

## Real Trends of Real Estate 2020

The Current and Future State of the World and Real Estate

September 30, 2019

Japan became a major economic power after a period of high economic growth following the war, enriching the lives of the people as well. On the other hand, it has experienced an extended period of economic stagnation—the so-called “lost two decades”—after the burst of the bubble economy, resulting in a continued decline of international competitiveness. Furthermore, due to the diminishing and aging population, the productive age population is expected to fall by 6 million between 2019 and 2030: from 75 million in 2019 to 69 million in 2030. This has given rise to concerns of a serious shortage of labor. Amid these circumstances, the socioeconomic situations surrounding us have been changing at an accelerating pace. Such changes include globalization, the advance of technology, a data society, and the advance of a sharing economy. Although we are able to obtain more information on such changes through the Internet, it is, in reality, not easy to grasp the “true” (or “actual”) trends and impacts due to the excess of information.

Real estate has supported our lives and activities as an “important foundation” all through the ages, providing places to live, study, play, and enjoy. This has not changed and will never change. Meanwhile, the way we use real estate has been influenced by socioeconomic situations and has changed with time. In other words, how to deal with real estate will be key to the continued development and prosperity of society, companies, and individuals.

In April 2019, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) formulated and announced its “Real Estate Industry Vision 2030” for the first time in a quarter-century. As the real estate industry is an important key industry that underpins a prosperous society and economic growth and is expected to continue developing as a growth industry, the MLIT formulated its “vision” as guidelines for the industry to attain its desirable form as well as its goals.

As mentioned earlier, the socioeconomic situations surrounding us are changing at an accelerating pace. Although the way they impact real estate and the real estate business is a very important theme, there are hardly any comprehensive reports in Japan that summarize the impacts.

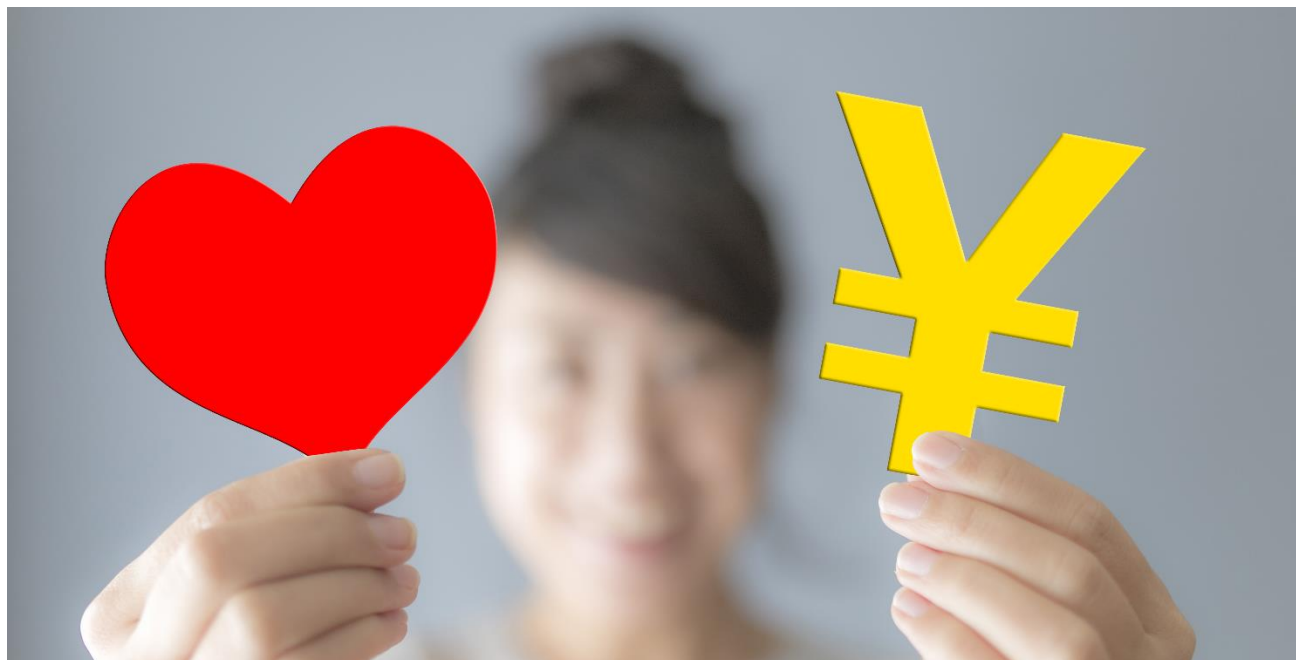
Therefore, Xymax Real Estate Institute (“Xymax REI”) has selected themes considered to be important and examined their situations and impact on real estate. The featured themes are the following 11. All themes are ranked equal in importance. We hope that this report will facilitate the understanding of the real (“true” or “actual”) trends of real estate. Xymax REI intends to release the “Real Trends of Real Estate” on a regular basis to continuously examine socioeconomic changes and their impact on real estate.

**Summary :** [https://www.xymax.co.jp/english/research/images/pdf/20190930\\_s.pdf](https://www.xymax.co.jp/english/research/images/pdf/20190930_s.pdf)

### Themes featured in Real Trends of Real Estate 2020

- |  |                                   |                          |
|--|-----------------------------------|--------------------------|
| 1. Diversifying values                               | 5. Data society                   | 9. Natural disasters     |
| 2. Labor shortage                                    | 6. Advance of technology          | 10. Environmental issues |
| 3. Work style reform                                 | 7. Cities and provinces           | 11. Mega events          |
| 4. Internationalization, coexistence with foreigners | 8. Dilapidation of building stock |                          |

# 1 Diversifying values



## 1.1 Background of diversification of values

People's ways of thinking and values are not uniform. They differ according to nationality, gender, the environment they were brought up in, and socioeconomic situations. The differences in the ways of thinking and values not only have an impact on major decisions in life such as education, employment, and home purchase, but also on everyday situations such as hobbies, travel, shopping behavior, and communication with family members and friends.

For example, the **baby boomers**, who were born during the post-war baby boom, and the **Bubble generation** members, who experienced the bubble economy, have spent relatively stable lives as they joined the work force based on the assumption of lifelong employment during times when the economy continued to rise and people were rewarded for their efforts. The members of these generations have strong inclinations toward owning things and purchase mass-produced products of the same standards. The mentality of the times when they grew up was called "**All Japanese are middle-class**," as most people faced the same direction to improve their lives. In contrast, the post-Bubble generation members tend to have strong intentions of improving their individual careers and affluence due to difficulties in finding employment and the collapse of the lifelong employment system as the economy entered a sustained period of recession. Members of the generation born when digitalization rapidly progressed due to the spread of PCs and smartphones, especially from the late 1990s onward, are called the **digital natives**. They have been accustomed to the Internet and PCs since they were born, and are characterized by their command of the Internet and social network and their establishment of new, online lateral networks. Furthermore, in terms of work, for example, they do not put too much effort into improving their annual earnings or advancing their careers but tend to place more emphasis on their private life. Their attitude toward goods is also changing from "owning" to "using." Compared to the times of mass-production prior to the bubble economy, the post-Bubble generation members live in times of high-mix low-volume production and an excess of goods. Their lifestyles and ideas of marriage and family are diversified, with the number of single persons and small families increasing due to late marriages and declining birth rates.

There are similar generational differences in values in the United States as well. The “2019–2020 Top Ten Issues Affecting Real Estate” by the Counselors of Real Estate of the United States, which Xymax REI has introduced, points out that there are differences in behavior—from marriage and employment to the choice of housing and office—between the baby boomer generation and Millennials and Generation Z members due to differences in values.

In addition to such generational differences in values, the recent increase in foreign tourists, who amount to more than 30 million (as of 2018), non-Japanese workers who are said to be one in every 50 workers, and foreign students studying in Japan is also a factor that cannot be ignored. With the addition of new values through foreign culture, religion, and customs, values are diversifying in various situations of daily life.

## 1.2 Impact of diversifying values on real estate

The diversification of values has affected real estate in the following ways.

In **housing**, the post-Bubble generation members, whose attitude toward goods has shifted from “owning” to “using,” prefer rented housing, with some favoring “address-hopping,” i.e., to frequently change houses instead of staying in a particular house, or shared housing, in which the residents share the kitchen and living room, etc. On the other hand, according to the Family Income and Expenditure Survey by the Ministry of Internal Affairs and Communications (MIC), the tendency to purchase a house is also rising, with 10% more households of two or more persons in their 20s and 30s owning a house compared to 10 years ago, indicating that not everyone moves in the same direction today. Furthermore, there has been an increase in the number of businesses of renovating old houses that offer a high degree of convenience due to a greater tendency to place importance on where to live and lifestyles, rather than giving top priority to newly built houses, which was the traditional norm.

In **offices**, workplaces are becoming diversified by reducing commute time and improving employees’ convenience within the workplace, respecting the working conditions of individual employees. The traditional style of working was to turn up at the headquarter office and work at a fixed desk assigned to the employee. The recent trend is to consolidate the head office to a place that offers good traffic access while aggressively providing workspaces other than the head office at the same time, such as establishing satellite offices, using flexible offices, and enhancing (or introducing) work-from-home programs. According to our research, office workers prefer flexible work styles and diverse workplaces in general, with younger workers (male and female workers in their 20s and 30s) and workers with children under school age preferring to work in a place other than the head office such as from home or a third-place office to a greater degree than other workers. Offering flexible work styles and work environments will improve workers’ satisfaction as well as productivity.

In **commercial outlets**, consumers’ shopping behavior has become diversified as a result of the progress of e-commerce. Today, consumers not only buy at physical stores but also complete their entire purchase online or check a product at a store and purchase it online, and have the product delivered to their home or receive it in a home delivery locker. In response to such changes in behavior, there has been a rise in “showroom” stores that do not carry much stock or stores relocating from the suburbs to a more convenient place for consumers such as in front of train stations with good traffic access.

Diversified values combined with the development of IT technologies has led to the spread of **sharing economy** services, which makes effective use of unused things and spare time, intermediated by the Internet. These services have enabled consumers to efficiently use services that suit their personal, product, monetary, transport, and spatial needs, such as people, pets, daily supplies, cars, housing, and accommodation, without being required any initial investment. These services include, for example, services that turn vacant houses into accommodation facilities or satellite offices, car-sharing services, and bicycle-sharing services that use vacant parking lots.

In addition, due to the increase in inbound visitors to Japan, changes have been seen in building facilities and public spaces that are used by them. Some office buildings and accommodation facilities have provided spaces for purifying and praying or cafeterias that allow diners to choose the ingredients. Public facilities such as railway stations have been providing more multilingual signposts and signage using pictograms and symbols. Furthermore, new communities where fellow countrymen gather are emerging in areas such as Kasai (Indian), Kawaguchi, Saitama (Chinese), and Takadanobaba (Burmese). In rural areas, there have been cases such as in Niseko, Hokkaido, where an increase in inbound visitors to Japan has led to new tourism demand, attracting investment from abroad in tourism facilities, which has led to an increase in employment and revitalization of the area. It has also become possible for foreigners to rent real estate through a guarantee company instead of the traditional guarantor, and there has also been a rise in insurance services that handle trouble caused by differences in language and customs.

Values are expected to further diversify due to changes in the economic situation and social structures. Moreover, the speed of change may accelerate. Amid this trend, it can be said that times have shifted from low-mix high-volume production to **high-mix low-volume** production in real estate as well. In view of this, it will become increasingly important to capture the core needs of the diversifying values and to develop and provide services that can flexibly satisfy such needs, in addition to the conventional, fixed services.

## 2 Labor shortage



### 2.1 Situation of labor shortage

The tightness of the labor market has remained at an unprecedented level, with the unemployment rate and jobs-to-applicants ratio in July 2019 published by the Ministry of Health, Labour and Welfare standing at 2.2% and 1.59, respectively. Considering that the number of employed workers has been rising due to an increase in female and elderly workers, the main cause of labor shortage is the strength of demand for labor. One major issue for Japan to maintain sustainable economic growth is to solve the labor shortage.

Under such circumstances, various measures and initiatives have been implemented to increase the participation of women and older people in the labor force and to acquire non-Japanese workers as a means to solve the labor shortage.

With regard to women, their current employment rate has reached 70% due to the penetration of the **Equal Employment Opportunity Law** and the government's initiatives to support parents in working and raising children at the same time. Although there are still issues of a lack of day-care centers mainly in the cities, the trough of the **"M" curve**, which indicates a drop in women's employment rate between ages 30 and 40, which correspond to a period of childbirth and childcare, is becoming flatter.

With regard to the elderly, the **Law Concerning Stabilization of Employment of Older Persons** was revised in 2006, making it mandatory for employers to extend the retirement age to 65 and implement job security measures such as introducing a continued employment program. In October 2018, the Council on Investments for the Future, chaired by Prime Minister Abe, discussed the reform of the employment system in view of a **100-year life** and stated that it will become necessary to facilitate workers to choose a work style of moving between several companies in accordance with the rise and fall of industries. Based on this, the government announced in May 2019 its policy of raising companies' age limit of continued employment from the current 65 to 70 and requesting companies to take the necessary responses (e.g. extending or abolishing the retirement age, supporting re-employment at other companies, supporting



entrepreneurship) to allow older people to work until 70 years of age if they wished. According to a survey by the Cabinet Office, it has been indicated in a labor force survey that 65% of the elderly aged between 65 and 69 wished to work, while only 44% were actually working. It is necessary to create an environment that enables older people to work actively.

With regard to foreigners, there are 1.46 million non-Japanese workers in Japan already as of October 2018, with the number rising each year. On April 1, 2019, the **Revised Immigration Control Law**, which includes a new status of residence called “specific skills,” was enforced, allowing foreign nationals with a certain level of skills and Japanese proficiency to work in 14 sectors that face a serious shortage of labor. Due to this system, up to 345,000 non-Japanese workers are expected to be accepted into Japan over the next five years. Since there is a limit to the increase in the participation of women and the elderly in the labor force in a country where the population, and hence the workforce, will decline over the long term, the presence of non-Japanese workers is expected to increase in the future. However, labor shortage is a common issue for other countries as well. Therefore, countries will likely compete with each other over foreign workers, and it will be crucial for Japan to attract the necessary number of foreign nationals on a continuous basis.

