance in Europe, Israel, and Japan.<sup>50</sup> In July 2019, Sony partnered with Daiwa Securities to form a joint venture capital firm (Innovation Growth Ventures Co.) for its first fund of 20 billion yen (~\$185 million). The Innovation Growth Fund will focus on investing in later-stage firms in market segments similar to the early-stage fund.<sup>51</sup> Together the two funds enable Sony to invest across the full spectrum (early stage to growth stage). The team works with the company’s business units as well as with startups, helping to further develop relationships and amplify their growth. Managing Director of the Sony Innovation Fund Austin Noronha explains, “There has always been a need for us to be in Silicon Valley. The VCs and entrepreneurs, as well as all the big corporates, are here. It’s the hub for innovation.”<sup>52</sup>

**SPARX Group**, Japan’s first independent listed investment firm, established Mirai Creation Fund, one of Japan’s largest venture capital funds, in 2015 in partnership with Toyota Motor Corporation and Sumitomo Mitsui Banking Corporation, to focus on deep tech—particularly AI, robotics, and energy (especially hydrogen). With approximately \$1 billion under management, its first fund of \$330 million was launched in 2015; a second \$660 million Mirai fund launched in 2018, with the same core partners, to address an expanded range of opportunities, including electrification and new materials development. The first fund has invested in more than 60 companies in Japan, the US, and other regions in the global markets; the second fund will expand that focus to Asia, including China, Southeast Asia, and India, though Japan and the US will continue to represent the core holdings.

SPARX’s US subsidiary, located in San Francisco, is developing networks and collaborations in Silicon Valley and works directly with the Toyota Research Institute (TRI), both in Silicon Valley and with Toyota’s headquarters in Japan. Seiji Miyasaka, who leads the Mirai Creation Fund’s non-Japanese investments, observes that “Toyota has become more aggressive

than before and has moved toward a more open platform through both its CVC investments and TRI's R&D efforts. In collaborating with our business partners like Toyota, SPARX and Mirai Creation Fund explore the adoption of new technologies by way of investments and look to prove that this model will accelerate innovation, though it is a challenge and may need some time."<sup>53</sup>

**Panasonic** arrived in Silicon Valley in 1998 to engage in investment activities with the goal of finding new technologies and businesses to aid in product development. In 2015, it broadened its investment targets to include promising startups in more sectors, even if there was no obvious relationship to its own products and services.<sup>54</sup> In 2017, the company opened a new venture capital firm in Silicon Valley, Panasonic Ventures LLC, with initial investments of around \$100 million.<sup>55</sup> Panasonic is the sole LP of Conductive Ventures, a fund launched in 2018<sup>56</sup> with a focus on investments in mid-stage startups and providing developmental resources. In addition, the company's SV-New Business Development Center, which is based out of Plug and Play Tech Center, focuses on building strategic business collaborations with early to mid-stage startups.<sup>57</sup>

Michi Kaifu, CEO of ENOTECH Consulting, which works with Japanese companies looking to connect in Silicon Valley as well as Bay Area companies looking to engage in Japan, confirms the trend of Japanese companies coming to the Valley: "It's much broader than before the crash. Then it was all about electronics, but now it's everything—automotive, machinery, food, and more. The manufacturing focus is particularly interesting, especially around AI or industrial IoT. Startups are playing an important role where Japanese companies are scouting in the Valley for startups, and startups here are looking to engage Japanese companies as partners or clients." Business culture remains a challenge: "Apart from Mercari, Japan still hasn't developed many unicorns, and exits are still mostly limited to IPOs; large Japanese companies don't actively acquire startups and are still not good at integrating outside talent. So for some large companies, old habits are hard to die. But many executives in Japan see a real need to change and are committed to the process."<sup>58</sup>

## SoftBank: Disrupting Silicon Valley

SoftBank merits its own mention because it is significantly affecting the venture capital industry in Silicon Valley.

Its Vision Fund, a late stage venture capital fund launched in 2017 and run from Silicon Valley, amassed a fund that at the time was an order of magnitude larger than other late-stage funds. Its \$100 billion size enabled it to invest \$100 million to \$1 billion into late-stage, pre-IPO companies; not long ago, most late-stage venture capital invested \$20 to \$75 million. The Vision Fund gathered funds from sources different from those of traditional VCs, including the sovereign wealth funds of Saudi Arabia and Abu Dhabi. Its focus is global, with 45% of its investments in the US, 45% in China, and 10% in other countries such as Singapore and India.

The sheer size of the Vision Fund has led to a shift in the venture capital industry, with late-stage funding significantly expanding, pushing up the valuations of startups, and making IPOs larger. Other VCs have been forced to dramatically increase the size of their late-stage funds, and some well-established VCs have even begun splitting their early-stage and seed funds, which remain quite small, from the large late-stage funds.<sup>59</sup>

The Vision Fund is driven by entrepreneur Masayoshi Son, who founded SoftBank as a software-related company in Japan in the 1980s. Son, an ethnic Korean raised in Japan, has significant roots in the Bay Area. He left Japan after high school to pursue his higher education in the United States, transferring to and graduating from the University of California, Berkeley. While at Berkeley, he developed a software language translation patent, which Japanese consumer electronics firm Sharp purchased for approximately \$1 million. With these funds, he founded a software development firm and, after graduating from Berkeley in 1980, returned to Japan. His company, SoftBank, grew to become a major force in Japan's IT industry in the 1990s, creating a portfolio of companies and generating a fortune by being an early investor in Yahoo! and Alibaba. As these investments provided astronomical financial returns, SoftBank aggressively worked to advance Japan's internet and broadband environment, by offering low-cost broadband, and to

accelerate Japan's startup ecosystem, by entering into a joint venture to bring Nasdaq to Japan and investing in a broad range of internet-related startups there.<sup>60</sup>

Son held large aspirations, breaking the mold of most Japanese business leaders. He executed the largest leveraged buyout in Japan's history when SoftBank purchased one of Japan's three nationwide telecommunications carriers from Vodafone in 2006 for over \$15 billion. In 2012, SoftBank acquired 70% of US telecom carrier Sprint for approximately \$20 billion,<sup>61</sup> completing the merger in 2013.<sup>62</sup> It was with this historical background that Son moved to create the outsized Vision Fund.

The Vision Fund, entering Silicon Valley at much larger scale and with a broader focus than previous funds, has a strategy reflected in the phrase "gun-senryaku" which refers to a flock of birds flying in formation: the idea is to invest in the lead company in each of many domains where those companies can connect to create new synergies. Prominent fundings include leading US and Bay Area companies such as WeWork, Uber, and DoorDash, and emerging companies across Asia such as China's ride-hailing company

Didi, Singapore's mobility company Grab, and India's hospitality platform Oyo and retail site Flipkart (since acquired by Walmart). Other Bay Area recipients of Vision Fund investments include established companies such as NVIDIA and ARM, and startups Collective Health (a digital health company that received \$205 million) and logistics company Flexport (which received \$1 billion). Vision Fund's minimum investment in startups is \$100 million, with larger investments in amounts as high as \$9.3 billion (Uber). The largest venture capital or private equity fund in history, the sheer scale of SoftBank's investments places it in a unique category, which is disrupting the venture industry with the scale of its capital injections.<sup>63</sup>

In addition to the Vision Fund, SoftBank Telecommunications operates from the Bay Area to source cutting-edge technologies for its core operating entities in Japan and its portfolio partners in South and Southeast Asia.<sup>64</sup> Its collaboration with Silicon Valley-based Aeris Communications, for example, focused on installing IoT solutions in automobiles and led to a joint venture in Japan that has connected to the Malaysian market, in which SoftBank has investments in a ride sharing company.<sup>65</sup>



Skyscrapers rise from Osaka Business Park adjacent to the 16th century Osaka Castle



## Japan's Broad Ties with the Bay Area

The current new chapter in the economic relationship between the Bay Area and Japan is anchored in deep social, business, government, and educational ties. Those ties run both directly to Japan and within the Japanese American community.

### Government Representation

Japan has several important government organizations and outposts in the Bay Area. The **Consulate General of Japan** in San Francisco is one of 16 consulates in US states and territories.

The Consulate General of Japan plays an important role in supporting political, business, and cultural ties between Japan and the Bay Area. Multiple officials from different economics-related ministries in Japan work within the consulate, bridging government and business leaders both in Japan and the Bay Area. The Consulate also supports the **Japan Information and Cultural Center (JICC)** in its mission to promote understanding of Japan and Japanese culture and to enhance cultural exchange between Japan and the US. JICC's services and programs provide materials about Japan, offer information services for educators and students, and enable the organization and promotion of Japan-related events and exhibits.<sup>1</sup>

The **Japan External Trade Organization (JETRO)** was established in 1958 to promote Japanese business activities worldwide. JETRO functions as an extension

of the Ministry of Economy, Trade and Industry (METI, formerly known as MITI), with a role that has changed with the trade and industry policy of the Japanese government. "Growth Strategy" is now a major item on the political agenda, a focus that includes investment promotion, the acceleration of innovation activities, and advancement of free trade.

One of 6 JETRO offices in the US, JETRO San Francisco covers the northern part of the West Coast up to Washington state, with the San Francisco Bay Area as a key region. It focuses on promoting inbound investment to Japan and supporting innovation activities and is also the chief operator of the JETRO Innovation Program (JIP), an innovation hub that provides mentoring services for Japanese startups.

Another important JETRO activity is assisting Japanese businesses operating abroad, where its 70 offices in more than 50 countries and 48 offices in Japan enable it to connect regional businesses with global markets. As part of that mission, JETRO holds seminars and exhibitions to promote Japanese products.

To support all of its activities, JETRO San Francisco undertakes research on the economy and business in the Bay Area and on the West Coast, which may include policy proposals to METI.<sup>2</sup>

**NEDO** (New Energy and Industrial Technology Development Organization) promotes industrial, energy, and environmental improvements through ongoing research and development. With six overseas offices, including one in Silicon Valley, it supports research and manages demonstration projects in multiple focus areas. When the organization began in 1980, its projects were solely focused on energy. Today, NEDO has expanded its focus to include new energy, battery storage, robotics, IoT, electronics, environment, and nanotechnology.

NEDO's two California-based projects, which began in 2015 and will conclude in 2020, build on two 2015 Memorandums of Understanding between NEDO and the State of California Governor's Office of Business and Economic Development (GO-Biz) to collaborate in the fields of electric vehicles and energy storage. The first, with \$20 million in NEDO funding, involves installing electric vehicle fast charging stations to promote environmentally sustainable travel. Partners include Kanematsu Corporation, Nissan Motors, and US startup EVgo. Since the project began, 57 charging stations, including 2 super fast chargers (100kW), have been installed between Lake Tahoe and Monterey; locations were chosen to promote the use of electric vehicles for vacations. When the project is complete, NEDO plans to sell the facilities to the project's partners. This was seen as an ideal project for California, given the state's commitment to addressing climate change and its openness to new ideas. The project was also aimed at expanding electric vehicle travel distances, since distances between cities in the US are much larger than in Japan.

The second California project, the first of its kind in the US, involves expanding energy storage through the installation in San Diego of grid-scale flow batteries—which benefit from long lifetimes and low combustibility and can mitigate impacts of variations in the production of renewable power. The partners on the project are San Diego Gas & Electric and Sumitomo Electric.

NEDO's California projects have two main goals: (1) to address climate change by contributing to the development of a low carbon economy, and (2) to introduce Japanese companies and Japanese technology to the US market. To help Japanese

tech-based startups increase business in global markets, NEDO's Immersion Program in Silicon Valley assists Japanese entrepreneurs with mentorship, pitch training, business matchmaking, connecting to investors, and visits to Silicon Valley offices during month-long boot camps for cohorts of 5–8 startups run twice a year. It also hosts a Japanese Pitch Night each year, allowing Japanese startups to network and pitch their ideas to investors. Other California activities have included a Robotics Conference 2019 to promote Japanese robotics technology in Silicon Valley and build platforms for collaboration. Additional areas of NEDO focus include helping large Japanese companies to innovate and supporting Japanese companies trying to collaborate with US companies.

## Voluntary Business Associations

The **Japan Chamber of Commerce of Northern California (JCCNC)** is the leading business organization serving Japan's corporate community in the region. Founded in 1950 to promote mutual understanding and business, its membership includes Japanese and Japanese American businesses and business organizations in Northern California. Activities include volunteer efforts in support of local communities and an array of programs on business and economic issues.<sup>3</sup>

**Keizai Silicon Valley** is a Silicon Valley-based business and professional networking organization that was founded in 1990 and originally named Keizai Society. It is primarily a networking organization that provides opportunities for executives and professionals to develop the knowledge and human networks that are critical for the success of entrepreneurs and companies doing business with Japan and the US. The volunteer-staffed organization has evolved from its core focus on networking events with 30–50 people to also offer a series of technology, economics, and business issue forums. Annual gatherings bring together one hundred or more people, and recently the group has given awards to Japanese businesspeople who have furthered US-Japan business relations, including Nobuyuki Idei, the former CEO of Sony, Yuzaburo Mogi, former CEO of Kikkoman, and Ambassador John Roos, a previous US ambassador to Japan. Recent panels include topics such as drones, batteries and clean tech, Japanese corporate

strategies in Silicon Valley, the space industry, and the medical device industry.<sup>4</sup>

**SVJEN (Silicon Valley Japanese Entrepreneurs Network)** is an organization established in 2002 by Japanese entrepreneurs in Silicon Valley to connect entrepreneurs, potential entrepreneurs, and business developers who support entrepreneurs. SVJEN holds various seminars and networking events in Japanese to build strong support networks within the Japanese entrepreneurial community in Silicon Valley.<sup>5</sup>

**SVIF (Silicon Valley Innovation Forum)** is an organization established in 1994 as a private business study group called SVMF (Silicon Valley Multimedia Forum) and later changed its name in 2008 to SVIF to focus on Silicon Valley's innovation ecosystem. Its goal is to contribute to economic development in Japan through a deep understanding of Silicon Valley's innovation system and sharing the knowledge of Japan and Japanese companies. SVIF holds regular seminar series and occasional larger gatherings, all in Japanese.<sup>6</sup>

**Sukiyaki** is a mutual support group for new business developers, with the goal of energizing Japan through cooperation between Japanese enterprises and startups. It organizes events and seminars to connect Japanese enterprises and Silicon Valley startups and to share business knowledge.<sup>7</sup>

**JTPA (Japanese Technology Professionals Association)** supports Japanese technology professionals who work in Silicon Valley, by organizing seminars and events for networking.<sup>8</sup>

**JBC (Japan Bio Community)** is a nonprofit organization that provides a network for Japanese professionals who work in the US biotechnology, biopharmaceutical, and healthcare industries. JBC holds regular monthly meetings in Silicon Valley and provides the latest information on a wide variety of topics in the areas of bioscience, bio-business, and the high-tech sector.<sup>9</sup>

**Silicon Valley Japan Platform (SVJP)** was founded in 2016 with the goal of expanding and energizing connections between Japan and Silicon Valley across a diverse range of fields—in particular by bringing Japanese CEOs to the Valley to connect with strategic

partners and to accelerate the adoption of digital technology. AI, machine learning, IT platforms, IoT, and the biomedical field are major focal points. SVJP is supported by more than 200 volunteers in Silicon Valley—mostly Japanese American entrepreneurs, business executives, investors and professionals, and Japanese expats—and another 100 in Japan. More than two dozen of Japan's leading companies actively participate in SVJP programs and events, including monthly study group sessions ("benkyokai"), an annual forum in Japan, monthly breakfasts with Japanese CEOs, SVJP-Y Combinator meetups for hundreds of aspiring entrepreneurs in Japan, and an annual corporate retreat held at Half Moon Bay. Participants include successful entrepreneurs, technology experts, and design gurus.

Stanford Professor Emeritus Dan Okimoto, co-founder and co-chair of SVJP, comments on what has changed in Japan's engagement with the Valley and why the role of intermediaries such as SVJP is essential: "In the 1980s, Silicon Valley was still driven by semiconductor technology, which held the key to the computer and telecommunications industries. Today, semiconductors are only part of a far larger and more diversified package of digital technologies; these digital technologies are driving historically unprecedented change across virtually every sector of the world economy from transportation to finance, retail, real estate, agriculture, and the service sector. So now Silicon Valley technology is critical to global competitiveness in every sector. Japan's leadership in these sectors is in very rapid transition, as its companies are being disrupted and are aware that they could fall by the wayside. Executives have come to realize that they must digitalize, even if they have to disrupt and diversify their current lines of business. If they don't, someone else will."<sup>10</sup>

## Community Organizations

Business and community organizations provide cohesion to the Japanese community and bridges to other partners.

The **Japan Society of Northern California** is the oldest and largest. Founded in 1905 to counter

backlash to growing Japanese immigration, it works to foster Japan-US understanding and collaboration through a range of educational programs, language lessons, networking opportunities, social events, and public programs that engage industry, government, and academic leaders from both countries. Its major conference, the Japan-US Innovations Awards, is held annually at Stanford University in cooperation with Stanford's US-Asia Technology Management Center and recognizes noteworthy innovations by companies with US-Japan connections. The society also hosts programs in Japan aimed at creating closer connections between Japan and Silicon Valley.<sup>11</sup>

## University Relationships and Exchange Programs

University ties are also an important anchor of relations between Japan and the Bay Area.

### University Programs and Projects Directly Focused on Industry Collaborations

The **Silicon Valley–New Japan Project (SV-NJ)** at Stanford University's Japan Program, based at the Shorenstein Asia-Pacific Research Center (APARC), is a platform for interaction between Japan, Silicon Valley, and Stanford University, anchored in research. The project undertakes research on the Silicon Valley economic ecosystem, Japan's evolving political economy and the entrepreneurial ecosystem, and the frontiers of innovation and information technology. It sponsors public forums at the university that focus on spotlighting Japanese companies doing new things in Silicon Valley, interesting Japanese startups, new policies and regulatory structures, how Japan can better harness Silicon Valley, and vice versa. It also engages in international collaborative workshops and research projects with universities and researchers in Japan, as well as other parts of the world, such as Germany, Finland, South Korea, and Singapore. Over twenty large Japanese companies support the efforts of SV-NJ through contributions to the Japan Program at APARC.

Founded at Stanford in 1992 as the US-Japan Technology Management Center, **US-Asia Technology**

**Management Center (US-ATMC)** offers programs aimed at integrating practical perspectives into international strategic technology management, together with analysis of research trends in selected leading-edge technologies. The center works to promote interaction between the university and industry through an active outreach program of public events and internet-based information exchanges.

The **Stanford Byers Center for Biodesign** launched **Biodesign Japan** as a partner in its efforts to use a design thinking approach to drive innovations in the areas of medical and healthcare device and service design. The Stanford Biodesign program was launched in 2001 as a development and training program to apply the design thinking approach to medical devices, focusing on user needs at clinical sites. Biodesign Japan was established to specifically support biodesign programs operated by Japanese universities, with several partnerships with leading Japanese medical schools.

