JUMPSTART YOUR JAPANESE JOURNEY

2022

Pet Goods Industry Overview in Japan

Report Index

Industry Overview

Pet Food Market Valued at JPY 320 Billion

This industry covers companies engaged in the manufacturing and wholesale of pet goods.

Pet goods can be categorised into two large groups: pet food and pet care goods. Pet food accounts for a large share of the pet goods market, with shipments valued at approximately JPY 320 billion. Meanwhile, shipments of toiletry and hygiene products for both cats and dogs are valued at around JPY 64 billion.

Market growth is driven by factors such as an increase in household expenditure of pet-related goods along with increasing attention to their pets’ well-being amongst pet owners and the growing demand for more functional products due to there being more pets who live until a very old age.

Pet Goods Classified into Pet Care Goods and Pet Food

The broader pet market includes pet goods, veterinary care (and expenses to treat injuries and illnesses) and other pet-related services such as pet training schools and pet hotels.

As mentioned previously, pet goods can be divided into two broad categories: pet food (e.g. treats/snacks, supplements) and pet care goods (e.g. daily necessities, clothing). According to a survey of annual spending on pets in Japan by Anicom Insurance (JPN), pet goods for cats account for around 40% of the total expenditure, while those for dogs account for around 30%.

Different Pet Food to Suit Purpose, Pet Type, and Life Stage

Pet food can also be grouped into three categories according to purpose, pet type, and life stage.

By purpose, pet food can be divided into staple foods and treats/snacks. According to a survey by the Japan Pet Food Association (JPFA), staple food accounts for approximately 70% of total pet food expenditure. By pet type, apart from food for cats and dogs, it also includes food for small animals, birds, and aquarium fish. Different types of food also exist for different life stages of a pet. Using the life cycle of a dog as an example, there are different foods for puppies, adolescents, adults, and senior dogs.

The kinds of foods suitable for dogs and cats also vary according to factors such as breed size (large or small) and the environment a pet is raised in (indoors or outdoors). In addition, food cost varies greatly for large and small pets: for example, food for large dogs costs close to three times that for small dogs. Due to the popularity of miniature and small dogs in Japan in recent years, pet food now takes up a comparatively small share of total pet expenditure. This indicates how the current trends for pet dog sizes can easily affect the size of the market.

Diversified Distribution Channels for Pet Goods, with 60% Purchased Through Hardware and Discount Stores

Although previously, pet goods used to be supplied from manufacturers to pet shops and retail stores through wholesalers, distribution channels have become more diversified. Nowadays, pet goods can be purchased via an increasing number of general retailers such as hardware stores, supermarkets, and drugstores, and also online shops.

Pet Food Safety Act Requires Businesses to File Notifications for Pet Food Products for Cats and Dogs

According to the Act on Ensuring the Safety of Pet Food (Pet Food Safety Act) which came into effect in 2009, businesses engaged in the manufacture and import of pet food for cats and dogs (e.g. treats/snacks, supplements, mineral water) need to file a notification to the authorities. In addition, the Act also specifies manufacturing methods, standards for ingredients, and necessary information to be displayed on the packaging.

Channels Used to Purchase Pet Food and Commercial Pet Goods (Share of Consumers)

	%
Hardware Stores and Discount Stores	62.2
Supermarkets	34.6
Drugstores	32.8
Online Stores	32.2
Pet Shops	26.4
Veterinarian/Pet Clinics	5.3
Convenience Stores	1.9

Source: Japan Pet Food Association, “2020 National Survey on Pet Keeping for Dogs and Cats” (2,059 survey respondents)
Note: Survey question allowed for multiple choices.

Market Trends

Dog Food Shipments in Decline, but Cat Food and Toiletries on Uptrend

According to the JPFA, the value of pet food shipments in FY2019 stood at JPY 319.4 billion. Despite a temporary drop in FY2015, this value has continued to grow in recent years.

By type of pet food, the volume of dog food shipments has been decreasing. This is attributable to the declining demand for large bags of pet food (which are more economical for keepers of large breeds of dogs) amidst the increasing popularity of smaller pets in recent years and more indoor pet-keeping. Meanwhile, the demand for cat food is stable as it is not as affected by consumers' preference for small pets, given that cats are already comparatively small.

The market for pet care goods, meanwhile, is dominated by toiletry and hygiene products. According to the Japan Pet Products Manufacturers Association, the value of toiletry and hygiene product shipments in FY2019 totalled JPY 34.3 billion for dogs and JPY 29.4 billion for cats, with both of these figures rising YoY. The factors behind this growth include the rise in demand of pet diapers to help with older pets' incontinence issues, and the growing need for pet owners to avail of pet-care products as pets are increasingly kept indoors.

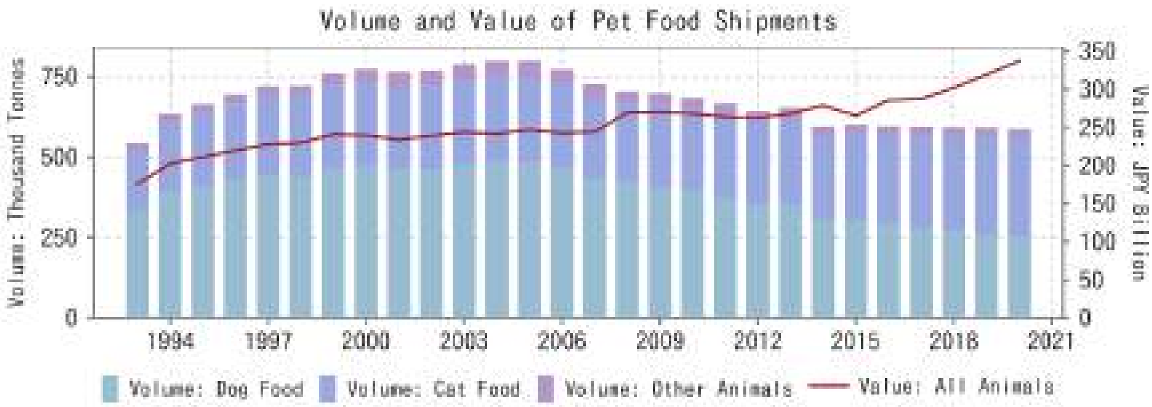
According to the JPFA, there has been an increase in new pet owners as well as the time spent with pets due to COVID-19, and these factors have had a positive impact on the demand for pet goods. For instance, Unicharm's FY2020 revenue in its pet care business was up by 10% YoY, attributed to the increase in interaction with pets amongst owners and the launch of new products by the company.

Shipment Value for Toiletry and Hygiene Products for Pets

	Dogs	Cats
FY2018	33.31	27.61
FY2019	34.33	29.37

Unit: JPY billion

Source: Japan Pet Products Manufacturers Association

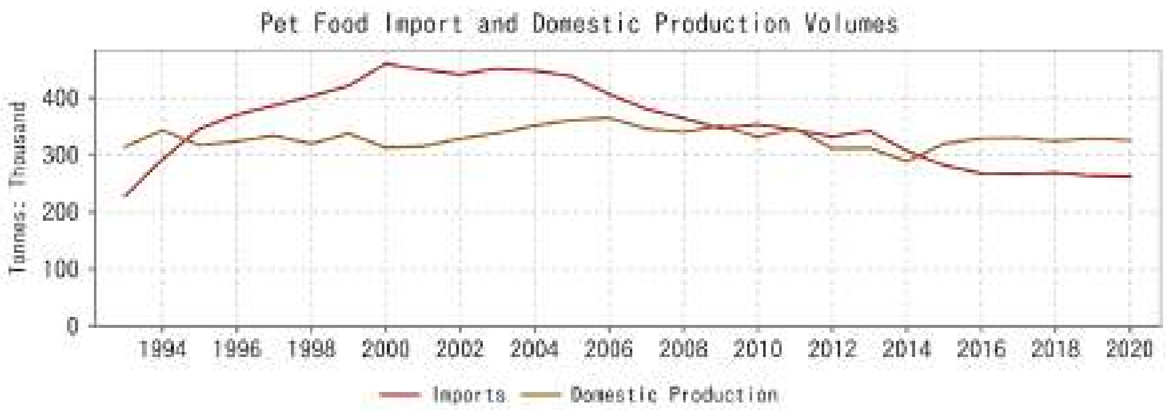


Source: Japan Pet Food Association

Pet Food Imports Peaked in FY2000; Domestic Production Recovering Due to Growing Demand for High Value-Added Products

In terms of the import and domestic production of pet food, pet foods imports through foreign-owned business operators expanded until FY2000. However, the ongoing diversification in product types and consumer needs has led to a recovery in the share of domestic high value-added products compared to FY2000, and domestic production volume has exceeded import volume since FY2015.

Furthermore, according to data on the import and export of agricultural, forestry, and fishery products from the Ministry of Agriculture, Forestry and Fisheries (MAFF), the leading importers of pet food products are Thailand and the US. Thailand, in particular, is seeing rapid growth in its pet food market as its falling birth rate and ageing population lead more and more households to own cats and small dogs.



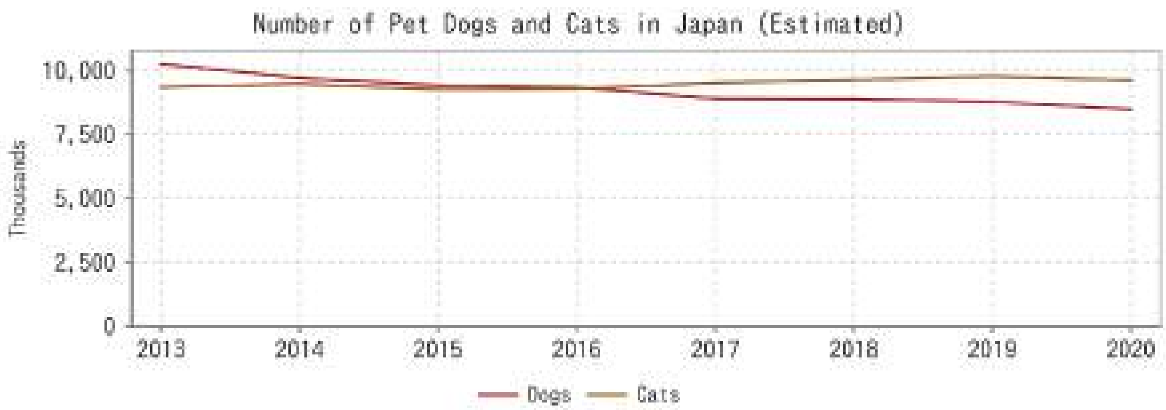
Source: Japan Pet Food Association

Number of Cats Surpassed Number of Dogs in 2017

According to the JPFA, the number of pet dogs in Japan is in decline, while the number of pet cats has remained flat and surpassed that of dogs since 2017.

According to the Report on Public Health Administration and Services by the Ministry of Health, Labour and Welfare (MHLW), the number of dogs registered as pets began to rise in the mid-1990s. The number peaked in FY2009, and has since been on a downtrend.

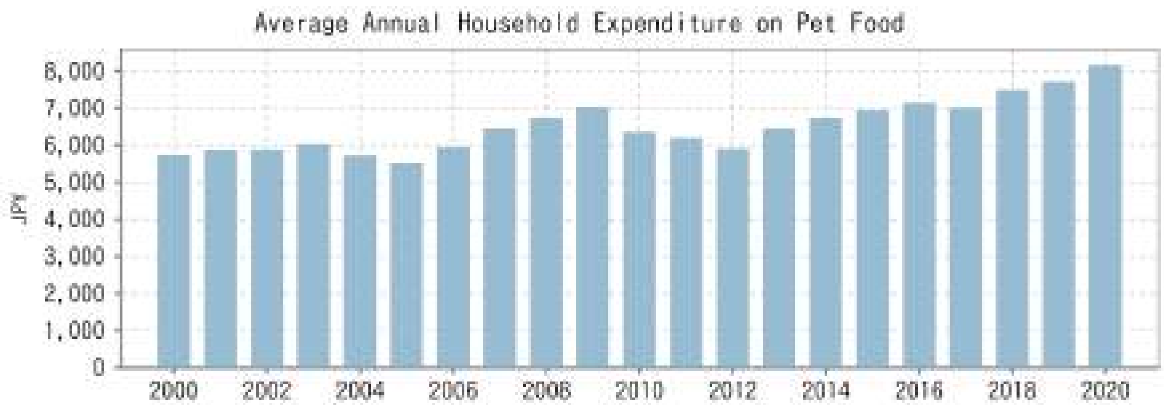
The primary reasons for this decline in the number of pet dogs are considered to be 1) the difficulties faced by elderly owners in caring for dogs given their increasing lifespan, and 2) the fact that the majority of the dogs brought up in the early 2010s have already reached the end of their lives.



Source: Japan Pet Food Association, "2020 National Survey on Pet Keeping for Dogs and Cats"
Note: Data is as of October of each year.

Pet Food Expenditure Increased Due in Large Part to Favourable Sales of Premium Products

The Family Income and Expenditure Survey conducted by the Ministry of Internal Affairs and Communications shows that expenditure on pet food is growing. While expenditure on low-end products remains firm, new premium products, including foods with better flavour and higher nutritional value, as well as foods for pets of different ages and physical characteristics, are becoming increasingly popular amongst pet owners. One possible factor is the increased attention to pet health amongst their owners, due to the fact that many more pets now get to live to an old age and that consumers have been generally spending more time with their pets during the COVID-19 pandemic.