## 2.2 Impact of labor shortage on real estate

The impact of labor shortage is evident in all areas related to real estate. In particular, there is a noticeable shortage of workers in the maintenance of real estate, with the jobs-to-applicants ratio of security and cleaning jobs extremely high at 7.73 and 2.20, respectively. The ratio has been continuously rising in the past several years. The situation is similar with construction workers, which has led to delays in the start of construction and increases in costs.

There is also a serious labor shortage at companies that use real estate. For **operational assets** such as commercial outlets, distribution facilities, hotels, and healthcare facilities, in particular, acquiring personnel to be engaged in operation has become a major management issue. In a 2018 questionnaire survey of commercial operators by Xymax REI, the top reason (70%) for operators taking a cautious stance in new store openings was the failure to acquire part-time and full-time staff. At hotels, housekeeping requires time and effort and must be carried out within a limited amount of time before the next guest arrives. A certain period of time is also needed to learn the cleaning techniques that are required to maintain the brand of the hotel. The chronic shortage of housekeeping staff will not be solved, and the shortage of hotel workers is expected to accelerate as many new hotels are scheduled to open in the near future. In the distribution sector, a shortage of drivers has been a major concern, but it has also been difficult to acquire personnel to work in distribution facilities. Traditionally, distribution facilities were preferred to be located in key traffic areas close to highways, interchanges of expressways, and ports from the perspective of efficient transport. However, labor shortage is having an effect on the location of distribution facilities, with some recent facilities constructed near areas with residential districts behind in order to acquire personnel who can work in the facilities. The shortage of workers in the nursing care industry is also a major problem. The Ministry of Health, Labour and Welfare estimated in 2018 that 0.55 million workers will be required in the industry by fiscal 2025 (around 60,000 workers per year), in addition to the 1.9 million in fiscal 2016.

## 2.3 Initiatives to solve labor shortage

Companies are striving to secure staffing by making various efforts to maintain and improve the retention rate of employees, such as reducing working hours, introducing flexible shift patterns including the setting of holidays, providing welfare facilities such as company dormitories and day-care facilities, and turning temporary staff into regular employees, in addition to strengthening employee recruitment. Companies are required to provide a work environment where not only women and the elderly but also a diverse range of people, such as employees with restrictions in the hours and place of work, can continue working with peace of mind over a long period of time.

Furthermore, the employment of foreign nationals is being promoted as a means to solve labor shortage. The 14 sectors subject to the Revised Immigration Control Law mentioned earlier include nursing care, building cleaning, construction, accommodation, and restaurants, which all face a serious shortage of labor. Despite the possible language and communication issues, the dependence on and the number of non-Japanese workers are expected to rise.

In addition to securing the “quantity” of workers, the “quality” of work, which will eventually compensate for labor shortage, is being transformed. In the maintenance of buildings, labor-saving measures using cutting-edge technology is being promoted, such as smart meters to read electricity usage, remote inspections of equipment, and management of buildings using cloud technology. Robots are also being introduced in various situations. In April 2018, Mitsubishi Estate started to introduce robots for security, cleaning, and other services and operations in the Marunouchi area of Tokyo. Kajima Corporation is applying and demonstrating technologies and systems such as robots and remote control at actual new construction sites. These can be said to be efforts in **manpower saving**.

In operational assets, self check-out machines and cashless payments are being introduced at commercial outlets, for example. Initiatives that contribute to solving labor shortage by improving work efficiency have also started, such as social experiments by the Ministry of Economy, Trade and Industry (METI) using electronic tags. At hotels, mechanization and labor-saving measures are being implemented by introducing automatic check-in and payment machines as well as through operational measures to secure time for housekeeping with few cleaning staff by shifting check-out times. Distribution facilities are also making efforts in mechanization and introducing robots for picking and sorting processes.

Labor shortage problems are expected to further accelerate efforts to save labor, the diversification of workers and the progress of technology. They are also expected to bring about changes in the traditional ideas of the locations of real estate or how buildings are constructed. The employment reforms based on a 100-year life that the government is promoting will have a large impact on individual workers’ idea of “work” and, in particular, are expected to bring about a shift in awareness among elderly workers. It is expected that more workers will try new work or engage in social contribution activities as a result of the extension or abolition of the retirement age, in addition to continue working at their previous companies. The motives for continuing to work will not only be economic ones but also those that would lead to **happiness**, such as a purpose in life, health, social contribution, and learning.

### 3 Work style reform



#### 3.1 Changes in work styles

In the previous chapter, we discussed the labor shortage issue and identified how the number of workers impacts society. However, in order to understand the social changes that are currently taking place, we must pay attention not only to the changes in the size of the labor force as a whole but also to changes in the work style of individuals. Therefore, in this chapter we will identify how the changes in individuals' work styles will affect society and the real estate industry today and in the future.

**Work style reform** is one of the most important keywords for considering the future changes in individual's work styles and their impact on society. The government's efforts in work style reform accelerated when the government announced in 2015 to aim for a society based on Dynamic Engagement of All Citizens as the second stage of Abenomics and the post of Minister for Work Style Reform was established in 2016. After the Lower House elections in September 2017, the Prime Minister advocated the 100-year life concept and the realization of work style reforms in his policy speech, leading to the enactment of the Law for the Establishment of Acts Related to Work Style Reforms (so-called **Law Related to Work Style Reform** or Comprehensive Laws on Work Style Reform), which have been enforced in phases since April 2019. Initiatives involving the entire society are also being carried out by the central government such as MIC, in cooperation with the Tokyo Metropolitan Government and the business community. Such initiatives include designating July 24, the day of the opening ceremony of the Tokyo Olympics, as **Telework Day**—the "Day You Change Your Working Style"—and encouraging companies and organizations nationwide to carry out telework on the day. The number of organizations participating in Telework Day has been increasing year after year from around 900 in 2017, the first year, to 1,200 in 2018 and 2,900 in 2019. The public's interest in Telework Day has also been rising accordingly. Various work style reform initiatives have been undertaken at many companies as well, going beyond labor affairs and leading to the provision of new related services involving a range of industries including HR (human resources), ICT, and real estate. The public's interest in work style reform has also remained high, with the term being nominated for the grand prize in the new words and buzzwords contest (2017). The background to such popularity of



the concept includes significant shifts in society at large, such as a decline in the workforce (refer to Chapter 2), technological innovations (refer to Chapter 6), the social problem of long working hours, faltering labor productivity, declining international competitiveness, and changes in values held by individual persons (refer to Chapter 1).

Work style reform has thus attracted attention but has become vague in some respects due to its very popularity among the public. Here we would like to recap its definition, what issues it aims to address, and the background to the development of the initiative. According to a public service announcement, the government defines work style reform as a means to “realize a society where workers can choose from a wide variety of work styles according to their circumstances,” and aims to correct long working hours and realize diverse and flexible work styles through a series of measures and initiatives, with the ultimate goal of ensuring fair treatment regardless of the form of employment.

From a different point of view, this indicates that the Japanese society had made it difficult for workers to choose flexible and diverse work styles according to their individual circumstances. The traditional Japanese way of working, as represented by lifelong employment and a seniority system, was suitable for the post-war high economic growth period but at the same time became a remote cause of various problems surrounding Japan today, such as low fluidity of the labor market, gaps between regular and non-regular workers, retirement from work due to childbirth, greater opportunity costs for having children, long working hours, and resigning from work due to nursing care requirements. Furthermore, the fourth industrial revolution is currently taking place all over the world, bringing about a shift in social and economic structures from homogeneous cost competition to competition for added value. As a result of such changes in socioeconomic structures, a **polarization of the labor market** is progressing not only in Europe and the United States but also in Japan, where the share of workers of high-skill professions, such as specialist jobs and technical jobs, and those of low-skill professions, such as personal services, has increased, while the share of medium-skill professions such as manufacturing and clerical work decreased. This may lead to greater income gaps. Work style reforms are expected to solve the aforementioned issues surrounding “work” and improve Japan’s labor productivity and economic growth by reconstructing the socioeconomic system as a whole, such as the form of corporate organization and the content and method of work of individuals.

The above is the background and definition of work style reform and the issues it aims to tackle. In the following sections, we will examine how work styles are expected to change and how they will affect the real estate industry, following the initiatives in work style reform.

## 3.2 Future work styles

What will work styles be like in the future?

First of all, a work style that is **not bound by time or space** should become common. In the past, work could not be done unless many people gathered in the same room at the same time and worked together. However, the spread of the Internet and mobile technologies has made it possible to communicate and collaborate with people located far away. As it is expected that the processing and transmission speed of computers will continue to advance, VR (virtual reality), AR (augmented reality), spatial projection displays and other means of **telework** and mobile work, which are not restricted by physical constraints of time and space, are expected to see further progress. Offices and other places for work will also be re-examined in terms of interior, fixtures, equipment, location, size, and number, with an emphasis on the ease of work of workers according to their individual circumstances of the moment. Furthermore, workers will be required to be assessed not only by the hours they worked but by their achievements and productivity, which is expected to lead to a correction of the current long work hours.

Secondly, the relationship between companies and workers is expected to change. Technological innovations and social changes may shorten business cycles. For companies, a project-oriented management style where the necessary personnel, place, and space are procured for each project will be

more suitable for agile and flexible changes than retaining a large number of regular employees, renting expensive offices in city centers, and maintaining workplaces with low utilization rates. For workers, it will no longer be common to work at the same company for the same job for one's entire life. Since people's healthy lifespan will increase, they will experience several major shifts in life due to career changes and re-education through **recurrent education**. Following such trends, companies are expected to become a **collective of projects with a clear mission and purpose**, and workers will flexibly move within and outside companies according to their preference and circumstances. As a result, differentiating between regular and non-regular employees and full-time and part-time based on the length of service or the existence of employment security will cease to have meaning. **Side jobs, concurrent jobs, and multiple jobs** will become common. However, these will all be based on the transparency and efficiency of the labor market for all generations and professions, such as the development of a system in which information on a company's reputation or a worker's skills are broadly shared, enabling workers to move between jobs as they wish.

Thirdly, it is expected that **nursing care, childcare, and housework will no longer restrict work**. At the same time as infrastructure for childcare and nursing care is developed, it is expected that a wide variety of outsourcing services and businesses will be developed for nursing care, childcare, and housework using crowdsourcing and matching. Sufficient preventive measures will be made by health management systems before someone becomes in need of nursing care, while workers' nursing care burden will be alleviated through wearable **nursing robot suits**, care beds that can be separated into a wheelchair, and remote monitoring systems. Housework is an area where the use of AI (artificial intelligence) and robots is anticipated. Automation of cleaning has already been realized, while **cooking robots** are likely to be put to practical use soon. Furthermore, workers who wish to carry out nursing care or childcare by themselves will be able to obtain childcare or nursing care leave without much trouble and choose flexible work styles such as earning an income by using crowdsourcing from home in between childcare or nursing care tasks according to their circumstances.

Lastly, it is expected that workers will **no longer face restrictions based on gender, race, nationality, sexual orientation, gender identification, or disabilities**. Due to the technological progress of AI, telecommunication, VR, and translation, the hurdles for communication will drop regardless of physical distances, language differences, one's appearance, and the existence of handicaps. Many jobs will be exchanged beyond borders, with individual workers choosing a work style that suits their abilities and orientation, in harmony with society.

### 3.3 Changes in the workplace

Work styles that are not bound by time and space have already had an impact on how real estate is being used. Compared to a few years ago, changes can be seen in the layout within offices, with more spaces for workers to spend time apart from work, such as open meeting spaces and spaces for refreshing. Furthermore, fixed desks are being replaced by **hot desking**, which allows companies to save office space. Promoting paperless processing and introducing business systems and remote conference systems that can be accessed from outside the company have also relieved workers from the constraints of having to come to, stay at, and return to the office of their company's headquarters.

A concept that has been attracting attention in improving companies' productivity and achieving a work-life balance through workplace reforms is **ABW (Activity Based Working)**. ABW enables companies to develop workplaces and tools based on the specific actions of workers. A day of a worker is a mix of various activities that include solo concentrated work, refreshing, project work, team communication, and open innovation with parties outside the company. When creating an office based on ABW, facilities with different functions such as concentration booths, open meeting desks for small groups, lounge seats, counter seats, and phone booths are laid out based on the actual use and degree of necessity at the company. ABW thus creates environments, tools, and culture that allow individual workers to be aware of and think about improving their productivity on a daily basis and put such thoughts into action.

While ICT (information communication technology) developed and tools and devices facilitating remote collaboration disseminated, “places” suitable for so-called telework, which is to work from somewhere away from the headquarter office (e.g. work-from-home, mobile work, satellite offices), have not been developed. The reasons behind this include the fact that Japanese houses are not necessarily suitable as a place to work and cafes raise concerns of information security. Amid this situation, a service that is becoming popular recently is the **flexible office**. A flexible office is a collective term for office space that is neither the company’s office nor the worker’s home, such as shared offices and co-working spaces. Contracts do not take the form of lease contracts but temporary use contracts or service contracts. The party to the contract can be either a corporation or an individual. Various types of flexible offices are being provided by operators, including satellite offices, rental offices, shared offices, mobile work offices, and co-working offices. Some offices also provide services such as staff operations and event planning/operation, in addition to office space.

A major issue in large metropolitan areas is commuting. Long commutes place **commuting stress** on workers, negatively affecting workers’ productivity as well as their engagement and satisfaction in work and private life. An increase in flexible offices due to the progress of work style reform at companies should be favorable for both workers and companies. In addition, since the IFRS (International Financial Reporting Standards), which is currently being introduced at listed companies, requires office rent to be recognized as an asset, the use of flexible offices may also progress from an accounting perspective.

Business customs and workers’ work styles vary between countries. The degree of penetration of flexible offices also differs between Europe/US and Japan. Flexible offices in Europe and the United States have increased in presence as the receptacle of office needs of small businesses such as individual proprietors, freelancers, and startups. More recently, there have been an increasing number of cases where general companies use flexible offices as their offices. The reasons behind this include the fact that lease contracts over five to ten years, which is the norm in Europe and the United States, do not match the speed of business and that companies now require community development functions in offices. In Japan, we believe that a **hybrid-type**, which is to use the fixed, headquarter offices and flexible offices for different purposes depending on the need, will become the mainstream. With the hybrid-type, companies will maintain their headquarter offices as a place for functions such as “interaction,” “information exchange,” and “sharing of the company’s vision,” while using flexible offices to carry out telework to promote work style reforms of individual workers. A questionnaire survey conducted by Xymax REI (“Metropolitan Areas Office Demand Survey Spring 2019”) also revealed that the hybrid-type was the most supported future real estate strategy among companies.

