

# Japan will become an active centenarian society, according to future research prediction at 50 years ahead

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Yoshiro Minami

## Why is it necessary to research future scenarios that predict the future 50 years from now ?

Our institute is working on the new theme of futurology, which analyzes and predicts the future 50 years from now. Conventional wisdom holds that the future that people predict will change from moment to moment, and what is the use of the science of futurology when it is impossible to predict even unexpected catastrophes or even fights between nations a year from now? There was a strong belief that it was worthless and useless. However, as the number of elderly people increases in countries like Japan, and more and more people look back on their past lives, start working after the age of 20, and remain active for more than 50 years, the experience in past 50 years seems to be shorter than expected. An increasing number of people are now able to understand the passage of 50 years from actual experience that the society can be divided into fields that have changed rapidly and fields that have changed little.

This is because middle-aged and older people who vaguely dream about the future 50 years from now can easily recognize the change gap of half a century by sharpening their vague memories from the past using internet information such as Wikipedia on their smartphones. This is thought to be a contributing factor to the increase in the number of elderly people. If more people felt bright about the future half a century later, society would become brighter, but on the other hand, when we witness the scandals surrounding the politics and money of Liberal Democratic Party, and the unbelievably abominable politics of passing the LGBT bill, It can't be helped that more and more people are feeling bleak about whether the future will be okay as not.

In the United States, not only the Central Intelligence Agency CIA and the National Security Agency NSA, but also private think tanks use various simulation methods of the future several decades into the future to make predictions, which have a major impact on economic, diplomatic, military, and other policies. Their prediction skills for analyzing the future are outstanding, and based on detailed research they can predict the several decades ahead in the future, and prepare materials that will encourage them to make the first move and win-win political decisions. Depending on the president, the president may disregard such documents and take control based on his own judgment, but even if the policy changes from the Democratic Party to the Republican Party, the documents of policy analysis based on detailed research

and predictions of the future will remain top secret. It seems to be always well-prepared. For example, crisis management scenarios may be prepared in advance for various scenarios, including economic policies assuming the collapse of the Chinese national system, or diplomatic & military policies to avoid World War III. Such future scenarios are also being updated in response to the ever-changing factors.

In Japan, there are research institutes such as National Graduate Institute for Policy Studies, GRIPS that conduct research on the future direction of policy, and think tanks that receive work from various ministries and agencies to predict the future of policy. It is difficult to say that policy materials for crisis management that ensure a first-move victory have been prepared based on simulations. In other words, current Japanese politics lacks the ability to discuss and formulate important policies such as national defense, finance, diplomacy, welfare, and infrastructure to create a bright future 50 years from now. I cannot believe that they can make scenario describing a bright social and economic future in Japan after 50 years from now. On the contrary, it is clearly necessary to make political research to create a bright future 50 years from now, and so our research institute would like to introduce predictive scenarios for bright future as a reference.

### **How to draw future scenarios 50 years from now will vary widely depending on experts and research institutions.**

First, there are two methods for drawing future scenarios: deductive method and inductive method. The deductive method is a method in which you first set up a scenario in which the future will be vaguely 50 years from now based on changes over the past 50 years, and then explain afterwards the reasons why the world is moving in that direction. It is sometimes ridiculed as “Intuition at first and excuse on the intuition at second”. When formulating future scenarios, it is important to hone your brain power and insightful thinking skills to create a bright and hopeful future. On the other hand, in the fields of security and disaster prevention, it is important to develop your brain power and insightful thinking skills from the perspective of crisis management. We need to think about scenarios and consider how we can create a more secure situation. Of course, the predictions will vary widely depending on the views of experts and research institutions. Many of our research's future predictions are deductive, and due to financial and time constraints, we must rely mainly on online research, so we aim to serve as a source of suggestive reference information.

On the other hand, the inductive method uses simulation technology such as AI to extract various factors that will affect the future from events of the past 50 years and predict changes that will occur in the future over the next 50 years. This method significantly increases prediction accuracy. Experts, mainly at research institutions, are busy developing simulation technologies that make full use of various AI and supercomputers. With simulation technology, as the factors that influence the future change from moment to moment, the expected future society 50 years from now will also change. When you look at major trends in society and technology from a bird's-eye view, it is rare case to

change their scenario. However, due to the changing factors, so called “transformation”, such as major disasters, major wars, and the emergence of innovative technologies, when the trend changes beyond the threshold or border line, the future scenarios must be drastically re-written from the present predictions.

Looking back over the past 50 years, the field that has changed rapidly is the area of fusion technologies of IT computers and communications, and the digital revolution has progressed from mobile phones to familiar home appliances such as smartphones, computers, and televisions. AI is also predicted to bring major changes to life and work. On the other hand, areas that have not seen in much change over the past half century are school system, cityscapes in the suburbs, tourist spots such as shrines and temples, and the landscapes of urban centers such as Tokyo, Osaka, and Nagoya have changed considerably. If you want to predict what the urban landscape will look like 50 years from now, you can easily look at the city plans of local governments, and you can also predict to some extent what the future direction of infrastructure such as electricity, gas, and railways will be.