Source: Ministry of Internal Affairs and Communications, “Family Income and Expenditure Survey” (Households of Two Persons or More)

Competitive Trends

Pet Food Production Most Often a Secondary Business of General Food Product and Daily Essentials Manufacturers

Business operators in the industry are classified into pet food manufacturers, pet care goods manufacturers, and pet goods wholesalers. There are very few pure-play companies in each category, with pet food often developed as a secondary business by manufacturers of daily essentials, food, and animal feed. There are also few local companies, and the degree of oligopolisation in the industry is relatively high.

In the pet food market, which drives industry growth, domestic and foreign-funded players have a mixed presence. Leading domestic players include Unicharm (JPN), Nippon Pet Food (JPN), and Petline (JPN). Foreign-affiliated players include Mars Japan (JPN; parent company Mars [USA]), and Nestle Purina PetCare (JPN; parent company Nestle [CHE]).

Mars group company Royal Canin (FRA) acquired dog food brands such as “Iams” and “Eukanuba” from Procter & Gamble (P&G, USA) in 2014. The company has expanded its business through M&As, and is now the largest player in the global pet food market.

DoggyMan H.A. (JPN) and Iris Ohyama (JPN) are examples of leading manufacturers that focus primarily on pet care goods, with Kao (JPN), a major manufacturer of daily necessities, also strong in this area.

Amongst pet goods-related wholesalers, Japell (JPN) is the largest company, followed by Echo Trading (JPN).

Classification of Pet Goods Business Operators

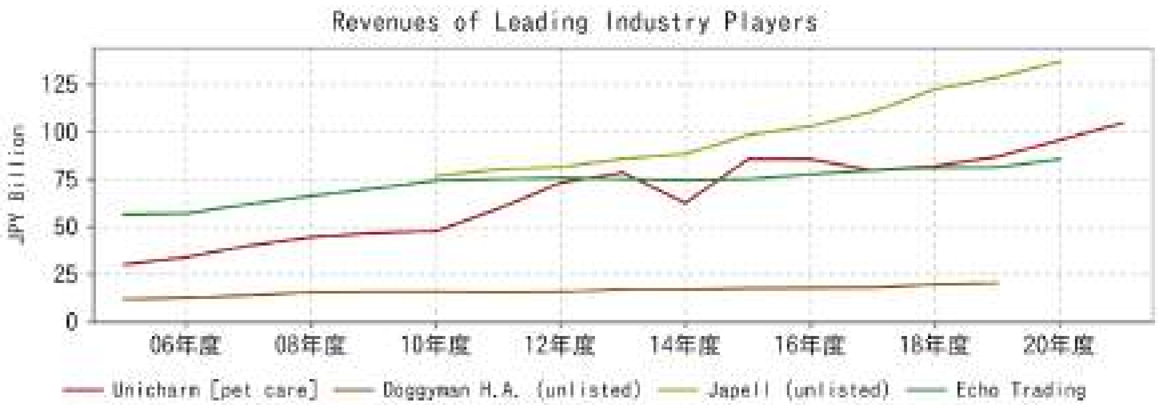
Category	Company
Pet Food (Domestic Companies)	Unicharm (pet care division), Nippon Pet Food, Aixia (Maruha Nichiro group), Inaba Pet Food, Petline (Nosan group), Marukan
Pet Food (Foreign Companies)	Mars Japan (Mars group), Hill's-Colgate (Japan) (Colgate-Palmolive group), Nestle Purina PetCare (Nestle group), Royal Canin Japon (Royal Canin group)
Pet Care Goods	Iris Ohyama, Lion, AEON Pet, Petio, DoggyMan H.A., Kao
Pet-Related Wholesalers	Japell (Arata group), Echo Trading, Lovelypet

Source: Compiled by Uzabase based on disclosed materials from ipet Insurance

Noticeable Increase in Market Entries from Consumer Electronics Companies Utilising AI and IoT

In recent years, companies from other industries—such as consumer electronics companies, security camera manufacturers, and digital device makers—have used AI and IoT technologies to break into the pet goods market. Sharp (JPN), for example, announced its entry in 2018 with the release of its smart toilet system Pet Care Monitor for cats which records and analyses urine volume, frequency, duration of use, and weight. It has also released an air purifier that allows users to provide an appropriate air flow for their pets through the registration of pet information.

Panasonic (JPN) has also released a home network camera aimed at people who keep their pets indoors that allows owners to record and confirm their pets' movements by automatically tracking them via wireless LAN.



Source: Company filings

Source: Company filings

Unicharm: Developing Functional Products for Long and Healthy Lives of Pets and Owners; Also Establishing Foothold in US

Unicharm is a major player in the toiletries industry, and also operates a pet care business which leverages its strengths in non-woven fabrics and absorption, and its moulding technologies. Its Pet Care business develops pet food, primarily for cats and dogs, and also pet care goods, primarily waste excretion care. According to the company’ s data from 2020, it ranked first in the domestic market for pet toiletries and second for pet food. While its Pet Care business accounts for only 13% of overall revenue, the company has positioned it as one of its strategic businesses considering the expansion taking place in the global pet care industry and will look to drive further growth of this business going forward.

In the pet care goods segment, the company is tackling the issue of aged pets by focusing on pet diapers that apply the same technologies used in the production of human diapers. In addition, as more pets are now raised indoors, the company has been offering products for pets that require powerful deodorising sheets and long-term care. In the pet food segment, Unicharm has introduced products with detailed segmentation such as by type, age, and type of ailment.

In terms of global business, the company made former Sumitomo (JPN) subsidiary Hartz Mountain (USA) its own consolidated subsidiary in 2011 in order to expand its business in the North American market. According to company data, it holds the leading share in the US domestic pet toiletries market. The company has leveraged advanced Japanese technologies to develop products with high functionality, such as wet cat snacks (which were a brand-new concept in the US market) and sheets for dogs, and the company aims to further expand its pet care business in North America in future. In addition, as demand is expected to grow in China and other emerging markets in Asia as populations in the region continue to age and disposable income levels continues to rise, the company is aiming to capitalise on this growth and expand its business in these markets.

DoggyMan H.A.: Strong in Dog Snacks and Developed World’ s First Jerky for Pets

Established in 1963, DoggyMan H.A. engages in the manufacturing and sale of pet food and goods, and is particularly strong in the market for dog snacks. Its primary brand “Healthy Jerky” is amongst the world’ s first jerky product brands for pets. The company has responded to diversifying needs through its affiliates, including Petz Route (JPN), which provides usage instructions for products, training on pet keeping, and even operating pet specialty stores, amongst others; and Doggy Foods (JPN), which produces highly reliable products through strict quality management.

The company boasts the leading share in the domestic market for dog snacks, with “DoggyMan” amongst its mainstay brands. The company is not only focused on the market for dog food, but is also looking to expand its share in the cat food market, with “CattyMan” as one of its brands.

In its overseas business, DoggyMan H.A. has been focusing on East Asia, with South Korea, Taiwan, and Hong Kong being the primary markets; in Mainland China, it established a new factory in Qingdao in 2014, after its entry into Shanghai. In addition, the company made its branch office in Vietnam locally incorporated in 2015, established a locally incorporated enterprise in Taiwan in 2016, and in 2018, established a subsidiary in both South Korea and Bangladesh.

Japell: Leading Domestic Specialised Wholesaler of Pet Goods, with Pet Foods at its Core

A wholly-owned subsidiary of major daily necessities wholesaler Arata (JPN), Japell is a general trading company specialising in pets. The company is engaged in several areas, including product development, distribution, and retail sales. Its pet goods-related business is a key driver of parent company Arata’ s overall revenue and it has been positioned as a specialised business within the group.

According to the company’ s data, it holds a leading share in the wholesale market for pet-related products. With pet foods as its core business, Japell handles a wide range of pet-related products, including general goods and various pets. It also develops original private brands.

In its overseas business, the company is focusing on the import of products from the US, Canada, Southeast Asia, and China. Furthermore, the company is considering to open satellite stores in Taiwan, Vietnam, Thailand, and Singapore to expand its mainstay wholesale business in Asia.

Industry Leaders

(Unit：USD Million)	Period	Total Revenue	Net Profit Attribute to parent company shareholders	Net Profit Margin (Attribute to parent company shareholders)	Sales Growth	Headcount - Year End	Market Cap	P/E	EV/EBITDA
Unicharm Corporation	12/2021	7,127	662	9.3 %	7.6 %	16,308	23,744	36.1 x	15.9 x
IRISOHYAMA INC.(Private)	12/2020	2,032	167	8.2 %	35.2 %	N/A	N/A	N/A	N/A
JAPELL Co., Ltd.(Private)	03/2021	1,291	11	0.9 %	6.4 %	N/A	N/A	N/A	N/A
Shintoa Corporation(Private)	03/2021	1,114	11	1.0 %	-2.7 %	161	N/A	N/A	N/A
Echo Trading Co., Ltd	02/2021	808	2	0.3 %	5.2 %	341	32	14.1 x	4.0 x
Lovelypet Co., Ltd.(Private)	06/2020	269	N/A	N/A	11.2 %	N/A	N/A	N/A	N/A
DoggyMan H. A. Co., Ltd.(Private)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Unicharm Petcare Co., Ltd(Private)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
日清ペットフード (Private)	03/2021	N/A	7	N/A	N/A	N/A	N/A	N/A	N/A
Mean	N/A	2,107	143	3.9 %	10.5 %	5,603	11,888	25.1 x	10.0 x
Median	N/A	1,203	11	1.0 %	7.0 %	341	11,888	25.1 x	10.0 x
Minimum	N/A	269	2	0.3 %	-2.7 %	161	32	14.1 x	4.0 x
Maximum	N/A	7,127	662	9.3 %	35.2 %	16,308	23,744	36.1 x	15.9 x

Startup Island TAIWAN

Diverse Culture
多元文化

Daring Innovation
勇敢創新

Endless Creativity
無限創意

BACKGROUND & GOAL

Startup Island TAIWAN is the national startup brand co-created by the Taiwan government and startup communities. Its primary goal is to promote Taiwan's startup ecosystem and to assist Taiwan startups in expanding to global markets. The logo is of abstract mountains reflected in the ocean. The image also symbolizes infinity and DNA, which reflect the infinite possibilities that Taiwan startups may create, and entrepreneurial spirit they possess.

On top of the national startup brand, the Taiwan government has further launched the NEXT BIG Project. Together, the startup communities and industry leaders have nominated nine startups to become NEXT BIG companies. With NEXT BIG leading the way, it is expected that more young people will be inspired, and Taiwan's thriving entrepreneurial energy will be conveyed to the world.

Startup Island TAIWAN website

Leading-Edge Technology
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2022

The Major Role of Technology in The Japanese Retail Market

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Industry Overview

The Significance of Population Decline

Japan is one of the nations experiencing a significant population decline. Due to a low birth rate, the Japanese government projection shows a 29.6% decrease in the population for the next 45 years. The population is estimated to have declined from 125 million in 2021 to 88 million in 2065. Luckily, Japan is technologically advanced compared to other countries. As a result, they are implementing their technology to suppress their population deficiency.

A rising number of retailers employ digital tools and technology referred to as retail technology. It varies from traditional brick-and-mortar stores (offline) to eCommerce platforms (online) in their supply chain and in-store operations. It forms the nucleus of retail firms' digital transformation.

In contrast to wholesale, which involves selling to businesses or institutions, retails are selling products and services to people. The retailer is the final link in the supply chain between manufacturers and customers. Retail technology solutions usually rely on automation, the Internet of Things (IoT), and artificial intelligence (AI).

Retail Market Sales Before COVID-19

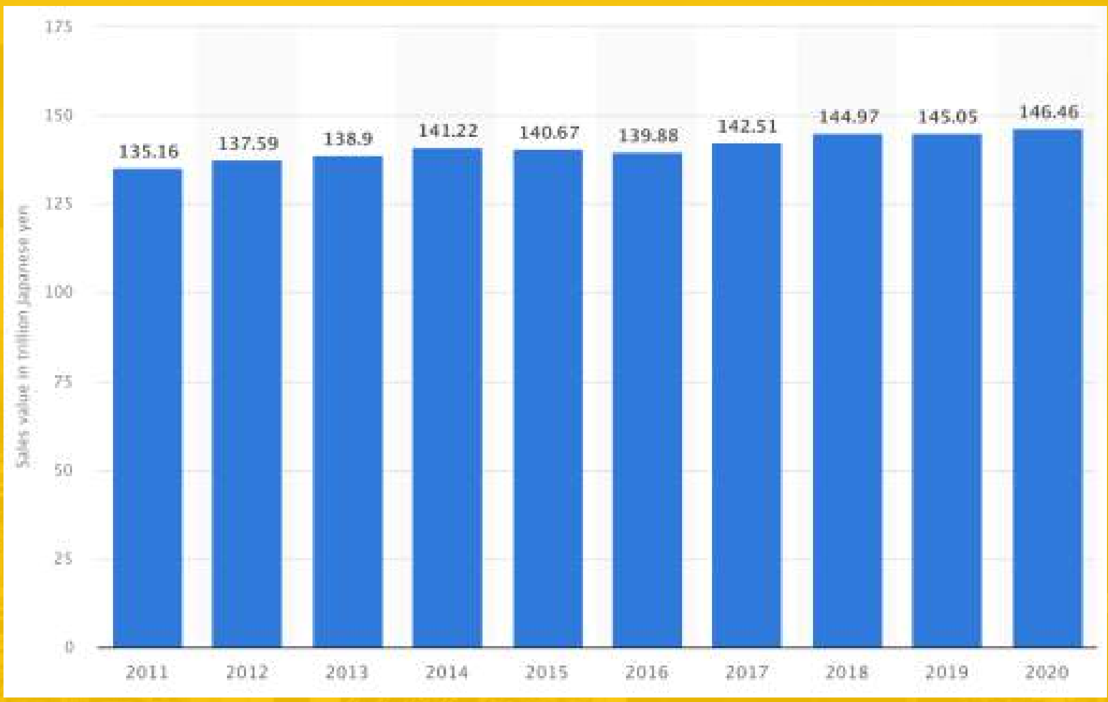


Figure 1: Retail Sales Market in Japan (Source: Statista)

Before COVID-19, retail sales in Japan were doing well. The trend has been gently climbing to JPY$ 146.46 since 2011. Except for 2015 and 2016, throughout the last ten years, we do observe a correction because of the economic crisis. Apart from that, it is moving higher.