To allow such flexible offices and ABW to function, it is essential to identify the managerial issues of each company and understand individual workers’ work styles and their actual use of the workplace. As few companies can carry out the entire process from planning and implementing projects by themselves, the expectations toward real estate operators are large, especially in the field of workplace. For real estate operators, work style reform is not only a matter that concerns the traditional relationship between the lessor and lessee but also a chance to capture new revenue opportunities of **REaaS (Real Estate as a Service)**.

## 4 Internationalization, coexistence with foreigners



### 4.1 Internationalization by attracting foreigners

In recent years, the need to establish a **cohesive society with foreigners** in Japan has been actively talked about. Behind this are two major developments in internationalization.

The first development is the **surge in inbound visitors to Japan**. The number of inbound visitors to Japan exceeded 10 million in 2013 for the first time and surpassed 30 million only five years later in 2018. The government's target of 40 million by 2020 is not at all unfeasible. On the other hand, foreign visitors to France have exceeded 90 million in 2018. A late comer as a tourism-based nation, Japan must continue to improve its presence in the competition with other countries.

The other development is the **Revised Immigration Control Law** that was enforced in April 2019. The revised law includes a new status of residence (Specific Skills (i)), targeting 14 sectors that face serious labor shortage. This opens the doors to foreign nationals in engaging in unskilled labor, which had not been allowed in the past, and expects to accept up to 340,000-strong foreign nationals over five years. While technical interns and students (engaging in activities outside the scope permitted) have become precious workers at workplaces with a serious shortage of labor, there are many problems to be solved such as the existence of heinous brokers, poor working environments, and low wages. The government, supervisory organizations, receiving companies, and schools must work together to solve the problems without shelving these apparent issues.

The key points in creating a cohesive society is to make foreigners **"want to visit Japan (again)," "want to work/study in Japan,"** and **"want to continue living in Japan."** It will be important for Japan to continue to be a country that is chosen. This will require the Japanese people to change their awareness and to develop infrastructure both in tangible and intangible terms, which, in turn, will force real estate to change as well.



In the following sections, we will identify the trends of a cohesive society and the impact it has on real estate as well its issues from the perspective of inbound visitors and non-Japanese workers and students.

## 4.2 Inbound visitors to Japan

As of 2019, more than 90% of inbound visitors to Japan entered the country by air. To further increase the number of visitors, it will be necessary to expand the **capacity of airports**. Specific initiatives include the operation of new flight routes for Haneda Airport, a one-hour extension of the departure and arrival times at Narita International Airport, and a major renovation of Terminal 1 at Kansai International Airport.

In recent years, the **destinations** of visitors have **diversified**. According to the inbound visitors consumption trend survey by the Japan Tourism Agency, 61.4% of inbound visitors in 2017 were repeat visitors who have visited Japan two times or more. The more they visited, the more they tended to visit the provinces. This diversification from well-known sightseeing destinations to rare sightseeing destinations has been encouraged by the improving transportation infrastructure, the advertising of tourism resources, and the development of accommodation facilities, which revive the local economy. The official announcement of land prices in March 2019 indicated that land prices rose significantly not only in urban sightseeing destinations such as Asakusa but also in regional sightseeing destinations such as Niseko, Hokkaido, which attract many foreign visitors, giving rise to needs for commercial outlets and accommodation facilities. Going forward, the key to improving the appeal of and differentiating sightseeing destinations will be to continue addressing the various needs of inbound visitors, such as enhancing spending on experience, which is expected to lead to an increase in inbound visitors who **"want to visit Japan (again)."**

There has been a **rush to construct hotels** ahead of the Tokyo Olympics & Paralympics in 2020. Although it is estimated that there will be an oversupply of hotel guest rooms after the Olympics in the Tokyo metropolitan area, it is believed to be unlikely that the total demand for hotels and private lodging will drop from current levels on a nationwide basis, as the government aims to attract 60 million inbound visitors to Japan by 2030. There is a certain number of hotels and guest rooms in Japan already, but, as in business hotels, many of them are mainly single rooms and small, as they were designed to accommodate short-term stays by Japanese guests. On the other hand, inbound visitors to Japan require large rooms with twin beds or more, since they usually stay at hotels with family or friends and their luggage will increase after shopping. They also have different needs from the Japanese, such as a prayer room, universal electric outlets, and multilingual services. In reality, although there are many hotels in Japan, not many of them are designed for inbound visitors to Japan.

The locations of accommodations are also becoming diversified. As a specific example, a Japanese real estate operator and a US hotel chain announced that they will open hotels adjacent to nationwide "roadside stations" from 2020 onward. They propose a travel style of visiting multiple tourist attractions of the area, with a hotel specializing in accommodation functioning as a hub. Economic ripple effects for the area can also be expected from an increase in spending on meals and shopping.

With regard to **private lodging**, the number of lodgers in such accommodation totaled 1.32 million between June 15, 2018, when the New Private Lodging Business Act was enforced, and May 31, 2019 (the gross total was 3.67 million for the period). Despite a weak start due to the fact that illegal private lodging was eliminated by the new law, the number of lodgers between April and May 2019 amounted to 0.34 million (a gross total of 0.93 million), of which a little over 70% were foreign nationals. The number of registered properties exceeded 18,000 by August 2019, more than eight times the number of lodging at the time when the new law was enforced. Factors for the increase include the spread of services supporting private lodging and related industries, such as major convenience chains offering their stores as a place for delivering the keys to the rooms. Furthermore, the number of simple lodging that can operate for more than 180 days a year has exceeded 30,000 as of 2017 and is expected to continue to increase as they meet the demand of inbound visitors to Japan.



**Inbound spending** in 2018 exceeded 4.5 trillion yen, a new record high. Consumption expenditure can be largely broken down into 30% for accommodation, 35% for shopping, and 20% for meals, indicating that inbound spending is a large market for commercial facilities and stores. The key to capture and increase inbound spending is to provide products, services, and experiences that suit the needs of foreign visitors. An example would be to hold events linked to the seasonal events calendar of each region in cooperation with local governments. Disseminating the information via social media and asking visitors to post reviews may improve the recognition of the facilities and attract new tourists.

Another service is cashless payment. The government announced its policy of granting reward points for cashless payments as an economic stimulus measure at the time of the consumption tax hike in October 2019. The penetration rate of cashless payments is expected to gradually rise, helped by the rising momentum for multilingual support ahead of the Tokyo Olympics & Paralympics in 2020.

### 4.3 Non-Japanese workers and students

The number of non-Japanese workers and foreign students studying in Japan hit record highs of 1.46 million (+14.2% year on year) and 0.29 million (+12.0%), respectively, as of the time of aggregation in 2018.

The MIC published “**Multicultural Coexistence Cases**” in 2017, which introduced 52 initiatives collected from local public agencies, local internationalization associations, and NPOs. The initiatives are categorized into the following four groups: communication support (9 cases), daily life support (28 cases), regional development based on multicultural coexistence (9 cases), and contribution to local vitalization and globalization (6 cases). A large number of cases involves daily life support. Looking at the particulars of the initiatives, more cases concern intangible aspects than tangible aspects. Housing support business for foreigners who “**want to work/study in Japan,**” in particular, seems to offer room for the real estate industry to engage more actively. A specific example is the provision of company dormitories and student dormitories that accommodate foreigners in the provinces. As also mentioned in the Multicultural Coexistence Cases, a common issue concerning non-Japanese workers and students is the overconcentration of their employment and acceptance in Tokyo. In a society with a declining population, the need for non-Japanese personnel is likely to increase in the provinces, and providing company and student dormitories would be effective as a matching/motivating measure to attract foreigners.

Under the Revised Immigration Control Law, foreign nationals will be able to obtain permanent residency if they acquire the Specific Skills (ii) status of residence by passing advanced tests. Since this status allows family members to accompany the worker, it is expected that foreign nationals who “**want to continue living in Japan**” will increase in the future. The government presented its “Comprehensive Measures for Accepting and Coexisting with Foreign Workers” at the third Meeting of Relevant Cabinet Ministers on Accepting and Coexisting with Foreign Workers in December 2018, in which it announced a plan to establish “**Multicultural One-Stop Comprehensive Consultation Centers,**” which will be the integrated contact point for local government and immigration control, at 100 locations nationwide. However, for foreign nationals to live safely with peace of mind, it is necessary for companies and schools that employ or accept them to bear daily life support costs more aggressively, instead of leaving the matter to the local government. The time will come when related real estate businesses will also be required to change.

Discussions on how to coexist with foreigners are still in early days. As mentioned at the beginning of the above Comprehensive Measures, the key to achieve a sustainable coexisting society will be to foster mutual understanding where not only the Japanese people, the accepting side, strives to understand and cooperate in achieving a coexisting society, but also foreigners, the accepted side, try to understand the philosophy of coexistence and understand the Japanese culture.

## 5 Data society



### 5.1 Data society

It is said that **data is the oil of the 21st century**. The advance of technologies such as IoT and AI has brought about an era where a vast amount of data, which does not have any mass, is born every day, creating added value and driving not only industries and the economy but also the entire social structure.

In this data society, possessing many data becomes vital. Today, major **digital platformers** such as **GAFA** (Google, Apple, Facebook, Amazon) own a huge amount of data and have come to have an impact at the national security level of countries around the world.

Why did no major digital platformer such as GAFA emerge in Japan? One reason is that, since Japan grew as a major manufacturing nation after the war, the industrial transition from hardware to software was slow. The fact that Japan has a strong self-sufficient mentality, which hindered open innovation compared to other countries, must have also had an influence.

In recent years, however, collaboration between private companies beyond industry borders is increasing in industry, government, and academia collaborations that are carried out when the government examines new social system designs and at companies searching for new business models.

In the next section, we will examine the environment surrounding GAFA, which are taking the world by storm. In the third section we will introduce the trends in Japan in a data society and in the fourth section we will identify the impacts of the various developments of technology on future real estate following the expansion of the data society.

## 5.2 Environment surrounding GAFA, which is taking the world by storm

GAFA's businesses originated from web-based digital domains, such as searches and browsing (Google), PCs and smartphones (Apple), social network (Facebook), and e-commerce (Amazon). In recent years, however, they have been expanding their businesses into physical domains such as cashless payments, retail (physical stores), smart homes, self-driving, and drones, on the back of their vast amount of collected data and infrastructure platform. Furthermore, Google, Amazon, and Microsoft also provide a wide range of cloud services by focusing on AI-related services.

Thus, they have established the world standard for near-future technology and are competing with each other to become the champion of the data society, while locking in both BtoB and BtoC customers. Such actions have a large influence on various industries, markets, and nations.

Meanwhile, the EU, in particular, aggressively imposes the following regulations on GAFA's business model.

- Personal data (**GDPR**: EU's General Data Protection Regulation): Prohibits the transfer of personal data, even if it was collected legitimately, to outside the EU area.
- Fair competition (EU Competition Law): Google's search results for a product's price predominately displaying Google Shopping results takes advantage of its dominant position and hinders fair competition.
- Tax (digital tax): Introduced in France in 2019. The tax is imposed on the net sales of global IT companies generated within the relevant country.

There have been moves to regulate GAFA in the United States as well. In July 2019, the US Department of Justice announced that it would start investigating IT companies for possible violations of antitrust laws (equivalent to Japan's Anti-Monopoly Act). The targets are considered to be four GAFA companies. The United States may also shift to tighter regulations.

The Japanese government included its policy of regulating large IT companies in the draft of the "Council on Investments for the Future—Growth Strategy" in June 2019. The government will proceed to enact the **Digital Platformer Transaction Transparency Act** (tentative name), a new law that supplements the Anti-Monopoly Act to ensure a fair transaction environment, and strengthen the protection of privacy by revising the Personal Information Protection Law. The government aims to achieve both regulation and growth as it takes technological innovations into consideration by establishing a specialist organization that evaluates the digital market. Furthermore, the participants of the G20 Finance Ministers and Central Bank Governors Meeting held in Fukuoka last month agreed to prepare unified rules for international **digital taxation** that prevents tax avoidance by huge IT companies.

It is unlikely that GAFA alone will continue to be the winners in the global markets due to regulations of GAFA being tightened as a result of the development of laws in different countries and the emergence of new players such as China's **BAT** (Baidu, Alibaba, Tencent). It is necessary to pay attention to the developments of Internet companies that operate globally as well as to the regulatory developments against them.

## 5.3 Data society—the trend in Japan

In this section we will introduce some of Japan's initiatives concerning the data society. The **Information Bank** advocated by MIC is a new concept in data distribution. It refers to operators that receive personal data from individuals, accumulate, manage, and utilize the data on behalf of the individual, and return the benefits gained from such activities to the individual. It is attracting attention as a novel initiative that

counters GAFA companies, which hold a vast amount of personal data, with a clearly defined advantage for individuals, which is to pay them consideration. Some of the advantages for individuals who provide information are that the contact point for managing their data is unified and that they will have knowledge of who their data is provided to. Authorization of operators by the Information Technology Federation of Japan started in June 2019, and there are few examples so far that indicate the specific advantages individuals can receive. In order to spread the Information Bank, it would be necessary to start from raising awareness among individuals that personal data is an asset or product that they should manage by themselves.

In 2017, METI announced a new vision for industries that Japan aims to achieve, namely, **Connected Industries (CI)**. Specifically, Connected Industries aim to achieve a super smart society (**Society 5.0**) by establishing an industrial society where various data connect with each other beyond borders and generations, such as "goods & goods," "people & machines," "production & consumption," "large companies & small companies," "region & region," and "capabilities of actual work sites & digital," to generate new added value. A keyword for improving the competitiveness of the industries is "**high-mix low-volume**," which is expected to lead to accelerated construction of factories not in countries where personnel costs are low but close to consumers if **smart factories** become common due to the progress of CI.

Examples of private companies' initiatives include the Seven & i Data Lab, which was launched by Seven & i Holdings in 2018. It aims to solve social issues by mutually utilizing the insights gained from statistical data owned by companies of different industries. 10 leading companies from multiple industries participate in the initiative. They discuss with Seven & i on a one-on-one basis to designate several issues and seek to solve them through demonstration tests. At the same time, the results obtained are shared within the Lab and further data utilization is also being considered, creating the largest ever big data collaboration between companies.