The **Center for Information Technology Research in the Interest of Society (CITRIS)**, a University of California-wide program anchored at Berkeley, hosts Japanese firms such as Hitachi, Kajima, and Komatsu as corporate members, which send researchers to the Berkeley campus to engage in collaborative research in projects under the CITRIS umbrella.

### Japan-Focused Academic Programs

Major Bay Area universities offer a variety of Japan-focused programs.

Stanford University supports Japanese studies through multiple centers and departmental programs, including the Department of East Asian Languages and Cultures, the Stanford Language Center, and the Japan Program at the Shorenstein Asia-Pacific Research Center. Stanford's overseas study campus in Kyoto is located inside Doshisha University,<sup>12</sup> and Stanford participation in the Kyoto Consortium for Japanese Studies offers undergraduates the opportunity to pursue advanced work in Japanese studies and the Japanese language.<sup>13</sup> The Asia-Pacific Research Center's Stanford Silicon Valley–New Japan Project helps Japanese startups and large corporations

engage with the Silicon Valley ecosystem and Silicon Valley startups.<sup>14</sup>

UC Berkeley is home to the Center for Japanese Studies, which partners with eight Japanese universities (Waseda, Osaka, Tohoku, Meiji Gakuin, International Christian, Tsuru, and Doshisha universities plus University of Tokyo),<sup>15</sup> and is part of the network of programs linked by UC Berkeley's Institute of East Asian Studies.<sup>16</sup> The Institute is also closely affiliated with UC Berkeley's Department of East Asian Languages and Cultures, which is home to its undergraduate and graduate Japanese language programs.<sup>17</sup>

San Jose State University has bilateral exchange programs with six Japanese universities (Kagoshima, Kwansei Gakuin, Kyushu, Okayama, Sophia, and Yokohama universities);<sup>18</sup> San Francisco State University has exchange partnerships with eight university campuses in Japan (Akita International, Aoyama Gakuin, Kwansei Gakuin, Oita, Meiji Gakuin, Meiji, and Oberlin universities plus Kyoto University of Foreign Studies);<sup>19</sup> and Cal State East Bay has a bilateral exchange program with Okayama University.<sup>20</sup> Students enrolled at any California State University campus are also eligible to apply for study abroad programs at Japan's University of Tsukuba and Waseda University.<sup>21</sup>

University exchanges also support cross-border scientific learning and collaboration with Japan. The University of Tokyo's School of Science hosts an annual six-week Summer Lab Research internship program for UC students as part of the University of California Education Abroad Program.<sup>22</sup> The Japanese ministerially sponsored Japan Society for the Promotion of Science (JSPS), which promotes international scientific research cooperation, maintains one of its 10 overseas offices in Berkeley.<sup>23</sup> JSPS has coordinated on academic symposia with both UC Berkeley and Stanford University and provides fellowship programs which enable young, mid-career, and senior researchers from the US to conduct collaborative research with Japanese colleagues.<sup>24</sup>

## Exchange Programs

Japan is also a popular destination for American students studying abroad. It ranks among the top 10

destinations for US students studying abroad, holding the #10 spot for the 2014–15, 2015–16, and 2016–17 academic years. In 2016–17, the latest year for which data is available, 7,531 Americans were studying abroad in Japan, up from 6,053 in 2014–15.<sup>25</sup>

California and Japanese students and teachers also participate in exchange programs created by the Japanese government and the California State government. The Japan Exchange and Teaching Program (JET) is a Japanese government initiative that brings college graduates to Japan as assistant language teachers.<sup>26</sup> Since 1987, about 200 Californians have participated each year.<sup>27</sup> The California-Japan Scholars Program was created by California AB 2902 in 1996 after a California Senate delegation visit to Japan that resulted in an effort to create better understanding between the US and Japan through young student education.<sup>28</sup> The biennial program, which is supported by the California International Relations Foundation and the Consulate General of Japan in San Francisco, expanded on a California-Osaka Prefecture sister state relationship, started in 1994, and enables students from the Elk Grove Unified School District to visit Osaka and vice versa.<sup>29</sup> About 850 students in California and Osaka Prefecture have participated.<sup>30</sup>

## Civic Exchanges

Civic exchange programs foster greater understanding of policies and opportunities for collaboration.

The Japan-California Parliamentary Friendship League, established in 2014, has fostered multiple trips to California for meetings between members of Japan's National Diet (parliament) and state legislators.<sup>31</sup>

The California State Senate has run a Legislative Exchange Program since 1996 and so far has sent over 50 legislators in 18 delegations to Japan.

Sister state and sister city relationships provide another bridge. California has had a sister state relationship with Osaka Prefecture since 1994, while 104 California cities—64 in Northern and Central California—have sister city ties to Japan.<sup>32</sup>

## EXHIBIT 2

## In the nine-county Bay Area, 34 cities have established relationships with sister cities in Japan.

### Cities in the Nine-County Bay Area That Have Sister/Friendship Cities in Japan

City (Bay Area)	City/Town/Village (Japan)	Prefecture	Signing Date	City (Bay Area)	City/Town/Village (Japan)	Prefecture	Signing Date
San Jose	Okayama City	Okayama	5/26/1957	Sebastopol	Takeo City	Saga	3/27/1985
Richmond	Shimada City	Shizuoka	12/12/1961	Santa Clara	Izumo City	Shimane	10/11/1986
Oakland	Fukuoka City	Fukuoka	10/13/1962	Hayward	Funabashi City	Chiba	11/7/1986
San Mateo	Toyonaka City	Osaka	10/8/1963	Sausalito	Sakaide City	Kagawa	2/2/1988
Antioch	Chichibu City	Saitama	9/16/1967	Gilroy	Takko Town	Aomori	4/18/1988
Berkeley	Sakai City	Osaka	11/3/1967	San Bruno	Narita City	Chiba	10/6/1990
Vallejo	Akashi City	Hyogo	12/9/1968	South San Francisco	Kishiwada City	Osaka	10/30/1992
Fairfield	Nirasaki City	Yamanashi	10/28/1971	Milpitas	Tsukuba City	Ibaraki	7/2/1996
Napa	Iwanuma City	Miyagi	2/15/1973	Pittsburg	Shimonoseki City	Yamaguchi	12/18/1998
Concord	Kitakami City	Iwate	10/25/1974	Morgan Hill	Mizuho Town	Tokyo	7/3/2006
Mountain View	Iwata City	Shizuoka	6/4/1976	Rio Vista	Tobishima Village	Aichi	4/6/2007
Livermore	Yotsukaido City	Chiba	4/19/1977	Palo Alto	Tsuchiura City	Ibaraki	4/7/2009
Cupertino	Toyokawa City	Aichi	12/19/1978	San Carlos	Omura City	Nagasaki	7/20/2012
Fremont	Fukaya City	Saitama	1/26/1980	Sunnyvale	Iizuka City	Fukuoka	12/20/2013
Hercules	Tsushima City	Aichi	11/5/1981	Millbrae	Hanyu City	Saitama	11/9/2014
Rohnert Park	Hashimoto City	Wakayama	11/7/1983	Menlo Park	Bizen City	Okayama	7/21/2015
Saratoga	Muko City	Kyoto	11/16/1984	Walnut Creek	Kita Ward	Tokyo	4/25/2017

Source: Consulate General of Japan in San Francisco, Council of Local Authorities for International Relations (CLAIR)

Visualization: Bay Area Council Economic Institute

## The Japanese American Community and Cultural Ties

The history of the Japanese American community in California dates back to the early days of California's statehood (see Chapter 4). The Japanese American community, often self-identifying with the label "Nikkei", totals 467,000 statewide, with more than

188,000 residing in Northern and Central California. The state is home to the last three major Japantowns in the US—in San Francisco, San Jose, and Los Angeles.<sup>33</sup>

A range of Japan-focused cultural institutions and social service organizations has grown out of the Japantowns in San Francisco and San Jose, providing a sense of community to both older and younger generations of Japanese Americans.

San Francisco's Japantown began to take form in the years after the 1906 earthquake and fire. Much of the devastation—and most of the population—had been located in the eastern third of the city; in the fire's aftermath, displaced residents and new arrivals were dispersed to the largely undeveloped "Western Addition" subdivision. At about the same time, the arrival of picture brides for arranged marriages beginning in 1908 led to new households being formed as men living alone in Chinatown began moving to larger quarters.<sup>34</sup> At one point historically, Japantown extended across a roughly 36-block area as far as California Street to the north, Gough Street to the east, O'Farrell and Ellis Streets to the south, and Steiner Street to the west);<sup>35</sup> today, what remains of the district is considered to be an area equivalent to approximately 7 blocks bounded by Geary Boulevard to the south and extending west to Fillmore Street and east to Laguna Street, with a northern boundary that zigzags through blocks on Post and Sutter Streets.<sup>36</sup>

On the other hand, San Jose's Japanese community was unaffected by the earthquake and had a larger, more prosperous population tied to farming as it formed in the early 1900s.<sup>37</sup> Today, the heart of San Jose's Japantown is North 5th and Jackson Streets, but it encompasses a 36-block area reaching from North 1st Street to North 10th Streets to the west and east and Hedding Avenue and Empire Streets to the north and south.<sup>38</sup>

Both areas experienced widespread dislocation during the 1940s due to the World War II incarceration. In San Francisco, not long after returning residents had begun to reestablish Japantown, redevelopment programs targeting the Western Addition again dispersed both Japanese American residents and businesses in what some in the community have referred to as "the second evacuation."<sup>39</sup> Today, both communities face new challenges in the form of higher rents and the continued shrinking of their physical neighborhoods as a result of gentrification and demographic change.<sup>40</sup> But both Japantowns remain focal points for Japanese culture and community.

Held each spring since 1968, the Northern California Cherry Blossom Festival in San Francisco draws more than 200,000 people.<sup>41</sup> Also in San Francisco's Japantown, the Nihonmachi Street Fair celebrates the city's Japanese community through music, dance, food, and multicultural programs.<sup>42</sup> And each summer, the

Obon Festival including more than 1,000 traditional dancers is held in San Jose's Japantown.<sup>43</sup>

The San Francisco-based **Japanese Cultural and Community Center of Northern California (JCCCNC)** serves as a cultural support hub through its cultural arts and crafts center, martial arts and fitness classes, and cooking and creative tech workshops and events, with as many as 185,000 people attending programs or utilizing its spaces annually. JCCCNC is also involved in advocacy and the preservation of cultural landmarks and engages organizations such as J-Sei, a Japanese assisted living community and cultural organization, and San Francisco Kendo Dojo, an organization supporting the art of traditional Japanese fencing.<sup>44</sup>

The **National Japanese American Historical Society** evolved from an organization created in 1980 to promote the history of Japanese American veterans in the 100th Battalion/442nd Regimental Combat Team and the Military Intelligence Service and today maintains an archive and partners in programs on all aspects of the Japanese American experience, ranging from cultural exhibits in its San Francisco Japantown Peace Gallery to its mock-up World War II detention horse stall barrack and exhibits at the Military Intelligence Service Historic Learning Center in the Presidio of San Francisco.<sup>45</sup>

Three organizations work to support Japanese language interest and education. The **Japanese American Association of Northern California** hosts Japanese speech contests, along with other cultural events such as music, lecture, and seminar programs. The **Northern California Japanese Teachers Association** supports the teaching of the Japanese language by delivering instruction and resources to its teacher members. The **California Japanese Language Teacher's Association** provides a network for teachers and supports Japanese language teachers statewide.<sup>46</sup>

Japanese-American associations are active throughout the region, sponsoring local cherry blossom and Obon festivals, helping to tie together the Japanese American and Japanese communities socially. Buddhist churches play a similar role, while the **San Mateo Nippon Gakuyen**, which provides Saturday language instruction for children from families both with and without Japanese-speaking parents,<sup>47</sup> is a major networking site for both short-term and long-term Japanese expats.

Through civic organizations, Japanese Americans contribute to the advancement of civil rights for all Americans and support the values of diversity and social justice. The oldest Asian American civil rights organization in the United States, the **Japanese American Citizens League (JACL)** has over 100 chapters across the US, divided into 7 district councils. Of the 30 chapters within the Northern California-Western Nevada-Pacific district, 13 are located within the nine-county Bay Area.<sup>48</sup> The San Jose JACL is the Bay Area's oldest chapter and is particularly active, hosting a variety of community, social, youth, education, cultural, and advocacy activities, including a 2019 pilgrimage to the Manzanar World War II incarceration camp.<sup>49</sup>

Japanese American museums and gardens add to the Bay Area's artistic and cultural landscape. The **Japanese American Museum of San Jose** provides a collection of permanent and rotating exhibits that preserve and share Japanese American history, culture, and art with a focus on the Bay Area.<sup>50</sup> The **Hakone Garden** in Saratoga, the **Japanese Tea Garden** in San Francisco's Golden Gate Park, the **Japanese Friendship Garden** in San Jose,

and the **Japanese Garden** at Oakland's Lake Merritt all showcase Japanese landscaping, aesthetics, and culture.<sup>51</sup>

San Francisco's **Asian Art Museum**, one of the world's leading museums of Asian art, is home to a major Japanese collection that includes rare painted scrolls and screens, decorative arts and textiles, and the world's largest and most notable collection of Japanese bamboo baskets outside Japan. Its special exhibitions range from 2019's *Kimono Refashioned*, examining the impact of the kimono on world fashion, to an ongoing front steps public sculpture series, which has included enormous neo-pop cartoon-like puppy images that evoke a distinctly Japanese tradition of whimsically blending high and low art. A cultural bridge to Japan and to non-Asian communities, the museum also regularly hosts popular events such as the annual Japanese New Year's Bell-Ringing Ceremony, where the public is invited to ring in the new year by striking a 2,100 pound 16th century Japanese temple bell, and the Omochitsuki! mochi-pounding party, which begins the Japanese new year with music, dance, and the traditional pounding of mochi to make sweet rice cakes.<sup>52</sup>



Japanese New Year's Bell-Ringing Ceremony, Asian Art Museum, San Francisco



## Japan's Deep Roots in the Bay Area

The new chapter in the relationship between the Bay Area and Japan is the latest of many chapters that stretch back more than 150 years. The first known Japanese community in the US was established in Northern California in the late 1800s, with Japanese arrivals in San Francisco dating back to the Gold Rush.

The first recorded Japanese visitor to America was Nakahama (later John) Manjiro (1828–1898) who, at age 14, was blown out to sea in a small fishing boat, ran aground on an island, and was stranded for a few months before being rescued by an American whaling ship. Manjiro remained onboard for the return voyage to Massachusetts. There, he attended public school, studying English and mathematics and learning navigation and sailing. He then returned to Japan, stopping in San Francisco for a few weeks to earn money for his trip. His experience and language skills led to his reportedly advising Japan's government in negotiations with Commodore Matthew Perry when US-Japan trade relations were opened in 1854. He returned twice more to the US, once with the first official Japanese delegation to Washington in 1860.<sup>1</sup>

### Japan Opens to the World

Japan had been largely closed to the outside world since the early 1600s, with a political system headed by an emperor (whose duties were ceremonial and spiritual) and ruled by military governments led by shoguns who

were hereditary commanders from the Tokugawa clan. The Tokugawa shoguns had closed off Japan as a means to ensure that they would be able to effectively rule the newly unified country, which had experienced more than 150 years of conflict between feudal fiefdoms battling one another during the "warring states" period from the mid-1400s. The 200-year period under the Tokugawa regime saw stability, prosperity, and international isolation. This period of isolation ended in 1853 when a convoy of US Navy warships led by Commodore Matthew Perry entered Edo Bay. The international context was that European powers had been colonizing various parts of Asia, and China was being carved into foreign spheres of influence. The US was interested in strengthening its own position in Asia. Perry presented letters from President Millard Fillmore, requesting trade and diplomatic relations,<sup>2</sup> and returned in 1854 to sign the Kanagawa Treaty, which established consular ties and permitted American ships to refuel and obtain supplies at Japanese ports.<sup>3</sup> A subsequent 1860 delegation, constituting Japan's first official mission to the US, was sent by the Tokugawa shogunate to Washington aboard the frigate Powhatan accompanied by the vessel Kanrin Maru, to ratify the 1858 Japan-US Treaty of Amity and Commerce, and stopped in San Francisco on the way.<sup>4</sup>

Changes in Japanese society following the "opening" of Japan to the West caused a split in the Tokugawa shogunate. On one side, many were eager to engage with the West and learn about the political systems and

industrial capabilities that had led to the vast firepower of Western ships and technologies. Opposing them were others resistant to change and the potential instability that could arise from social upheaval. The Meiji Restoration of 1868 was a relatively bloodless revolution from above, led by young samurai in their 20s and 30s who overthrew the Tokugawa government and created a new system of government. It was called the “restoration” because power was symbolically returned to the emperor from the feudal shogunate, although actual power resided in the Meiji leaders and a constitution they wrote. Japan was created as a modern nation-state, a parliamentary democracy that borrowed various aspects of government and society from the rest of the world to industrialize rapidly in order to ensure national survival.<sup>5</sup>

## Meiji Restoration and Early Ties to the Bay Area

Although the Meiji Restoration did not entail an all-out civil war, the most significant battle between Choshu and Satsuma forces and the ex-shogun's army in 1868–1869, the Boshin War, led to direct ties to the Bay Area. After being defeated in Wakamatsu Province, a group of samurai escaped on the clipper ship *SS China*, bound for San Francisco in 1869. In the ship's hold were mulberry trees, tea seeds, and silkworm cocoons. The new arrivals acquired 200 acres near Placerville in California's gold country and established the Wakamatsu Tea and Silk Farm Colony, the first permanent Japanese settlement in North America and the only settlement established by samurai outside of Japan. The Colony proudly displayed its products at the 1869 California State Agricultural Fair in Sacramento and the 1870 Horticultural Fair in San Francisco, but it ultimately failed, largely due to a prolonged drought and the loss of funding from the samurai's patron in Japan, and the land was sold off in 1873.<sup>6</sup>

As the Meiji government opened up to the world and undertook the reform of its domestic polity, economy, and society, it opened a consulate, Japan's first diplomatic mission in the US, in San Francisco in 1870, one month before the opening of its embassy in Washington, DC. A 50-member Meiji delegation, the Iwakura Mission, arrived in San Francisco in

January 1872 to begin a two-year tour of the US and Europe to learn about and import aspects of their governments, education systems, military, and society.<sup>7</sup> The city hosted a banquet for the group, with 300 in attendance, including Mayor William Alvord and California Governor Newton Booth.<sup>8</sup>

The first Japanese national to live permanently in the US, Kanaye Nagasawa, was a young samurai of the Satsuma clan from Kagoshima,<sup>9</sup> smuggled out of Japan and sent to study in Scotland. He became a disciple of spiritual leader Thomas Lake Harris and accompanied five other Satsuma students to Harris's colony in upstate New York and later, in 1875, to Santa Rosa, California, where Harris's 1,000-acre Fountaingrove Ranch became one of California's largest wineries. When Harris left Santa Rosa in 1891, Nagasawa took over operations, eventually inheriting the ranch after Harris's death in 1906.<sup>10</sup> He was widely acclaimed as “the Wine King” and credited with introducing California wines in England, Europe, and Japan.<sup>11</sup>

In 1873, there were 80 recorded Japanese residents living in California.<sup>12</sup> After 1880, the numbers grew steadily through the early 1900s as more than 30,000 young men<sup>13</sup> known as *dekasegi* — “birds of passage” — fled distressed rural areas of Japan for Hawaii and the West Coast in search of new opportunities.<sup>14</sup>

Among the success stories of first generation of arrivals are the following:

- Kyutaro Abiko arrived in San Francisco at age 20 in 1885 with only \$1.<sup>15</sup> He worked domestic jobs, graduated from UC Berkeley, opened a laundry and a restaurant, then bought a Japanese language newspaper that would become the *Nichibei Shimbun* with a circulation of 25,000 throughout the Western US. He formed a company providing contract labor to the railroad, mining, and sugar industries, founded a savings and loan company, and opened the 2,450 acre Yamato Colony and 2,000 acre Cortez Colony cooperative farming communities in central California.<sup>16</sup>
- Kinji Ushijima, later adopting the Americanized name George Shima, arrived in San Francisco in 1889 to study English. He began working as a domestic

servant, then moved to the Stockton-Sacramento Delta,<sup>17</sup> where Japanese contract laborers were in demand to replace Chinese workers after adoption of the Chinese Exclusion Act in 1882. Coming from a rural family in Japan<sup>18</sup> with knowledge of high-yield farming, Ushijima moved up quickly from contract laborer on a potato farm to growing his own potatoes on 400 acres of reclaimed delta marshlands. By 1913, Shima's operation spread over 28,000 acres, at one point producing 85% of California's annual potato crop, making him the first Japanese American millionaire and earning him national renown as "the Potato King."<sup>19</sup>

- Keisaburo Koda was an oil wildcatter, opened a laundry, then started a tuna canning operation in San Pedro in Southern California after coming to America in 1908. In the 1920s, he moved north to the San Joaquin Valley and founded the State Farming Company to produce rice. Koda pioneered rice growing techniques such as sowing seeds with airplanes. His integrated farming operation

allowed complete quality control from seed to store shelf. Koda Farms became famous for its premium "medium" grain Kokuho Rose rice, which made its debut in 1963 after a decade of selective breeding on the farm, and Koda became known as "the Rice King."<sup>20</sup> The company remains in operation today.