Market Resurgence Following COVID-19

Retail sales in Japan increased by 3.6 percent YoY (Year on Year) in May 2022, above the market forecast of 3.3 percent and coming on the heels of a month-earlier gain of 3.1 percent that was upwardly revised. The most recent report indicated that retail commerce has increased for three months running at its fastest rate since May 2021, helped by a rise in consumption after the government eliminated all COVID-19 limitations. General item sales increased significantly by (21.7% vs. 8% in April), but motor vehicle sales fell for the eleventh consecutive month.

Figure 2: Japanese Retail Sales in YTD. (Source: Trading Economics, METI)

Market Overview

Retail Channels

Brick-and-mortar commerce has a significant presence in the Japanese retail market. For daily items, cosmetics, and food, consumers prefer physical stores. Online companies are continuously expanding as more customers take advantage of speedy shipping and efficient customer services.

Offline Market is Dominating the Field

In Japan, from little specialty shops to big department stores, physical businesses come in a wide variety. Supermarkets and convenience shops are the primary sites of sale for the food and beverage sector. Department stores compete with specialized merchants in the non-food divisions' thanks to their wide selection of products. These physical store kinds will be further examined in the next section.

Revenue Breakdown by Business Type

Business Type	Number of Stores	Revenue			Total Revenue of Top Companies
		Per Store	Per Employee	Per Area (sqm)	
Convenience Stores	49,463	176	12	2.8	JPY 2–5 trillion
Supermarkets	27,442	749	20	0.9	JPY 0.4–0.7 trillion
Drugstores	15,344	318	23	0.6	JPY 0.5–0.8 trillion
Department Stores, General Merchandise Store	1,590	7,946	38	0.7	JPY 0.5–0.8 trillion

Table 1: Revenue Breakdown by Business Type

Revenue Unit: JPY million except where otherwise noted

Source: Compiled by Uzabase based on the Ministry of Economy, Trade and Industry’s “Current Survey of Commerce” (2016) and company filings

Note: Company-wide revenue for convenience stores is based on the revenue amount for all stores.

Gross Profit Margin by Product Category

	Delicatessen Foods	Daily Foods	General Foods	Non-Food Products (Daily Necessities)	(For Reference: Pharmaceuticals)
Convenience Stores: Seven-Eleven Japan	39	37	34	21	-
Supermarkets: Life Corporation	55	(*)	26	27	-
Drugstores: Tsuruha Holdings	-	-	14	27	42

Table 2: Gross Profit Margin by Product Category

Unit: %
Source: Company filings
Note (*): Life Corporation includes “Daily Foods” in “General Foods”.

Revenue Breakdown by Product Category

	Delicatessen Foods	Daily Foods	General Foods	Non-Food Products (Daily Necessities)	Others
Convenience Stores: Seven-Eleven Japan	26	29	13	32	-
Supermarkets: Life Corporation	10	(*)	44	9	37
Drugstores: Tsuruha Holdings	-	-	23	28	49

Table 2: Revenue Breakdown by Product Category

Unit: %
Source: Company filings
Note (*): Life Corporation includes “Daily Foods” in “General Foods”.

The Importance of *Konbini*

A nation that mainly relies on konbini, or convenience stores in English, in Japan. According to the Japan Franchise Association, the number of convenience stores in Japan exceeds 50,000, and they have come to serve as part of the basic infrastructure in daily life. Originally imported from the US as a concept, convenience stores achieved notable growth in Japan by developing products that match Japanese tastes, like *onigiri* (rice balls) and *bento* (rice boxes).

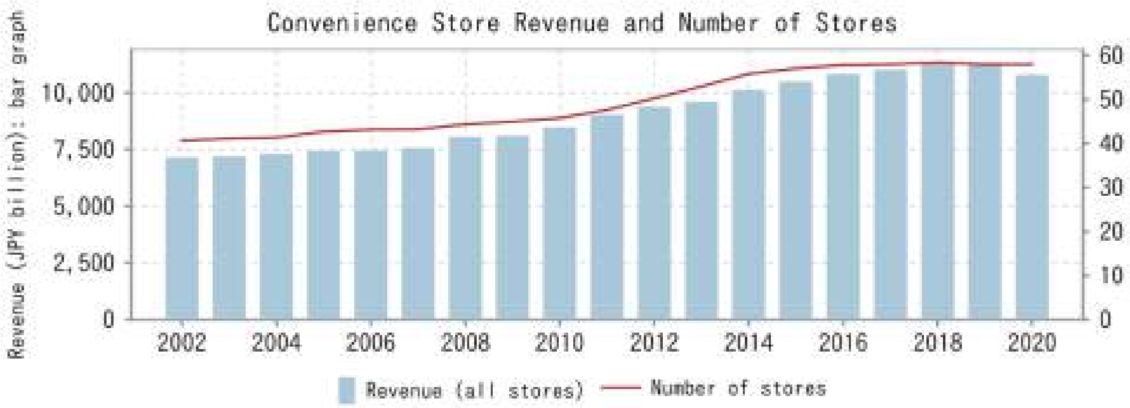


Figure 3: Convenience Store Revenue and Number of Stores. (Source: JFA)

The value of the convenience store industry in Japan exceeded JPY 10 trillion in 2015. This figure dropped below JPY 11 trillion in 2020 due to reduced demand from areas with high concentrations of office buildings. Changes in product line-ups and other similar measures have led to a gradual recovery.

The franchise model makes it easier to ensure profitability owing to the high ROA and the fact that the risks of increased costs, such as labor, are burdened on the franchisees. An analysis of expenses incurred by convenience store franchisees reveals that labor costs and losses from product waste comprise the majority.

Due to the high ROA and the fact that the franchisees bear the risk of rising expenses, such as labor, the franchise model makes it simpler to maintain profitability. High gross margins are particularly beneficial for creating a long-lasting company. It has an effective logistical network and processes because of recent technological advancements like artificial intelligence and ongoing investments.

The Uncertain Future of Department Stores

Department shops are businesses that primarily conduct in-person transactions to sell their goods. The Japanese department store market is presently valued at about JPY 6 trillion (on a revenue basis). The COVID-19 epidemic and a decline in the desire for international travel have made the situation worse.

As the e-commerce sector has grown and department shops' primary client base has shrunk, they face an unclear future. As a result, businesses seek alternative strategies to thrive, such as working with other enterprises and developing "shopping building" forms. 2019 saw a ratio of over 20% for individuals over 65 purchasing apparel and footwear from department shops, but just approximately 10% for those under 40.

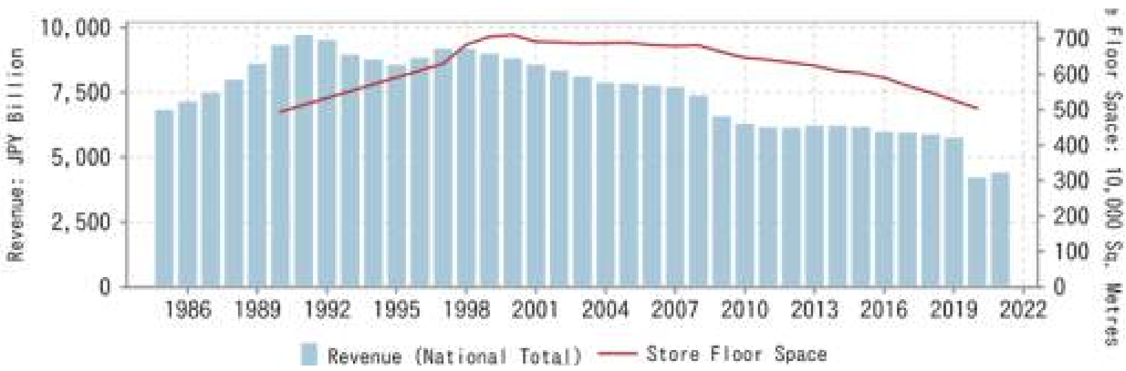


Figure 4: Revenue and Store Floor Space of Department Stores in Japan

Fresh Food Goods and Delicatessen Items are the King at Supermarkets

This industry covers companies engaged in the operation of supermarkets. Supermarkets are defined in this report as retail stores that sell daily necessities, primarily food products, and thus function as key pieces of infrastructure in the daily lives of consumers. For information on general merchandise stores (GMS) that sell clothing and a comprehensive range of daily necessities, in addition to food products, refer to the GMS industry.

Community-based operators with less than 10 stores make up the bulk of participants in the supermarket sector. Supermarkets face competition from GMS as well as from drugstores, convenience shops, and online shopping. The Supermarket White Paper estimates that Japan's supermarket business would generate around JPY 24.3 trillion in total sales by 2020.

To compete with the competitors, Supermarkets have big alliances, to optimize their prices. In addition, they are implementing AI to reduce cost. By analyzing the data and consumer behavior, they can get optimized logistics, scheduling, and production.

Online Retail Market Overview

The Novel Way of Retail Marketing, Remarked by the Rise of eCommerce

Ever since the surge of eCommerce in early 2000, Japan has been powerful in this field. With a revenue of $128.3 billion in 2021, Japan would rank third in terms of eCommerce markets, after the United States and the United Kingdom. Over the next few years, it is anticipated that worldwide eCommerce sales would rise, much as they did in Japan. With their expanding middle class and lagging offline infrastructure, East and Southeast Asia will be a driving force behind this development.

The expected compound annual growth rate (CAGR) over the subsequent four years is 6 percent (CAGR 21–25). This reduction in yearly growth shows a modestly crowded market as compared to the year-over-year growth of 13% between 2020 and 2021. The 80% eCommerce penetration rate in Japan—which means that 80% of the country's people made at least one online purchase in 2021—is another sign of a saturated market.

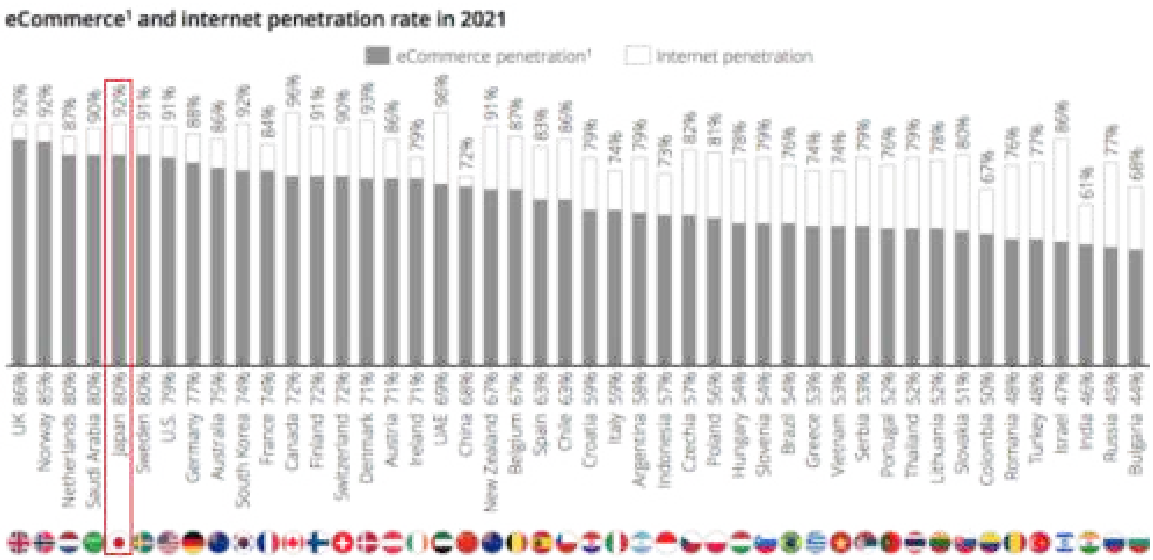


Figure 5: eCommerce and Internet Penetration Rate in 2021 (Source: Statista).

Even though the market is somewhat crowded, there is still a gap that has to be filled. Let's look at Disney's online store, one of the Japanese market's fastest-growing retailers in 2021 alone. by generating around $17 million in net online sales in 2021. Its income increased by 260 percent the year before.

According to eCommerceDB, five categories are taken into account. The largest sector in Japan is Food & Personal Care, which generates 27% of the country's eCommerce sales. Fashion comes in second with 20%, Toys, Hobby & DIY in third with 19%, Electronics & Media in fourth with 19%, and Furniture & Appliances in fifth with 15%.