With the shortage of IT personnel estimated at 0.79 million in 2030 by METI, the government, industry, and academia have been engaged in collaborative efforts to foster **data scientists**. Universities are establishing departments that aim to raise data scientists (e.g. at Shiga University and University of Hyogo) and are growing in number.

## 5.4 Impact on real estate

Consumer behavior changes due to the advance of technologies following the expansion of a data society, transforming existing business styles in turn. In this section we will explain the major keywords and the impact they have on real estate.

- **E-commerce:** According to METI, BtoC e-commerce accounted for 6.22% of the Japanese market in 2018 and is continuing to expand along with CtoC e-commerce as represented by flea market apps. Currently we find no factors that hinder the growth of the market. The growth of BtoC and other e-commerce in Japan, where household spending is stagnant and the population is declining, is in a trade-off relationship with a decrease in sales of physical stores and should not be considered as a separate business. Consumers are choosing between e-commerce and physical stores according to their purpose, such as convenience, comfort, and fun. Amazon's acquisition of a major food supermarket and Uniqlo's aim of achieving a 30% e-commerce sales ratio in Japan indicate that e-commerce and physical stores supplement each other to provide seamless customer contact opportunities. Retailers must continue to modify the positioning of their e-commerce business and physical stores and examine their strategies in order to respond to changes in consumers' spending behavior. Amid such drastic changes in the environment surrounding commerce, the direction of real estate, which are commercial facilities in this case, is a major issue. In the United States there have been an increase in dead malls, which are shopping malls that have been abandoned due to an excess of stores and e-commerce. Some of them have been converted for other usages such as distribution. We must keep a close eye on these developments and consider the future of commercial facilities in Japan.



- **FinTech:** FinTech is a portmanteau of financial technology and refers to innovative developments that connect financial services with information technology. Specifically, the concepts that FinTech embraces are wide-ranging, from virtual currency to crowdfunding and cashless payment. They have given birth to new financial ventures that provide services using the Internet, smartphones, AI, and big data. As a result, the positioning of physical outlets of financial institutions, which have hitherto enjoyed an effective monopoly in providing financial products and services, is changing. Financial institutions are also seeking to transform their business model from the traditional **distribution of funds to distribution of information**. Physical outlets in the future are expected to diversify in terms of location and size according to their functions, such as outlets specializing in consulting and joint outlets that provide one-stop banking, trust banking, and securities services. Efficient use of idle properties that go on the market due to mergers, abolitions, and closures of outlets will offer significant business opportunities for real estate players.
- **MaaS (Mobility as a Service):** MaaS is a new concept of “mobility” that considers mobility by all means of transport other than the users’ private car as one service, regardless of whether it is public transport or who the operator is, and links them seamlessly by applying cloud technologies to transportation using ICT. Although it is still early days in Japan, it is believed that a sharing economy represented by car sharing and ride sharing will become wide-spread and that the time will come in the medium to long term when the mainstream of consumers’ private cars will shift **“from owning to using.”** The progress of MaaS is expected to alleviate the burden related to travel and the means of travel, change how real estate such as buildings and parking lots are used in urban development, reduce traffic accidents, solve urban problems including traffic congestion, and solve problems of the provinces that suffer from a declining population. Under these circumstances, Toyota Motor announced in 2018 its e-Palette Concept, a mobility service using a dedicated next-generation electric vehicle that can be applied to various purposes such as travel, distribution, and product sales. It is an attempt to replace services currently based on real estate with various concepts of movable properties such as physical e-commerce, multipurpose travel space, on-demand shopping streets, and one-stop distribution. It has the potential to drastically change the concept and value of real estate.
- **RealTech or propTech:** In Japan’s real estate industry, it is not uncommon for property information to still be exchanged over the phone or by fax. In an effort to turn Japan’s real estate business into an information industry, the Real Estate Tech Association for Japan publishes a “Real Estate Tech Chaos Map.” This map categorizes real estate players that are making efforts to improve business efficiency and added value by utilizing technology based on their business area. The map includes business areas that have existed from before, such as “intermediation support,” “matching,” and “renovation,” as well as businesses that transform the customs of the real estate industry, such as “crowdfunding,” which enables high-yielding real estate investment from a small amount of money, “VR/AR,” which enables previews of properties using smart devices, and “space sharing,” which refers to private lodging and shared offices.



## 6 Advance of technology



### 6.1 Integration of physical and digital

Technology is an element of competitiveness of a country or a company, and its importance is rising continuously. The World Economic Forum, which is known for the Davos Meeting, revised the methodology for its 2018 Global Competitiveness Index ranking to place more emphasis on technological innovation, and on technology in particular. Following this revision, major countries have been increasing their science and technology budgets and companies have been stepping up their R&D investment.

Technology has made significant progress on the back of strategic investments by different countries, bringing about structural changes in every industry. A keyword that symbolizes this trend is **X-Tech**. X-Tech refers to business areas where physical and digital have integrated, such as FinTech, HealthTech, EdTech, AdTech, AgriTech, HRTech, and FoodTech. Business areas where information communication technologies had not yet penetrated are embracing information technology, and new industries and companies are emerging as a result of redefining industrial structures due to the digital revolution (the **fourth industrial revolution**). **Digital disruption**, where existing industrial structures and the principle of competition are being destroyed or redefined, is happening in various industries as innovative products and services using sophisticated information communication technologies spread globally. In the real estate industry, **realTech**, or **propTech**, is attracting attention as values or mechanisms that intend to change industry problems and traditional business customs with digital technology. In Japan, the Real Estate Tech Association for Japan was founded in 2018, in which more than 70 companies currently participate.

To understand the various technologies in an organized manner, we will introduce technologies in the following sections in relation to the three aspects of technology for real estate, namely "building and moving," "using," and "trading," with a focus on technologies that are deeply related to the real estate industry and business innovations generated by technology.

## 6.2 Technologies for “building and moving” real estate

The progress of technologies related to real estate enables to “build and move” real estate with the minimum resources. “Resources” in this context include materials such as steel, stone, and sand, as well as energy such as electricity and water, and workers (number of persons and hours) for constructing and maintaining buildings and infrastructures. As the shortage of human resources such as construction workers and cleaners, in particular, affects the continuity and productivity of the real estate business (refer to Chapter 2), there are high expectations for technology as a solution to problems.

A typical example of technology for building is the **3D printer**. A 3D printer produces complex three-dimensional objects by providing data and materials. By molding components of complex forms at the construction site, 3D printers can reduce assembly work as well as materials to be discarded, materials storage space, and conveyance operations. Furthermore, they will also contribute to stable quality since work that requires advanced construction work such as welding at construction sites will be reduced. Unique materials and buildings that meet the needs of the customer can also be manufactured, paving the way for being able to respond to diversified values. There are many examples around the world already of real estate being built with a 3D printer. In China, a house was built with a 3D printer in 2015, followed by a bridge in 2019. Dubai is developing a strategy to use 3D printer technologies for 25% of its buildings by 2030, with 2,700 square feet of office buildings constructed in 17 days for 140,000 dollars in 2016. In the United States, start-up company ICON builds 600–800 square-foot houses in only 24 hours and for 4,000 dollars. In Japan, although the technology has not yet been put into practical use due to the need to meet earthquake resistance standards, construction companies such as Obayashi Corporation and Taisei Corporation are carrying out R&D.

**Robotics** is attracting attention as a solution to the shortage of human resources at construction and management sites. Large construction sites are introducing land levelers, loaders, backhoes, and trucks with automatic control technology. Such equipment works autonomously using GPS, digital drawings, and LIDAR (remote sensing using lasers) and can be controlled remotely. The excavator with GPS by Komatsu, a leading company in this field, can excavate land in centimeter units. Robots that work with humans have also emerged. SAM100, a robot that assists in masonry made by Construction Robotics of the United States, accurately lays 1,000 bricks a day even on shaky ground by automatically correcting itself. In Japan, major general contractors are carrying out R&D of robotics in the face of serious labor shortage and aging of construction site workers (30% of construction workers are aged 55 or older, while 10% are in their teens or 20s). In 2019, Kajima Corporation introduced robots for works such as welding iron frames, spraying fire-resistant covering, and attaching exterior components at Kajima Fushimi Building. Furthermore, robots that can work automatically for long hours are in the actual introduction stage in the cleaning and security areas where there is upward pressure in personnel costs due to a serious shortage of labor. Examples include cleaning robot Whiz (SoftBank Robotics) and security robot SQ-2 (SEQSENSE).

**Drones** (UAVs: Unmanned Aerial Vehicles) are expected to play an active role in a wide range of areas such as surveying, testing, inspecting, and crime prevention. Surveying with drones will significantly reduce the time required for surveying and will improve the productivity of other processes of building real estate and infrastructure. The 3D survey data created by combining the aerial images taken by the drone will be used for creating design drawings and construction plans, automatic control of ICT construction machinery, automatic calculation of construction volume, and saving labor of post-construction tests. Drones are also expected to play an important role in **i-Construction**, which is being promoted by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT). Drones have started to be used for inspecting infrastructure facilities such as roads, bridges, tunnels, and dams, as well as buildings, not only reducing time and costs but also enabling safe inspection even at hazardous places that previously required scaffolding. Drones for crime prevention, which detect intruders and send reports to the control center and the police, have also been developed. Secom launched a service in 2015. Other effects on society and real estate include improved efficiency of the last mile of distribution due to unmanned delivery and creating floor area demand for landing pads. However, based on drone-related legislation such as the revised Civil Aeronautics Act and the Act on Prohibition of Flight of UASs around and over Key Facilities, drones are prohibited from flying within densely inhabited districts, flying in airspace within 30 meters from people or buildings, flying within private property, flying out of eyesight, and landing or departing from a road (as of 2019). For drones

to proliferate on a full scale and be used in urban areas, there remain several issues other than the above legislation, such as the need to reduce the size and weight of drones, improve load capacity, reduce noise, and train pilots.

Technologies to reduce the workload of humans are also being developed. Takenaka Corporation's fatigue-reducing wear is designed for rebar workers and plasterers to ease work that requires slouching or half-crouching and bending the knees. Kajima Corporation's wearable vibrator is a 10-kilogram, lightweight backpack vibrator that enables concrete compaction work, which usually requires several people, to be done by one person. **Power assisted suits** support the movement of man with built-in motors, springs, and gas pressure. Following an increase in their introduction in the nursing care field when METI and the Ministry of Health, Labour and Welfare (MHLW) started a subsidy program, they are now being introduced at construction and distribution sites as well. Cyberdyne's HAL reduces the load on the hip by reading biopotential signals sent from the brain to the muscles and providing assistance with electric power. Daiwa House Industry introduced power assisted suits in all of their factories in 2018.

**BIM (Building Information Modeling)** is anticipated to improve the productivity of everyone involved in a construction project. BIM can specify attribute data such as costs, finish, management information, and geographical information to a 3D model of a building created in a computer. The 3D model that has been created can be shared on BIM with architectural designers, surveying engineers, structural designers, construction companies, and owners. By reducing errors and reworks in design or construction and facilitating agreement between the parties concerned, BIM improves productivity in all processes of a building, from design and construction to maintenance. Leading software include Autodesk's Revit, GRAPHISOFT's ArchiCAD, and NYK Systems' Rebro. According to the Japan Federation of Construction Contractors, 67% of its member companies replied that they have introduced BIM. Products that create digital data of existing buildings in a short amount of time using 360-degree cameras have also been developed, raising hopes for BIM to be used in renovations and repairs. In 2018, STARTS Research Institute developed LAPLACE, a system that swiftly and automatically creates construction plans and business plans that meet construction requirements in accordance with laws such as the Urban Planning Law by linking GIS (geographic information system) with BIM and AI. The MHLW also launched the Construction BIM Promotion Conference to establish a system to implement BIM under the united efforts of the public and private sectors.

Real estate consumes a large amount of resources for daily operation even after they are built. In Japan, while energy consumption by the industrial and transportation sectors has declined, that of the consumer sector (household, professional) has continued to rise, accounting for 33.8% of total as of fiscal 2011. Energy-saving measures for buildings have become required, which led to tighter regulations in 2015 through the Building Energy Efficiency Act and the establishment of systems for certifying the energy-saving performance of buildings such as BELS. This trend has led to **ZEBs (net zero energy buildings)** and **ZEHs (net zero energy houses)**, which realize net zero energy consumption by introducing various energy-saving technologies. The technologies being used can be largely grouped into the following three categories: passive technology, active technology, and energy-generating technology. Passive technology is technology that reduces the amount of energy required and includes thermal insulation technologies such as natural ventilation, natural lighting, and low-e multi-paned glass. Active technology is technology that uses energy efficiently and includes moderate temperature air conditioning using chilled water closer to room temperature, thermal storage technology that stores heat during the night, heat conveyance technology that naturally circulates refrigerants using the difference in specific gravity of gas and liquid, and lighting technology such as LED lights. Energy-generating technology refers to renewable energy technologies such as solar power generation. In addition, products that adopt energy management technologies, which visualize consumed energy from data obtained by sensors and optimally control equipment to provide comfort and save energy, have also been developed. Research is also being carried out on using AI for IoT sensors and optimization controllers.

### 6.3 Technologies for “using” real estate

The latter half of the 20th century saw significant progress in **ICT** (information and communication technology) as computers’ processing speed improved, telecommunication capacity expanded, and network technology advanced. The **Internet**, which was born during the 1960s to the 1980s, created an environment that connected people and machines around the world and enabled information to be exchanged, which contributed to economic growth and social progress. According to a survey, the GDP of Japan’s Internet industry is expected to grow to 35 trillion yen by 2020, improving the productivity of industries by 9 trillion yen. In this section, we will introduce technologies and services that enhance the value of real estate per hour and per area by utilizing technologies that connect people with real estate, as represented by the Internet, and optimizing the utilization of real estate.