- After arriving in California in 1914, by 1922 Kiyoshi Hirasaki was working for a grower near Gilroy, developing swampland to produce seed crops. Hirasaki ultimately bought 500 acres and, at a friend's advice, began growing garlic, which was at that time only grown commercially in Southern California. His acreage expanded to 1,500, earning him the nickname "the Garlic King" and bringing Gilroy national recognition in the 1930s for the odoriferous crop. During the Great Depression, Hirasaki helped out many Gilroy residents by providing jobs, and after World War II the Hirasaki family assisted homeless Japanese Americans by providing them shelter on the farm.<sup>21</sup>



Japanese print portraying American Navy men believed to be Commander Anan, Commodore Perry, and Captain Adams in 1854

## Discrimination Against Japanese Immigrants

With success, however, came resentment toward Japanese immigrants—some of it direct, and some the spillover effect of early agitation against Chinese immigrants. In 1906, amid political and economic tensions in San Francisco following the massive earthquake and fire, the city's Board of Education ordered 93 Japanese students to cease attending the city's public schools and to be taught instead at the racially-segregated Chinese school.<sup>22</sup> Complaints from the Japanese community reached the Japanese Embassy in Washington, were forwarded to Tokyo, and complicated US-Japan trade and immigration negotiations after the Russo-Japanese War.

President Theodore Roosevelt sent Commerce and Labor Secretary Victor Metcalf (a native Californian) to San Francisco, but he was unsuccessful in persuading either the school board to reverse its decision or the community to accept a settlement. Newspapers, meanwhile, supported segregation, and labor unions boycotted Japanese-owned businesses over a perceived threat of job losses from immigration. Ultimately, the US and Japan concluded a "Gentlemen's Agreement" in 1907, under which Japan would suspend issuing passports to the US other than for contract laborers going to Hawaii, and the school board would reverse its segregation order.<sup>23</sup>

A loophole in the Gentlemen's Agreement allowed for family reunification with immigrants already in California, leading to the arrival of "picture brides" in arranged marriages based on exchanges of pictures and family recommendations through matchmakers. Between 1908 and 1920 when the Japanese government stopped issuing passports to picture brides, more than 10,000 Japanese women immigrated to the West Coast.<sup>24</sup> The new families that resulted were a key driver in the formation of Northern California's two Japantowns, in San Francisco<sup>25</sup> and San Jose<sup>26</sup> in the early 1900s.

By 1910, an estimated 30,000 Japanese nationals were employed in California—about 24,000 of them as farm laborers. A growing number were saving money, acquiring land, and becoming farm operators. In 1913, the California Legislature, by nearly unanimous votes in

the Assembly and Senate, adopted the California Alien Land Law prohibiting "aliens ineligible for citizenship"—US naturalization at the time was restricted to white persons and persons of African nativity or descent—from owning agricultural land or possessing long-term leases over it, but permitted leases lasting up to three years. The law was directed primarily at Japanese farmers, given that a 1911 US-Japan treaty specifically permitted Japanese nationals to lease land for residential and commercial purposes and to own residential and business property in the US.

An initiative to further tighten restrictions on land ownership through citizen partners or family members born in the US passed in 1920. The federal Immigration Act of 1924 contained a provision that aliens ineligible for citizenship would no longer be admitted into the US. California farmland controlled by Japanese nationals declined from 321,276 acres in 1920 to 191,427 in 1930.<sup>27</sup>

## War and Japanese American Dislocation

After Japan bombed Pearl Harbor in December 1941, the US responded with a declaration of war against Japan until the latter was driven to "unconditional surrender." The causes of why US-Japan relations deteriorated to the point of war have been extensively analyzed by historians on both sides of the Pacific.

Within the United States, racial tensions against the Japanese American population escalated and combined with national security concerns, leading to unprecedented moves by the US government against its own citizens. In February 1942, President Franklin Delano Roosevelt issued Executive Order 9066 to forcibly remove all persons of Japanese ancestry—citizens and aliens—from the Pacific military zone on the West Coast. The order affected 120,000 people of Japanese descent, two-thirds of them native-born US citizens.<sup>28</sup> All were first ordered to report to local temporary detention centers and then transported to remote incarceration camps in California, Idaho, Colorado, Wyoming, and Arkansas.<sup>29</sup>

Despite this, 2,685 Japanese American volunteers from Hawaii and another 1,500 from the mainland—most

from the camps—formed the 442nd Regimental Combat Team (RCT), which fought for the US in the mountains of France and northern Italy. The 100th Battalion/442nd RCT compiled an astonishingly successful combat record in just over one year, but lost 800 men killed or missing in action. They won seven Distinguished Unit Citations, including one awarded personally by President Harry Truman in 1946. Individual awards to unit members for World War II included 21 Medals of Honor, more than 4,000 Purple Hearts, 29 Distinguished Service Crosses, 588 Silver Stars, and more than 4,000 Bronze Stars.<sup>30</sup>

## Reconciliation and Reparation for Japanese Americans

Economic losses for Japanese Americans as a result of incarceration were significant: a 1983 report released by the Commission on Wartime Relocation estimated combined direct losses equivalent to \$810 million to \$2 billion in 1983 dollars for some 88,000 internees.<sup>31</sup> Reported losses included frozen bank accounts, businesses liquidated and closed, farmland seized and sold at auction, and homes abandoned, vandalized, or sold at a fraction of value prior to incarceration, plus associated lost wages and income.<sup>32</sup> Losses were particularly significant in San Francisco's and San Jose's large Japanese communities. In some relatively rare cases, internees were able to retain their property by putting it in the care of sympathetic non-Japanese citizens, such as the neighbors who preserved Japanese American flower-growing nurseries in Richmond<sup>33</sup> and state fruit inspector Bob Fletcher who took care of more than 100 acres of grape and strawberry farms in the Sacramento Area<sup>34</sup> until their owners returned.

Under the 1948 Japanese American Evacuation Claims Act, the US government paid out \$37 million in property loss claims.<sup>35</sup> In 1988, President Ronald Reagan signed the Civil Liberties Act authorizing payment of \$20,000 in compensation to each of more than 100,000 incarceration survivors along with a formal apology, after a decades-long campaign by the Japanese American Citizens League,<sup>36</sup> a civil rights organization that had been formed in 1929 through the banding together of existing Nisei organizations in California and Washington.<sup>37</sup>

A number of Japanese American members of Congress participated in the passage of the Civil Liberties Act of 1988, among them Senators Spark Matsunaga and Daniel Inouye of Hawaii (both decorated World War II veterans) and Representatives Norman Mineta and Robert Matsui of California. Congressman Mineta, born in San Jose, was confined with his family at the Heart Mountain incarceration camp near Cody in Wyoming and later served in World War II as an Army intelligence officer in Japan and Korea. After leaving Congress, he served as Secretary of Commerce under President Bill Clinton and Secretary of Transportation under President George W. Bush.<sup>38</sup> Congressman Matsui, of Sacramento, was six months old when he and his family were sent to the Tule Lake, California incarceration camp. He served 13 terms in the House of Representatives on behalf of California's 5th District until his death in 2005.<sup>39</sup>

## US-Japan Relations Re-established: The San Francisco Peace Treaty

San Francisco was the signing site for the historic peace treaty between Japan and 48 nations including the US,<sup>40</sup> signaling the end of the Allied Occupation, with Japan formally regaining sovereignty. The Treaty of Peace with Japan was signed by the allied powers at the War Memorial Opera House in September 1951, followed later by the signing of the Treaty of Mutual Cooperation and Security at the Presidio's Golden Gate Club in 1954.<sup>41</sup>

## The Postwar Japanese American Community

Within the US, sentiment toward Japanese communities nationwide gradually improved, largely in reaction to the injustice of incarceration as well as the recognition of the heroic war efforts of the 442nd RCT. California's infamous alien land laws were repealed in 1956. Changes in immigration policy lifted the citizenship restrictions seen in previous decades. Passage of the Immigration and Nationality Act in 1965 ended the formula for country quotas in effect since 1924 and furthered Japanese and other Asian immigration.<sup>42</sup>

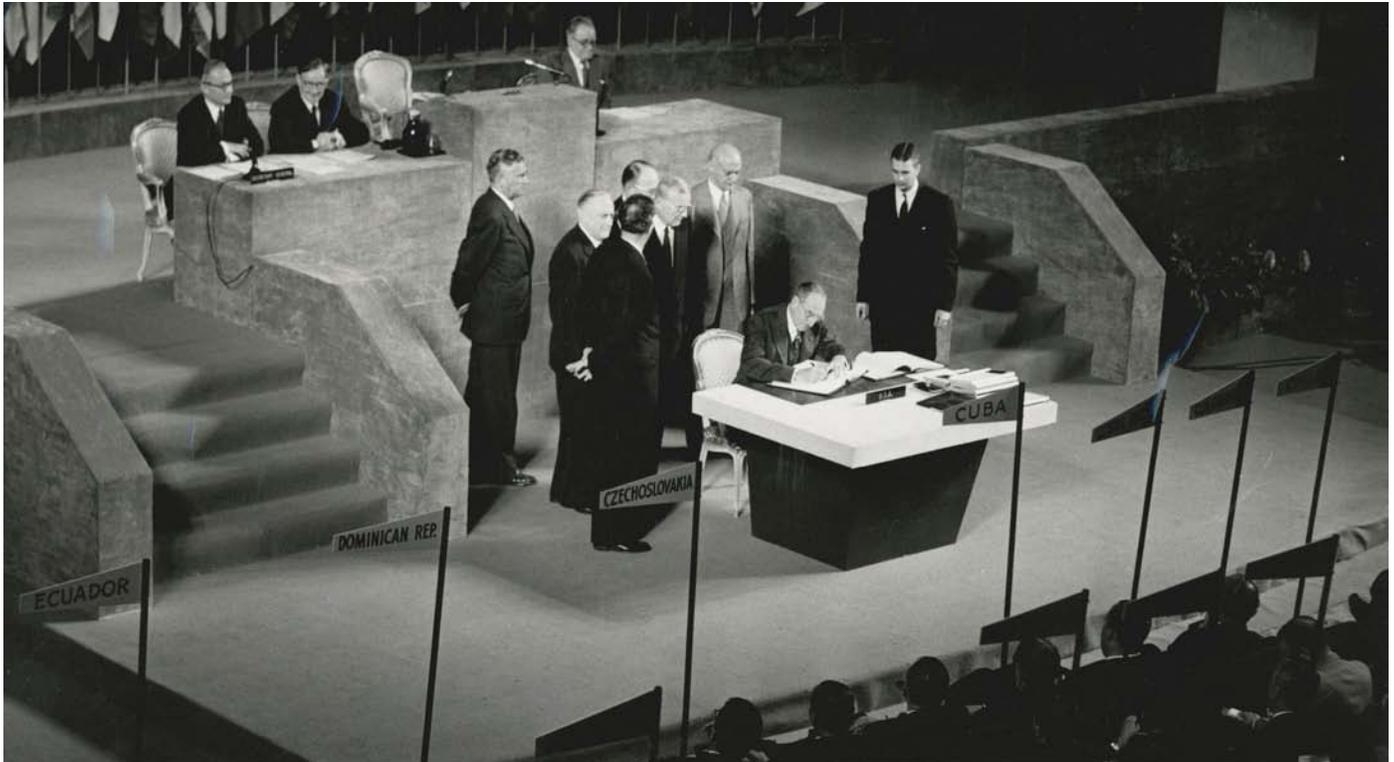
But the economic impacts of incarceration lingered. The San Francisco and San Jose Japantowns, which saw their heyday in the years prior to World War II, would continue to face economic and demographic pressures for decades after. In San Francisco, for example, many of the estimated 400 family-owned Japantown businesses were sold off or shuttered during the war. Properties in the surrounding Western Addition district were claimed for redevelopment in the 1950s, causing long-time residents to be relocated and shrinking the community's footprint further. For a range of reasons, Issei (first generation) and Nisei (second generation) parents downplayed Japanese language and cultural heritage with following generations, further weakening what had once been a thriving community.<sup>43</sup>

## Establishment of the US-Japan Council

The US-Japan Council (USJC), a non-profit organization headquartered in Washington DC, was created in 2009 by Japanese Americans to strengthen relationships

between the US and Japan and to strengthen the Japanese American community in the US. Prominent Japanese American political leaders, including Senator Daniel Inouye and former Secretary of Transportation Norman Mineta were among the early supporters. After a generation or more of focusing on assimilation, the Japanese American community seemed ready to organize into a group. The first and current leader of the organization is Irene Hirano Inouye, a third generation Japanese American (Sansei) and wife of the late senator Daniel Inouye, who served as the president and founding CEO of the Japanese American National Museum in Los Angeles from 1988 to 2008.

The US-Japan Council has a membership of over 400, and conducts annual conferences in various parts of the US, as well as in Tokyo every few years. Local initiatives occur in places including the San Francisco Bay Area. Initiatives that grew out of the Council include the Silicon Valley Japan Platform (SVJP) and the California-Japan Governors' Symposium, which brings a number of Japanese governors to the Bay Area every few years.



US Secretary of State Dean Acheson signing the Treaty of Peace with Japan, September 8, 1951



## Japan's Economy: The Sun Also Rises

Japan's current corporate surge into the Bay Area is an outgrowth of its domestic economic developments. After a spectacular rise to prominence in global markets from the late 1960s through the 1980s, the Japanese economy faltered and entered a period of stagnation punctuated by periodic recessions for the next twenty years. The "lost decades," as the two decades of slow growth are often referred to, were also a period of change, with corporate restructuring and regulatory reforms laying the groundwork for improved economic performance from 2011 onward, after the Abe administration came to power.

### Japan's Rise in the 1960s–1980s

Japan's economy enjoyed early success in the 1950s and 60s as a low-cost manufacturer of consumer goods. This was followed in the 1960s by a surge of growth led by the export of steel, automobiles, electronics, and appliances. Japanese firms effectively deployed technologies first developed but not commercialized in the US, adding major process improvements such as automation, just-in-time inventory management, zero waste practices, continuous improvement incentives on the factory floor, and extensive surveys of customer needs and habits.

For example, in the highly competitive desktop calculator market of the 1960s, in which over 70 firms

competed, Sharp's vision was to create a handheld calculator using large-scale integrated chips (LSIs) with cutting-edge metal oxide semiconductors (MOS). Silicon Valley firm Fairchild had taken the initial steps, but nobody had been able to manufacture MOS integrated circuits. Sharp approached an American aeronautics company to introduce the world's first MOS/LSI chip-powered calculator and then worked closely with Toshiba to develop C-MOS chips, the next generation MOS chips characterized by very low power consumption. Toshiba became the first company to successfully manufacture first-generation C-MOS chips, and Sharp's calculator was the first to include them. By 1980, Japanese manufacturers made half of the 120 million calculators shipped. In 1985, when the computer industry switched to C-MOS chips, Toshiba was an industry leader with a decisive technological advantage.<sup>1</sup>

Japan surpassed Germany in the early 1960s as the world's largest manufacturer of cameras, and in 1976, Canon pioneered the first 35mm film camera equipped with autofocus. This was accomplished through the incorporation of highly sophisticated electronics, most notably a microprocessor. The Canon AE-1 went on to become the best-selling camera in the world at the time.

Japanese firms were the first to commercialize lasers produced by semiconductors. The underlying theoretical concepts were developed in Bell Labs in the

1960s, but AT&T had not been interested in developing the new technologies for commercial use. Hitachi developed such lasers by the mid-1980s, and AT&T ended up procuring lasers for its fiber optic cables from Hitachi. Hewlett-Packard's LaserJet printer, introduced in 1984 and one of the company's most successful products, was produced using Canon's laser printer engine and a replaceable drum cartridge originally developed by Canon for the personal copy machine it had introduced in 1982. Xerox had built the first laser printer in 1971, but since the company catered to large firms, it had not seen the potential for selling to smaller businesses and consumers.<sup>2</sup>

Japanese companies working together achieved breakthrough products as well. Sharp had developed its first semiconductor laser in 1979, but it was not commercially successful since it did not have an obvious use. In 1989, it developed a laser that could emit light at 780nm—the wavelength sought by Sony and Philips for developing the compact disc. Sharp ended

up providing lasers to Sony, which commercialized the world's first CD player in 1982.<sup>3</sup>

Seiko pioneered the commercialization and mass manufacturing of quartz watches in the early 1970s. It successfully developed precision manufacturing, and was an early adopter of C-MOS chips, enabling Seiko to produce millions of inexpensive but highly precise quartz watches. Seiko successfully filed hundreds of patents and dominated the quartz watch market. Japanese firms were also at the forefront of commercializing LCD (liquid crystal display) panels for watches, televisions, and laptop screens.<sup>4</sup>

By the 1980s, US electronics firms depended almost entirely on Japanese competitors for critical components such as tuners, picture tubes, recording heads, and miniature motors. This inhibited them from developing new products effectively and limited substantial profits. Venerable firms such as GE, RCA, and Zenith exited consumer electronics markets or switched to using Japanese OEMs.<sup>5</sup>

### EXHIBIT 3

## Japanese companies increased their leadership in the semiconductor industry during the 1980s.

Global Leaders in Semiconductor Sales, 1978 Compared to 1984, \$ millions, Red = Japanese companies

1978 Global Leaders		1984 Global Leaders	
Texas Instruments	\$990	Texas Instruments	\$2,555
Motorola	\$720	<b>NEC</b>	\$2,350
<b>NEC</b>	\$520	Motorola	\$2,227
Philips	\$520	<b>Hitachi</b>	\$2,140
National	\$500	<b>Toshiba</b>	\$1,750
Fairchild	\$500	Intel	\$1,180
<b>Hitachi</b>	\$460	Phillips	\$1,150
<b>Toshiba</b>	\$400	<b>Fujitsu</b>	\$1,070
Intel	\$360	National	\$1,050
Siemens	\$270	AMD	\$920
		<b>Matsushita (Panasonic)</b>	\$820

Source: Compiled by UC professor Michael Borrus in 1997, based on data from EEC, and ICE

Delivering high-quality products that customers wanted, often at lower prices (for example, portable transistor radios, and later the Sony Walkman and smaller, fuel-efficient cars following the 1973 and 1979 oil crises), Japan captured market share abroad. By the late 1980s, wages in Japan were rising, and the export manufacturing model was under pressure from newly industrialized countries (NICs) South Korea, Taiwan, and Hong Kong on one side, and on the other from market-opening demands by North America and Europe.