Future Development

The Development of RaaS (Robot-as-a-Service)

One of the pillars of Amazon's prosperous eCommerce in Japan is RaaS. By 2021, they will have generated US$13,014 in sales, making them the dominant force in the Japanese online retail sector. To decide on a successful company journey in the retail industry, RaaS infrastructure is crucial (both online and offline). As they rely on RaaS, companies may reduce the human labor required to reduce costs because the minimum wage is so high. Additionally, data optimization was gathered from user orders, and to better understand consumer behavior, machine learning/deep learning (ML/DL) was used to evaluate the data.

Robotics applications don't end there. Scientists are beginning to create robots that will play a significant role in the warehouse. Additionally, they are attempting to incorporate sensors, security cameras, and several other modern technologies to achieve automation.

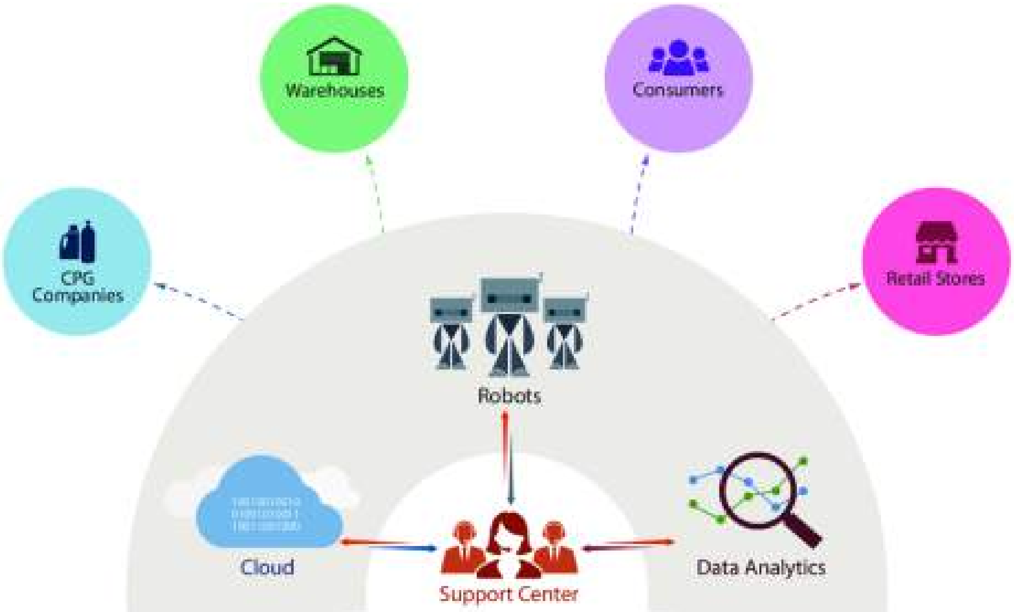


Figure 6: The RaaS Business Model.

RFID to Automate Convenience Stores by 2025

The Radio-Frequency Identification (RFID) technology project was started by the Ministry of Economy, Trade, and Industry (METI) of Japan. Because the tag does not need to be in the scanner's line of sight, RFID is preferable over a barcode.

Five major shops—Seven-Eleven Japan, FamilyMart, Lawson, Ministop, and New Days—and METI agreed to implement electronic tags for all items sold in their stores by 2025. Eventually, METI wants to expand the RFID-based automated system to include pharmacies and grocery shops. After ten years of study, Avery Dennison introduced the microwave-resistant RFID WaveSafe tag in January 2019. This tag can withstand 950 watts of power for up to five minutes.

Fully Automated Convenience Stores

The convenience shop uses hundreds of cameras to replace workers due to a labor shortage. Lawson, a key player in the convenience store industry, made significant progress in 2018 when it opened its first completely automated shop in Tokyo. Major players have since started to advance their research and development in this field.

As the first large-scale rollout of completely automated stores in Japan, convenience store operator FamilyMart plans to establish roughly 1,000 unstaffed shops by the end of the 2024 fiscal year, selling the same merchandise as the chain's regular locations.

Figure 7: Fully Automated FamilyMart’ s Trial Store (Source: NikkeiAsia)

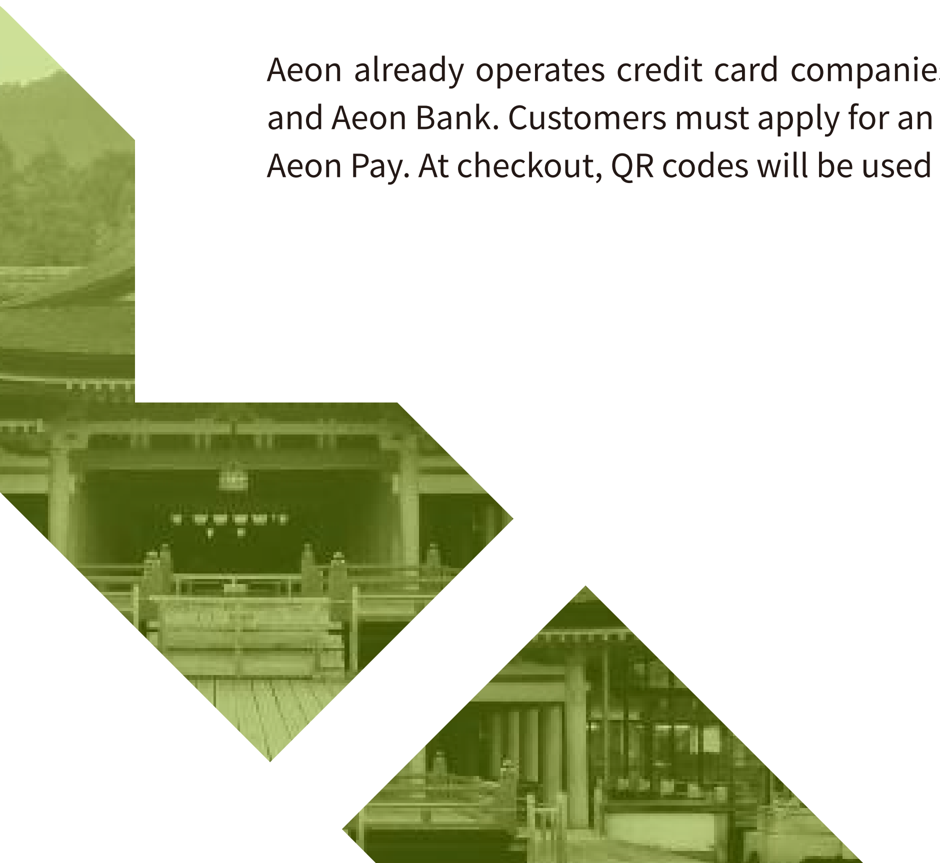
Although building a completely automated business requires a significant upfront investment, it may end up being less expensive overall. According to Nikkei Asia, one store typically occupies 50 square meters, 30 percent less space than a typical convenience store.

Super App

Following the outstanding development of Super Apps like Rakuten, Aeon, a retail company established in Japan, announced the introduction of Aeon Pay, a mobile payment service, in September 2021. Aeon wants to combine its online shopping operations and prepaid cards under Aeon Pay to make its mobile payment service a nifty app that any store may use.

The firm is one of the newest competitors in Japan's burgeoning mobile payment market, where online businesses are striving to develop one-stop shopping solutions for a variety of services, from banking to travel to telephone access, according to Nikkei Asia.

Aeon already operates credit card companies Aeon Financial Services and Aeon Bank. Customers must apply for an Aeon credit card to utilize Aeon Pay. At checkout, QR codes will be used for payments.



Conclusion

The lack of enough human labor and the retail industry's intense competition made it difficult to continue using the conventional business model. The truth that technology is more effective and efficient than human labor has become difficult to deny, given its fast growth. Robots are far more dependable and consistent than people since they don't engage in any possible interpersonal issues like protests, demonstrations, etc.

Thus, there will be a lot of changes soon, beginning with a simple activity where robots will begin to replace humans in some professions. The retail market is in a transitional phase following a COVID-19-related economic downturn; therefore participants believed that now was the ideal time to make a shift. The major accomplishments should be lowering expenses and automating processes.

In Short, RaaS will therefore be commonplace in the future. The nation will gradually begin to experience its implementation as it begins in the major city, where the technological infrastructure is prepared to handle the changes.

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2022

Japan’s Fintech Landscape

Report Index

Industry Overview

The birth of Fintech has created a greatly competitive global market focused on innovation and compliance with firm regulations. Fintech (financial technology) is a new sector that is fast growing in nations all over the world. Fintech is becoming increasingly important both individually and economically owing to its potential to transform how money is invested, transported, and kept safe. It frequently uses cutting-edge technology such as blockchain. Fintech’ s prominence is expected to expand in the future as machine learning and artificial intelligence become more widely used in the business.

Japan’ s fintech industry is thriving and developing. The fintech sector in Japan was valued at $3.2 billion USD in 2019 and is expected to grow to more than $10 billion USD by 2022. Japan is a highly-developed cryptocurrency hub, as well as being connected to digital commerce. Though Japan’ s crypto sector has faced challenges in the past, such as the attack of cryptocurrency exchange Coincheck in 2018, government regulation has improved security and transparency in the country’ s crypto ecosystem since 2018. Several well-known companies, like DMM and Rakuten, have recently launched their own bitcoin wallets and trading platforms. Rakuten’ s move in February to allow customers to charge their Rakuten Cash balances with Bitcoin and Ethereum has enhanced the potential for cryptocurrencies to be utilized in everyday transactions. Japan has a lot of promise for crypto-related businesses looking to join the market, not least because of the country’ s high degree of crypto knowledge.

Obstacles and Opportunities in Japan’ s FintechSector

Obstacles and Opportunities in Japan's Fintech Sector

Despite the fast advancement of Japan's fintech scene, cashless payments account for just about 30% of transactions, possibly restricting the digital payments space's growth potential. The COVID pandemic, on the other hand, may have a silver lining in that it has boosted digital payments; records reveal that between January and December 2020, the usage of QR code-based digital payments surged by roughly 89%.

Due to its volatility, the adoption of cryptocurrencies for day-to-day transactions in Japan may be hampered by the continuance of cash payments and the yen's stability. Nonetheless, events like the launch of the JPYCoin stablecoin in January 2021 and the Bank of Japan's continued attempts to establish a digital yen provide a reason for optimism. Such changes are anticipated to increase the popularity of digital payments and the bitcoin ecosystem in Japan, opening up new avenues for fintech innovation. Low-interest rates in Japan may potentially boost crypto investment.

Fintech's expansion in Japan may be hampered by a lack of finance for start-up enterprises. The COVID-19 pandemic has hindered start-up investment, resulting in a 12.6 percent drop in overall financing from the 2019 number of 553.2 billion JPY. Prior to the pandemic, start-up funding had been trending higher, thus the situation is likely to improve once COVID fades. Despite this, Japan continues to lag behind other big economies in terms of startup investment, such as China and the United States. The fintech industry in Japan is growing and has a lot of promise. Overseas businesses may gain substantially from interacting with this fascinating industry if they have the right understanding, whether it's through a direct entrance or investment in growing Japanese fintech startups.

Pre-Covid Era:

Japanese systems have robust barriers to entrance thanks to its high system requirements. While its systems are still working well, investors are reluctant to invest their money in new initiatives, like fintech. As a result, Japan is a country that is quite slow to switch to fintech and blockchain technology. On the other hand, major economic hub countries are acting fastly to new findings and taking the early advantage.

However, the Japanese also realized the importance of the new technologies and decided to implement them in wide areas, starting with its financial business. As of 2017, Blockchain benefits are likely to remain in the Japanese financial market.

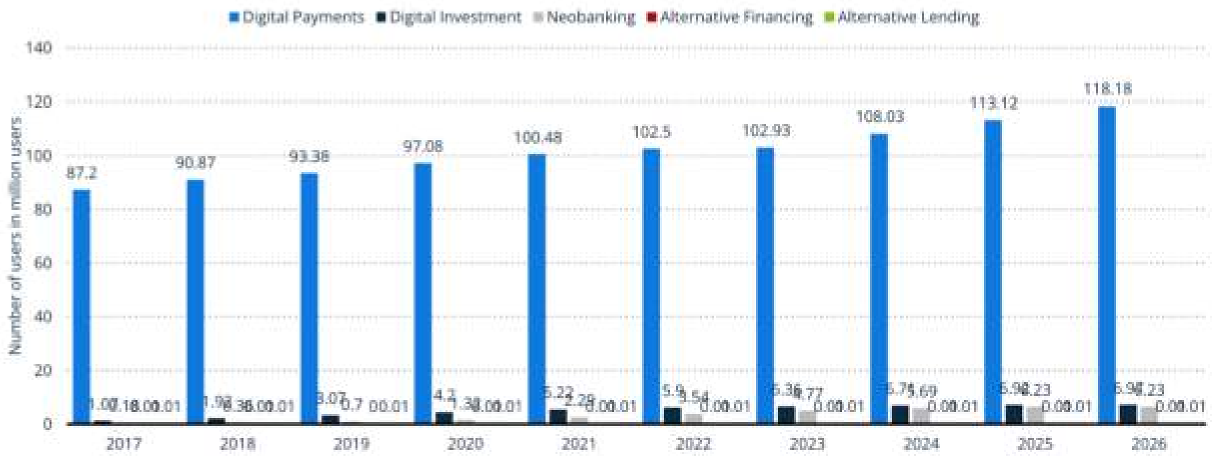


Figure 1. Number of Fintech users in Japan from 2017 to 2026. (Statista, 2022).