Due to “diversifying values,” which we described in Chapter 1, people have come to require lifestyles and work styles that are not bound by place and time. This new need led to the birth of various **matching services**, which attract numerous users and sellers and connect them. In addition to platforms that handle products such as Amazon, Rakuten, and Mercari, there has been an emergence of platforms that handle services such as Uber (taxi, food delivery) and Airbnb (spare room), resulting in active CtoC transactions of goods and services via the Internet. This has enabled people and companies to thoroughly compare the goods and service they require and purchase or use them the moment they need them. Furthermore, those with spare goods and time can now monetize such idle assets easily. This trend has been elevated to a **sharing economy**, a new economic movement of sharing idle assets between individuals by lending, selling, or exchanging them via Internet platforms. The sharing economy is having an impact on existing rules and business models in various industries.

The wave of the sharing economy has also reached the real estate industry. Traditionally, when real estate became necessary or unnecessary there were two choices: to purchase or sell, or to rent or lease out. Since real estate is not traded as frequently as consumer discretionary items and are expensive, it was difficult to acquire or dispose of them flexibly in accordance with individuals’ life cycles or companies’ business cycles. As a result, real estate that were not put to effective use were left unattended, leading to social issues such as the vacant house problem. **Space sharing**, which was born under such circumstances, is a service for sharing or matching real estate or spare space on a short or medium/long-term basis. The advance of Internet technologies has enabled small spaces to be managed by the hour and huge numbers of a variety of spare space information to be directly connected with numerous users on the Internet. Furthermore, the penetration of smartphones that emerged in the early 2010s lowered the hurdle for registering or using space, attracting even more users. Today’s space sharing has expanded to various usages such as meeting rooms and event space (SPACEMARKET, SPACEE), parking lots (akippa), private lodging (Airbnb), shared offices, hair salons (AirSalon), and spare space (Nokisaki Business). **Subscription** services that allow users to live in several houses as they wish for a flat rate (ADDRESS, OYO LIFE) have also emerged and are providing new options other than owning or renting. Space sharing has led to the birth of incidental and derivative services. **Smart locks**, which can operate and manage the locking and unlocking of keys with a smartphone, are essential for ensuring the security of space sharing, which is used by an unspecified large number of people. SESAME, a smart lock device, can be attached to existing keys and operated remotely via a Wi-Fi network.

On the other hand, the development of ICT has made it possible to collect data on the use of facilities and services such as meeting rooms, cafeteria, and refreshing rooms as well as the flow of people within the rooms by attaching sensors to various points of the property. Amid the progress of work style reforms, individual workers’ use of facilities has become diversified, and it is expected that **FM (facility management)** services, which enhance the utility value of facilities by optimizing the usage situation within a property, will become important. Coworking office operator WeWork considers buildings as a place to collect data and strives to derive an optimal balance in the number or layout of desks, meeting rooms, common space, and telephone booths by detecting the flow of people within the space through access records and heat sensors. WeWork also measures the room environment such as room temperature and lighting to create an office environment that improves user satisfaction. In addition, a service has been launched for detecting the risk of abnormalities of billboards, such as falls and collapses, by installing **sensors** on the billboards and measuring tilts and acceleration. This will enable inspections, which had



relied on short-range local visual observation, to be carried out frequently and safely from remote locations over an extended period of time. Maintenance work using IoT sensors is anticipated to be applied to a wide range of subjects other than billboards such as outdoor lights, concrete walls, electric poles, and road signs, making risk management of real estate even more efficient.

#### 6.4 Technologies for “trading” real estate

Real estate is an aggregate of various rights such as ownership, trust beneficiary interest, and leasehold interest, as well as an aggregate of a huge amount of information such as on location, size, age, and transaction history. In this section we will introduce technologies and services related to “trading,” i.e., the act of swiftly distributing a large amount of information and transferring rights smoothly and safely. In recent years, there have been technologies and companies that aim to improve the transparency and efficiency of the market by accelerating settlement speed and visualizing prices while guaranteeing fairness of the market by using ICT. This has been made possible by the dramatic progress of ICT. The computing power of computers has seen exponential growth, the capacity of data storage expanded, and data processing and accumulation developed into crowd computing. Telecommunication capacity also grew rapidly, as represented by optical fiber and 5G, enabling all kinds of data to be shared in an instant.

Amid the shift from paper to big data, technologies that improve the efficiency of sales and lease transactions have spread. A service that emerged relatively early was **real estate portal sites**. They allow site operators to obtain sales and rental property information from real estate companies, compile them into a database, and enable those who wish to buy or rent real estate to search or make inquiries online. Major sites include SUUMO, HOME'S, and At Home. The limits to the amount of information that can be included in paper media do not apply to websites, which allow portal sites to post abundant information such as detailed information on the equipment, photos, and videos, in addition to basic information such as size, listed price, and floor plan. Today, real estate portal sites are broadening their targets to corporate transactions and have been including properties such as offices, stores, and distribution facilities, in addition to residential properties for individuals. Infonista, a membership-based matching service for stores, facilitates corporate real estate transactions, which are expensive, complex in the conditions, and require confidentiality by directly delivering property information that meet the requirements to companies looking for vacant stores. LIFULL has joined hands with Trovit, one of the world's largest aggregation sites, to aggregate information from multiple countries and allow users to access information at one site.

On-site confirmation is an essential step in trading real estate. However, travelling to the location and witnessing the confirmation had been a time and space constraint for both the customer and the real estate company. **VR (virtual reality)**, AR (augmented reality), and MR (mixed reality) are technologies that use computer graphics and enable VR previews, which allow customers to check the property anytime without visiting the actual spot. NUR\*VE provides a cloud service that creates VR content from images. Utilizing VR previews, unmanned real estate customer service stores, and virtual housing exhibition sites is expected to improve real estate companies' business efficiency, ability to attract customers, and contract rates.

Real estate is unique, and no two properties are the same. Since real estate is affected by the circumstances of both the seller and the buyer and the amount of information, its pricing structure is extremely complex. Also due to expensive prices, there is a strong need among market participants to know the true prices of real estate. This has led to services that **visualize** and **assess** real estate prices and rent as well as their future outlook on the back of the development of real estate data such as real estate portal sites and the progress and penetration of analysis technologies including statistics and AI. LIFULL's Price Map is a service that allows anyone to check on the map on the website the reference prices estimated from location elements, time elements, and property attribute elements using statistical analysis methods. LEEWAY'S Gate. is a cloud service that forecasts rent for up to 50 years using AI to analyze long-term cash flows and assess risks. This service is not only provided to real estate operators but also to financial institutions, investors, and tax accountants.

**Social lending** is a service that matches individual investors who wish to lend money and operators who



wish to borrow money on the Internet. It grew rapidly mainly in real estate loans, with its market reaching 131.6 billion yen by 2017. This financing method, which enables borrowers to gather small amounts of funds from a large number of investors via the Internet, is effective for operators that were recently established and operators with few track records to finance real estate projects. For investors, it is also a casual and easy real estate investment method since it accepts applications and payments from a small amount online. However, since social lending is a loan to a fund based on a silent partnership agreement, it was subject to regulations as a moneylender, and investors could not gain knowledge of which specific properties they invested in. Furthermore, it was still in development stages in terms of legislation and stability as seven companies were subject to administrative measures between 2017 and 2019. However, the revision of the Real Estate Specified Joint Enterprise Act in 2017 enabled direct investment in small real estate projects (the total amount of funds raised from investors under 100 million yen) and online execution of contracts and delivery of documents. Following this move, there has been an increase in operators that provide online small-lot real estate investment services (**crowdfunding**), such as CREAL and Bit Realty. These services enable investors to check the details of the properties they invested in, while some adopt a priority/subordinate scheme in which the operating company bears losses first. Aiming to reuse vacant houses, the MLIT is promoting the development of a crowdfunding environment by establishing guidelines for real estate crowdfunding in 2019.

There are also initiatives to improve the efficiency of contract procedures of real estate transactions by using ICT. If **electronic contracts** are realized, they will accelerate the speed of contract execution and reduce postage, stamp, and administrative costs. The deregulation of the Building Lots and Buildings Transaction Business Act in 2017 enabled important items in lease contracts to be explained via online conference systems, while social experiments of issuing documents on important items via electronic media started in May 2019. Bengo4.com provides a service called Cloudsign, which enables users to create, execute, and store contracts online. Such initiatives are paving the way toward electronic real estate transactions.

**Blockchain** is a technology that is anticipated to improve the efficiency of real estate transactions. Blockchain records the time and details of transactions on ledgers distributed on computers that are scattered across the world and is used as the core technology for bitcoin, a cryptocurrency (virtual currency). While centrally managed systems are prone to concentrated attacks to the server and face the risk of being tampered, blockchain is said to be difficult to tamper. Therefore, it is expected to be used for tax collection and pension distribution (UK), voting (Russia), document management (Dubai), personal authentication (Australia), and payments, as well as in real estate registration (US, Netherlands, Dubai, Ghana, Sweden, etc.) in the real estate industry. Using blockchain is expected to reduce human costs and time costs of processing documents, improve transparency of transactions, and enhance security. Dubai plans to record all land registration information in its Emirate on blockchain by 2020. In Japan, the Cabinet Office and the private sector are carrying out discussions and experiments to determine whether blockchain offers enough advantages to replace the existing real estate registration system it already has in place. Other than for real estate registration, blockchain is also being considered for use by a consortium (ADRE) that aims to develop a platform for constantly sharing real estate data maintained at individual companies between real estate companies in the latest form without being tampered.

## 7 Cities and provinces



### 7.1 Cities burgeoning and provinces facing depopulation

During the period of high economic growth between the 1960s and 1970s when Japan's economy grew dramatically with the help of special demand due to the Tokyo Olympics and the Osaka Expo, Japan's real economic growth rate reached around 10% per year, with GDP (gross domestic product) exceeding that of Germany's and ranking second globally after the United States.

Due to the concentration of companies in cities and a population flight from the provinces to the cities following the economic growth, the gap between cities that grew larger and provinces that faced depopulation gradually increased. The **comprehensive national development plan** was a comprehensive and fundamental plan on the use, development, and maintenance of the nation. Although the plan aimed for a balanced development of the nation at that time by aggressively developing transportation infrastructure such as expressways and the Shinkansen that connected cities with the provinces, the population flight to cities did not stop, or rather, accelerated. In the cities, land prices of central areas surged as businesses concentrated in such areas and large-scale housing development spread to the suburbs due to a population increase. Behind the economic growth, problems such as overcrowding due to a concentration of population, traffic congestion, environmental destruction and pollution owing to rapid industrialization, and waste problems due to mass production became serious social problems. The provinces, on the other hand, lost their workforce to the cities, which weakened local industries and led to depopulation and aging of the population. Subsequently, following inflation, the oil shock, and the burst of the bubble economy, Japan's real economic growth rate, which was around 10% per year during the high economic growth period, currently stands at around 1%. The economy slowed down over an extended period of time especially after the burst of the bubble, resulting in stagnant urban development and declining international appeal and competitiveness of cities, which are the source of a nation's vitality. Urban regeneration became an urgent issue. This led the government to carry out urban structural reforms such as establishing the **Urban Renaissance Headquarters** in 2001 and enacting the **Act on Special Measures concerning Urban Regeneration** in 2002, which stipulates the government's basic policy on

urban regeneration. The Urban Renaissance Headquarters focuses on regenerating large metropolitan areas, which are drivers of the economy, and on realizing affluent and comfortable living in regional cities, as it comprehensively and vigorously promotes 21-century urban regeneration projects that aim to regenerate cities from environmental, disaster prevention, and internationalization perspectives as well as urban regeneration measures such as the effective use of land. Specific initiatives include developing core, wide-area disaster prevention bases, promoting securitization of real estate, actively using **PFI**s (private finance initiatives), and establishing **special zones for structural reform**, where exceptions to regulations are introduced according to the characteristics of the region. Subsequently, **comprehensive zones** were established in 2011 to strengthen international competitiveness by concentrating industries and to enhance the vitality of the regions through childcare support and the development of traffic networks.

However, as overconcentration in Tokyo continued and Japan faced major problems of a rapidly shrinking and aging population, the second Abe administration advocated **regional revitalization** in 2014 based on the idea that it was necessary to introduce measures that enabled each region to autonomously regenerate itself through initiatives that applied the characteristics of each region, and has been carrying out measures such as creating employment opportunities, strengthening economic foundations, and improving living environments in accordance with the Regional Revitalization Act and the Act on the Regeneration of Communities, People, and Jobs. Specific measures include strengthening tourism, creating local industries, establishing compact cities where lifeline functions are consolidated, connecting small communities scattered over the region into a network, creating regional management organizations, and promoting community development where people can play active roles over their lifetime. The major policies of regional revitalization include the establishment of **national strategic special zones** in 2014, which are regulatory reforms intended to create “the world’s most business-friendly environment” and significantly ease regulations and systems or provide tax advantages by limiting regions and sectors, in addition to existing policies such as reviving central urban districts, revitalizing regions, and introducing the environmental model city concept. These policies have led to various initiatives such as smart cities, supporting start-ups, hiring non-Japanese personnel, and encouraging tourism and healthcare.

In 2018, the government announced that it would promote **i-urban regeneration**, which is urban regeneration based on figures and space data, and that it would review its basic concept of urban regeneration to address new needs such as investing in the future and improving productivity, and generate or increase related population as measures that stimulate migration to the provinces.

## 7.2 Urban regeneration and regional revitalization

As mentioned in the previous section, cities and provinces have different characteristics and problems, based on which the government and other parties are making efforts in urban regeneration and regional revitalization. In this section, we will introduce such initiatives as well as consider the future roles of the real estate industry.

### [Cities]

In **Tokyo**, large-scale redevelopment plans are being implemented, providing office buildings, houses, and hotels on a continuous basis. Real estate development has accelerated in areas designated as national strategic special zones, with districts where idle land, small buildings, and wooden houses with low fire resistance were clustered becoming large urban blocks with upgraded roads, superscrapers and high-rise condominiums, and transforming into resilient cities. On the other hand, areas where large condominiums are concentrated in face a lack of public facilities necessary for urban life such as schools and nursery schools. According to the Tokyo Metropolitan Government, about 3,690 people are on a **waiting list for nursery schools** in Tokyo, which is hindering women’s participation in society. Furthermore, although hotels and other accommodation facilities are increasing year after year due to the recent increase of foreign tourists, it is said that Tokyo lacks **high-class hotels** compared to cities abroad such as London and New York. It has been pointed out that Tokyo’s appeal in cultural tourism resources is weak, and measures to address this matter are required in order to enhance the appeal of the city from a more global

perspective.