For example, infrastructural construction work to bury utility poles underground is progressing mainly in urban areas such as the Tokyo metropolitan area as a countermeasure against earthquakes, and it is easy to predict that utility poles in densely populated urban areas will completely disappear in 50 years. The linear Shinkansen, which is the core of passenger transportation infrastructure, is being constructed as a new artery that will connect not only Tokyo to Nagoya and Osaka, but also 1,400 km from Sapporo in Hokkaido to Fukuoka in Kyushu, in the next 50 years. It can be predicted that the number of cases will increase rapidly. If it were possible to travel to most regional cities within 5 hours by transferring domestically within 3 hours in the linear Shinkansen, the problems of economic concentration in the metropolitan area and regional disparities would be solved, and the major function of capital city, such as an interaction with key experts on a face-to-face basis, can be easily shifted to the core city of each region. As functions are decentralized, the region is expected to develop significantly.

**Business leaders should be aware of the future vision and must have the ability to make realistic decisions to realize the future vision.**

Macro-predictions made by AI simulations 50 years in the future can be helpful for micro-perspective predictions in a narrow range of specific areas such as business management, but it is difficult to develop new business with a view on the technology and markets 50 years in the future. Rather, with macro trends idea in mind of 50 years in the future, leaders such as presidents or managers can draw their own future vision from their experience and intuition based on their prediction for the updated technological changes (Change of Seeds) and market changes (Change of Needs). We are now living in a difficult era in which companies cannot survive unless they can predict and have certain vision of their business in the future more than ten years from now and take the challenge of innovating their

present marketing systems. These leaders envision a bright future with optimism and positivity, while also thinking about the risks of things going wrong in the future, and they must take proper countermeasures against two conflicting futures for taking advantages by quick action of first move win. Leaders should approach any development with the mindset of "preparing for the worst in advance and doing the best"

For example, when thinking about the future of transportation infrastructure 50 years from now, we can use transportation that can quickly travel between mountainous areas, island villages, depopulated areas, rural towns and cities, local airports, and islands. Flying cars may fly at around 100 kilometers per hour at ultra-low altitudes of tens to hundreds of meters, which is the minimum altitude of around 150 meters under the aviation law. In particular, the flying cars so called "Drone Airbuses" may be developed after utilizing the floating principle of hot air balloons and airships. We expect that it will be developed and put into practical use. In other words, it is expected that the travel time distance will be significantly shortened no matter where you live in Japan, and the convenience for people living in rural areas will be dramatically increased.

Keeping in mind this future trend, business leaders should consider whether new concepts of transportation, such as the Drone Airbus, which are currently a pipe dream, are technically possible, and they must ask themselves of the difficult bottlenecks on the new product design. We will need the perseverance and courage to continue challenging realistic problems such as whether there is any chance of making a breakthrough. Furthermore, after overcoming various obstacles such as raising investment funds and training human resources, we would be able to start designing and producing a prototype, and after a test flight after development, we set an available price through a questionnaire survey of residents who were potential customers. There is no choice but to take on the challenge of marketing in new fields by evaluating feasibility, such as whether it will be profitable or not. Whether we can overcome these various obstacles and develop, manufacture, and sell new vehicles that have the potential for dramatic growth as a business depends on the foresight of management leaders and a corporate culture that continues to take on new challenges. Only companies to overcome these obstacles in future can achieve "century prosperity," where they can enjoy business growth and prosperity for more than 100 years.

**It is hoped that an era will come when cancer will be completely cured and intellectual disability will be classified as the lower rated disabilities through gene therapy.**

In 2050, 25 years from now, cancer, which currently accounts for 25% of the causes of death, will be overcome and become a completely curable disease, and heart disease, which accounts for the second place at 15%, will be subject to thorough measures to prevent pre-symptomatic disease. Research has progressed to find out why aging, which ranks third in number, comes to an end, and life-prolonging treatment can be given if desired, and early measures can be taken to prevent

pneumonia and sepsis, which rank in the fourth and lower 5%. It is said that the average life expectancy will rapidly increase from 85 to 95 years. Since this is an average, it is predicted that the number of centenarians who will continue to work actively until they are 100 years old will increase dramatically, and an era will come when there will be 1 million people over 100 years old. In 25 years, the number of centenarians will increase, the definition of elderly will be raised from 65 to 75, and pensions will be paid at 70. In other words, as most companies raise the retirement age to 70 and provide more welfare employment, the idea of centenarians is expected to become common sense.