Japan, the only Asian representative country in G7, has the third-largest economy after the US and China. Its fintech market has shown enormous growth potential for US firms. According to a report by Yano Research Institute, the fintech market size in 2018 was approximately USD $1.9 billion (JPY $214.5 billion), and it is expected to grow by over USD $10 billion (JPY $1,210 billion) by 2022.

In order to catch up, the Japanese government always gives friendly regulations, which are able to accelerate and promote its growth. The Tokyo 2020 Olympic Games have also boosted Japanese use of cashless payments. In order for more promotion, the Ministry of Economy, Trade, and Industry (METI) gave a 5% discount for purchases made on credit cards, debit cards, prepaid IC cards, or smartphone payments from October 2019 through June 2020. By implementing it, METI aims to double consumers' cashless payments usage rate from 20% in 2016 to 40% by 2025.

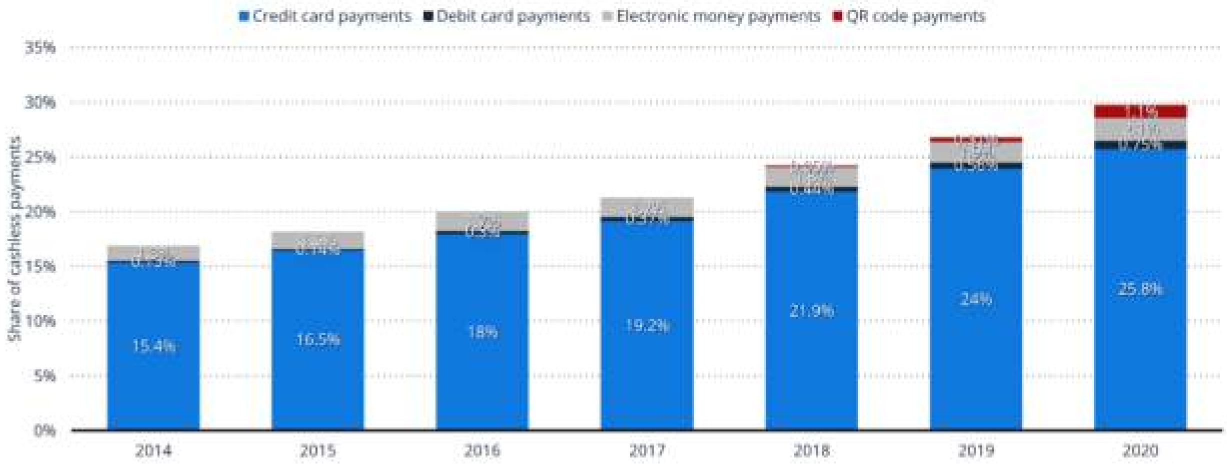


Figure 2. Ratio of Cashless Payments in Japan. (Statista, 2022).

Covid Era:

In a time of uncertainty, Japan does indeed seem to be charting a steady course ahead. Following a growing trend of protectionism and the arising of the US-China friction, the country has silently won the global free trade. A series of M&A (mergers and acquisitions) in Japan has caught global attention, starting with Blackstone’s acquisition of Takeda Consumer Healthcare Company for around US$ 2.3 billion, followed by Berkshire Hathaway’s US$ 6.5 billion investment, are just two deals that have pushed Foreign Direct Investment (FDI) flow to reach its highest peak in the last 15 years. Moreover, Tokyo Metropolitan Government (TMG) has been backing these ideas so far. To reclaim Tokyo’s position as Asia’s №1 financial hub, Koike Yuriko, a governor of TMG, decided to partner with FinCity. In the hope for Tokyo to attract financial talent, funds, information, and technology from around the world. Not only subsidizing international firms, but TMG also helping them through comprehensive support. Starting from a general consultation desk for financial support service, which provides English regulation and assistance until the English-language medical care, multilingual apartments, and International School. In addition, Tokyo Financial Award was established to recognize the financial businesses that provide innovative services that respond to Tokyo residents’ needs, as well as businesses that promote ESG investments.

Post-Covid Era:

As for the future, the new prime minister Suga Yoshihide made clear his desire to remove regulatory and taxation bottlenecks to make it easier for asset managers to cooperate in Japan. Moreover, it provides businesses launch support and daily life assistance in a seamless fashion. In order to create this, the Japanese will initiate several things: simplifying registration procedures for fund managers focusing on overseas investors, enabling any financial administrative processes in English through AI multilingual technology, simplifying requirements for highly skilled financial professionals to secure work permits, and improving the availability of information. Besides, the prime minister was willing to launch a new Digital Agency that would promote the sweeping digitalization of government and society in September 2021. As a result, Japan' s fintech transaction will more than triple to a size of US$722.22 billion by 2022 from US$ 233.73 billion in 2019.

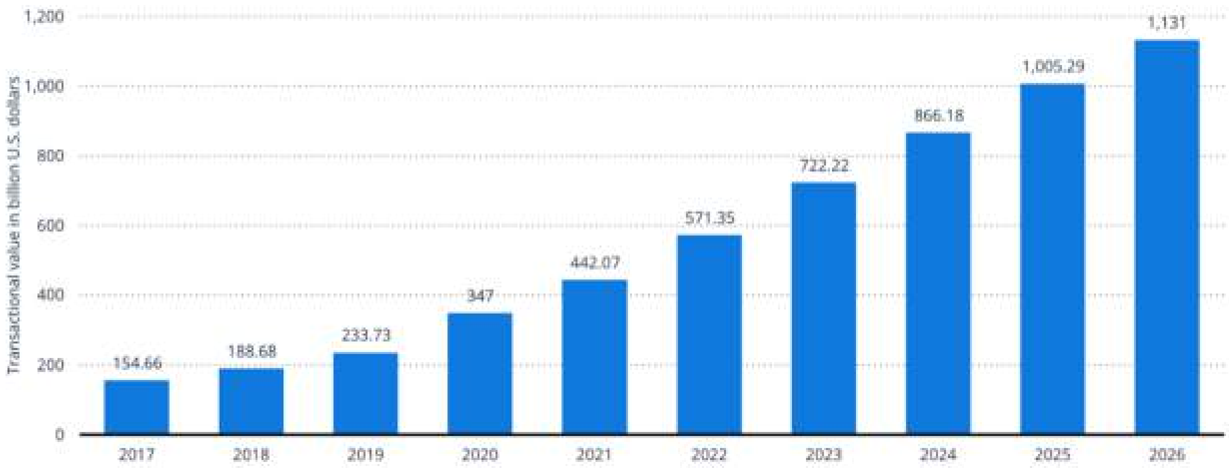


Figure 3. Transaction Value of Japanese Fintech (Statista, 2022).

As a result, SBI Holdings has partnered with Sumitomo Mitsui Financial Group (SMFG) to launch a digital stock exchange slated for spring 2022. According to a Nikkei report, they are expected to launch the platform, Osaka Digital Exchange (ODX), to compete against the Tokyo Stock Exchange (TSE). It will be the first Japanese stock exchange that allows investors to trade digital securities using blockchain technology. It is expected to start trading digital securities in 2023.

Japanese Prime Minister Talks up Japan’s Web3, NFT Focus at Investors Summit

Japanese Prime Minister Talks up Japan’s Web3, NFT Focus at Investors Summit

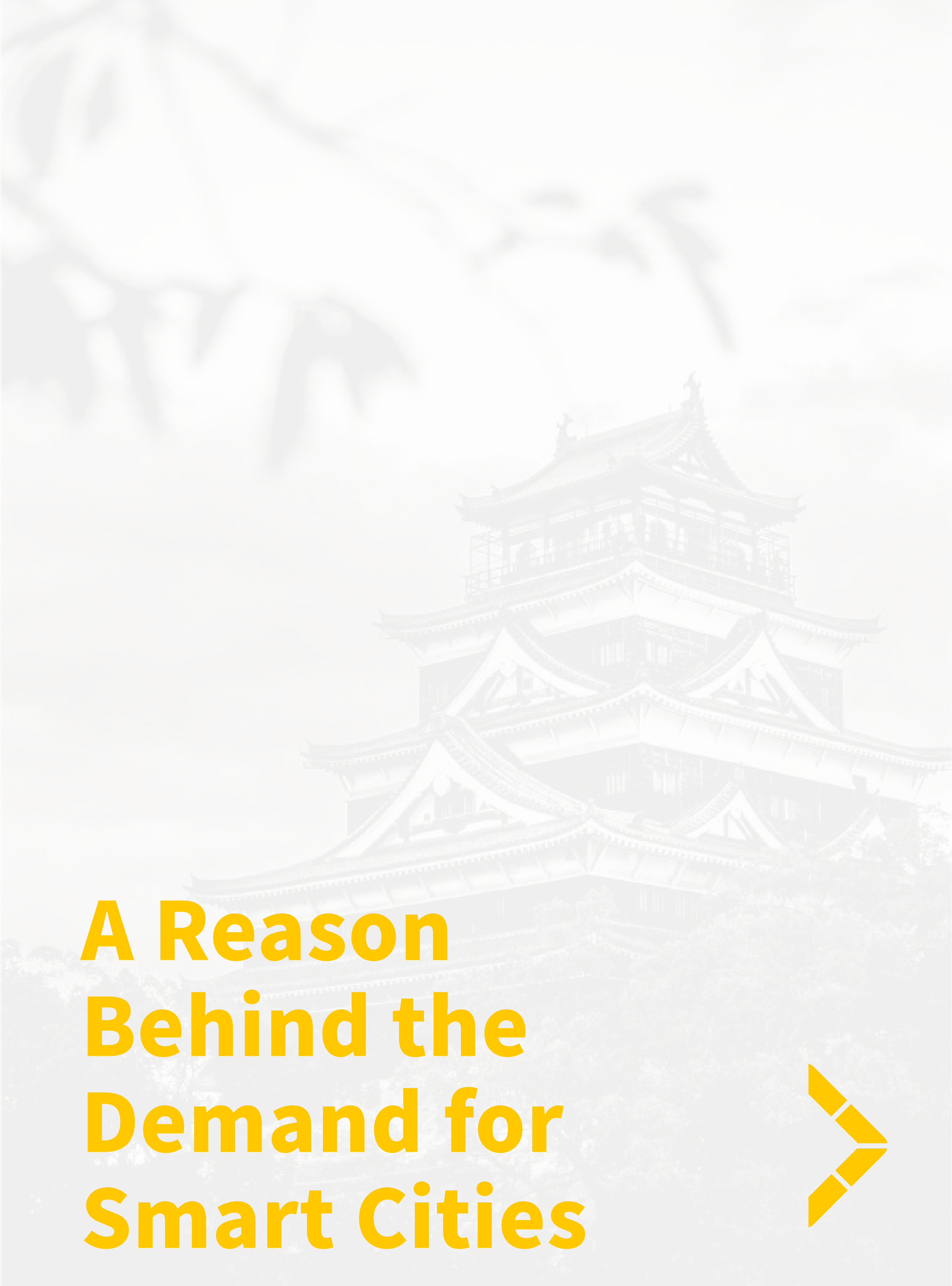
Fumio Kishida, the Japanese Prime Minister, has declared that Web3-related growth, including metaverse and non-fungible token (NFT)-related advances, would be a part of the country’s future growth plan, and has urged British industry leaders to support his initiative. Successive governments in East Asian countries such as Japan and South Korea have poured public finances and resources into expanding the tech industry, resulting in the creation of some of the world’s largest IT-related corporations, such as Sony in Japan and Samsung in South Korea.

As part of a new type of capitalism, Kishida elaborated on his proposals, emphasizing the need to attract private investment and redistribute wealth. The Prime Minister went on to say that he wants to create new markets and invest in “science and technology,” “innovation,” “startup investment,” and the digital world. He remarked that “[We will focus on] the promotion of Web3 such as blockchain, NFT, and the metaverse,” the PM said during the section of his speech that focused on digital investment. We will achieve a society in which new services may be easily developed.” The task force has formerly urged the government to create a new ministry in charge of Web 3 development. Most recently, Japan’s government approved a policy to drive Web 3.0 adoption. At the beginning of this month, The Japanese government gave the green to a new policy that aims to develop and expand the Web3 environment in the country, including the use of cryptocurrencies, non-fungible tokens (NFTs), and decentralized autonomous organizations (DAOs).

Growing Demand for Smart Cities

Growing Demand for Smart Cities

A “smart city” is fundamentally a city that is meant to enhance the standard of living and bring convenience to citizens through information and communication technology (ICT). Urban planning is an essential participant in this, which involves either of the two primary approaches— redeveloping current cities or constructing a new one. In Japan and other Organisation for Economic Co-operation and Development (OECD) countries, infrastructures are renewed and novel technologies are implemented. On the other hand, the construction of a brand new city is more widespread in developing nations, due to urbanization and insufficient infrastructure; these can often negatively affect the flow of traffic and living conditions. In Japan, Kakogawa, Hyogo Prefecture Aizuwakamatsu, and Fukushima Prefecture are categorized as the redeveloping cities/prefectures, whereas Susono City, Shizuoka Prefecture Kashiwa-no-ha, and Chiba Prefecture are the newly developing cities/prefectures.