As a local government, the Tokyo Metropolitan Government established its **long-term vision** with the aim of making Tokyo the best city in the world and sets its goals on solving its problems and achieving continuous development over the future. Furthermore, it established the Tokyo Future Vision Panel to exchange opinions with up-and-coming young people of various circles with the aim of making Tokyo the most attractive city in the world by 2050 where technologies, culture, and human force clash.

In **Osaka city**, visitors from abroad increased nearly three-fold between 2014 and 2017, with their consumption during their stay exceeding 1 trillion yen. In addition to mega events such as the Osaka Expo in 2025, the city has plans to become an international tourism destination centered around an **integrated resort (IR)**, which are expected to attract even more tourists. Hotels and other accommodation facilities will be constructed, as well as new transportation infrastructure such as the extension of the Osaka Metro Chuo Line in 2024, which connects the city and the Expo site, and the construction of the Naniwasuji Line that connects Kansai International Airport with Osaka and Kyoto in 2031. Looking 20–30 years ahead, the city is also considering the **Osaka metropolis plan**, which aims to invigorate the city even more, as another key measure that supports Japan.

In **Fukuoka city**, there has been an influx of population from within and outside the prefecture. Dilapidated housing complexes are being rebuilt and residential land is being developed in the suburbs as a result. The city has formulated the Fukuoka City Comprehensive Plan, which sets out the direction the city should take in the future, with the aim of creating a virtuous cycle of quality of life improvement and urban growth and becoming a leading city in Asia. Specific measures include large-scale plans that involve the reconstruction of existing buildings, such as **Tenjin Big Bang** and **Hakata Connected**, on the back of deregulation of height restrictions of the Civil Aeronautics Act and the floor-area ratio regulations, as well as extending subway lines and developing the waterfront.

### [Provinces]

In the provinces, there are many local governments and regions that were revived due to the policies and laws described in the previous section. Examples of model businesses of local governments SDGs (sustainable development goals) of the eco city concept include Shimokawa-cho, Hokkaido, where the local economy was revived while co-existing with the environment by utilizing forest resources, and Toyama city, Toyama, which aimed to introduce a **compact city** model by developing a local public network and integrating energy management. Another example is Higashikawa-cho, Hokkaido, which has been experiencing a continued growth of population over the past 20 years by introducing a shareholder system to the community's businesses, promoting Japanese language education and immigration of foreigners, and focusing on education and childcare, supported by the Hometown Tax, a tax scheme based on the Regional Revitalization Act in which taxpayers can choose to divert part of their residential tax to a specified local government. The entities carrying out community development may not only be the central or local governments but also private companies. Tokyo-based companies and foreign companies focusing on the provinces to improve productivity are opening **satellite offices** in the provinces, creating industries and employment and vitalizing the community. Examples include NIPPONIA in Hyogo Prefecture, a tourism development project that utilized historical resources and turned vacant houses into accommodation, restaurants, and workshops, creating employment and industries in the community, and Kamiyama-cho, Tokushima, which saw an increase in migration and employment by utilizing old Japanese-style houses to attract ICT satellite offices.

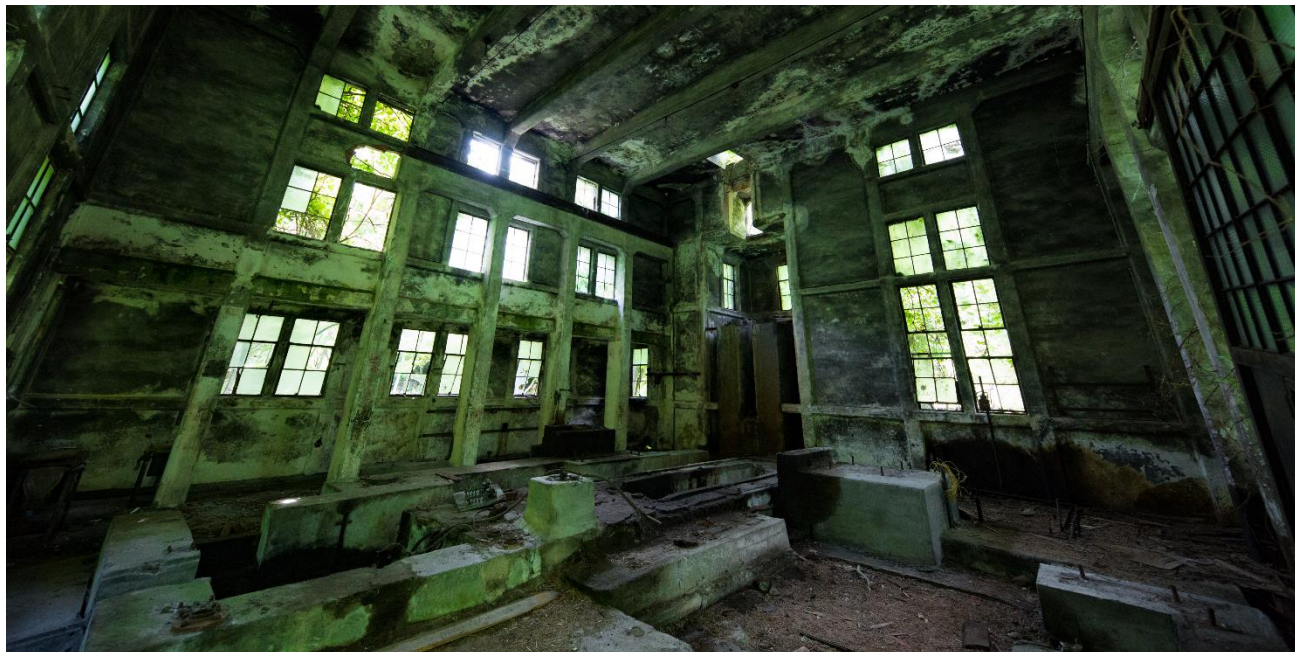
A problem that will be common to both cities and provinces in the future is the **rapid dilapidation of social infrastructures**, which were built nationwide mostly during the period of high economic growth. According to the *White Paper on Land, Infrastructure, Transport and Tourism in Japan, 2010*, the percentage of social infrastructures built 50 years ago in 2010 and 2023 (forecast) is expected to surge from 8% to 63% for roads and bridges, from 2% to 21% for pipes for sewage, and from 5% to 58% for quay walls of ports. Urban areas are expected to see a continued shortage of facilities that provide convenience for living, such as nursery facilities, nursing care facilities, and medical institutions, as well as a shortage of workers that run them. Reusing abandoned real estate such as vacant houses in the provinces is also a major issue.



As described above, the problem of cities and the provinces is the history of Japan's past economic development, and urban regeneration and regional revitalization pose major challenges to the central and local governments. Within such a large framework, the real estate industry is anticipated to continue developing as a growth industry and as an important key industry that supports a prosperous society and economic growth. In urban regeneration, the real estate industry is a key developer of communities and real estate as well as the manager of tangible and intangible matters after the development. It is an important role of the industry not only to carry out new development but also to consider and implement the optimal usage of existing real estate stock according to changes in the needs. In regional revitalization, on the other hand, the real estate industry may be able to contribute to society in many ways, such as improving the appeal of the provinces and addressing new needs generated from diversifying values (e.g. inducing the use of multiple properties, such as living in two areas), utilizing idle real estate such as vacant houses and vacant land, and providing area management.



## 8 Dilapidation of building stock



### 8.1 The problem of dilapidating building stock

As described in the previous chapter, **buildings are dilapidating** as social infrastructures are dilapidating.

Dilapidation generally means to become old and unserviceable. However, there are many old buildings that are well managed, many of which are historical buildings with historical value and designated as important cultural properties of the nation. Therefore, such buildings are not dilapidated even if they have **grown old**. Being unserviceable means that structures, materials, and equipment have deteriorated and become dangerous or hazardous in terms of safety and health. Not only buildings that have deteriorated physically due to age but also those that can no longer meet the needs of society due to changes of times and ceased to be used can also be considered to be “unserviceable.” Such buildings pose safety risks such as scattering of construction materials or collapse as well as external diseconomy such as deterioration of security and scenery and decline of the community. Since such old buildings will increase in great numbers in Japan due its shift from a scrap-and-build society to a stock society, there are concerns that “unserviceable,” i.e., dilapidating buildings, will increase among them.

### 8.2 The situation of dilapidating and aging of buildings

In this section, we will examine the situation of dilapidation and aging of building stock, grouping them into **houses** or **commercial real estate** (office buildings, distribution facilities, commercial facilities).

#### [Houses]

According to the Fiscal 2013 **Housing and Land Survey** by MIC, **housing stock** reached 60.63 million, and has continued increasing since it exceeded the number of households in 1968. 13.69 million houses

with a residing household, which is around 30% of a total of 52.10 million houses that have a residing household, are 35 years old or older, while 4.48 million houses are considered blighted. **Vacant houses** have also continued to increase to 8.2 million houses, with the **vacant house ratio** rising to 13.5%. Of such vacant houses, 3.18 million are "other vacant houses," whose residents have been absent for a long period of time or which are scheduled to be demolished. 1.05 million of such other vacant houses are considered blighted. When including secondary houses, such as holiday homes, and houses for rent or sale, the number of blighted vacant houses amount to 2.13 million. According to the Fiscal 2018 Housing and Land Survey (Approximate Aggregation) released in April, vacant houses have increased further to 8.46 million, suggesting that blighted houses have also increased.

For **condominiums**, MLIT expects the total condominium stock to have been 6.54 million as of the end of 2018, those older than 40 years of which are expected to account for 10%, or 0.81 million, which is expected to increase 2.4 times to 1.97 million in 10 years' time. The Comprehensive Condominium Survey, which is carried out once every five years, revealed that the number of condominiums with a shortage of repair reserve has increased and that 35% of condominiums are currently short of reserves compared to the plan. The percentage of condominiums with vacancies tends to rise as the building becomes older, with the percentage among condominiums completed in and after 2010 at 20% as compared to 70% among those completed in 1979 or earlier.

The number of households in Japan is expected to peak out at 54.19 million in 2023 and decline thereafter. Nearly 0.9 million houses are still being built each year, and even if the pace of new supply of houses decelerate, there will be a surplus of houses as long as there is new supply in excess of consumption, with such houses becoming vacant houses. Economic reasons also hinder the decrease in empty houses, as property tax may increase if vacant houses are demolished, excluding them from the special provisions of residential land, while converting a vacant house into a restaurant or accommodation facility will be subject to usage restrictions or require costs for changing the usage. Old vacant houses, which are potential dilapidated houses, are expected to increase in the future.

### [Commercial real estate]

With regard to **office buildings**, there are 9,206 office buildings for rent with a gross floor area of 300 tsubo (1 tsubo=3.3 sqm) in the Tokyo 23 Wards, of which 2,884 buildings, or 30%, are aged 35 years or older, according to an aggregate by Xymax REI (**Office Pyramid**). 8,459 buildings, or more than 90% of total, are small and medium-sized buildings with a gross floor area of less than 5,000 tsubo. Many of them (3,062 buildings) were built in the seven years between 1985 and 1991, which include the bubble economy period, indicating that the number of buildings aged 35 years or older will double in 10 years' time. However, since most office buildings have robust structures, they will be able to maintain their functions as offices even after 35 years from construction if they are maintained appropriately. Moreover, the current office market is extremely strong and there are few vacancies or dilapidated office buildings.

However, the average ceiling height of small and medium-sized buildings completed by the 1970s is less than 2.5 meters, which is more than 20 centimeters lower than the that of buildings built in and after 2000 (2.7 meters). This is because height regulations compelled developers to build as many floors as they could by keeping the floor height as low as possible to secure leasable floor area. Even if equipment can be updated to the latest equipment through renovation, it is difficult to raise the ceiling height. A ceiling height of 2.5 meters feels low today, and it is undeniable that such offices are less appealing as a product.

According to the **Building Owner Survey** by Xymax REI and the laboratory of Professor Yukio Komatsu of the Department of Architecture at Waseda University, which targets owners of small and medium-sized buildings, 60% of building owners are 60 years old or older and 70% own one or two buildings. Many small and medium-sized buildings built during the bubble economy period when mass supply was concentrated are located far from office districts and from railway stations, which is not considered suitable for offices. Owners who entered the building lease business during this period have become old and are hesitant about carrying out major renovations or rebuilding the building from a profitability point of view, and have concerns about the future of their building business. Large-scale redevelopment projects will continue in urban centers, resulting in an increase in large state-of-the-art buildings. A downturn of the office market

will lead to a negative spiral where rent income decreases due to a rise in vacancies, making it difficult for owners to properly manage or renovate the buildings, which drive tenants out and result in more vacancies. The increase of such dilapidated buildings may turn vacant buildings into a social problem.

With regard to **distribution facilities**, the 2013 Tokyo Urban Area Goods Movement Study Results by MLIT reported that 30% of distribution facilities located in the Tokyo urban area were 30 years old or older, mostly small, and the building, equipment, and machinery in poor condition. The current supply-demand balance is stable, with continued new supply of distribution facilities and strong demand from mail-order operators and 3PL operators. Today, distribution facilities are required not only to be large in size but to have quality specifications, the ability to respond to natural disasters and environmental load, and worker-friendly environments such as shower rooms and day care for children. Old distribution facilities may be left behind from the trends surrounding distribution in recent years such as globalization and sophistication.

**Commercial facilities** and **hotels and Japanese inns** will not face major problems even if the buildings were old, as long as they are able to meet the needs of consumers and lodgers. However, they will not be used even if the buildings were not old if the current usage of the building cease to meet users' needs. Across Japan, there has been an increase in **dead malls**, i.e., suburban shopping centers that remain operating with extremely low utilization rates, and hotels and inns that have turned into ruins in hot spring resorts after a sharp fall in tourists.

### 8.3 Initiatives against dilapidation of buildings

#### [Houses]

Since dilapidated and vacant freestanding houses have a negative effect on neighboring residents as well as on the community, various measures have been implemented by the central and local governments. The **Act on Special Measures for Promoting Countermeasures against Vacant Houses, etc.** was enforced in 2015, enabling poorly managed vacant houses that are in danger of collapse or pose other serious risks in terms of safety if left unattended to be categorized as "specially designated vacant houses," and allowing municipalities to advise or instruct the owners to eliminate the hazards or repair the house and recommend, order, or carry out by proxy if the situation is not improved. If a recommendation was made for a vacant house, it will no longer be subject to tax benefits of the special provisions of residential land. Various other measures to reduce vacant houses are also being implemented, such as the **revision of the Building Standards Act** and support for the establishment of a **vacant house bank** to facilitate the conversion of usages of freestanding houses.