As Japan's exports surged, the mounting US trade deficit with Japan became a focal point of friction between the two countries, leading the US to initiate trade negotiations on tariff and non-tariff barriers, exchange rates, and macroeconomic factors. Countervailing and anti-dumping duties were imposed by the US, and voluntary restraints on exports in some sectors were negotiated with Japan. However, even after the 1985 Plaza Accord, an agreement between the US, France, West Germany, Japan, and the United Kingdom for a managed depreciation of the dollar (the currency in which global goods trade was conducted) particularly against the yen and deutsche mark,<sup>6</sup> the US manufacturing trade deficit continued to widen.<sup>7</sup> By 1987, despite the dollar declining by more than half against the yen, the US trade deficit peaked at a record \$152 billion,<sup>8</sup> with Japan accounting for more than a third at \$56 billion.<sup>9</sup>

## Japanese Investment in the US Surges in the 1980s

With the dollar's precipitous fall during the 1980s, at a time when the Japanese economy was booming, US properties and businesses that were trying to raise capital or were available for sale were now a bargain, especially for Japanese buyers.<sup>10</sup>

From 1987 to 1988, Japanese entities concluded nearly 200 non-bank business investments in California, valued at a total \$8.1 billion, according to US Commerce Department Bureau of Economic Analysis (BEA) data.<sup>11</sup> Japan was the leading source of FDI in the state in 1988, with 19% of non-bank FDI holdings. Total FDI holdings in plant, property, and equipment topped \$44 billion, up from \$38 billion in 1986; with 12.5% of the

US total, California had the largest share of any state. Japanese banks held \$92 billion in foreign banking assets in California, three-fourths of the total foreign banking assets in the state. Among the major deals at the time were the following:

- Nippon Life Insurance Co.'s \$560 million purchase of the 101 California Street office tower in San Francisco;
- Mitsui Fudosan's \$200 million construction of 505 Montgomery Street in San Francisco;
- Nippon Oil Co.'s \$100 million Gulf of Mexico joint venture with Chevron USA;
- Bank of Tokyo's \$750 million merger with Union Bank of California; and
- All Nippon Airways' \$100 million purchase of Le Meridien Hotel in downtown San Francisco.

The \$400 million New United Motor Manufacturing Inc. (NUMMI) small-car joint venture in Fremont was launched in 1984 by General Motors Company and Toyota Motor Corporation to implement lean manufacturing methods.<sup>12</sup> The NUMMI plant produced Toyota's Corolla and Camry models, along with GM Pontiac sedan models, for many years. (The NUMMI operation closed in 2010 when GM, facing bankruptcy, pulled out of the joint venture. Toyota sold the facility to Tesla Motors, where it now produces all of Tesla's vehicles.)

In the late 1980s, Japan experienced a major asset bubble, fueled by low interest rates from the Bank of Japan (BOJ), high domestic savings, rising incomes, and regulatory structures that allowed relatively easy large-scale speculative buying of equities and land, starting in Tokyo and spreading out to Kyoto, Osaka, and other cities.<sup>13</sup> Private household debt increased seven-fold from 1979 to 1991. Real estate loan volume doubled, and the Nikkei 225 Index rose from 11,000 points to 39,000 points over 1985–1989. Japan's soaring asset prices made the Nikkei disproportionately large: by 1989, it accounted for a third of global equity capitalization.<sup>14</sup> Overseas Japanese FDI soared, with purchases of landmark assets such as Rockefeller Center, the Pebble Beach golf course and resort, Columbia Pictures<sup>15</sup> and the Hotel Bel-Air.<sup>16</sup>

## EXHIBIT 4

## At the peak of the asset bubble, Japanese firms were among the most highly capitalized companies in the world.

World's Top 50 Companies by Market Capitalization Ranking, 1989, \$ billions, Red = Japanese companies

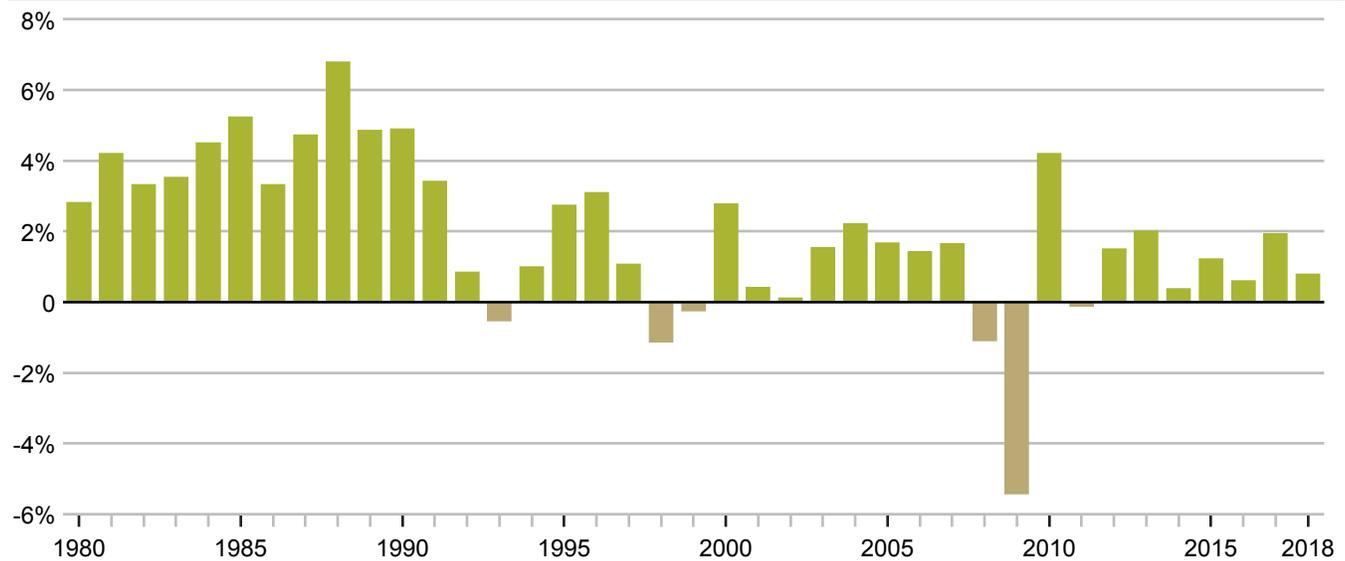
Rank	Company	Market Cap	Country	Rank	Company	Market Cap	Country
1	<b>NTT</b>	\$163.86	Japan	26	<b>Nissan Motors</b>	\$26.98	Japan
2	<b>Industrial Bank of Japan</b>	\$71.59	Japan	27	<b>Mitsubishi Heavy Industries</b>	\$26.65	Japan
3	<b>Sumitomo Bank</b>	\$69.59	Japan	28	DuPont	\$26.08	US
4	<b>Fujitsu Bank</b>	\$67.08	Japan	29	GM	\$25.25	US
5	<b>Dai-Ichi Kangyo Bank</b>	\$66.09	Japan	30	<b>Mitsubishi UFJ Trust and Banking</b>	\$24.67	Japan
6	IBM	\$64.65	US	31	BT	\$24.29	UK
7	<b>Mitsubishi Bank</b>	\$59.27	Japan	32	BellSouth	\$24.17	US
8	Exxon Mobil	\$54.92	US	33	BP	\$24.15	UK
9	<b>Tokyo Electric Power Company</b>	\$54.46	Japan	34	Ford Motors	\$23.93	US
10	Royal Dutch Shell	\$54.36	UK	35	Amoco	\$22.93	US
11	<b>Toyota Motors</b>	\$54.17	Japan	36	<b>Bank of Tokyo</b>	\$22.46	Japan
12	GE	\$49.36	US	37	<b>Chubu Electric Power</b>	\$21.97	Japan
13	<b>Sanwa Bank</b>	\$49.29	Japan	38	<b>Sumitomo Mitsui Trust Bank</b>	\$21.87	Japan
14	<b>Nomura Securities</b>	\$44.44	Japan	39	Coca Cola	\$21.50	US
15	<b>Nippon Steel</b>	\$41.48	Japan	40	Walmart	\$21.49	US
16	AT&T	\$38.12	US	41	<b>Mitsubishi Estate</b>	\$21.45	Japan
17	<b>Hitachi</b>	\$35.82	Japan	42	<b>Kawasaki Heavy Industries</b>	\$21.30	Japan
18	<b>Matsushita Electric</b>	\$35.70	Japan	43	Mobile	\$21.15	US
19	Philip Morris	\$32.14	US	44	<b>Tokyo Gas</b>	\$21.13	Japan
20	<b>Toshiba</b>	\$30.91	Japan	45	<b>Tokio Marine &amp; Fire Insurance</b>	\$20.91	Japan
21	<b>Kansai Electric Power Company</b>	\$30.89	Japan	46	<b>NKK</b>	\$20.15	Japan
22	<b>Long-Term Credit Bank of Japan</b>	\$30.85	Japan	47	ARCO	\$19.63	US
23	<b>Tokai Bank</b>	\$30.54	Japan	48	<b>NEC Corp</b>	\$19.61	Japan
24	<b>Mitsui Bank</b>	\$29.69	Japan	49	<b>Daiwa Securities</b>	\$19.11	Japan
25	Merck	\$27.53	US	50	<b>Asahi Glass</b>	\$19.05	Japan

Source: The Business Week Global 1000 (1989 July 17)

EXHIBIT 5

Despite being portrayed as a whole two decades of stagnation, the economic performance of the 1990s and 2000s more resembles a series of recoveries, punctuated by sharp declines.

Japan's Annual GDP Growth Rate, 1980–2018, percent



Source: World Bank | OECD

Visualization: Bay Area Council Economic Institute

The US government and business community worried about a Japanese takeover, and popular sentiment in Japan was that it was a matter of time before Japan became the world's largest economy. Economists analyzing the situation after the fact fault the BOJ for being slow to respond by not raising interest rates earlier. Stock prices peaked in December 1989; large city land prices began falling after September 1990; the business cycle peaked in February 1991. In mid-1991, BOJ began raising interest rates in stages, from 2.5% to 6% by February 1993, bursting the asset bubble.<sup>17</sup>

## The "Lost Decades": A Quiet Transformation

The prevailing narrative of the 1990s and 2000s for Japan's economy following the bursting of the bubble was that it entered a prolonged slump in which it experienced stagnation and policy paralysis. The domestic and international press, as well as the

Japanese public, commonly refer to this period as the "lost decades." However, during that time the economy also entered a period of quiet reform, setting the stage for a prolonged period of growth, albeit at a low rate, after 2012. Rather than being simply "lost," the two decades of slow growth can be seen instead as laying the groundwork for the Japanese corporate transformation<sup>18</sup> that has led to the current surge of Japanese firms in the Bay Area.

The economic data from the 1990s and 2000s can be evaluated in several ways. The stock market dropped, real estate prices dropped, government debt soared in tandem with massive infrastructure spending, consumption levels dropped somewhat, savings rates dropped further, and the proportion of temporary workers rose. Falling prices and wages triggered a deflationary spiral. Average annual GDP growth of 4% in the 1980s fell to just over 1% in the 1990s as disposable income, household consumption, and business fixed and inventory investment stalled.<sup>19</sup>

It took until 2005 for Japan's stock market, corporate balance sheets, and land prices to meaningfully recover,<sup>20</sup> only to be buffeted again by global recession three years later.

Yet, since price levels were stable and even deflationary, lower consumption did not necessarily lead to lower purchasing power. Near zero interest rates fueled corporate borrowing that led to extensive real estate investments, with Tokyo enjoying a construction boom. Unemployment never rose above 5.5%.<sup>21</sup> Non-performing loans held by regional and city banks peaked around 2002 and dropped sharply thereafter.<sup>22</sup>

Important structural shifts led Japan's economy to become more open and more diversified and differentiated.<sup>23</sup> The financial system moved away from a bank-centered system to one more driven by capital markets. Some uncompetitive banks and insurers were allowed to fail, while others were encouraged by the government to merge, enabling the financial sector to restructure without bank runs or major corporate collapses. Employment, once considered too rigid to allow large Japanese corporations to adjust, began to depend more on non-regular workers and gradual reduction of long-term employees through attrition and early retirement programs, rather than massive layoffs and the social turmoil this would have precipitated.<sup>24</sup>

Once frequently lodging complaints about closed markets, foreign multinational corporations, particularly in the financial, telecommunications, and even the automobile sectors, benefitted from regulatory reforms in the 1990s, gained inroads into Japanese markets, and made use of their ability to offer alternative employment structures.<sup>25</sup> The percentage of foreign ownership on Japan's Tokyo Stock Exchange, which had been around 4% in 1990, grew to just over 25% by 2010.<sup>26</sup> Corporate governance changed, with the postwar ban on holding companies ending and accounting reform enabling Japanese firms to adopt international accounting standards.<sup>27</sup>

Regulatory frameworks changed significantly in a variety of sectors ranging from finance to retail, pharmaceuticals, telecommunications, and distribution, leading to new industry dynamics. Even as the government's debts soared, they were almost entirely owned by domestic entities.<sup>28</sup>

## Abenomics: "Japan is Back"

Prime Minister Shinzo Abe took office in 2012, elected in a landslide on a promise to revive the economy through an aggressive set of policies branded "the three arrows," consisting of fiscal stimulus, monetary easing, and structural reform policies—among them lower corporate taxes; overhauled regulation in the energy, environment, and healthcare sectors; agricultural reform; and reforms affecting the labor market and other areas. The immediate goal: to increase domestic demand and GDP growth while managing inflation at a target 2% rate.<sup>29</sup>

Determined to combat persistent deflation, newly-minted BOJ Chairman Haruhiko Kuroda undertook quantitative easing in 2013 that doubled the bank's balance sheet and in 2017 committed to further annual treasury purchases of 660 billion yen (US \$6 billion) until the inflation target is reached.<sup>30</sup> As of 2018, the central bank's asset purchases were equivalent to 100% of Japan's nominal GDP.<sup>31</sup> BOJ bond holdings as a share of GDP stood at 79%, compared to 41% for the European Central Bank and 21% for the US Federal Reserve.<sup>32</sup> In 2016, BOJ introduced negative interest rates,<sup>33</sup> and as of October 2019 short-term interest rates remained at -0.1%; the 10-year government bond yield was near zero.<sup>34</sup>

Abe's third arrow, structural reform, was notable for having an annually revised serial document listing dozens of specific targeted areas, as well as concrete numerical targets and key performance indicators (KPIs). First published in 2013, the document called "Japan Revitalization Strategy," with the subtitle "JAPAN is BACK," indicated the tone that the document would take. It identifies four areas in the main roadmap: "(1) Unleashing the power of the private sector to the fullest extent; (2) Participation by all & fostering human resources who can succeed in global competition; (3) Creating new frontiers; and (4) Redistributing the fruits of growth to peoples' lives."<sup>35</sup>

An example of a KPI under "health, medicine, and caregiving" is "By FY2020, increase the proportion of large hospitals (with over 400 beds) utilizing electronic medical records to 90%." Under "Increasing the Productivity of Infrastructure and Increase the Competitiveness of Metropolitan Areas," an included KPI is "For critical/aging domestic infrastructure,

use sensors, robots, and non-invasive inspection technologies, with 20% utilization by 2020, and 100% utilization by 2030.”

Some other KPIs, which number close to 100, with many added in subsequent annual revisions of the strategy document, include the following:

- By the end of FY2020, reduce the proportion of involuntary non-regular workers to below 10%.
- By FY2020, double the number of Japanese college students studying abroad (60,000 to 120,000).
- By FY2020, double the number of foreign students studying in Japan (140,000 to 300,000).<sup>36</sup>

As the Abe administration’s economic strategies unfold, Japan faces a major challenge in the form of a declining population. In this respect, Japan is similar to many other large, developed economies, particularly in Europe. Having reached the threshold

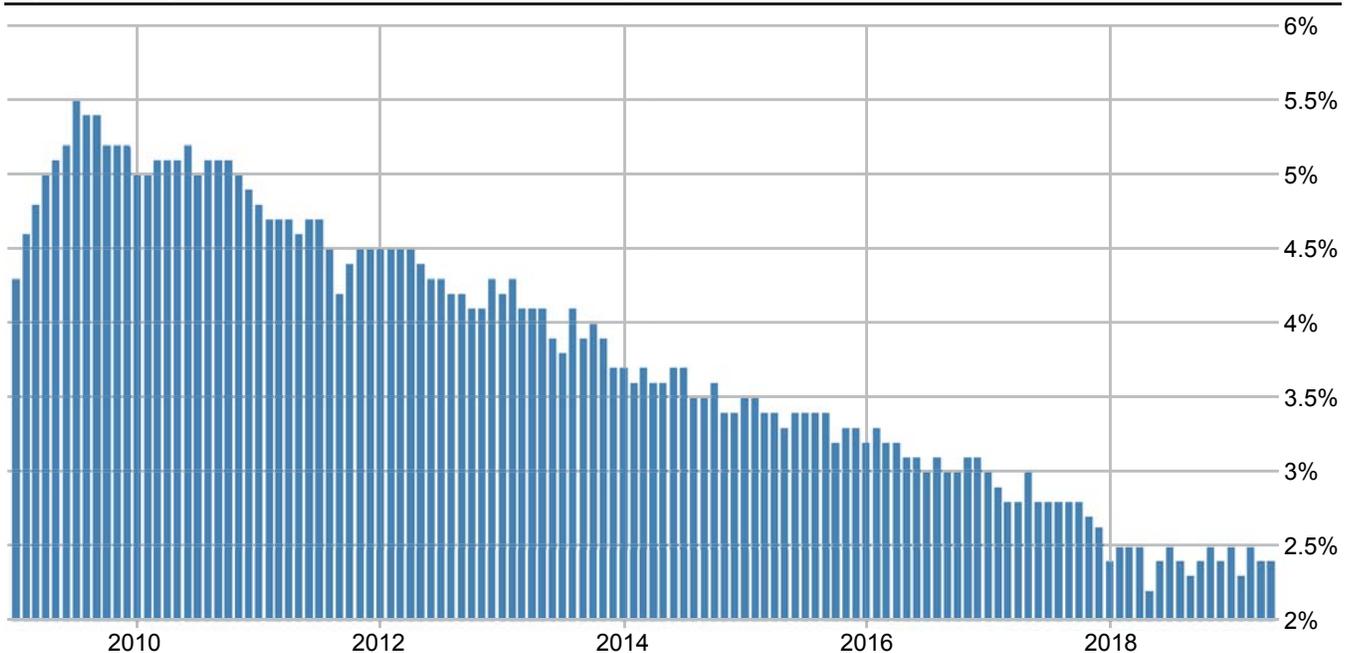
of population decline earlier than other economies, however, its challenges are more obvious. Since 2000, Japan has experienced a 13% decline in its working age population.<sup>37</sup> While this is clearly an impediment to economic growth, some see a silver lining in the form of opportunities to develop and deploy new technologies to raise worker productivity and address the needs of an aging population.