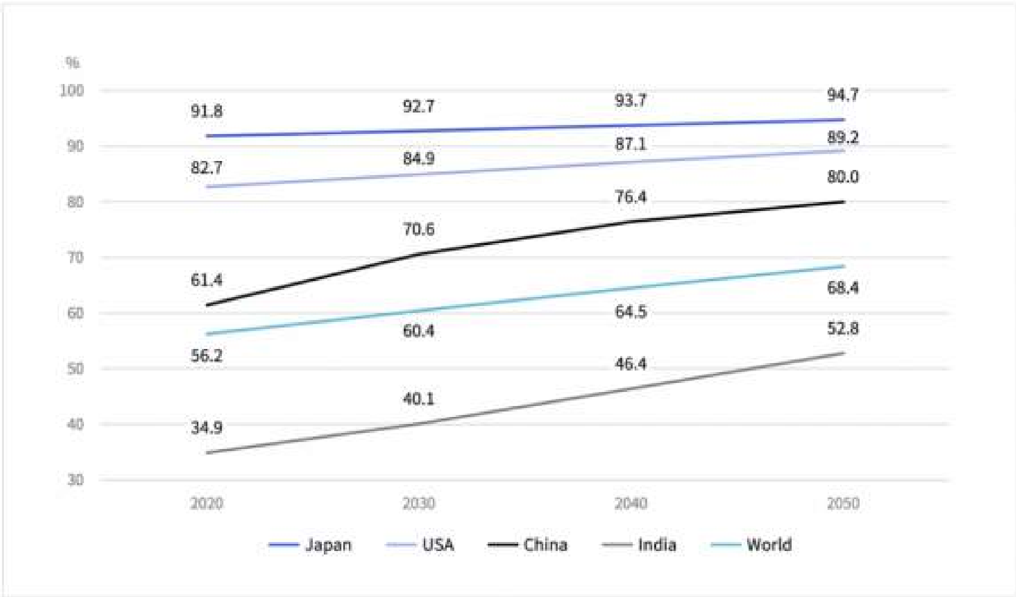


A Reason Behind the Demand for Smart Cities

A Reason Behind the Demand for Smart Cities

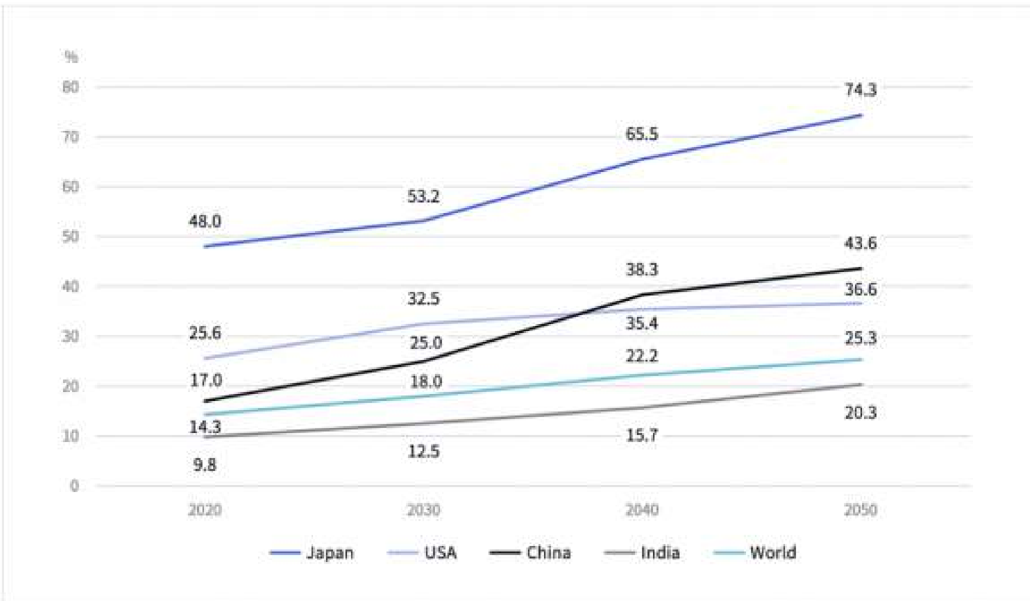
Population problems involving overpopulation, urbanization, and an aging population are all factors contributing to the need for smart cities. For instance, overpopulation poses issues such as a shortage of resources, overcrowding concerns, and environmental burdens. Meanwhile, both developed and developing countries are heading toward an aging population, but urban infrastructure has not originally been made for the elderly people; therefore, it is vital to build infrastructures with the intent to support the elders, especially in a country like Japan with a severe aging phenomenon (as demonstrated in the line graph below).

Urbanisation Rate (Japan, USA, China, India)



Source: United Nations, "World Urbanization Prospects 2019"

Old-Age Dependency Ratios (Japan, USA, China, India)



Source: United Nations, "World Population Prospects 2019"

Note: "Old-age dependency ratio" refers to the number of persons aged 65 years or above relative to the number of persons aged between 15 to 64 years.

“Toyota Woven City”

In 2020, Toyota Motor proposed its plan of the “Woven City”, with all the services and goods entirely linked together in an ecosystem at the Higashi-Fuji Technical Center in Susuno, Shizuoka prefecture. Hoping to build a network with enterprises and researchers, the construction of the “Toyota Woven City” was initiated in February 2021. Big companies like Nippon Telegraph and Telephone (NTT) had already announced their cooperation with Toyota in this project. According to the plan, nearly 400 residents will dwell in the city at first, primarily consisting of elderlies, families with children, and producers; hereafter, the city will expand and eventually encompass an estimated 2,000 inhabitants. For now, Toyota is collaborating with and seeking companies with suitable technologies to bring their aspiration of a smart city to fruition.

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2022

The Inbound Tourism of the Japanese Market

Report Index

Industry Overview

COVID-19 Impact

The COVID-19 epidemic has impacted every business worldwide, and one of the most seriously affected is the global tourism sector. Compared to earlier significant crises like the tech bubble crash (2000) and the global financial crisis (2008), which only affected local and regional travel. It has affected international travel due to various travel advisories, quarantine measures, and lockdowns. Online travel agencies (OTA) and meta-search engines like TripAdvisor and Trivago observed sharp rises in the cancellation rate of reservations and a fall in the booking rate of travel and lodging during the first quarter of 2020.

Similarly, in the Japanese market, the transaction value of top travel agencies, excluding tour operators and resellers of package tours, was JPY 4.3 trillion in FY2019. However, it fell by 78.4% YoY to JPY 999.7 billion in FY2020, according to the Japan Tourism Agency (JTA). Since there are over 10,000 small businesses on the market, there aren't many barriers to entry for the travel agency sector. The sector also includes huge organizations and medium-sized firms that operate travel-related enterprises with a more comprehensive strategy, aside from local SMEs.

Figure 1: Revenue of the Japanese Travel Service Market. (Source: JTA, Speeda.)

The volume of reservations and the value of transactions for travel companies have significantly decreased because of the pandemic outbreak. The current reluctance of customers to travel means that businesses suffer difficulties in paying fixed expenditures, such as labor costs, as travel itself is intangible and impossible to be ignored until the economic climate improves.

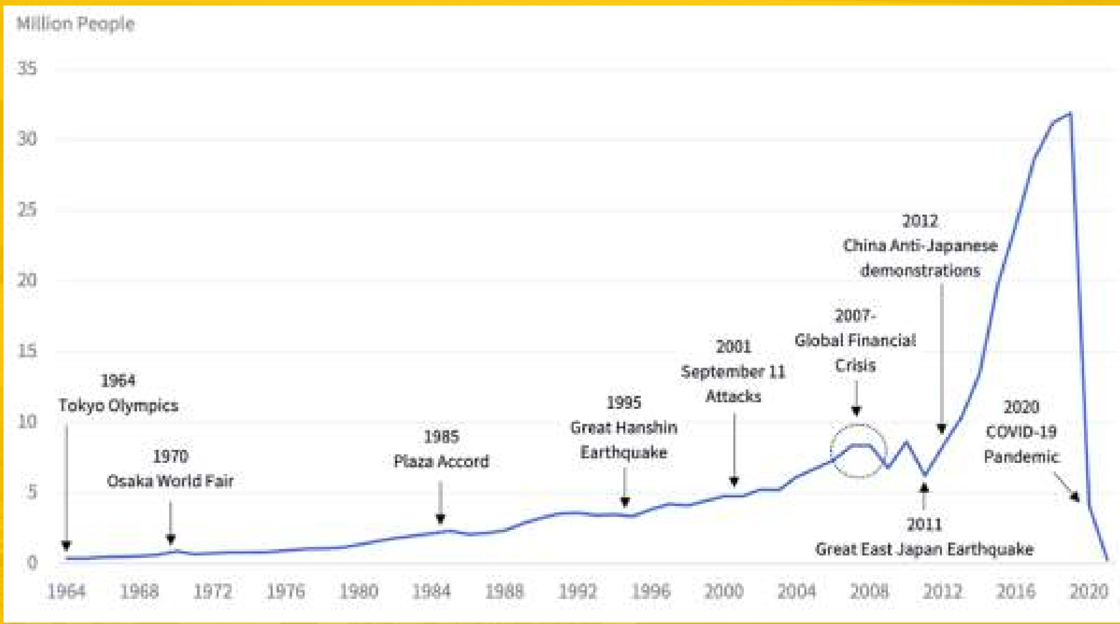


Figure 2: Number of Visitors to Japan.
(Source: Uzabase based on data from Japan National Tourism Organization (JNTO), "Statistics on Foreign Visitors to Japan")

The Huge Role of the Japanese Travel Act due to COVID-19

The legislation of Japan divides the travel industry into two categories: operators and agents. While travel operators may engage in various activities, travel agents are only allowed to sell products for travel that they have purchased from travel operators. Despite this legal distinction, "travel agencies" are commonly used to refer to both types of firms.

The JTA launched the "Go To Travel" campaign in July 2020 to boost local tourism-related spending by providing discounts on lodging and day trips for domestic travel as well as coupons valid across the whole country of Japan. Nevertheless, because of COVID-19's impact, the campaign was officially suspended by the end of 2020. Depending on the virus, the government is currently discussing whether to attempt again at the beginning of September 2022.

Current Trends

The Expansion of Online Traveling

According to the Ministry of Economy, Trade, and Industry's (METI) E-Commerce Market Survey, the B2C e-commerce market for travel services is growing swiftly despite a slowdown in the total amount of transactions made by travel operators. The introduction of the two largest OTAs, Rakuten Travel and the "Jalan" website, is a significant factor in this rise (operated by Recruit). Thus, hotels and airlines are now experiencing a surge in clients who book directly through their websites, in contrast to how they used to sell their goods and services through travel agencies.

While foreign OTAs like Expedia Group (USA) and Booking.com (NDL) are seeing significant momentum in the Japanese industry, KDDI (JPN) joined the OTA sector in 2017. Major travel agencies will need to rearrange their sales and marketing channels in light of these changes to account for the altered market dynamics. However, the COVID-19 epidemic resulted in an immense 60.2 percent YoY fall in the size of the online B2C travel service category in 2020.

Figure 3: Value of Online B2C Travel Service Market.

Domestic Tourists are Saviors in Economic Turmoil (Accounted for 90% of Revenue)

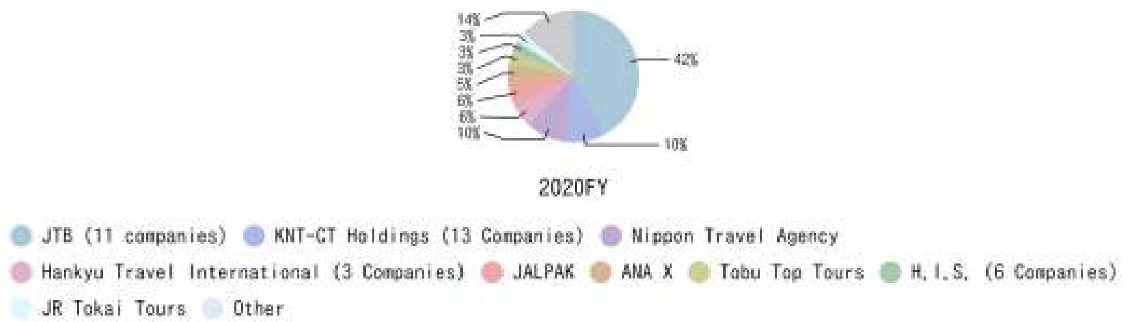
The JTA estimates that in FY2020, Japanese and international visitors would spend a combined total of JPY 11 trillion on travel to Japan (down 60.6 percent YoY). Japanese domestic overnight travel made up almost 70% of all domestic travel, followed by domestic day trips (20%), Japanese international travel (domestic legs) (2.7%), and inbound foreign tourist travel (6.8%). Despite essentially staying the same until 2019, the overall value of domestic travel expenditures (including both overnight and day excursions) was nearly cut in half due to the pandemic's effects on the sector, declining 54.5 percent YoY to a total of around JPY 10 trillion in 2020.

Source: JTA, "Tourism Satellite Account of Japan"

Figure 4: Domestic Travel Spending in Japan.