The **Act on Smooth Rebuilding, etc. of Condominiums** that was enforced in 2002 was revised in 2014, enabling the sale of the buildings and lots of condominiums that did not have sufficient quake resistance if more than four fifths of condominium owners supported the sale. Although less than 300 condominiums have been rebuilt as of 2019, including those in preparation of rebuilding, the number is gradually growing.

In the private sector, there is a momentum of considering the increase of vacant houses as a business opportunity. According to an estimate by the Reform Shimbun in 2016, the potential market size of vacant houses is 9,060.1 billion yen, which is broken down into: distribution (sale) as a pre-owned home (6,406.9 billion yen); renovation (1,071.7 billion yen); rebuilding (928.4 billion yen); dismantling/removal (415.0 billion yen); lease (220.8 billion yen); and entrusted management (16.3 billion yen). In leasing, vacant houses are being utilized in the form of **shared houses** and **private lodging**, which had not existed before. The **Private Lodging Business Act (New Private Lodging Business Act)** that was enforced in June 2018 clarified the legal positioning of private lodging. The number of houses registered for private lodging is steadily increasing and stood at 17,343 as of July 16, 2019. Vacant houses are also being valued as quaint Japanese-style houses in the provinces and are being increasingly reused.

### [Commercial real estate]

Commercial real estate is mostly renovated, **rebuilt**, or their **usage converted** by the owner in order to improve profitability of the building, and they are less dilapidated compared to houses. In central Tokyo today, old small and medium-sized buildings are being turned into large buildings by redevelopment projects led by major real estate developers involving small and medium-sized buildings. Many office buildings have been rebuilt or their usages converted into condominiums and hotels in the past. More recently, entire office buildings are sometimes converted into trunk rooms and rental meeting rooms. In addition, the progress of telework has led to new demand such as for **shared offices** and **satellite offices**, resulting in offices in the suburbs that used to be less competitive in terms of location being valued as offices close to home. Many old, small and medium-sized buildings have been addressing tenants' needs by differentiating from others by carrying out renovation and fine-tuned management in response to tenants' requests, improving communication with tenants, and highlighting the 'retro feel' of the building.

There have been many cases where the buildings of commercial facilities and hotels/inns were sold based on business strategy and profitability and went into the hands of a new manager, who regenerated or revived them by renewing concepts and reviewing costs. There is also an example of a large, roadside consumer electronics mass retailer that was converted into a hotel specializing in accommodation (Sennangun, Osaka: karaksa Spring hotel Kansai Air Gate). In commercial facilities, many buildings have thus been reused or utilized by changing their usage in accordance with the changes of the times on the back of new value added by the ingenuity of the operator.

In Atami, there was a sharp drop in hotel guests after the burst of the bubble economy, resulting in hotels and inns closing or turning into ruins one after the other. However, due to various initiatives carried out by the city of Atami and the private sector in 2007, the number of hotel guests that had dropped to 2.56 million in 2011 increased to 3.3 million by 2017, and hotels have been newly built or revitalized. This is an example where individual buildings were revitalized or utilized as the entire area revived. The same can happen in offices and commercial facilities.

However, in any type of building, there will be an increase in buildings that attract no interest or a buyer or a tenant if a gap appears in both quality and quantity of demand amid continued new supply. This is what happened to houses. If the situation is left only to individual operators, it may lead to problems of vacant properties of different categories. This is an issue that must be considered today in order to maintain and build high quality stock.



## 9 Natural disasters



### 9.1 What are natural disasters?

Natural disasters are critical natural phenomena such as abnormal weather, volcano eruption, earthquake, and landslide that result in losses of human lives or losses or damages to economic activities and daily lives. Specifically, they include wildfire caused by extreme dryness or lightning strike, earthquake-induced collapse or fire of buildings, land sinkage and liquefaction, buildings washed away or submerged due to tsunami, flooding and landslides caused by huge hurricanes, typhoons and local torrential rain due to abnormal weather in recent years, food shortage and plagues caused by drought or dry weather, damage to agriculture and fishery due to plagues of locusts and jelly fish, and the spread of epidemics.

The **2011 Tohoku earthquake and tsunami** brought about huge damage due to the tsunami in addition to the earthquake itself. According to MIC, damages as of March 2019 are: 22,252 persons dead or missing; 6,233 persons injured; 1.15 million structures collapsed or damaged (including partial damage), with the total damage amounting to 16,900 billion yen (source: Cabinet Office, June 2011). Damages occurred beyond the year of the disaster, with bankruptcies due to the economic downturn following the disaster totaling approximately 1,800 between 2011 and 2017 (source: *TSR Information*. Teikoku Databank). Large earthquakes have since followed, such as the 2016 Kumamoto earthquake and the 2018 Hokkaido Eastern Iburi earthquake, with earthquakes that resulted in casualties amounting to around 100. According to the Japanese government's Headquarters for Earthquake Research Promotion, there is a 70–80% probability of a huge earthquake with a magnitude of 8–9 occurring in the Nankai Trough within the next 30 years. The Headquarters' website provides information on major active faults nationwide and the probability of a trench-based earthquake.

In addition, short, **local torrential rain** has been observed in both cities and suburbs due to global warming. The number of occasions when rainfall of more than 100 millimeters per hour was measured has increased by severalfold from some 20 times over 10 years from 1977 to more than 50 over 10 years from 1997. In the 2018 West Japan Floods, check dams were destroyed, causing landslides to hit dwellings, killing

100 persons.

## 9.2 Countermeasures and preparations against natural disasters

Damages by a natural disaster may be exasperated by vulnerable measures made by man, in addition to the natural phenomenon.

As countermeasures against natural disasters, the government developed a **national resilience plan** in accordance with the Basic Act for National Resilience that was enforced in 2013 to protect human lives, maintain key functions of the nation and society, minimize damage to the property of the citizenry and public facilities, and achieve swift recovery and restoration. Based on the plan, the government carries out an action plan each year for disaster prevention as well as quick response and recovery in the aftermath of the disaster by efficiently implementing the plan in both tangible and intangible aspects, combining self-help, mutual help and public help, and utilizing private funds. Specific measures include preventive engineering such as breakwater and bank reinforcement, proper inspection and maintenance of buildings and necessary revisions of laws, regional collaboration and developing communities resilient to disasters.

At the regional level, local governments have required building owners since 2011 to take quake proof measures for roadside buildings that are in danger of collapsing, in accordance with the **Act for Promotion of Renovation for Earthquake-Resistant Structures** enforced in 1995, to secure emergency transport routes during a disaster. Awareness toward quake resistance is rising, as 97.4% of buildings in Tokyo have gone through seismic diagnosis and 84.3% are quake-resistant, while on a nationwide level the progress of aseismic reinforcement has exceeded 60% at a majority of local governments (as of June 2018). The central and local governments release **hazard maps** for floods and landslides on the Internet and are reviewing their disaster-prevention facilities and building stockpiles of emergency supplies at public facilities and parks. Private sector shopping centers and buildings are also stockpiling **disaster provisions** as evacuation points for those who have difficulty returning home when a disaster occurs.

## 9.3 Impact on real estate

Since the earthquake in 2011, the industry's awareness on safety has been rising in order to protect the region, human lives, and assets, requiring safety in individual properties. The value of real estate that ensures safety of the building and enables early restoration is expected to rise even more in the future.

Activities at the **regional level** include disaster drills carried out under the cooperation of several public organizations such as elementary schools, regional communities, and fire stations, and activities led by private companies. Osaka Business Park (OBP) is making efforts not only in securing the safety of individual real estate but also in **developing communities resilient to disasters** that accompany self-help and mutual help, and has been carrying out disaster drills by the entire community since 2016.

For **houses**, quake-proof improvements have progressed among freestanding houses due in part to subsidies, loans, and tax benefits, while apartments and condominiums have been increasingly stockpiling emergency supplies.

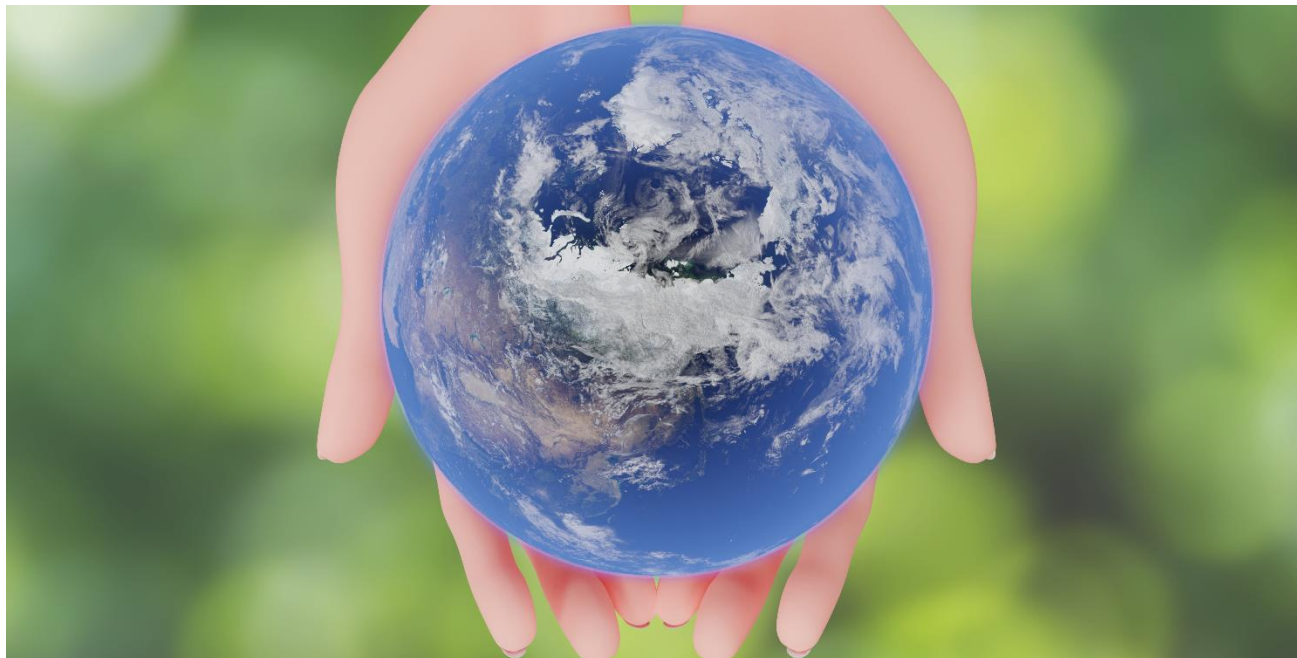
In **commercial real estate**, buildings and commercial facilities are increasingly stockpiling emergency supplies as part of BCP measures due to ordinances on stockpiling and a program of easing floor-area ratio restrictions. Among skyscrapers, not a few have introduced seismic isolation or damping devices to counter **long-period oscillation**. Some pay-by-the-hour parking lots have equipped themselves with tents, foodstuff and communication equipment to help **persons who have difficulty returning home when a disaster occurs** or serve as an evacuation site or disaster-prevention facility.

With regard to **building equipment**, some kind of disaster measures are being implemented to facilities we use every day, as remote control functions that can respond to blackouts and confinement in elevators and water stop shutters and simplified sandbags or water bags against sudden heavy rain are being developed. Some vending machines offer WiFi connection and drinking water for free in emergency situations.

Awareness toward safety and security is also rising among **tenants** who use the buildings. According to Xymax REI, 83.5% of tenants place importance on high quake-resistant performance and 71.3% on BCP support, which rank after convenient location and good state of maintenance in the ranking of elements required of office buildings.

In recent years, there has been a diversification in the people who use buildings in Japan. Ordinary disaster-prevention measures may not be enough for foreigners or persons with disabilities. Although the central and local governments as well as various organizations have issued emergency response manuals, their recognition is low. It will be important to take steps at individual buildings in order to enable smooth communication and support in the future.

## 10 Environmental issues



### 10.1 Environmental issues in human society

Environmental issues are issues that have been caused by changes in the surrounding environment as a result of activities of mankind and are likely to directly or indirectly damage the lives and health of people and/or destroy the earth's ecosystem. Problems such as pollution of air, water, and land, food crisis, food safety, disaster response, urban issues, and over-population are major issues that face the continuous development of our civilization. In this chapter, we will identify environmental issues including climate change, pollution and destruction of the ecosystem as well social and economic measures against them, and examine the impact on Japan's real estate industry.

Social recognition of environmental issues has gradually spread among the people since the mid-twentieth century. In his 1966 essay *The Economics of the Coming **Spaceship Earth***, Kenneth E. Boulding said that the earth's resources were finite and that mankind existed within an ecosystem. Rachel Carson's *Silent Spring* and Al Gore's *An Inconvenient Truth* shed light on environmental issues and pioneered the **environmental movement**. Eventually, environmental labeling given to electric appliances and products were established, such as ENERGY STAR of the United States (launched in 1992) and the eco mark of Japan (launched in 1989). Subsequently, new consumption behavior of consumers choosing products that are friendly to the environment, society, and region, such as green consumption, fair trade, and **ethical spending**, were born. More recently, social issues caused by corporate activities have attracted attention, with global firms being required to respect the environment, human rights and labor, contribute to society, advocate peace and non-violence, contribute to animal welfare, and disclose information on these matters.

Environmental issues have also become recognized politically as the greatest uncertainty and a risk factor for the sustainability of the development of mankind. The United Nations advocated "human security" in 2003 and listed environmental destruction as a broad and serious threat against man's existence, life, and dignity, along with human-rights abuse, immigrants, and poverty. The *Global Risks Report* by the World Economic Summit includes a top-five ranking of feasible risks and risks with a large impact. Along with



weapons of mass destruction, large-scale terrorist attacks, and unauthorized use of data, risks related to environmental issues such as abnormal climate, natural disasters, water crisis, and failure to alleviate or adapt to climate change ranked high.