Japan’s unemployment rate, which began falling in mid 2009, first reached 2.4% in January 2018 and with little variation has remained at that level since.<sup>38</sup> Many workers are part-time, while permanent employees at large companies are rarely laid off or quit. As a result, productivity is comparatively low. Small and mid-sized firms meanwhile struggle to recruit workers, and openings in licensed fields like construction, nursing, and transportation outnumber skilled applicants by 3 to 1.<sup>39</sup> This, plus a decreasing population, points to the need for automation, increased immigration, or both.

**EXHIBIT 6**

**Japan’s unemployment rate, currently at 2.4%, first reached that level in January 2018 and has remained at or under 2.5% since then.**

**Japan’s Unemployment Rate, January 2009–May 2019, percent**



Source: TradingEconomics.com | Japan Ministry of Affairs & Communications

Visualization: Bay Area Council Economic Institute

Japan's population has shrunk in absolute terms by more than 1.7 million people since 2012, including 448,000 in 2018 alone,<sup>40</sup> as deaths outpace births and restrictive immigration policies remain in place.<sup>41</sup> The International Monetary Fund predicts that by 2058, if current trends continue, Japan's population could decline by a further 25%, with 4 in 10 persons over the age of 65. Economically, it predicts that this trend will "depress growth and productivity due to a shrinking and aging labor force and a shift toward consumption, while fiscal challenges will magnify with rising age-related government spending and a shrinking tax base."<sup>42</sup>

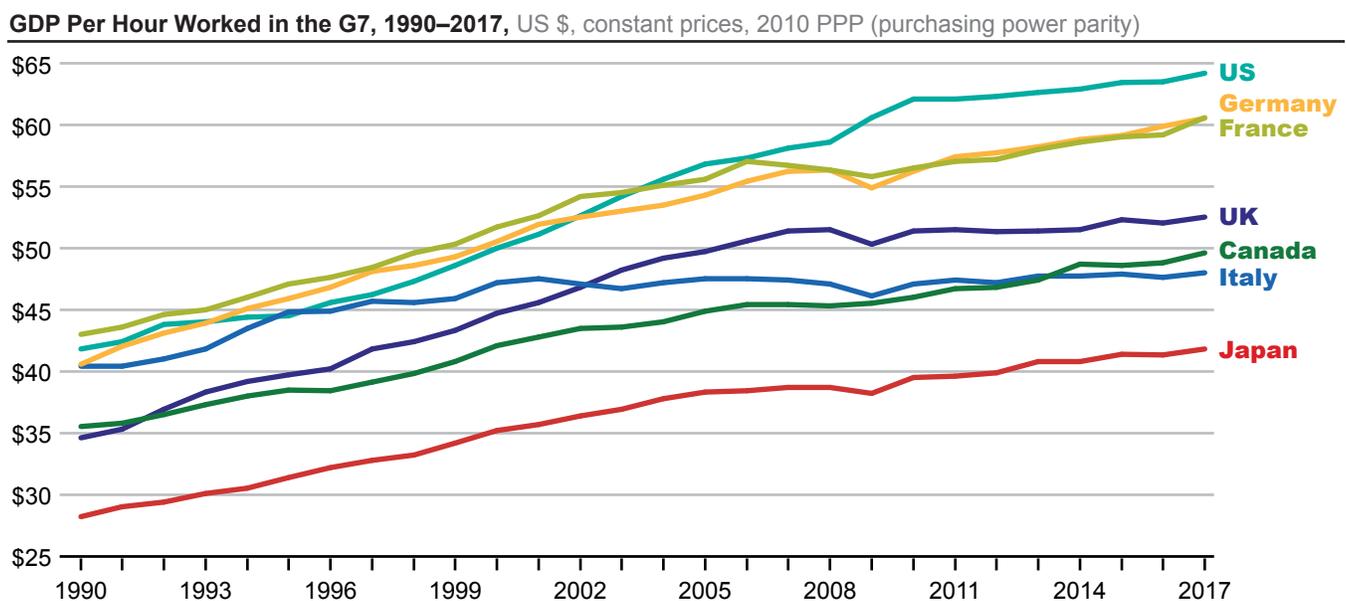
This demographic challenge is at the heart of the government's current policies to stimulate growth and productivity. "Abenomics 2.0," introduced in 2015,<sup>43</sup> committed the equivalent of \$17.6 billion toward early education and childcare incentives, to encourage more women both to have children and enter the workforce. This "womenomics" component is also a workforce diversity plan, targeting a 68–73% female labor force participation rate, with women filling at least 15% of senior management positions.<sup>44</sup> Overall, the government is seeking to stabilize the

population—now 127 million—at 100 million in 2060,<sup>45</sup> the level necessary to retain Japan's economic vitality, according to government estimates.<sup>46</sup> It has also taken long-overdue measures to loosen Japan's highly restrictive immigration policies; legislation passed in late 2018 will allow more workers to enter the country to help fill workforce gaps.<sup>47</sup> Approximately 340,000 foreign workers are expected to be admitted in the next five years, mostly in lower-skilled occupations across 14 industries."<sup>48</sup>

Covering the costs associated with an aging population and expanding the workforce has been economically and politically challenging. Japan first introduced a 3% consumption tax in 1989 and then increased it to 5% in 1997 and to 8% in 2014.<sup>49</sup> While the tax has always been unpopular, a further increase to 10% has been seen as being essential to delivering the revenue needed for social security, child care, and other programs to cope with the country's changing demographics. After two postponements since 2015, the government moved forward with the consumption tax increase to 10% starting October 1, 2019, although the tax on grocery food and non-alcoholic beverage purchases remains at 8%.<sup>50</sup>

**EXHIBIT 7**

**Japan's labor productivity is comparatively low.**



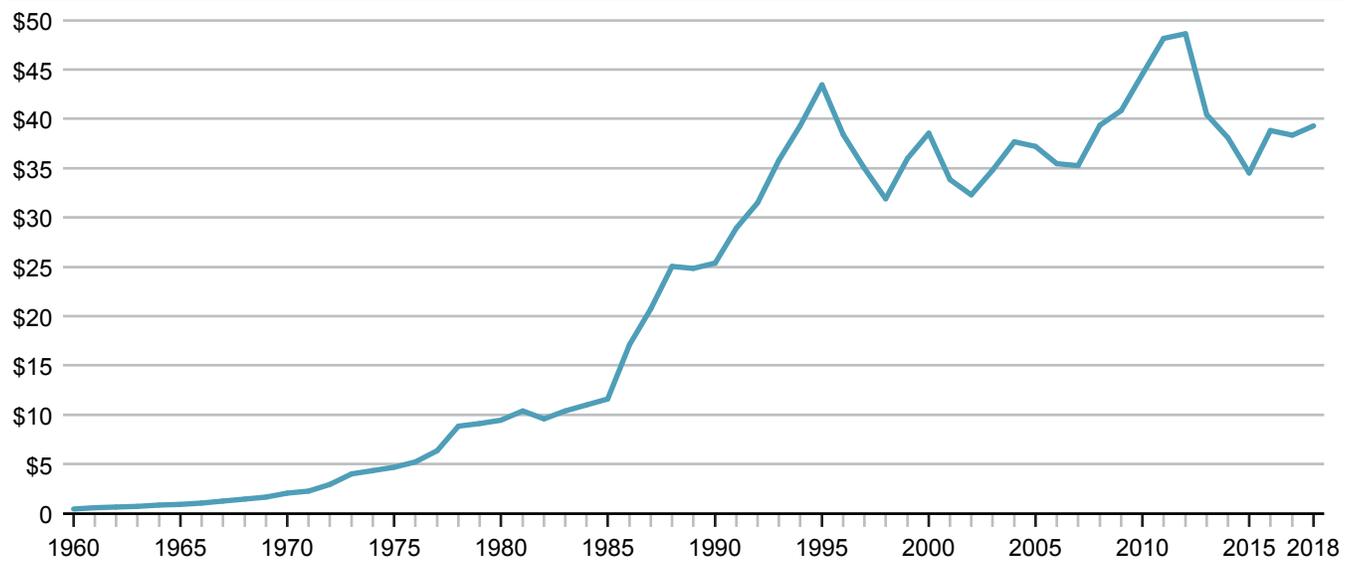
Source: OECD.stat

Visualization: Bay Area Council Economic Institute

**EXHIBIT 8**

**In terms of GDP per capita, Japan's economy has performed relatively well.**

Japan's GDP Per Capita, 1960–2018, current US \$, thousands



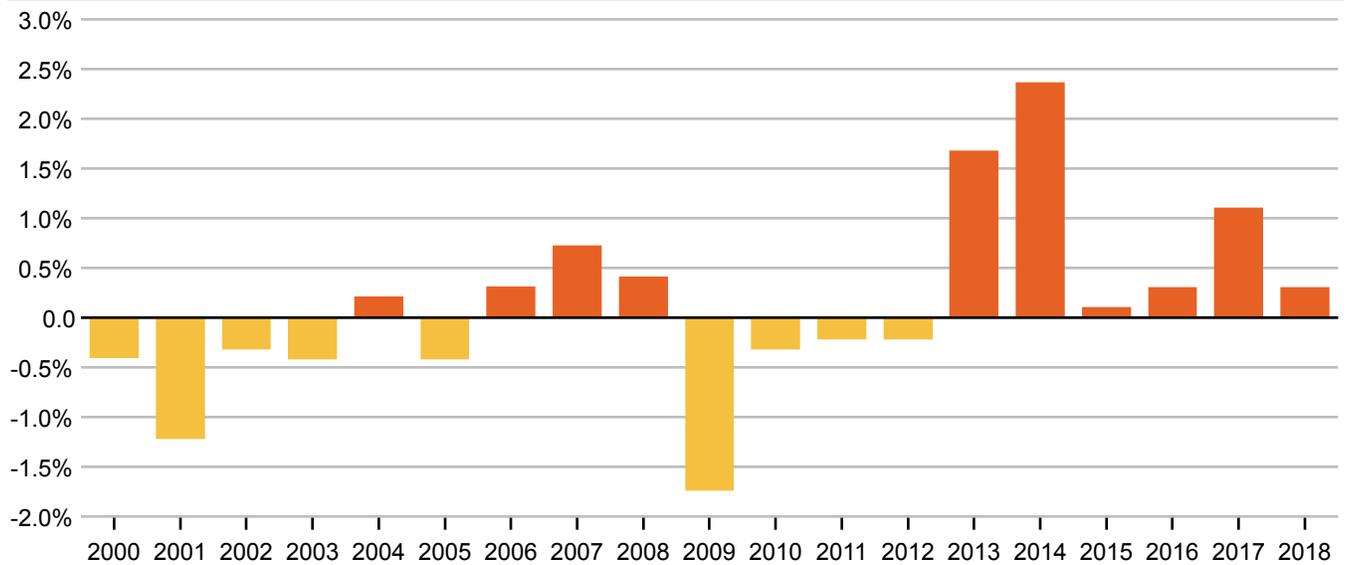
Source: World Bank | OECD

Visualization: Bay Area Council Economic Institute

**EXHIBIT 9**

**Low inflation remains a concern, with the 2018 annual inflation rate at 0.3%, well below the government's 2% target, but still positive.**

Japan's Historic Inflation Rate (CPI) by Year (Dec. vs. Dec.), 2000–2018, percent



Source inflation.eu, Triami Media BV and HomeFinance, 2019

Visualization: Bay Area Council Economic Institute

Overall, the government's measures to date have generated positive results, although sustained growth has remained elusive, with annual GDP growth rates of only .6% in 2016, 1.9% in 2017, .8% in 2018, and a projected .9% for 2019, according to the World Bank.<sup>51</sup> The yen has depreciated more than 30% since 2012, and the Nikkei 225 stock market index is up by more than 150%. Nominal GDP has risen since 2013, as private investment grew by 18% through the first half of 2018; 2.7 million net new jobs were added.<sup>52</sup> Government data also show that corporate pre-tax profits doubled, while tax revenues increased roughly 40% during the period.<sup>53</sup> Low inflation remains a concern, with the 2018 annual inflation rate at 0.3%,<sup>54</sup> well below the government's 2% target but still positive, fending off deflationary pressures as gradually rising wages add to purchasing power.

Another critical but less discussed component of Abenomics involves harnessing structural economic reforms to create advanced technology ecosystems that incentivize growth, innovation, and entrepreneurship. Three principal factors drive the strategy.

**Demographics:** Japan's aging population, especially in rural or economically distressed areas, creates demand for new technology solutions in mobility (autonomous vehicles), telemedicine (remote diagnosis and consultation), robotics (home care), and internet of things (for home health and safety monitoring). These issues are not unique to Japan, but their scale is, creating both an urgent need and an opportunity.

**Sustainability:** As an island nation, Japan has long recognized both its interdependence and its vulnerability to external economic forces in areas such as energy, agriculture, and natural resources where it is a net importer. Areas of focus include using IoT (internet of things) sensors and monitoring, along with AI predictive analytics, to manage fertilizer and water usage, improve yields, and protect groundwater supplies. In energy, it means strategies such as optimizing electricity grid efficiency, but also building on centuries of knowledge of food fermenting technology to create jet fuel from euglena, an algae microorganism.<sup>55</sup>

**Competitiveness:** Japanese companies are keenly aware of competitive setbacks in tech during the "lost decades," as Silicon Valley companies seized positions

of global leadership, and industries were disrupted by developments from smartphones to cloud computing. Most have spent the past decade quietly building and refining their capabilities in cutting-edge fields like smart city and supply chain IoT, robotics, machine learning, and precision medicine. Through these areas of innovation, Japan sees a new opportunity not only to generate high-value exports, but also to address pressing societal and economic problems facing developing Asia and beyond. This will require changes in corporate culture, encouraging innovation by startups, and enabling small and mid-sized businesses to move up the value chain.

## Society 5.0

To further these strategic goals, the Abe government has launched the Society 5.0 initiative, supported by Japan's annual Investments for the Future Strategy,<sup>56</sup> which builds on structural economic reforms through policy support and investment.

On the policy side, Society 5.0<sup>57</sup> calls for

- establishing a "regulatory sandbox" allowing qualifying applicants to test out new types of businesses exempt from regulations for a specified time period;
- opening up government data to businesses in eight sectors—including healthcare, agriculture, mobility, infrastructure, and fintech—to encourage and accelerate new products and services;
- promoting university-industry collaboration by encouraging universities to share research and by enabling them to set up entities that can accept private investment for R&D; and
- creating an agile ecosystem where startups can innovate, raise funds, commercialize new technologies, and achieve scale.

Specific proposals include

- integration and storage of data from the National Health Insurance System and nursing care insurance system to provide in-person and remote customized medical care by 2020;

- drone delivery services in mountain regions and dense urban areas, local driverless transportation services by 2020, and autonomous truck platoons to address current driver shortages by 2022;
- smart highways, developed for the 2020 Olympic Games, with predictive maintenance and real-time monitoring of road conditions; and
- introduction of open application programming interfaces (APIs) in more than 80 banks by 2020 to enable incumbent banks and fintech startups to jointly develop blockchain and other solutions for faster, more secure cashless transactions, with the goal of a 47% cashless society by 2027.

To advance Society 5.0, the government has streamlined the visa process for highly-skilled professionals, attracting more than 10,500 in 2017 compared to fewer than 2,000 in 2013, and has committed to a 20% reduction in the administrative costs of doing business in Japan over 2017–2020.<sup>58</sup> It has also designated 10 national strategic special zones since 2013, where structural reforms have been accelerated to test autonomous buses, encourage entrepreneurship in the farming cooperative system, establish faster drug and medical device approvals, and increase competition in electricity and gas markets.<sup>59</sup> Through the Japan External Trade Office (JETRO) **Invest Japan Business Support Center (IBSC)**, foreign businesses planning to relocate or expand operations in Japan get tax, legal, regulatory, incorporation, hiring, visa, and other assistance, as well as networking introductions and help locating temporary or permanent office space.<sup>60</sup>

Japan's Ministry for Economy, Trade and Industry (METI) partnered with the World Economic Forum and the Japan-based civil society group Asia Pacific Initiative in 2018 to establish a **Centre for the Fourth Industrial Revolution (C4IR)** in Japan. The name refers to the coming digital revolution in AI, IoT, robotics, and big data and its potential to transform global business and society. The Japan center will focus on autonomous mobility, data policy, and precision medicine; corporate partners include Hitachi, Horiba, Mitsubishi Chemical Holdings, Salesforce, Sompo Holdings, and Suntory Holdings. C4IR is the second center in a global network being developed by the World Economic Forum; the first center was established in San Francisco in 2017.<sup>61</sup>

These and other measures highlight Japan's leadership in emerging fields such as AI, IoT, robotics, and optoelectronics, and accompanying technology and economic synergies with the Bay Area.

Faced with demographic challenges and muted growth, Japan contrasts with some of the more robustly growing economies in Asia and the developing world. But there is another reality that has not significantly changed in recent decades: at \$4.97 trillion,<sup>62</sup> Japan's economy today is the third largest in the world by GDP (the fourth largest by purchasing power parity),<sup>63</sup> and is the second largest and most developed economy in Asia.<sup>64</sup> Its 2018 GDP per capita of \$39,305<sup>65</sup> is among the world's highest, its technology and research assets are abundant, its quality of life is high, and its leading companies are among the largest and most competitive in the world.