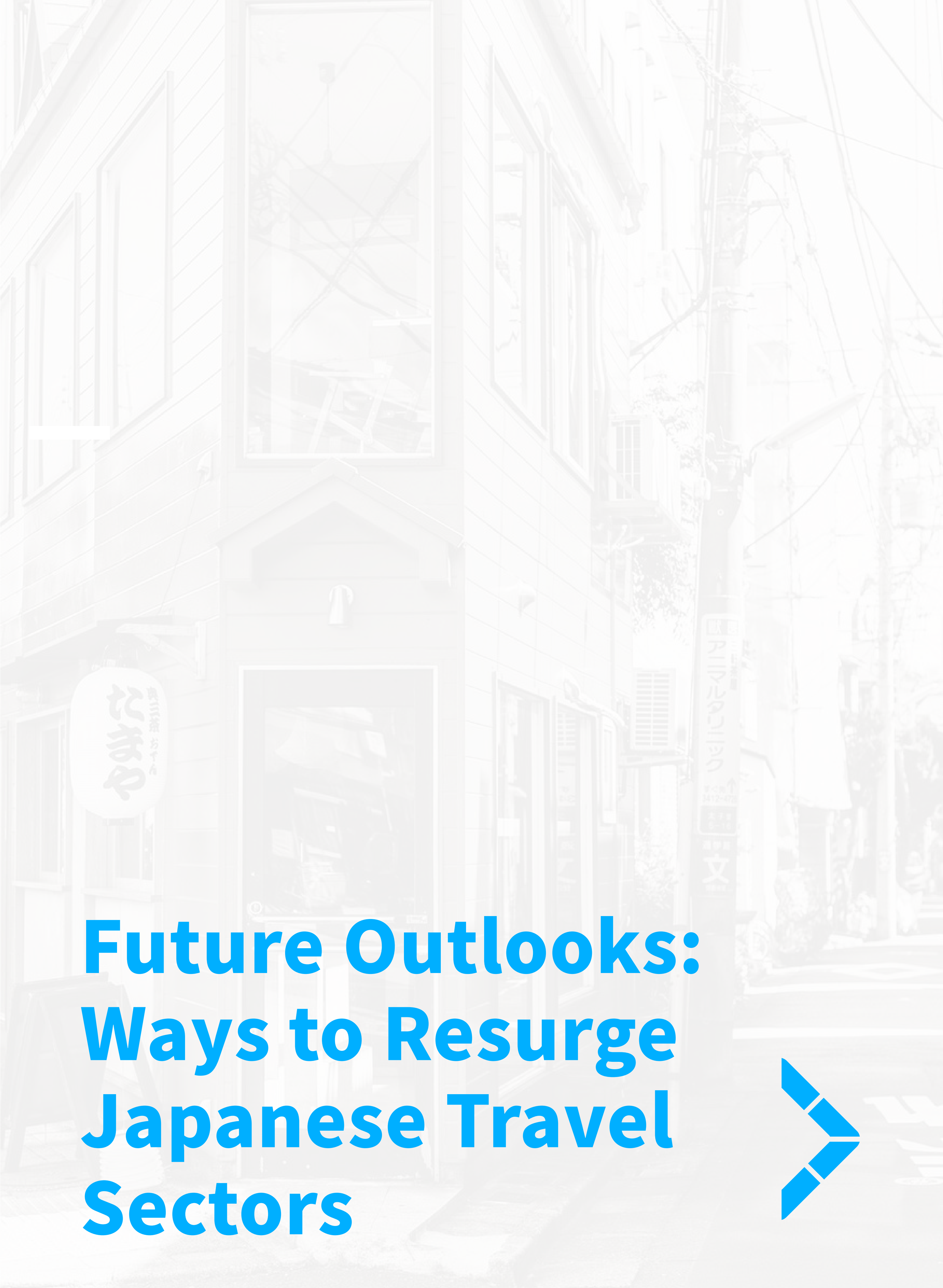
Low Entry Barriers Industry, but 70% of Revenue Owned by Five Major Players

Following data from the Travel Agency Act of Japan, 9,610 registered travel operators nationwide as of April 1, 2021. The low entry barrier, which allows businesses to engage in the market with a company security deposit of a specific amount and by satisfying an asset criterion, is perhaps one factor contributing to the high number of new entries into this industry. According to the JTA's publication of the Entire Value of Travel Operator Transactions, the top five businesses in the sector accounted for 70% of the total transaction value in FY2020.



Source: Compiled by Uzabase based on JTA, "Total Value of Travel Operator Transactions"

Figure 5: Share of Total Transaction Value by Leading Travel Operators in 2020.



Future Outlooks: Ways to Resurge Japanese Travel Sectors

Adaptation of Technology for Optimization

As the uncertain future of the travel industry continues, players are trying to reduce their costs to keep their business. Human labor is one potential that can be substituted thanks to the advancement of technologies. Chatbots, Robots, the Internet of things, contactless payment, and many more are the latest implementation of technologies in this field.

Although developing new technology is expensive, major players are putting more effort into this end. Research and development money is getting higher than ever, as big players compete to discover new technologies for more optimization, convenience for clients, and less dependent on human labor to reduce cost.

Government Travel Agency Act

To boost the number of tourists to Japan, the government has been very proactive in creating several programs, such as Go To Travel Campaign. It is not limited to international people, but people who reside in Japan can also benefit from this program. To pay half of the domestic travel costs up to ¥20,000 per person per day (or ¥10,000 for a day trip), the Japanese government will offer coupons worth 15% of travel expenditures (up to a maximum of ¥6,000 per day) and a discount of 35% on the travel package. There is no limited number of trips with the campaign, so travelers may frequently fly to Japan at half off throughout the campaign. Although the campaign has been on hold since March 2021, the administration wants to get it back up as soon as it is feasible.

Virtual Tours

Virtual tours are the new method of traveling explored by some travel agencies. In fact, Japan National Tourism Organization created a 360-degree virtual tour.

The virtual viewing experience, titled "Japan: Where Tradition Meets the Future," features several well-known tourist destinations, including the Arashiyama bamboo grove in Kyoto, Kagawa's Angel Road, and the Nara Deer Park. It may be watched through YouTube on any mobile device, or for the full immersive experience, with VR goggles.

Figure 6: The Shibuya' s Virtual Tour

The Return of High-Spending Repeat Visitors from Mainland China, South Korea, and Taiwan

According to the Ministry of Economy, Trade, and Industry (METI), the number of return visitors to Japan increased from 5.28 million in 2012 to 18.49 million in 2019. This is true even though following COVID-19, immigration restrictions entering Japan were removed. The main drivers of this recovery are anticipated to be high-spending repeat tourists from mainland China, whose expenditure is on average more than twice as much as that of South Korean and Taiwanese visitors.

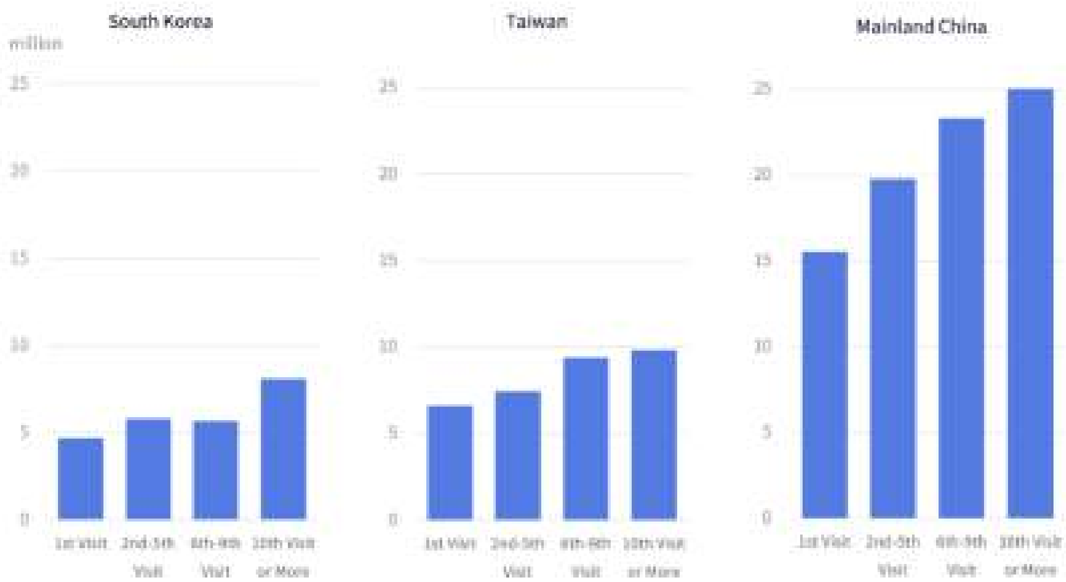


Figure 7: Spending per Visitor FY 2019

(Source: Japan Tourism Agency, "Consumption Trend Survey for Foreigners Visiting Japan")

Note: Includes income in Japan from tourism- and leisure-related package tour fees.

Conclusion

The travel industry has been hit hard by the economic turmoil after setting the best record in FY 2019, but due to COVID-19, it has never been the same. As the pandemic is changing into endemic, people can travel again freely.

As technology is blending into human lives nowadays, travel agencies use technologies such as chatbots, contactless payment, robots, etc. In addition, with the supportive government, the Japanese travel industry is ready to inbound again to the newer level, reaching 60 million international people annually in 2030. We expect numerous International Visitors from Asia, starting with Mainland China, South Korea, and Taiwan.

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2022

The World of Robotics in Japan

Report Index

Industry Overview

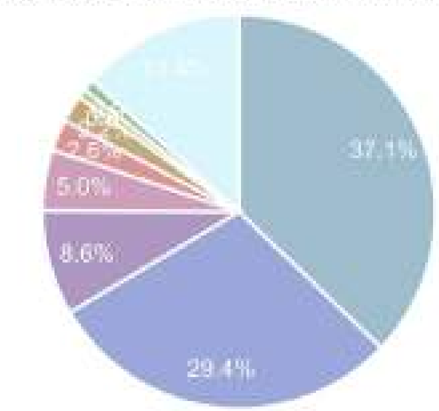
Industrial Robotics

As stated by the International Federation of Robotics, Japan is one of the top five leading global markets for industrial robotics, together with China, the United States, South Korea, and Germany, having 73% of worldwide industrial robotics productions in 2019.

Demand in Industries

Robotics plays a pivotal role in a variety of Japanese manufacturing processes and different sectors of services. Due to the escalating demand from the automobile and electronics industries, Japan' s industrial robotics market has become imperative. According to the Japan Robot Association (JARA), automobile and electric machinery industries occupied 37% and 29% of overall shipment volume in 2020 respectively. However, shipments drastically dropped by 20% after several economic drawbacks, which will later be examined in the market trend sector.

FY2020 Shipment by Industry (Including Exports; JARA Members + Non-Members)



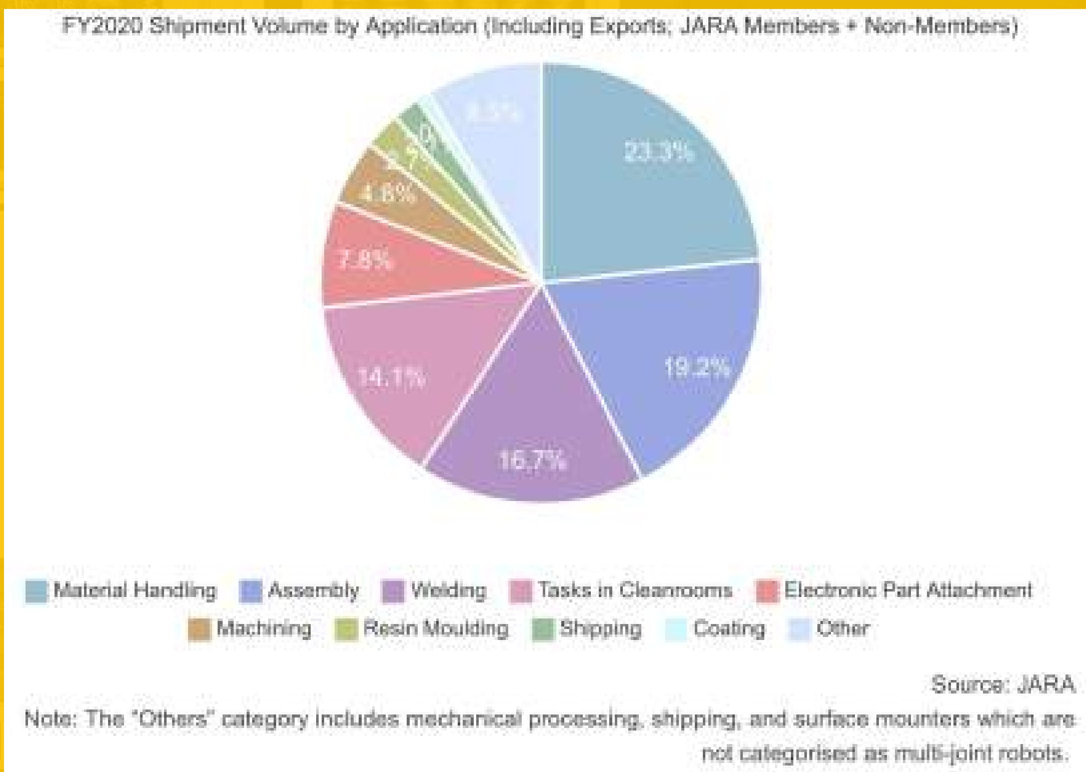
Source: JARA

Note 1: "Other" includes other transportation equipment and the chemical industry (pharmaceuticals, cosmetics, etc.).

Note 2: The "Electric Machinery" category includes surface mounters which are not categorised as multi-joint robots.