Furthermore, direct means such as emission control based on an international framework have been sought following a rise in social and political awareness of environmental issues. Reduction target setting and progress reports such as the **Kyoto Protocol** in 1997 and the **Paris Agreement** adopted in 2015 are major examples. However, these required multilateral agreements, which tended to become political issues such as conflicts between developed and developing nations and departure of a major country. On the other hand, many of the environmental issues are caused by external diseconomy effects under free competitive activities, but it is basically difficult for individuals and companies to control their economic activities voluntarily. Therefore, economic measures such as **environmental tax**, subsidies, and **emissions trading** had also been considered. Emissions trading has begun being introduced all over the world, including Europe, North America, and Asia, since the signing of the Kyoto Protocol. Europe's EU-ETS (EU emissions trading system), which started in 2005, reduced greenhouse gas by 24% between 2005 and 2015. There are also moves for cooperation across countries and regions such as ICAP (International Carbon Action Partnership), in which 31 countries and region participate.

## 10.2 ESG investment connects environmental issues and real estate economically

Amid such circumstances, **ESG investment** is attracting attention as new economic means. ESG investment is a new investment style that takes into consideration not only financial information such as cash flows and profit margins but also ESG elements, i.e., environment, social, and governance elements. There is a consensus among investors to deem environmental issues, social issues, and corporate governance issues as long-term risk factors. Companies and real estate that actively address these issues are considered to be resistant to downside risks (e.g. environmental regulations, decline in sales, accounting fraud).

**PRI (Principles for Responsible Investment)** was formulated and advocated by the United Nations Environment Programme Finance Initiative in 2006, prompting large pension funds in and outside Japan to be conscious of ESG investment. In 2015, the SDGs (sustainable development goals) were agreed on internationally at the United Nations at the same time as the Paris Agreement, while Bank of England Governor Mark Carney indicated his recognition in his speech titled "Breaking the Tragedy of the Horizon – Climate Change and Financial Stability" that climate change could become a long-term risk as well as an opportunity in a financial and investment context. In 2017, the **TCFD** (Task Force on Climate-related Financial Disclosures that was established by the G20 Financial Stability Board) submitted its final report, recommending companies to disclose climate-related financial information, and has obtained signatures of approval from 834 institutions from around the world as of September 2019. The ESG investment market increased 34% on a global basis from 23 trillion dollars in 2016 to 31 trillion dollars in 2018 and 360% in Japan to 2.2 trillion dollars (source: GSIA survey).

ESG investment methods include **negative screening**, which excludes certain industries such as weapons, tobacco, gambling, and fossil fuel from being invested in, **ESG integration**, which evaluates not only financial information but also ESG information, **engagement**, which encourages companies to make efforts in ESG through dialogue and exercise of voting rights, sustainable theme investment or **green bonds**, social bonds, sustainability loans, which invests in themes and assets related to sustainability, such as green energy and green technology.

The ESG investment momentum is starting to influence Japan's real estate investment industry as well. Real estate investors are shifting to focus more on sustainability and their investment horizon is changing from short term to medium to long term. According to a survey on real estate investment by Sumitomo Mitsui Trust Research Institute, the percentage of investments of less than five years decreased from 46% in 2012 to 34% in 2018, while that of seven years or longer increased from 18% in 2012 to 47% in 2018. Going forward, investors' and tenants' selection of real estate from a medium- to long-term perspective is

expected to become more austere. Improving the environmental performance of real estate, accumulating and analyzing energy consumption data, obtaining environmental certification, and enhancing explanation on initiatives will help in attracting investment funds. On the other hand, real estate that fail to respond to this trend may become subject to **divestment**.

In addition, the preference for environmental real estate is increasing not only in direct real estate investment but also from indirect channels through corporate investment such as stocks and bonds. The **Ito Review 2.0** (METI) in 2017 pointed out that, in addition to conventional financial indicators, non-financial information such as brand, intangible assets, and ESG will become important for evaluating a company's sustainable growth potential, and formulated the Guidance for Collaborative Value Creation as a common language that connects companies with investors. In 2018, the Government Pension Investment Fund (GPIF) selected global environmental stock indices, indicating that investors are using ESG information to select companies to invest in. Furthermore, information platforms that facilitate investors to understand companies' ESG responses are also being established, such as SBT (Science Based Targets), CDP (Carbon Disclosure Project), and RE100 (Renewable Energy 100%). Companies whose value will be significantly damaged due to the exhaustion of resources, government regulations, progress of technology, and changes in social norms are being deemed as "**stranded assets**" by investors and are required to explain to investors when investors invest in such companies. The ESG investment trend in corporate investment is prompting companies that aim for sustainable growth to prefer real estate with high environmental performance over those with low performance. As if to support this, empirical studies in Japan and all over the world suggest that real estate with environmental certifications are higher in rent and real estate value compared to real estate with no environmental certification.

### 10.3 Impact on real estate

In this section, we will identify the changes that are occurring in Japan's real estate market on the back of the socioeconomic trends related to environmental issues that we identified in the previous section. Specific changes include an increase in environmental real estate, information disclosure for ESG investment, and the progress of architectural environment technologies.

First is the **increase in environmental real estate**. To achieve the reduction targets of greenhouse gas emissions based on the Paris Agreement, regulatory measures of the Building Energy Efficiency Act started in 2017. The **Building Energy Efficiency Act** was enacted on the back of energy consumption of the housing and building sector remaining high while energy consumption of the industrial and transport sectors was declining. These regulations prohibit builders to accept certificates of building confirmation unless energy consumption performance standards are met when building or renovating a building of a certain size. The Act includes incentive measures such as exceptions of the floor-area ratio regulation and certifying and labeling conformity with the standards. The scope of the Act is gradually widening as medium-sized buildings will be subject to regulations in 2021. In addition, the **Re-Seed Organization** was established in 2013 as a public-private investment fund to build high-quality real estate with quake-resistant and environmental features (environmental real estate). It invests in special purpose companies (SPCs) that renovate, rebuild, or develop dilapidated real estate with low environmental and quake-resistant performance. Furthermore, the Ministry of the Environment published the **Green Bond Guidelines** in 2017 to create an environment for financing, and 10 J-REITs have already issued green bonds (as of 2019). Japan's real estate stock is expected to turn into environmental real estate, though gradually, not rapidly.

The second change is **information disclosure for ESG investment**. Due to the nature of the assets (regionality, fixation, diversity of usages), real estate has a large potential to contribute to solving social issues from an ESG perspective. Examples include reducing energy use, improving health and comfort, enhancing the value of the area, contributing to the regional society and economy by addressing the diminishing and graying population, and responding to disasters. ESG investment in real estate requires both such positive impact to society and a stable economic return on a medium- to long-term basis, and it is considered important to develop an appropriate environment, including information disclosure to investors. Examples of information disclosure in the real estate industry includes **GRESB**, an ESG benchmark

evaluation in company or fund units, and **CASBEE**, **DBJ Green Building certification**, and **BELS**, which are tools to evaluate environmental performance. In particular, 89% of the J-REIT market in terms of market capitalization participate in GRESB (as of 2018), with REIT operators aggressively disclosing their ESG initiatives to society and investors. Initiatives to promote the spread of real estate stock that not only has lower environmental load but also high health and comfort features for the users of real estate are also being implemented. In 2019, the Institute for Building Environment and Energy Conservation (IBEC) began evaluating and certifying **CASBEE-Wellness Offices**. Furthermore, the Japan Association of Real Estate Appraisers considered how to reflect high levels of environmental considerations and comfort of real estate in real estate appraisals. Thus, the environment for environmental information disclosure in the real estate industry is gradually being developed. However, there are still issues in matters such as the appropriate content and volume of disclosure information, international comparability, ease of access, accumulation of studies of the effects of ESG investment, and information dissemination to raise awareness of companies and investors.

The third change is the **progress of architectural environment technologies**. As we mentioned in Chapter 6 "Technology," technology that reduces the amount of energy required such as natural ventilation, natural lighting, and low-e multi-paned glass, technology that uses energy efficiently such as moderate temperature air conditioning and thermal storage technology, and energy-generating technology such as solar power generation have been developed. Highly energy-efficient real estate that combines these technologies has emerged in recent years. **ZEBs (net zero energy buildings)** and **ZEHs (net zero energy houses)** bring the net primary energy consumption of buildings to zero by reducing energy use through energy-saving technologies and generating the equal amount of energy that was used through energy-creating technologies, while providing a comfortable room environment at the same time. The Basic Energy Plan that was decided in a cabinet meeting in 2018 aims to realize ZEBs in new public buildings by 2020 and in the average number of new buildings by 2030. As R&D investment in the environment and energy fields is continuing (37.7 billion yen in the fiscal 2019 budget), new technologies are expected to continue to emerge in the future. It is expected that costs for addressing environmental issues, including measures against global warming, will continue to drop due to energy-efficient lighting and air conditioning technologies, renewable energy technology, power generation/storage/transmission technologies and general-purpose technologies that connect these technologies with ICT (AI, IoT) to turn them into smart technologies.

## 11 Mega events



### 11.1 What are mega events?

The Tokyo Olympics held in 1964 and the Osaka Expo that followed in 1970 accelerated large-scale infrastructure development and provided opportunities to show Japan's recovery from the war to the world. Such **mega events** have large socioeconomic impact and improve the appeal of the host city as well as its international recognition.

This time, the **Tokyo Olympics & Paralympics** will be held in 2020 and the **Osaka, Kansai Expo** will follow only five years later in 2025. In today's Japan, where infrastructure is already in place, the positioning of these events differs from the time when they were held last time during the period of high economic growth. However, they may trigger various changes in Japan, which may transform cities, urban development, and the real estate market. In the following sections, we will examine the impact of the Tokyo Olympics & Paralympics and the Osaka Expo on real estate.

### 11.2 Tokyo Olympics & Paralympics

The Tokyo Olympics & Paralympics will be held over a total of 30 days from July 24 to September 6, 2020. More than 10 million people from Japan and abroad are expected to visit during the games. Various estimates have been made on the effect of the games on the Japanese economy, but since the games will be held over a limited number of days, their direct impact on the real estate market will be limited except in accommodation facilities and commercial outlets. Many accommodation facilities (hotels in particular) are scheduled to open around the time of the Olympics in 2020. Meanwhile, since hotels that are currently operating already have high utilization rates, the Olympics may not have a great impact on utilization. However, many inbound visitors to Japan are expected to stay in Japan after the games to visit other areas or move their schedule of visiting Tokyo during the games to another period (demand replacement effect),



which is expected to lead to an increase in sales at hotels as well as commercial facilities such as retailers for tourists during the games and for a certain period afterward. With regard to housing, there is a project called HARUMI FLAG in the Harumi area of Chuo ward, Tokyo where the Olympic village is located to provide athlete's residences as 23 new condominiums of a total of 5,632 units (of which 19 condominiums of 4,145 units are for sale, not rent) by renovating them after the end of the Olympics. The initial sale that started in early July 2019 was strong due to the good location and view as well as expectations of future infrastructure development, even though the condominiums are scheduled to be handed over in March 2023. This project, which is one of the largest in central Tokyo, will have a certain impact on the condominium market depending on future sales. In addition, although it is concerned that traffic congestion during the games will impede distribution, the impact on distribution facilities is believed to be small. The direct impact of the Olympics on offices is also expected to be small in terms of both demand and supply.

Ahead of the Olympics, the Tokyo 2020 NIPPON Festival will be held to present the Japanese culture to the world. In addition to such promotional events held by the Japanese side, the information disseminated through social media by tourists who visit Japan to watch the games and experience the tradition and culture of Japan is anticipated to spread Japan's appeal to other countries, triggering more foreigners to visit Japan. An increase in inbound visitors to Japan will internationalize people's awareness while the Paralympics is expected to deepen people's understanding toward persons with disabilities, accelerating multilingual, universal design, and barrier-free services as well as facilities and buildings. Furthermore, if Tokyo becomes an environment-friendly city with advanced technologies such as robots and telecommunication, it would further enhance the city's appeal as an international tourism and global business city.

The Tokyo Metropolitan Government and the central government are also calling for off-peak commuting and mobile work to alleviate traffic congestion during the games. A total of more than 600,000 people from approximately 2,900 organizations participated in the Telework Days in 2019, which were carried out as a trial ahead of the games. These initiatives provide perfect opportunities to experience flexible workplace and time enabled by work style reforms that are being promoted at companies, and are likely to deepen people's understanding of diverse ways of working and accelerate the penetration and utilization of telework. The Tokyo Olympics & Paralympics may have an indirect impact on the real estate market by triggering changes in the awareness of the Japanese people.

### 11.3 Osaka, Kansai Expo

In November 2018, it was decided that the Expo will be held in Osaka, Kansai in 2025. It will be held for 185 days from May 3 to November 3 and is expected to attract 28 million visitors from Japan and abroad. Yumeshima of Konohana ward, Osaka is a large-scale reclaimed area where an urban development plan of attracting an **integrated resort (IR)** and creating international conference halls and exhibition halls (**MICE**) is being carried out as a new international tourism site in the Kansai region. In addition, the Osaka metro Chuo Line is currently being extended and is scheduled to open in fiscal 2024. Under such circumstances, the decision to hold the 2025 Expo in Osaka has undoubtedly boosted the momentum toward realizing the urban development plan in Yumeshima.

The Osaka, Kansai Expo will display the world's cutting-edge technologies and will also be a place of promotion for companies with leading-edge life science and biomedical technologies that are concentrated in Osaka, Kansai. Foreign visitors to the Kansai region are already increasing significantly, and business transactions are also expected to increase. The Expo will also provide an opportunity for young creators of various fields to disseminate information to the world and for the business, historical, and cultural appeal of Osaka and Kansai to spread, enhancing the recognition of the host city and region. Since the Expo's period is relatively long (185 days), a certain amount of customer traffic can be expected. Furthermore, Yumeshima's transformation into a novel, international tourism site with IR and MICE is expected to attract customers on a continuous basis even after the Expo has ended and will bring about various effects from operating the facilities.

Some claim that such mega events will not have a large effect on Japan's already mature society or that they will only lead to increased financial burden. However, as we have examined, hosting the events will not only have direct economic effects but will also change people's lifestyles and awareness, which are expected to influence the direction of real estate.

Please contact below for inquiries on this report:

**Xymax Real Estate Institute**

<https://soken.xymax.co.jp> E-MAIL: [info-rei@xymax.co.jp](mailto:info-rei@xymax.co.jp)