Japan consistently ranks near the top of a range of global economic rankings:

- Japan ranks #5 out of 140 countries in the World Economic Forum's 2018 Global Competitiveness Report, based on measures such as institutions, infrastructure, ICT adoption, macroeconomic stability, health, skills, product market, labor market, financial system, market size, business dynamism, and innovation capability.<sup>66</sup>
- Japan ranks #13 out of 126 countries in the Global Innovation Index, which measures countries based on institutions, human capital and research, infrastructure, market sophistication, business sophistication, knowledge and technology outputs, and creative outputs.<sup>67</sup>
- Nagoya, Osaka, and Tokyo rank among McKinsey & Company's top 50 Global Superstar Cities—cities that outpace their peers in terms of per capita GDP growth and contribution to global GDP.<sup>68</sup>
- Tokyo ranks number three in the world—after London and New York—in the Global Power City Index, which evaluates major cities according to their power to attract people, capital, and enterprises from around the world, based on inputs such as economy, research and development, cultural interaction, livability, environment, and accessibility.<sup>69</sup>

This suggests important partnership opportunities that have perhaps been overlooked by US and California businesses.

## Embracing Transformation

In November 2018, The Keidanren (Japan Business Federation) released a report entitled *Society 5.0*, detailing its policy recommendations for a strategy focused on transforming Japan from an economy focused on manufacturing (Society 4.0) to an economy and society embracing digitalization. Its vision for the future is one of decentralization, resilience, and sustainability, as opposed to wealth and information concentration, social infrastructure vulnerability, and high environmental impact.<sup>70</sup> This approach aligns with the government's, which is promoting innovation and the accelerated use of big data, artificial intelligence, and robotics. Next generation infrastructure offers an example, where sensors and robotics may be used to inspect and maintain roads and bridges—a challenge exacerbated by the country's worsening demographics and shrinking labor force.<sup>71</sup>

Innovation and internal transformation, however, don't come easily—particularly in an economy historically led by large conglomerates with complex structures and hierarchical processes. As part of the answer, Japanese companies are now looking to Silicon Valley, not just for technology, but also for models and partnerships that can accelerate the transformation process and steer the very large ship that is Japan's economy in a new, more flexible, and competitive direction.

Silicon Valley's experience is particularly relevant, as by the early 2000s it had become clear that the large corporate model that had long dominated Japan's economy was failing to keep up with the kinds of innovations being produced through the more open and entrepreneurial processes embraced by companies in the Bay Area. In contrast to the Bay Area's experience, technology gains were incremental, sector disruption was not part of corporate culture, and entrepreneurship received scant attention.

In the rethinking now underway, Japanese companies are increasingly looking outside of their own corporate structures for new sources of innovation, particularly by harnessing the energy and ideas of customers, partner

companies, and startups. This is happening both in Japan, where a nascent startup system is taking hold and the number of new technology-based companies is growing, and in Silicon Valley, which is home to cutting-edge startups and is a world-leading innovation center in the development of digital technologies and strategies.

In Japan, the process builds on high levels of investment in R&D by the government and universities; Japan is number one in the world in terms of R&D spending as a percentage of gross domestic product and ranks number three in terms of total R&D spending in 2018, according to estimates by R&D Magazine.<sup>72</sup> Another supporting factor is the continuing shift in Japan's employment structure. Where lifetime employment with a company was the norm until the 1990s, by the 2000s that model had become less reliable and in many cases less attractive for younger workers. Corporate bankruptcies and the downsizing or consolidation of major electronics firms caused many to question the viability—or desirability—of large company employment. As one result, younger and mid-level employees are showing a new willingness to leave corporate employment to start their own companies. This can also present a dilemma for large companies that are working to attract and retain innovative workers to support their own transformation processes.

A similar change is underway at universities, where entrepreneurship is becoming more accepted as a career option. Leading universities such as the University of Tokyo and Waseda University have established on-campus incubators,<sup>73</sup> and some, including University of Tokyo and Kyoto University, have created university-affiliated venture funds. The University of Tokyo, in particular, is a strong generator of successful startups; 40% of Japanese startups with a recent exit were associated with the University of Tokyo.<sup>74</sup> Off-campus events, such as the New Economy Summit (NEST) sponsored by the Japan Association of New Economy (JANE) and spear-headed by the CEO of the online commerce company Rakuten, draw thousands of participants each year, including business leaders and entrepreneurs from Silicon Valley.

This has produced a small but growing technology and startup ecosystem within Japan, where ambitious, globally-oriented entrepreneurs are starting to appear, and Japan's first home-grown unicorn, e-commerce app

maker Mercari, had its hugely successful IPO in June 2018.<sup>75</sup> IPOs like Mercari's are producing a new crop of mentors for smaller companies. The ecosystem is still small by Silicon Valley, Chinese, or European standards, but with the shift has come a growing openness by large companies in Japan to engage with startups. More funding is now available, particularly through corporate venture—which nearly doubled in scale between 2017 and 2018.<sup>76</sup> Limitations and challenges remain: the pool of angel investors is small, mentors are still in short supply, and the pool of startups available to invest in remains limited. Most large companies are reluctant to take the risk of buying technologies from startups, and many startups continue to rely heavily on government grants in their first 2–3 years. Still, the trend of accelerating growth in Japan's startup environment is clear.

Japan's venture capital industry is seeing major growth. While banks and large financial institutions were historically the largest sources of finance for small companies, the capital available through venture firms has increased since the mid-2000s and particularly in the last five years, with larger and more specialized funds emerging. Though volumes are still small compared to the Bay Area, independent and corporate VCs now account for the largest source of investor capital for startups. **Globis Capital Partners**, for example, manages approximately \$6 billion across six funds, and backed Mercari, a unicorn valued at \$7 billion after its IPO in 2018. Its newest fund will be larger than the last—\$350 million, up from \$160 million. The firm will particularly focus its next fund on the digital transformation of traditional industries such as manufacturing and logistics, many of which face labor shortages and need to improve productivity.<sup>77</sup>

The growth of startups, and with them the venture industry, has been facilitated by two stock exchanges specifically designed for small companies and startups: Mothers, which was established in 1999, and Jasdaq, which originated from the over-the-counter registration system established 1963 and is similar to Nasdaq in

the US.<sup>78</sup> The average size of IPOs on both exchanges is very small compared to Nasdaq, but the cost of listing is also low and IPOs are easier, encouraging the recirculation of capital. Companies listing on Mothers, which is part of the Tokyo Stock Exchange, can move up as they grow.

Government plays a role through INCJ Ltd., a public-private innovation fund that is the successor to the Innovation Network Corporation of Japan (INCJ). Launched in 2009 to catalyze investments in Japan's startup system, INCJ was capitalized as a 286 billion yen fund, funded principally by government but also by corporations. Government loan guarantees totaling 1,800 billion yen have enabled investment of 2,000 billion yen. Run by a mix of government officials and private investors, the fund has directed finance to startups as well as private venture firms, including Palo Alto's World Innovation Lab. As of 2017, INCJ had an investment capacity of up to \$20 billion.<sup>79</sup> In September 2018, all business functions of INCJ were transferred to INCJ Ltd., which has a fixed contribution from the government and a mandate to continue with investment activities until March 2025.<sup>80</sup> INCJ Ltd. nurtures key industries via open innovation through investments at various stages from early R&D to application, go-to-market, and commercialization.<sup>81</sup>

Government is also playing a supportive role through NEDO. Launched by the Ministry of Economy, Trade and Industry in 1980 as the New Energy Development Organization, and designed to support energy-related research in response to the oil shocks of the 1970s, NEDO was reorganized in 2015 as the New Energy and Industrial Technology Development Organization and now works to enhance industrial technology through the formulation of project plans and the establishment of project implementation frameworks that combine the capabilities of industry, academia, and government.<sup>82</sup> NEDO Activities include a Technology-Based Startup Support Program to connect venture capital with Japan-based startups, and a pitch contest, the NEDO Technology Commercialization Program.<sup>83</sup>



# 6

## A Shifting Landscape for Trade

From being a large and often contentious connection in the 1980s, the US trade relationship with Japan has evolved to one that is much less conflicted but still far-ranging and productive.

Many of the most difficult issues surrounding two-way US-Japan trade that occupied American headlines thirty to fifty years ago in the 1970s through 1990s were either resolved or mitigated over the late 1980s to mid 1990s through a bilaterally negotiated mix of Japanese reductions to tariff and non-tariff barriers in beef, citrus fruit, and forest products; voluntary Japanese export restraints for steel and autos; greenfield or M&A investment in automotive, food processing, and industrial equipment in the US; and the yen-to-dollar appreciation under the 1985 Plaza Accord. Flows stabilized and tensions eased from the mid-1990s onward.

US-Japan two-way goods trade has been stable since 2011, with a 2:1 imbalance favoring Japan. In 2018, with goods trade totaling \$217.6 billion, the US experienced a \$67.6 billion deficit—\$142.6 billion in imports versus \$75.0 billion in exports, of which roughly 17% (\$13 billion) was in agricultural products. US agricultural imports from Japan (\$725 million in 2018) are mainly in the form of processed agricultural products. The US had a \$10.9 billion surplus in services trade—\$45.4 billion in exports versus \$34.5 billion in imports—resulting in a net \$56.8 billion US trade deficit.<sup>1</sup>

Japan was both the fourth largest export market for US goods in 2018, and the fourth largest supplier of goods imported by the US.<sup>2</sup>

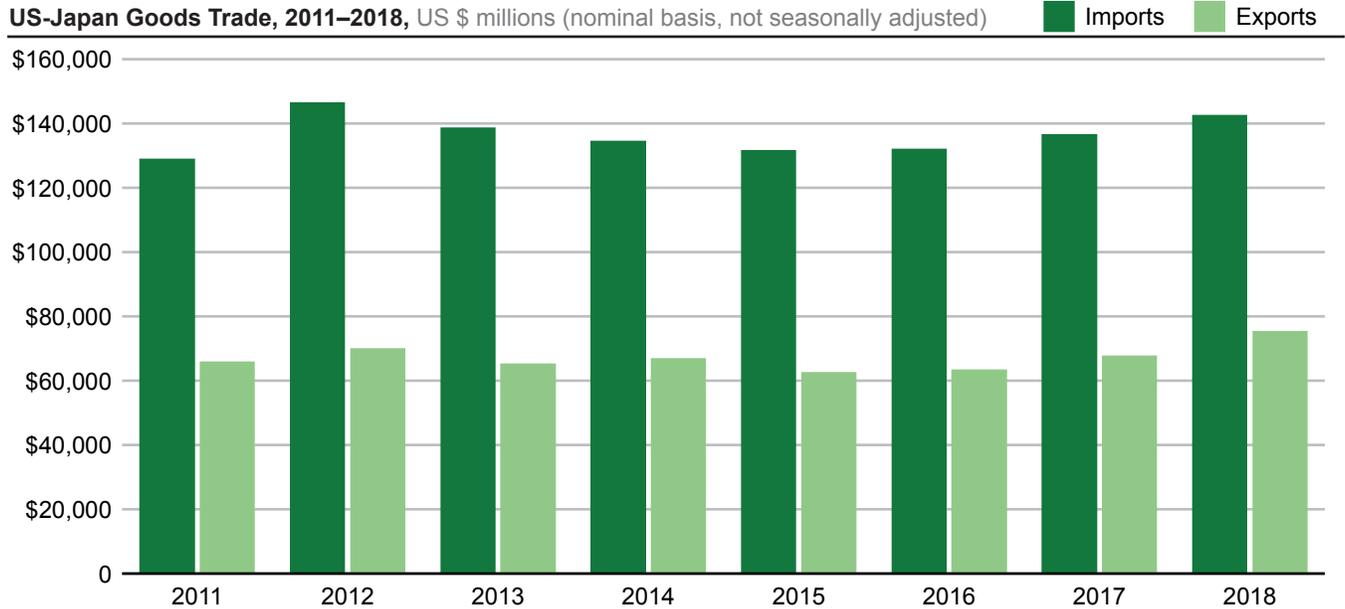
California leads all other states in sales to Japan, accounting for over 17% of total US exports. Japan has been California's fourth largest export market since 2010, at \$13 billion in 2018. California is also the top US state for imports from Japan, which amounted to \$33.6 billion in 2018. Japan is the third largest country exporting to California after China and Mexico.<sup>3</sup> Since 2011, the state's trade profile with Japan has been stable in both directions, with a trade imbalance hovering around 3:1.

Of the \$33.6 billion in imports from Japan arriving in California in 2018, transportation equipment accounted for almost half by value. Computers and electronics products accounted for 17% of California's \$13 billion in 2018 exports to Japan.<sup>4</sup> It should be noted that California trade data is skewed to a degree by the state's role as a gateway for US imports from and exports to Asia, as goods destined for other US states transit the ports of Los Angeles, Long Beach, and Oakland, and outbound US exports transit the ports to Asia.

Travel and freight transportation are important components of services trade between the Bay Area and Japan through the region's major international airports and cargo-handling ports.

**EXHIBIT 10**

**US-Japan two-way goods trade has been stable since 2011, with a 2:1 imbalance favoring Japan.**



Source: US Census Bureau, <https://www.census.gov/foreign-trade/balance/c5880.html>

Visualization: Bay Area Council Economic Institute

**EXHIBIT 11**

**2018 US-Japan Export and Import Profiles**

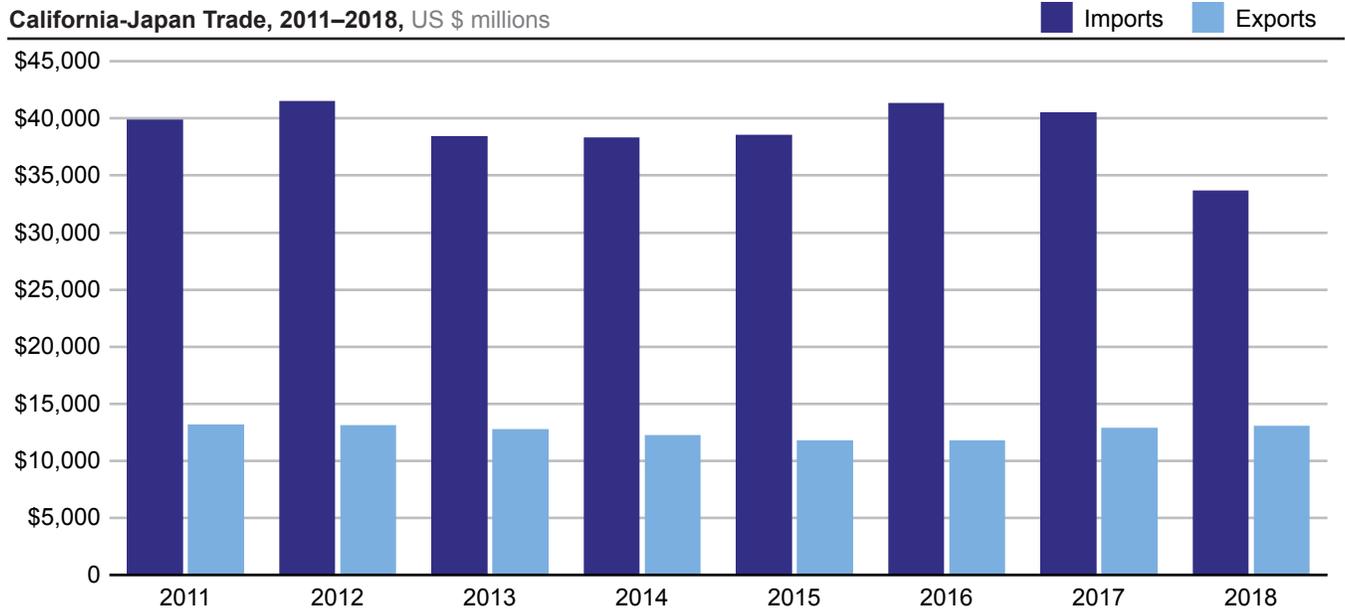
US Exports to Japan		
Leading Export Products	Leading Export Agricultural Commodities	Leading Export Services
<ul style="list-style-type: none"> <li>• Machinery</li> <li>• Optical and medical instruments</li> <li>• Aircraft</li> <li>• Mineral fuels</li> <li>• Electrical machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Corn</li> <li>• Beef/beef products</li> <li>• Pork/pork products</li> <li>• Soybeans</li> <li>• Wheat</li> </ul>	<ul style="list-style-type: none"> <li>• Travel</li> <li>• Transportation</li> <li>• Intellectual property relating to industrial processes</li> </ul>
US Imports from Japan		
Leading Import Products	Leading Import Agricultural Commodities	Leading Import Services
<ul style="list-style-type: none"> <li>• Vehicles</li> <li>• Machinery</li> <li>• Electrical machinery</li> <li>• Optical and medical instruments</li> <li>• Aircraft</li> </ul>	<ul style="list-style-type: none"> <li>• Wine and beer</li> <li>• Snack foods</li> <li>• Teas</li> <li>• Vegetable oils</li> <li>• Processed fruit / vegetables</li> </ul>	<ul style="list-style-type: none"> <li>• Intellectual property (computer software)</li> <li>• Transportation</li> <li>• Travel</li> </ul>

Source: Office of the United States Trade Representative

Visualization: Bay Area Council Economic Institute

**EXHIBIT 12**

Since 2011, California’s trade profile with Japan has been stable in both directions, with a trade imbalance hovering around 3:1.