Industrial Application

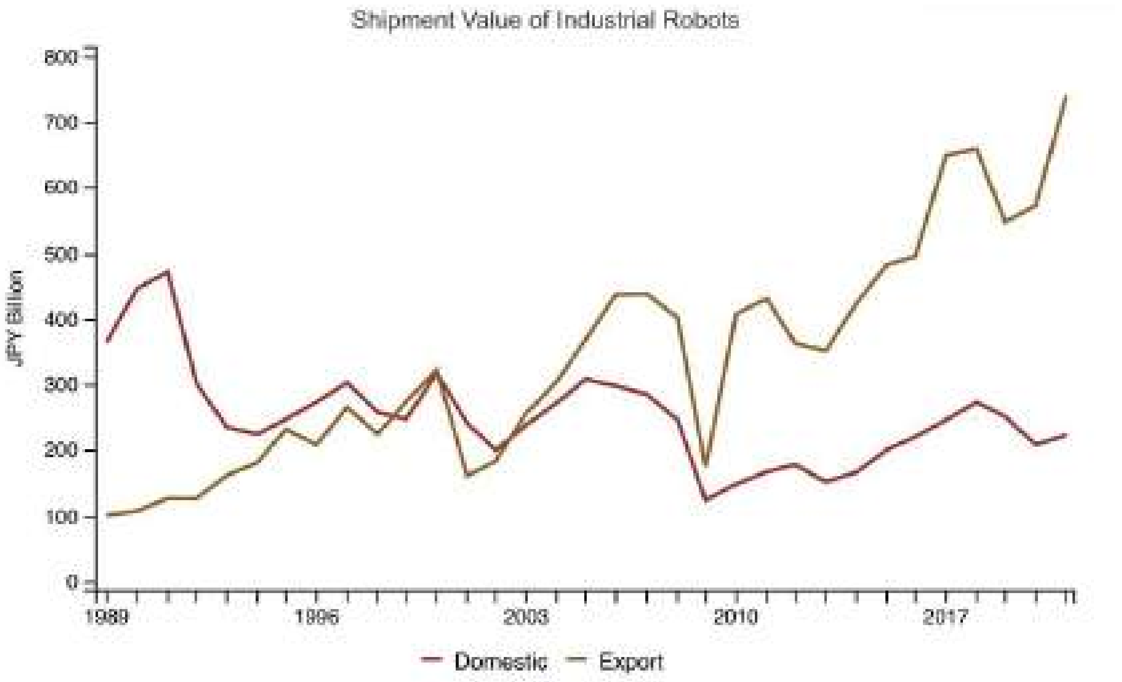
Industrial robotics is fundamentally used for manufacturing processes; they typically have high durability, speed, and precision. Based on the graph provided by JARA, it is shown that material handling robotics — which is capable of transporting cargo in a factory — account for the majority of shipment volume by 23%. Assembly robots follow them at 19%, and welding robots at 17%. In terms of shipment volume, the graph indicates that material handling, assembly, and welding are the primary application of industrial robotics in Japan. While the implementation of robotics can significantly enhance industrial quality, efficiency, and completing hazardous tasks outside of human ability, it can often lead to a high capital cost.



Market Trends

Market Trends

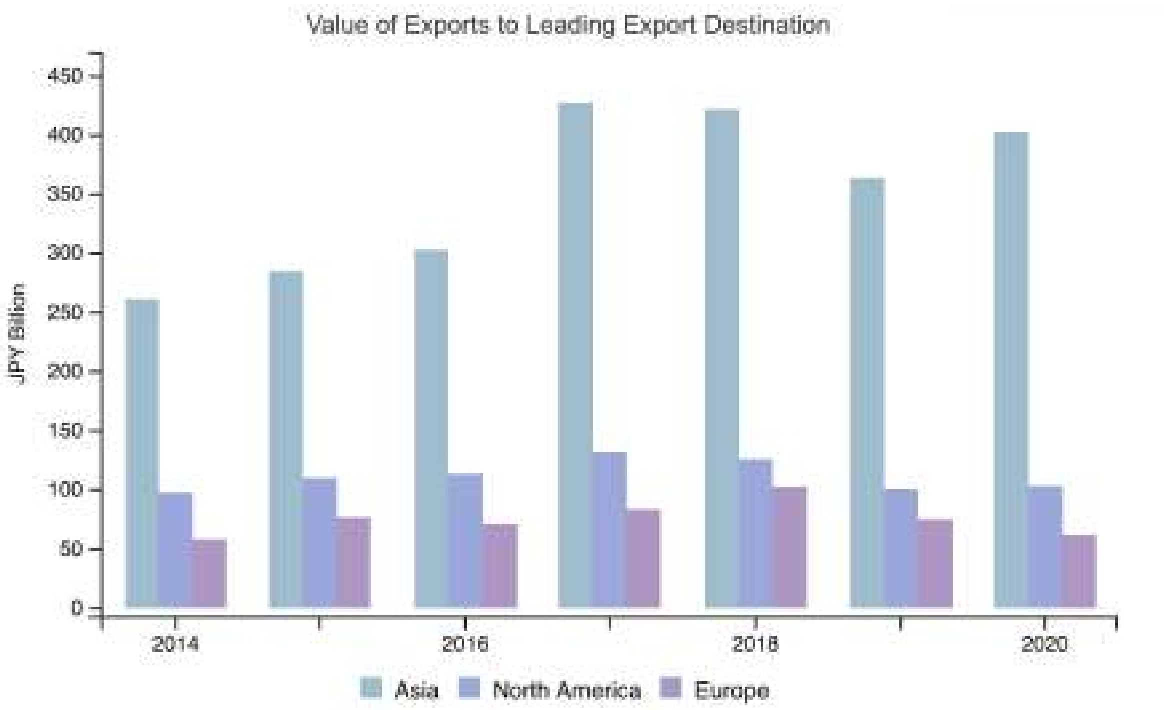
As demonstrated by JARA' s line graph, the industry has been reliant on exports rather than domestic shipments ever since the early 2000s. Export shipment value began to ascend as the demand from the automobile and electronics industries began to rise; at the same time, the depreciation of the Japanese currency also impacted the growing export value. Nevertheless, it was followed by a sharp decline when the most unfortunate happened — the global financial crisis in 2008. It severely impacted the value of both domestic and international shipments, hurting the economy. Eventually, on account of the increase in labor cost and quality requirements in China' s market, along with the rising demand in the automobile sector and other manufacturers, Japan' s shipment value started to recover rapidly. By 2018, its shipment value peaked due to large sums of capital investments, the growing need for factory automation, as well as labor-saving reasons. In recent years, however, economic obstacles including the COVID-19 pandemic and the China-United States trade war occurred, causing an economic stagnation as industries reduced their investment in the market. Even so, evidence reveals that orders boosted by an estimated 5% in 2020, regarding both shipment volume and value. This points to the fact that the market situation is likely to heal in no time.



Source: JARA

A Primary Export Destination: China

While overseas shipments comprise approximately 70% of overall shipment value in 2020, most of them are concentrated in Asia— primarily China. With Asia covering 60-70% of Japan' s export value, China alone has taken up over 40% of it. Consequently, Japan' s market can be greatly influenced by China' s economic status, such as the aforementioned US-China trade friction.



Source: JARA

As exhibited in the column chart, the values are significantly higher in Asia compared to that in North America and Europe throughout the years. The replacement of manual labor and investment funds from the automobile and semiconductor industries are attributed to the soaring shipments to Asian markets.

Social Robotics Case Study: Pepper

Not only has robotics become major assistance in the manufacturing processes, but some are actually installed with a mind of their own— they are social robots. A social robot (SR) is capable of performing tasks on a different level than an industrial robot; its fundamental purpose is to socialize with humans. Unlike industrial robots, social robots are programmed with these complex social behaviors that are imitations to that of humans and are generally more affordable in comparison. A Japanese company, Softbank Robotics, built a social robot that has been a huge success in engaging with humans and has the ability to interpret human emotions— Pepper.

Performance in Health Care System

Initially, hospitals were actually the first to equip SRs with the intent to actively interact with patients since there were few interactive opportunities for patients that are isolated in hospitals. In Pepper' s case, the robot was placed in hospitals to help patients keep in touch with families and friends, lessening the negative consequences of long-term social isolation.

It has been proven that global pandemics, such as SARS and Ebola, would lead to an increase in the implementation of robotics. This as well applies to the recent COVID-19 pandemic, inducing a rapid expansion of social and industrial robotics that are way more advanced than previous ones. Even after the pandemic, it is predicted that SR adoption will proceed to rise because they can continue to substitute low-skilled occupations at a lower expense.

As we all know, Japan is known for its large aging population, thereby making elderly care services a priority for offering support and financial aid as much as possible. Since 2018, Pepper robots have joined up to 500 elderly care centers, taking on social responsibilities like playing games and exercising with elders.

Abilities & Inabilities

As much as Pepper robots are participating in the personal care system, there is still a degree of existential limitations. The given table presents Pepper's potential capability, regarding both physical and social tasks. The analysis brings us to a conclusion that Pepper is unable to carry out physical activities as well as social ones. As a result, Pepper can only cover as much as 45% of monthly labor hours, limiting mostly to social skills.

Tasks performed	Task type	Hours taken per worker (per month)	Monthly hours breakdown	Potential capability score	Potential capability score (time weighted)
Catering and feeding	Physical	60	25%	10%	3%
Bathing, showering, grooming, toileting, etc.	Physical	30	13%	10%	1%
Walking and exercise companionship	Non-physical	30	13%	100%	13%
Caring, communicating, entertainment, etc.	Non-physical	30	13%	100%	13%
Lifting, balancing, and stooping	Physical	15	6%	0%	0%
Materials handling and moving	Physical	15	6%	0%	0%
Coordinating with supervisors, co-workers, and residents	Non-physical	15	6%	100%	6%
Inspecting equipment and materials	Non-physical	7.5	3%	50%	2%
Documenting and maintaining residents' progress records	Non-physical	7.5	3%	100%	3%
Organising, planning, and prioritising work	Non-physical	7.5	3%	50%	2%
Medical attention and reminders	Non-physical	7.5	3%	100%	3%
Vacuuming and cleaning	Physical	6	3%	0%	0%
Laundering	Physical	6	3%	0%	0%
Emergency/notification assistance	Physical	3	1%	75%	1%
Total (eight hours/day * 30 days)	-	240	100%	-	-
Average	-	-	-	50%	45%

Source: Compiled and calculated by Uzabase

Note: 1) Above task list and numbers are based on our assumptions; 2) The task list, monthly hours breakdown, and Pepper's capability levels may differ in practice

Softbank Robotics' Future Goal: Romeo

Although Pepper is not yet qualified to entirely replace a full-time employee due to its physical inabilities, we can expect an improved version of Pepper in the near future — one that can satisfy both physical and social demands simultaneously. In fact, Softbank Robotics is currently building a new project named Romeo, made specifically to work in the elderly care industry. What makes Romeo a more profitable model than Pepper is its acquisition of physical skills, which includes movements like holding objects, catching, and walking up the stairs.

Current Users of Pepper (categorized by industry)

Industry	Company (Country)	SR used	Examples of practical application / business impact
RETAIL	E (Germany)	Pepper	Deployed in 2020 during Covid-19 pandemic to help customers understand behavioural recommendations such as wearing masks and maintaining distance. Reduced stress and workload of the staff.
	SoftBank (Japan)	Pepper	Trialled ten robots at one of its phone stores in 2016 to sell iPhones. As of March 2020, more than 140 mobile stores were using the robot. **Outcome:** Each robot was tasked with playing a specific role from welcoming customers to executing a final sale with little human intervention. However, human workers had to be present at each touchpoint and behind the scene.
	b8ta (USA)	Pepper	Trialled for one week at a store. **Outcome:** Achieved 70% increase in foot traffic, reported a 13% increase in revenue.
FINANCE	HSBC (USA)	Pepper	Deployed in several branches across the USA since June 2018. **Outcome:** Increased ATM transactions, credit card applications, and foot traffic.
HOSPITALS	H (Canada)	Pepper	Deployed two robots in early 2018. **Outcome:** Successfully mingled and interacted with kids.
FOOD	Pizza Hut (Singapore)	Pepper	Deployed in an outlet in March 2018. **Outcome:** Expectation was to improve customer experience.

Recent Market Status

In spite of being useful in several industries, data has shown a low acceptance rate from numerous users owing to the deficiency of human interactions that it can perform, the availability of other competitors, and the high pricing when compared with other SRs. Last year, the slow adoption of Pepper caused Softbank Robotics to halt its production, considering that the company only sold 27,000 robots after its launch in 2014.

Startup Island TAIWAN

Diverse Culture
多元文化

Daring Innovation
勇敢創新

Endless Creativity
無限創意

Leading-Edge Technology
前瞻科技

BACKGROUND & GOAL

Startup Island TAIWAN is the national startup brand co-created by the Taiwan government and startup communities. Its primary goal is to promote Taiwan's startup ecosystem and to assist Taiwan startups in expanding to global markets. The logo is of abstract mountains reflected in the ocean. The image also symbolizes infinity and DNA, which reflect the infinite possibilities that Taiwan startups may create, and entrepreneurial spirit they possess.

On top of the national startup brand, the Taiwan government has further launched the NEXT BIG Project. Together, the startup communities and industry leaders have nominated nine startups to become NEXT BIG companies. With NEXT BIG leading the way, it is expected that more young people will be inspired, and Taiwan's thriving entrepreneurial energy will be conveyed to the world.

Startup Island TAIWAN website

JUMPSTART YOUR JAPANESE JOURNEY

The World of Robotics in Japan

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