The development of messenger RNA-based vaccines during the coronavirus pandemic has brought great medical progress to humanity. In fact, messenger RNA originally attracted attention in the field of gene therapy as a promising method for treating difficult neurological disorders such as neurological disorders and Alzheimer's disease. It is also believed to be useful for treatment. Although this is just an imaginative and wishful prediction, it may be predicted that brain treatments utilizing this messenger RNA technology will make dramatic advances in the next 25 years. If it becomes possible to treat neurological disorders and brain disorders, gene therapy using messenger RNA for intellectual and developmental disorders will make great progress, allowing for borderline intelligence (IQ (intelligence quotient of 71 to 85)). It is expected that the IQ of people with the intellectual disabilities will increase by 20 to 30 points or more, and although they will still have some cognitive impairments, they will return to a normal state. In addition, as gene therapy research progresses, it can be applied to the treatment of various incurable diseases, increasing the possibility of improving treatment from severe disability levels to mild or normal range.

Advances in medical treatments such as gene therapy and drug therapy have made it possible to prevent the decline in cognitive function caused by Alzheimer's disease and dementia in old age, and the brain function of people who continue to work from the age of 80 to the age of 100 has also improved. It will help you stay young. The topic of how to best build a 60-year career path from age 20 to age 80 has become a lively topic of discussion, and the role of companies as places of employment where people can work until they are 80 or 100 years old is becoming more important. The idea of "future management" and "future strategy" will become popular even in small and medium-sized enterprises, where they set the goal of "century prosperity," which means continuing to prosper as a business for more than 100 years, and using AI to predict the next few decades and formulate business plans.

**The time comes when there are centenarians with the average life expectancy exceeds 100 years and active worker at society, and it will become common sense in society.**

Ergonomics and Longevity Science in the fields of medicine and welfare, which will have a major impact on people's lifestyles, ways of thinking about life, and work views over the next 50 years, as well as humanoid engineering, including robots. is said to be developing rapidly. To put it simply, in 50

years, due to the development of medical science, human lifespans will increase dramatically, and the average lifespan will be over 100 years old. We are about to enter an era in which the number of centenarians with active work life will be one million, and the population over the age of 100 will increase in the several millions. It is one of the favorite themes of health, labor, and finance bureaucrats, and every year, a budget is allocated to the longevity science policy research project, the National Gerontology Research Center is established in Aichi Prefecture, and even the public interest foundation for the promotion of longevity science has been established. If the number of active centenarians increases, it will be possible to lengthen the enrollment period for the Employees' Pension and raise the pension payable age in stages from 65 to 70 or 75. The Employees' Pension will be easily supported with financial back-up after raising the payable age from 65 to 70 or 75.

According to current common sense, it is hard to believe that centenarians will become the norm, and still work at the age of 100. It is clearly an effective way to stay young both physically and mentally and live a long life, when people continue to work with a sense of purpose in contributing to society or organization without retiring. The business executives knowing this secret to longevity continue to be involved in management activities after reaching the age of 80 or 90, with titles such as advisors, while being careful not to be seen as a nuisance. On the other hand, the lifespan of people, feeling no problem on their death since few people mourn or have trouble, is said to be shorten. They leave their impressive words at last moment, saying "Just Good Bye", "Hi Sayonara" in Japanese. It is said that life expectancy is strongly influenced by view of life and psychology of the elderly. On the other hand, companies are also affected by chronic labor shortages, and they can not help increasing the special workplace and human affairs with good welfare employment system for the elderly people, where elderly people can continue to work comfortably. In the field of nursing care, elderly people in need of nursing care are encouraged to make products through simple assembly work at workplaces close to facilities, and the working style at nursing care will become popular since the elderly people are highly motivated at workplaces and can keep the rest of their lives in good physical and mental health.

In future 50 years, the average lifespan will exceed 100 years old from 105 to 110 years old. The reason why most elderly people can maintain a strong body after 100 years old is due to a well-known prediction on the development of medical technology for longevity and the transplantation of artificial organs. As people become cyborgs by replacing their organs with artificial organs such as livers and kidneys, people would break the Guinness Longevity Record by being over 150 years old, and some even profess to aim to be 200 years old. Research into longevity genes has progressed dramatically, and some experts claim that we will soon be able to rejuvenate the human body through gene therapy. If you think about it in today's common sense, we would expect the world of the mysterious science fiction novels or movies *The Green Mile* comes true. In future 50 years, we may see the majorities of centenarians looking at age 60 or some energetic centenarians with active night life. We may see ladies over 60 years old looking at age 40 and the prolonged time when a woman stops menstruating, called menopause, over 60 years old. Some women may have children at age 60.

When we live in a society where there are more than one million active centenarians and several million population over 100 years old, most Japanese may ask themselves if they become happier and richer. Some people may ask themselves like this, "Working hard like a slave for a long, long time, but my life remains poor and painful. I wonder if Japan has become a happy country after achieving an ideal active centenarian society." We Japanese never definitely change Japan to a horrible miserable nation without any dreams and hopes in future.

(The End)