Source: US Census Bureau / USA Trade Online, [usatrade.census.gov](http://usatrade.census.gov)

Visualization: Bay Area Council Economic Institute

**EXHIBIT 13**

**2018 California-Japan Export and Import Profile**

**Leading California Exports to Japan**

- Optical/photographic equipment
- Electrical machinery
- Aircraft/aerospace equipment
- Industrial machinery/equipment
- Fruits/nuts
- Mineral fuel, oil
- Precious stones/metals
- Beverages
- Chemical products
- Pharmaceuticals
- Meat
- Oilseeds

**Leading California Imports from Japan**

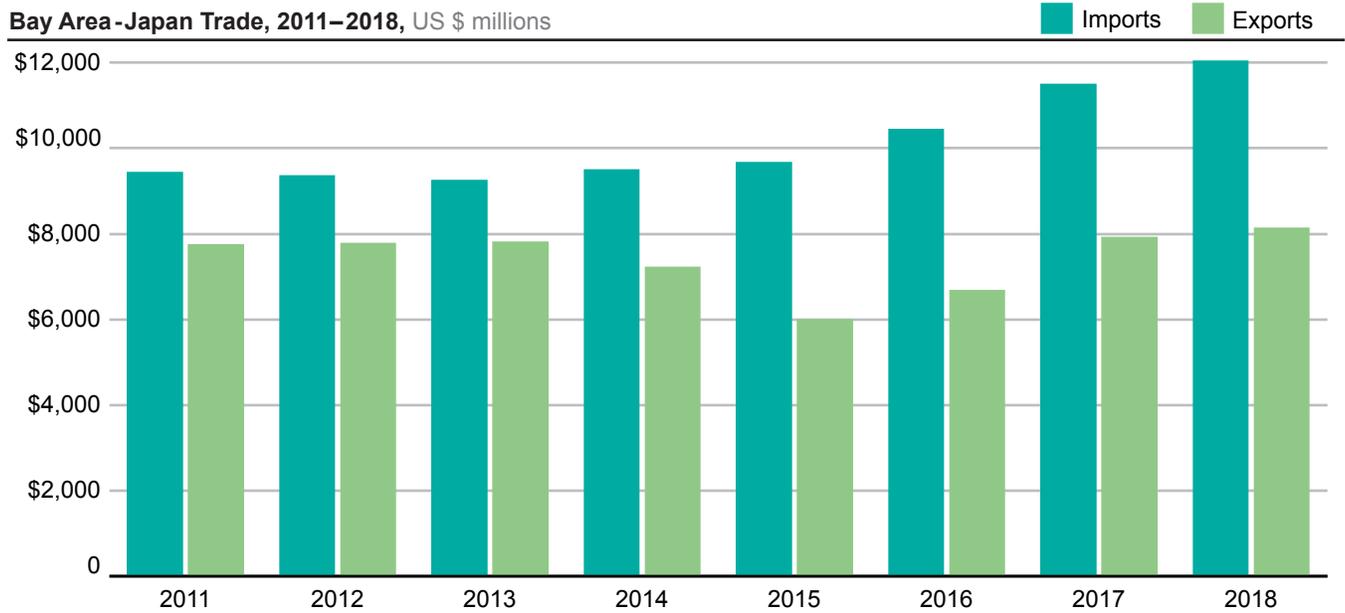
- Vehicles
- Industrial machinery/equipment
- Electrical machinery
- Optical and medical equipment/instruments
- Rubber products
- Inorganic chemicals
- Chemical products
- Photographic/cinematographic products
- Plastics
- Mineral fuel, oil
- Clocks and watches
- Iron/steel products

Source: US Census Bureau / USA Trade Online, [usatrade.census.gov](http://usatrade.census.gov)

Visualization: Bay Area Council Economic Institute

**EXHIBIT 14**

**Trade with Japan that moves through the San Francisco Customs District (which covers a wide region including and surrounding the Bay Area) broadly mirrors the California and nationwide trends, but with a closer balance between imports and exports.**



Source: US Census Bureau / USA Trade Online, [usatrade.census.gov](http://usatrade.census.gov)

Visualization: Bay Area Council Economic Institute

The vast majority of travelers to and from Japan—whether on vacations, family visits, or business travel—transit San Francisco International Airport (SFO). Annual numbers have held fairly steady since 2016 at around 800,000 passengers, covering both directions, for the three direct services offered by United Airlines (UAL), Japan Airlines (JAL), and All Nippon Airways (ANA), according to figures from SFO. Total annual inbound airline seat volume from Japan through Bay Area airports (nearly 547,000 in 2018), tracked by airline data research firm OAG International, has held steady.<sup>5</sup>

Oakland International Airport (OAK) has no direct flights to or from Japan; passengers traveling via Oakland connect to Japan flights with one stop in Honolulu via Hawaiian Airlines, and in Seattle via Alaska Airlines. San Jose International Airport (SJC) introduced direct flights to and from Japan five days a week in 2013<sup>6</sup> via ANA and has seen steadily growing traffic since, especially in recent years as Japanese companies and entrepreneurs have expanded their presence in Silicon Valley.

SJC passengers also connect with Japan flights via Los Angeles, Honolulu, and Vancouver. San Jose travel promotion arm Team San Jose indicated in its 2018 annual report that Japan was the leading source country for overseas visitors to Silicon Valley and the South Bay, with 68,500 visits, ahead of China’s 49,400.<sup>7</sup>

San Francisco Travel, a public-private tourism promotion entity, reports a declining trend in inbound visitors from Japan, which it attributes to low economic growth and restrained Japanese consumer confidence. Since 2011, annual visitor numbers have fallen from 208,000 to 135,000 in 2018, and total annual visitor spending is down from \$382,000 to \$228,000.

Air cargo moves between the Bay Area and Japan primarily aboard direct passenger flights and via FedEx, UPS, and other express parcel services. Country-specific cargo data is not made publicly available by carriers but is available in aggregate by airport through Census trade data.

## EXHIBIT 15

## Air cargo moves between the Bay Area and Japan primarily aboard direct passenger flights and via FedEx, UPS, and other express parcel services.

Bay Area - Japan Air Cargo Export and Import Profiles, 2013–2018, US \$ millions

Bay Area Air Cargo Exports to Japan						
	2013	2014	2015	2016	2017	2018
<b>SFO</b>	4,009.2	3,266.0	3,070.3	2,704.5	3,834.2	3,532.7
<b>SJC</b>	48.6	88.4	93.6	183.1	160.4	317.5
<b>OAK</b>	21.6	47.7	17.4	16.7	27.7	37.2
<b>SAC</b>	3.1	4.8	3.7	24.9	6.3	17.7
<b>District</b>	4,084.9	3,410.2	3,189.3	2,934.6	4,036.2	3,916.5

Bay Area Air Cargo Imports from Japan						
	2013	2014	2015	2016	2017	2018
<b>SFO</b>	4,326.6	4,424.9	4,123.6	3,980.7	4,005.1	4,363.6
<b>SJC</b>	77.7	104.2	93.5	13.9	11.7	12.4
<b>OAK</b>	4.7	3.7	16.6	12.1	12.1	11.7
<b>SAC</b>	0.1	0.0	0.0	0.1	8.0	5.3
<b>District</b>	4,409.5	4,533.7	4,235.8	4,007.3	4,037.0	4,393.1

Source: US Census Bureau / USA Trade Online, [usatrade.census.gov](http://usatrade.census.gov)

Visualization: Bay Area Council Economic Institute

Most Bay Area-Japan cargo moving by sea is containerized and transits the Port of Oakland. Container shipping has undergone significant consolidation since 2016 due to nearly flat demand growth and rising fuel, cargo handling, and inland transportation costs for carriers providing end-to-end logistics. Most of that consolidation has taken the form of vessel-sharing alliances among major global carriers. Oakland, a major loading point for California agricultural and technology exports as well as high-value manufactured products from across the US bound for Asia, tends to be a last US call in shipping lines' trans-Pacific services before returning to Asia. As a result, Oakland's cargo mix is roughly balanced between exports and imports, despite a more than 2:1 overall US trade and cargo imbalance with Asia favoring imports. Oakland offers six weekly scheduled container services calling on Japan in both directions, including service by the ONE alliance made up of Japanese carriers Mitsui OSK Lines, K Line, and NYK Line.

San Francisco handles small volumes of locally-originating or destined container and general Japan cargo such as dairy products, rice, petroleum coke, home furnishings, machinery, and optical/imaging equipment. Richmond—along with neighboring Benicia—is a discharge and staging point for Japanese auto imports and handles bulk exports of soybean and sunflower oils, mineral fuels, and inorganic chemicals. Stockton ships bulk mineral fuels, rice, residual agricultural by-products, and used tires for recycling, and receives imports of bulk ores and steel.

## Trade Relations

The US and Japan remain strong allies with a strategic relationship dating back to reconstruction after World War II. In that context, the trade tensions which preceded the "lost decades" have remained largely dormant, even though many of the same structural challenges are still in place.

**EXHIBIT 16****Most Bay Area-Japan cargo moving by sea is containerized and transits the Port of Oakland.**

Bay Area-Japan Vessel Cargo Export and Import Profiles, 2013–2018, US \$ millions

Bay Area Vessel Cargo Exports to Japan						
	2013	2014	2015	2016	2017	2018
<b>Oakland</b>	4,009.2	3,266.0	3,070.3	2,704.5	3,834.2	3,532.7
<b>San Francisco</b>	48.6	88.4	93.6	183.1	160.4	317.5
<b>Stockton</b>	21.6	47.7	17.4	16.7	27.7	37.2
<b>Richmond</b>	3.1	4.8	3.7	24.9	6.3	17.7
<b>District</b>	4,084.9	3,410.2	3,189.3	2,934.6	4,036.2	3,916.5
Bay Area Vessel Cargo Imports from Japan						
	2013	2014	2015	2016	2017	2018
<b>Oakland</b>	1,415.5	1,541.1	1,541.8	3,506.8	2,230.9	1,853.0
<b>Richmond</b>	1,913.7	1,969.2	2,213.6	2,730.4	2,266.4	2,520.1
<b>San Francisco</b>	1,798.9	1,809.9	1,605.5	75.2	135.8	1,058.6
<b>Stockton</b>	3.3	41.5	80.2	98.4	108.8	88.7
<b>District</b>	5,133.4	5,385.9	5,456.7	6,410.9	6,696.1	7,603.4

Source: US Census Bureau / USA Trade Online, [usatrade.census.gov](http://usatrade.census.gov)

Visualization: Bay Area Council Economic Institute

Given the size of their respective economies, the trade imbalance between the US and Japan is relatively small. Attention in negotiations has particularly focused on the automotive sector, which accounts for 75% of the US trade deficit with Japan, and on two sectors where US exports enjoy surpluses, but still have room for growth: agriculture and services. In the latter, the focus is primarily on financial, telecommunications, and transportation/logistics services.<sup>8</sup> Each involves distinct complexities.

**Vehicles**

In 2017, the Japanese Automobile Dealers Association reported that 2.9 million cars sold in Japan were domestic brands, while 351,000 were imported. According to research by Panjiva, a division of S&P Global Market Intelligence, only about 1% of the total number of cars sold in Japan were imported from the US.<sup>9</sup> The US exported just \$2.2 billion worth of autos and auto parts to Japan

in 2017.<sup>10</sup> US industry believes this gap is due to Japan's strict safety and emissions standards, which it regards as non-tariff barriers; Japan holds that the gap is attributable to consumer patterns, including a preference for smaller cars and Japanese brands.<sup>11</sup> By contrast, Japan exported more than 1.7 million vehicles to the US in 2017.<sup>12</sup> Automotive trade exports constitute more than 70% of Japan's total exports to the US.<sup>13</sup>

Japan had previously attempted to address the imbalance from the supply side through voluntary export restraints (VERs) adopted in 1981. Retail import car prices in the US rose, but Japanese cars continued to sell; small car and light truck production shifted to the US—initially in Kentucky and California (Toyota), Tennessee (Nissan), Ohio (Honda), Michigan (Mazda), and Illinois (Mitsubishi)—to serve the US market and ease trade tensions. As a result, net imports fell, even with higher-margin luxury import brands Lexus from Toyota and Infiniti from Nissan entering the market and capturing

market share. With little effect on total sales, Japanese auto exports fell below quota levels, to the point that the VERs were phased out in 1994.<sup>14</sup> Today, Japanese-brand automakers operate 24 manufacturing plants and 43 engineering and design centers in 20 states, with a collective investment in the US of \$43.6 billion.<sup>15</sup>

The US has had a 2.5% tariff on imported cars for many years, and a global 25% tariff on trucks that dates back to 1964 and was later extended to include SUVs.<sup>16</sup> In 2018, the Trump Administration opened a Section 232 national security investigation regarding automobile imports, with an eye toward raising all vehicle tariffs to 25%.<sup>17</sup> This was widely seen as an attempt to reopen EU trade negotiations and to pressure Japan into bilateral negotiations following the 2017 US withdrawal from the Trans-Pacific Partnership (TPP). Under the TPP, all vehicle tariffs would have been gradually reduced to zero over time—in Japan’s case over 25 years.<sup>18</sup> Japan has had no tariff on automotive imports since 1978.<sup>19</sup>

## **Agriculture**

Agriculture accounts for only 1% of Japan’s GDP<sup>20</sup> and employs about 3% of its workers.<sup>21</sup> More than half of Japanese farms are less than 1 hectare in size;<sup>22</sup> small farms account for 70% of the total, and large agriculture management entities, which account for just 3% of Japanese farms, are producing more than half of the country’s agricultural products. As the population ages, more than two thirds of farmers are over the age of 65, and getting younger generations interested in farming is difficult.<sup>23</sup> Restrictions on corporate ownership of farmland protect small farmers from acquisition and consolidation.<sup>24</sup> As a result, domestic farm output meets less than half of total domestic demand, making Japan the world’s fourth largest agricultural importer.<sup>25</sup>

In 2017, Japan’s farm imports totaled nearly \$52 billion, with the US having a 25% market share. Japan buys 70% of its imported corn, 63% of its soybeans, 58% of its hay for animal feed, 48% of its beef, and 31% of its pork from American producers.<sup>26</sup> While Japanese tariffs overall are among the world’s lowest, averaging 4%, tariffs on agricultural products have an average most-favored nation rate of about 13%,<sup>27</sup> skewed by especially high tariffs for targeted commodities with strong domestic constituencies such as beef (38%),

cheese (40%), oranges (32%) and ground pork (20%).<sup>28</sup> Japan also maintains extensive non-tariff safeguards and technical barriers, to ensure food safety and quality, but also to protect the sector.

## **Services**

US services exports worldwide in 2018 totaled \$827 billion,<sup>29</sup> while imports totaled \$567 billion,<sup>30</sup> for a \$260 billion net surplus. In 2018, according to World Bank data, 79.14% of American jobs were in service industries,<sup>31</sup> including internet, information, and software services; professional services; financial services; media/entertainment intellectual property; express delivery and logistics; scientific research; and telecommunications. Accordingly, the US has pressed its advantage in services, seeking to lower barriers and to ensure non-discriminatory treatment, IP protection, and greater transparency for services exporters.

US-Japan negotiations on services have mainly focused on three areas: financial services, telecommunications, and transportation/logistics, primarily express delivery services. Issues have included market access and a need for distinct, transparent, non-discriminatory rules. The TPP had provided for broad commitments in these areas, supported by a dispute settlement process.

## **Bilateral Trade Agreement**

Exports are a critical element of the Abe government’s economic revitalization strategy and hopes were high for the TPP, which not only promised to open new markets to Japanese products across Asia, but also provided for the gradual resolution of key US-Japan disputes. US truck and SUV tariffs, for example, would have been phased out over a period of 20 years or more,<sup>32</sup> Japanese tariffs of 38% on beef would have fallen to 9% within 16 years, and the tariffs on more than 65% of pork and pork products would have been eliminated over 11 years.<sup>33</sup> The TPP also provided for the unimpeded cross-border movement of data, eschewing data localization requirements—a point where US and Japanese views closely align. Prime Minister Abe had banked heavily on the TPP as a vehicle to accelerate internal reforms, including the opening of service and agricultural markets, making the US withdrawal costly in both economic and political terms.

The US formally withdrew from the TPP only days after the Trump Administration took office in January 2017. In September 2018, the United States and Japan announced the beginning of talks toward a new bilateral United States-Japan trade agreement, which if successful would more closely connect the world's largest and third largest economies.<sup>34</sup> One year later, in September 2019, President Trump and Prime Minister Abe announced that the two countries had reached agreements on goods trade and on digital trade.<sup>35</sup> The two agreements were signed in October 2019. Under the agreement on trade in goods, Japanese tariffs will be lowered or reduced in stages on \$7.2 billion in US agricultural products including beef, pork, wheat and, of particular importance to California, cheese, wine, and almonds.<sup>36</sup> In turn, the US will reduce or remove tariffs on selected industrial products such as machine tools, steam turbines, and bicycles. Under the agreement on digital trade, both countries agreed to broad provisions, including a prohibition on tariffs on digital products that are transmitted electronically such as videos, music, software, and games; barrier-free cross-border data transfers; prohibitions of data localization requirements, including for financial services suppliers; and the prohibition of forced governmental access to computer source code and algorithms.<sup>37</sup> The terms of the new agreement broadly mirror agreements that had been previously reached under the TPP.

While a net positive, the coverage of the new agreements is narrower than that of the TPP. While committing to eliminate auto tariffs in the future, the US, at this stage, did not reduce or remove tariffs on automobiles and automobile parts, Japan's largest export to the United States. (Under the TPP, the 2.5% US tariff was to be phased out over 25 years.) Japan, on its part, did not expand the tariff quota on the import of US rice.

In the bilateral meeting with Prime Minister Abe, President Trump confirmed that the US will not invoke new Section 232 tariffs on automotive and auto parts imports, which was reflected in the joint statement signed by the two leaders in September 2019.

Both sides agreed to recommence negotiations on a more comprehensive agreement, to begin most likely in the Spring of 2020.

The agreements are significant, since US exports to Japan have been at a competitive disadvantage to exports by the eleven remaining signatories to the TPP (now branded the Comprehensive and Progressive Agreement for Trans-Pacific Partnership) and to exports from Europe that have been facilitated by the Economic Partnership Agreement (EPA) between the European Union and Japan that entered into force in February 2019.<sup>38</sup>

Because they are less than a full free trade accord, the agreements do not require Congressional approval. US business organizations have welcomed the agreements, and the digital provisions in particular, but point to the limited nature of the deal, "which falls short of the comprehensive nature of traditional US trade agreements as it lacks commitments on non-tariff barriers, intellectual property, and other regulatory concerns."<sup>39</sup>

Japan's trade policy broadly embraces multilateral processes, including trade negotiations and dispute settlement through the World Trade Organization (WTO). Trade principles embraced at the Osaka G20 leaders meeting in June 2019, hosted by Japan, included a free, fair, non-discriminatory, transparent, predictable, and stable trade and investment environment based on open markets; support for necessary reforms in the WTO; and agreement that action is necessary to reform the WTO's dispute settlement mechanism.

Japan is simultaneously expanding the number of free trade agreements to which it is a party, with 18 signed and/or effective with 21 regions and countries to date, including most recently the Japan-EU Free Trade Agreement and the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP), with negotiations continuing on the Regional Comprehensive Economic Partnership (RCEP) which includes Japan, China, South Korea, India, the ASEAN member states, Australia, and New Zealand.



## Foreign Direct Investment: A New Focus on Synergies

A steady and dramatic shift has been taking place in the pattern of Japan's two-way foreign direct investment (FDI), particularly with the US. Japan was the third largest source (by ultimate beneficial owner) of foreign direct investment in the US in 2017,<sup>1</sup> and the US is the largest source of foreign direct investment in Japan—accounting for one fourth of the total.<sup>2</sup>

For most of its postwar development, Japan has been notable for having a markedly lower level of inward FDI and presence of multinational corporations (MNCs) in its economy compared to other developed countries. In the early postwar years, various regulations actively restricted inward FDI to enable Japanese firms to grow in the domestic market; some of this was initially put into place by the US Occupation government to allow Japan's economy to redevelop from postwar devastation and become a bulwark against the Soviet Union's expanding influence in Asia.<sup>3</sup> In the 1980s, the restrictive environment in numerous sectors for foreign FDI and multinational corporations became one of the focal points of US-Japan trade friction.<sup>4</sup>

However, after the mid-1990s Japan experienced a surge of inward FDI, with the inward FDI stocks growing from less than 0.5% of GDP to over 4% by 2008.<sup>5</sup> Much of the inward FDI flows went into the various sectors

that had remained tightly closed to foreign corporate influence, including pharmaceuticals, automobiles, and telecommunications, as well as financial sectors including banking, insurance, and securities. The rapid rise of foreign MNCs by the early 2000s, which would have been unthinkable a decade earlier, saw auto firms Nissan, Mitsubishi, and Mazda becoming foreign managed, the Long Term Credit Bank bought out by an American investment fund, foreign insurers such as Aflac and ING becoming the top insurers in the Japanese market, Vodafone becoming one of Japan's three nationwide telecommunications carriers, and Pfizer becoming the largest employer in Japan's pharmaceutical industry.<sup>6</sup>

Foreign firms in Japan were often agents of change. Many were notable in departing from Japanese traditional corporate organizations, norms, and strategies: they often paid far higher wages in exchange for less job security; they departed from traditional industrial groupings; and they introduced new business models. Overall, they forced a substantial readjustment in major Japanese corporations, which faced the need to transform their businesses to compete differently from before, so that by around 2010, many of the sweeping changes in Japanese corporate practices and strategies had taken a firm hold.<sup>7</sup>

Much of the surge of FDI into Japan was a result of regulatory changes—both in economy-wide restrictions being lifted, and in regulations for specific industries that had made it difficult for foreign firms to enter the Japanese market. These regulatory changes were largely driven by the political leadership in the mid to late 1990s, with the ruling LDP (Liberal Democratic Party) needing to pass reforms to combat the slow economic growth in the post-bubble era or face being voted out. Particularly in the late 1990s, after a sharp recession following the Asian Financial Crisis of 1997–1998, Japanese firms in a variety of industries experienced performance crises, and foreign MNCs were suddenly hailed as saviors who could introduce new practices and break free from previous Japanese corporate norms and practices that had hindered their adjustment.

In recent years, annual inbound FDI flows have varied: \$2.3 billion in 2013, \$12 billion in 2014, \$3.3 billion in 2015, \$11.4 billion in 2016, and \$10.4 billion in 2017.<sup>8</sup> While the net inflow of FDI as a share of GDP, which remains under 1%, is low compared to the average for other OECD member countries—hovering between

1.5% and 3.5% in recent years before sinking to 0.9% in 2018<sup>9</sup>—the impact of foreign firms in Japan is greater than these numbers suggest. When foreign financial firms or IT companies such as Google or Facebook enter a country, for example, their FDI footprints are limited and are far smaller than a company building factories or purchasing major industrial assets. Economic studies also suggest that the levels of FDI inflows and stocks in Japan significantly understate the magnitude of actual foreign corporate presence, since they capture only the initial investment amount, but not the amount that the local subsidiary or branch in Japan reinvests to grow, using funds accumulated from sales within Japan.<sup>10</sup>

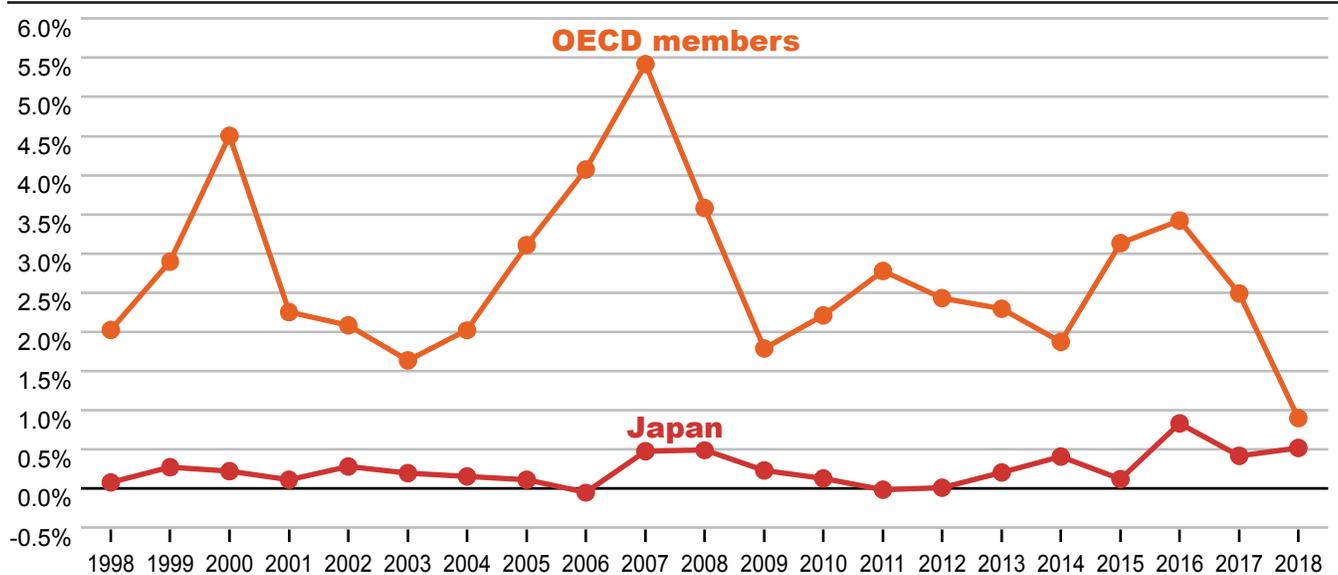
## US-Japan Two-Way FDI

The total stock of US FDI in Japan in 2017 was \$129.1 billion, up from \$124.6 billion in 2016 and \$117.2 billion in 2013. US 2017 FDI flow into Japan totaled more than \$9.6 billion, versus a negative \$1.4 billion in 2016 and \$6.2 billion in 2013.<sup>11</sup> Leading sectors for investment were finance/insurance, manufacturing, and information services.<sup>12</sup>

### EXHIBIT 17

## Japan's level of inward FDI is rising, although from a low percentage compared to OECD averages

FDI Net Inflows As a Percentage of GDP, Japan Compared to OECD Members, 1997–2018, percent

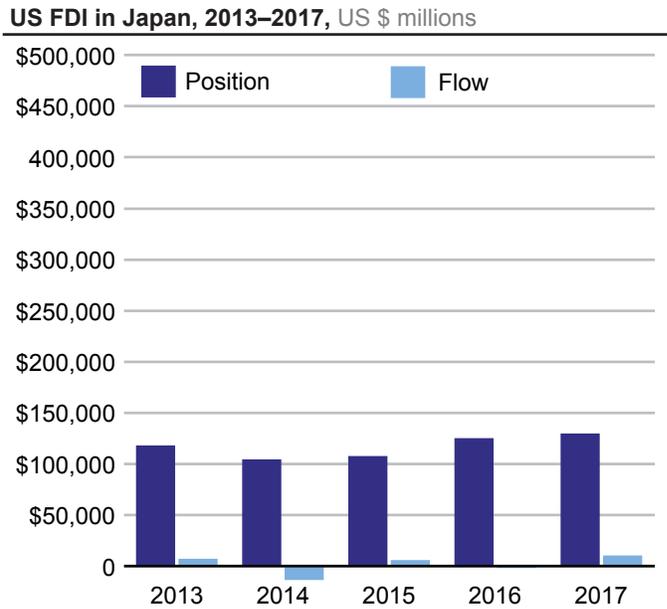
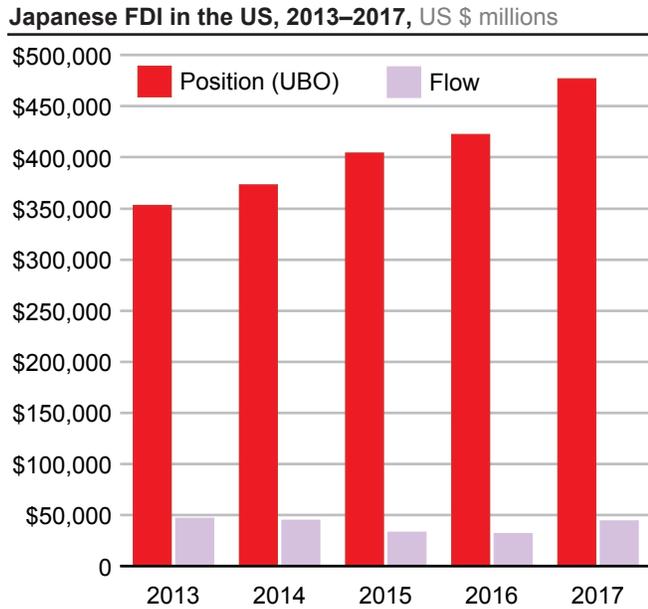


Source: The World Bank compilation from multiple sources

Visualization: Bay Area Council Economic Institute

**EXHIBIT 18**

**Although the two-way flows of FDI have been variable, both Japanese FDI stock in the US and US FDI stock in Japan have been growing since 2014.**



Notes: UBO=Ultimate Beneficial Owner, the entity at the top of an affiliate’s ownership chain.

Position/Stock= Snapshot of cumulative FDI taken at year end. Flow= FDI coming into a country over a period of time.

Source: SelectUSA, US Department of Commerce

Visualization: Bay Area Council Economic Institute

Reflecting a growing focus in Japan on research and technology, in its 2017 Invest Japan report, the Japan External Trade Organization (JETRO) reported a “qualitative change” in foreign inbound FDI, with growing foreign interest in establishing research and development centers, increasing investment from elsewhere in Asia, and an expanding focus on artificial intelligence and other “Fourth Industrial Revolution” technologies.<sup>13</sup>

Japan’s overall outbound FDI is also growing. Overseas direct investment grew by 91% in the first five years of the Abe government, to \$1.54 trillion at the end of September 2017, according to data compiled by the finance ministry and the Bank of Japan. Around 40% of that increase took place over 2016–2017. Japanese firms concluded 667 overseas acquisitions in 2017, a second consecutive record year for deals reported by Tokyo M&A data and consulting firm Recof.<sup>14</sup>

In 2017, total Japanese FDI stock in the US by ultimate beneficial owner (UBO) reached \$476.9 billion, up from \$422.2 billion in 2016 and \$352.9 billion in 2013.

Japanese FDI flow into the US in 2017 totaled \$43.9 billion, up from \$31.6 billion the previous year. Leading sectors for Japanese FDI were auto components, industrial equipment, automotive original equipment manufacturing (OEM), plastics, metals, and software and IT services. Japanese investment supported more than 860,000 jobs for US workers, \$8 billion in R&D investment through US affiliates, and nearly \$87 billion in US goods exports by Japanese-owned firms operating in the US.<sup>15</sup>

Amid uncertainty over US-Japan trade negotiations, the relative roles of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership and the Regional Comprehensive Economic Partnership (RCEP) in regional trade, plus slowing global growth, the US-Japan bilateral relationship has assumed new economic and strategic importance. In this context, closer coordination around investment, whether cross-border R&D in cutting-edge technology or joint strategic investment in third-country infrastructure projects comparable to China’s Belt and Road Initiative, could be a stabilizing influence that also brings mutual economic benefit.

## California-Japan Two-Way FDI

California and Japan have enjoyed a robust exchange of direct investment for decades, but in recent years the cross-border market has matured from the days of Japan's asset price bubble, with investments more focused and reflective of strategic and research synergies than trade frictions.

Overall, Japanese investment supports more than 47,000 jobs in the Bay Area.<sup>16</sup> While that number is lower than when Toyota's joint venture with General Motors (New United Motor Manufacturing Inc.) manufactured cars in Fremont before the 2009–2010 recession, the jobs created by Japanese investors are high-paying.

The Financial Times fDi Markets database shows 110 direct (non-portfolio) Japanese investments into California between 2014 and early 2019, and 139 projects undertaken by California firms in Japan.<sup>17</sup> While that list is not exhaustive, it provides useful insights into key investment trends for the state and for the Bay Area. Major inward Japanese investments in the past five years have concentrated in several key sectors: automotive, renewable energy, data storage/security, industrial equipment/materials, fintech, biomedicine, retail, and digital video.

Recent noteworthy projects in Northern and Central California include the following:

- **RagingWire Data Centers**, a Sacramento developer of data co-location facilities acquired in 2014 by Japanese telco NTT Communications, has twice expanded the three data centers on its Sacramento campus—in 2014 and 2015—to a total of 680,000 square feet and 52 megawatts of critical IT load.<sup>18</sup> In December 2018, the company announced a planned \$115.5 million, 160,000 square foot, 16 MW Santa Clara data center, to be completed in 2020.<sup>19</sup>
- Asahi Glass unit **AGC Biologics**, a contract developer and manufacturer of therapeutic proteins, announced in March 2018 a \$94 million expansion of its Berkeley production facility. AGC has tripled the Berkeley facility's capacity since 2015.<sup>20</sup>
- Online retail rewards platform **Rakuten**, through its Rakuten Institute of Technology, opened a \$21 million San Mateo research center in April 2018. The center is a US market hub for research in data science, data mining, neuro-linguistic programming (NLP), and AI/machine learning in the e-commerce marketing space.<sup>21</sup>
- Financial services group **Nomura Holdings** opened a San Francisco financial innovation/business development center in September 2017 to serve as the global hub for a \$100 million initiative to co-invest and collaborate with startup, venture capital, and other partners on next-generation businesses and technologies.<sup>22</sup>
- A data security unit of electronics group NEC Corp., **Infosec Corp.**, opened a \$69 million Santa Clara security operations center in the spring of 2017. The center is part of a "follow the sun" effort to decentralize Infosec cyber threat monitoring and response operations and to establish collaborative partnerships in Silicon Valley.<sup>23</sup>
- In the automotive sector, **Honda Motor Co.** established a \$22 million Honda Xcelerator testing and prototyping facility in Mountain View in July 2015.<sup>24</sup>
- In April 2016, **Toyota Boshoku America** established a \$14 million Silicon Valley R&D center to develop seating and interiors for autonomous vehicles.<sup>25</sup>
- The Sacramento area attracted a range of projects, reflecting its lower cost, inventory of industrial properties, and growing tech talent pool. In November 2015, **Toshiba Corp.** took over a 21,000 square foot industrial space in Folsom for an R&D center to develop its next generation of memory chips for laptop and tablet solid-state hard drives. The company chose Folsom, where Micron and Hewlett-Packard also have operations, for its local base of engineering talent.<sup>26</sup>
- In 2013, **Mitsubishi Rayon Company** (Japan) acquired and merged two California companies: Sacramento carbon fiber manufacturer Grafil and Newport Adhesives and Composites, an Irvine maker of "prepreg" resin composite that is pre-impregnated into carbon fiber to strengthen it. The combined company, Mitsubishi Rayon Carbon Fiber and Composites, invested nearly \$70 million in 2015

to modernize and double the capacity of its South Sacramento facility making carbon fiber used in pressure vessels, wind turbines, and autos.<sup>27</sup>

- Japanese discount consumer goods retailer **Daiso Sangyo** opened a \$25 million store in the Sacramento Gateway shopping complex in May 2017, its second site in the Sacramento area.<sup>28</sup>
- And in San Luis Obispo on California's central coast, **Hitachi Zosen Inova**, a Swiss unit of Osaka-based Hitachi Zosen Corp., completed work in 2018 on its first anaerobic digestion waste-to-energy plant in the US. Anaerobic digestion uses microorganisms to break down food waste in landfills into biogas for generating electricity and high-grade compost for fertilizer. The \$22 million plant was developed under a 20-year design-build-finance-own-and-operate agreement among Hitachi operating company Kompogas SLO LLC, waste collection firm and landfill operator Waste Connections, and the San Luis Obispo County Integrated Waste Management Authority. Financing was arranged through the Japan Bank for International Cooperation, with a \$4 million grant from California Climate Investments, the entity which disperses funds generated by the state's carbon cap-and-trade program.<sup>29</sup>

In the opposite direction, recent investments into Japan made by Northern California companies have included projects in a variety of sectors ranging from semiconductor components and logistics to telecommunications and film and video production. A brief sampling of significant investments made in the past five years includes the following:

- **Keysight Technologies**, a Santa Rosa electronic testing and measurement spinoff of Agilent Technologies, opened a \$25 million automotive electronics design and testing facility in Nagoya to support the development of radar-based driver assistance systems as well as battery, drivetrain, and charging performance in electric vehicles.<sup>30</sup>
- **Pattern Energy**, a San Francisco-based investment company that bundles and securitizes renewable energy assets, purchased a 122 MW wind project under construction in Tsugaru and four smaller

projects—two operating solar plants in Futtsu and Kanagi and two other wind projects in Otsuki and Ohorayama—for \$325 million in February 2018.<sup>31</sup> Pattern Energy was attracted by Japan's high utility tariffs and relatively low market penetration for renewable power.<sup>32</sup>

- San Francisco-based logistics warehouse developer **Prologis** opened a \$210 million logistics park in Fukuoka in February 2015. The company also owns or has invested in 53 multistory distribution centers in Asia<sup>33</sup> with a combined 37 million square feet of developed space, including eight logistics parks in the Fukuoka, Osaka, Nagoya, Sendai, and Tokyo markets, most developed since 2014.
- In 2014, Alphabet's **Google Fiber** division made a \$300 million investment in the 9,000 mile "Faster" subsea fiber-optic cable connecting Japan and the US West Coast. Faster was built by NEC to deliver 60 terabit-per-second phone and data capability for a consortium that also includes mobile network operator Singapore Telecommunications (SingTel), China Mobile International, China Telecom Global, Malaysian IP telecom provider Global Transit Communications, and Japanese telecommunications firm KDDI.<sup>34</sup>
- **GigOptix**, a San Jose supplier of high-speed semiconductor components that enable end-to-end information streaming over optical and wireless networks, opened a \$58 million regional headquarters in Tokyo in March 2015.<sup>35</sup>

Over 2014–18, multiple Bay Area companies opened data centers: Oracle's **NetSuite** subsidiary, **Salesforce**, data center REIT **Digital Realty Trust**, Mountain View voice-over-internet phone and videoconferencing firm **InSpeed Networks**, Belmont cloud communications and collaboration provider **RingCentral**, and San Francisco mobile cloud communications firm and SoftBank partner **Dialpad**.

In other transactions, **Cisco Systems** also opened a \$20 million Internet of Things innovation center in Tokyo, and Milpitas software-defined network developer and cloud computing firm **Aryaka Networks** established a Japan facility.

## Conclusion

Japan has been, and remains, one of California's and the Bay Area's most important global partners. Historically, this has been reflected in strong two-way trade and investment flows, with Japanese trading companies and other major corporations actively basing activities from the region. Major changes in the global business environment are now transforming this relationship from one based largely on trade and investment to one in which research, innovation, and collaboration play a major role.

The bilateral trade agreements recently signed between Japan and the US are all the more significant in light of the US withdrawal from the Trans-Pacific Partnership agreement in 2017, which has disadvantaged the US relative to other TPP members in Japan's markets. A more complete US-Japan agreement to be negotiated should address the full spectrum of bilateral trade issues including customs duties and other restrictions on trade, barriers to trade in services, and investment. By strengthening the partnership between the world's

largest and third largest economies, a successful agreement will also support open-market policies in the Asia-Pacific region and globally.

Changes in the business environment can be seen more immediately in the transformations underway in many Japanese companies toward more flexible business structures that consciously incorporate the open innovation models pioneered in Silicon Valley. In this respect, the Bay Area is playing a critical role, as Japanese companies use their presence in the region to accelerate digitalization, engage more deeply with startups, and develop new and more open ways to interface with customers. For many companies, the success of these efforts is seen as critical to their future growth and survival. This process of internal and external transformation, if successful, will open a wider field of opportunity for businesses on both sides and for strengthening the roles of both the US and Japan in Asian and global markets.



Shibuya Crossing, Tokyo, renowned as the world's busiest pedestrian crossing, September 2019

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## CHAPTER 5

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## CHAPTER 6

### A Shifting Landscape for Trade

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## CHAPTER 7

### Foreign Direct Investment: A New Focus on Synergies

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