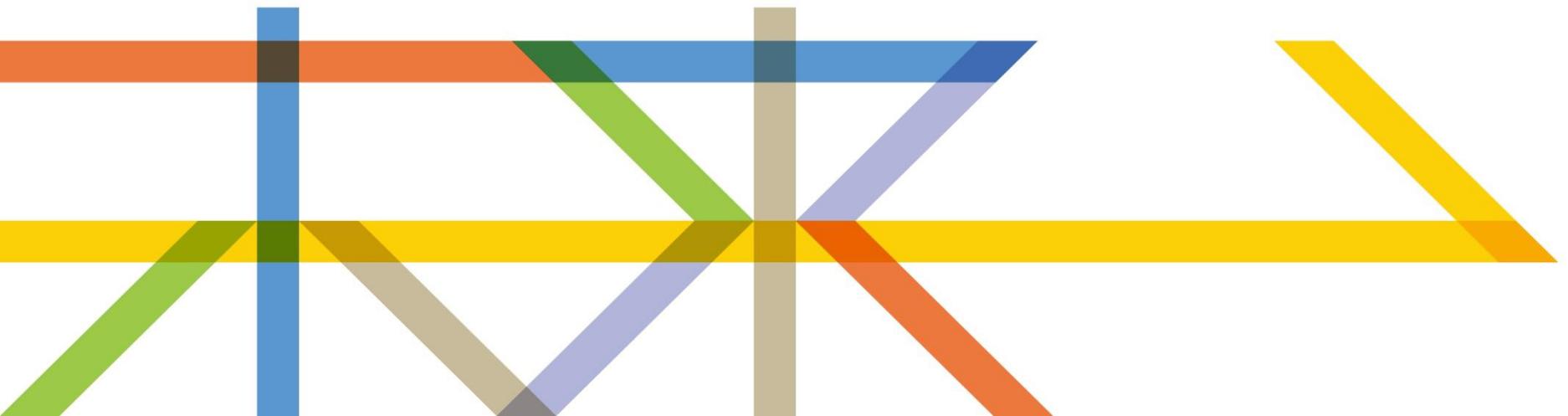


Japan's Scenarios 2030

Looking into the future and what it means for us today

March 2016

Future Education Consortium



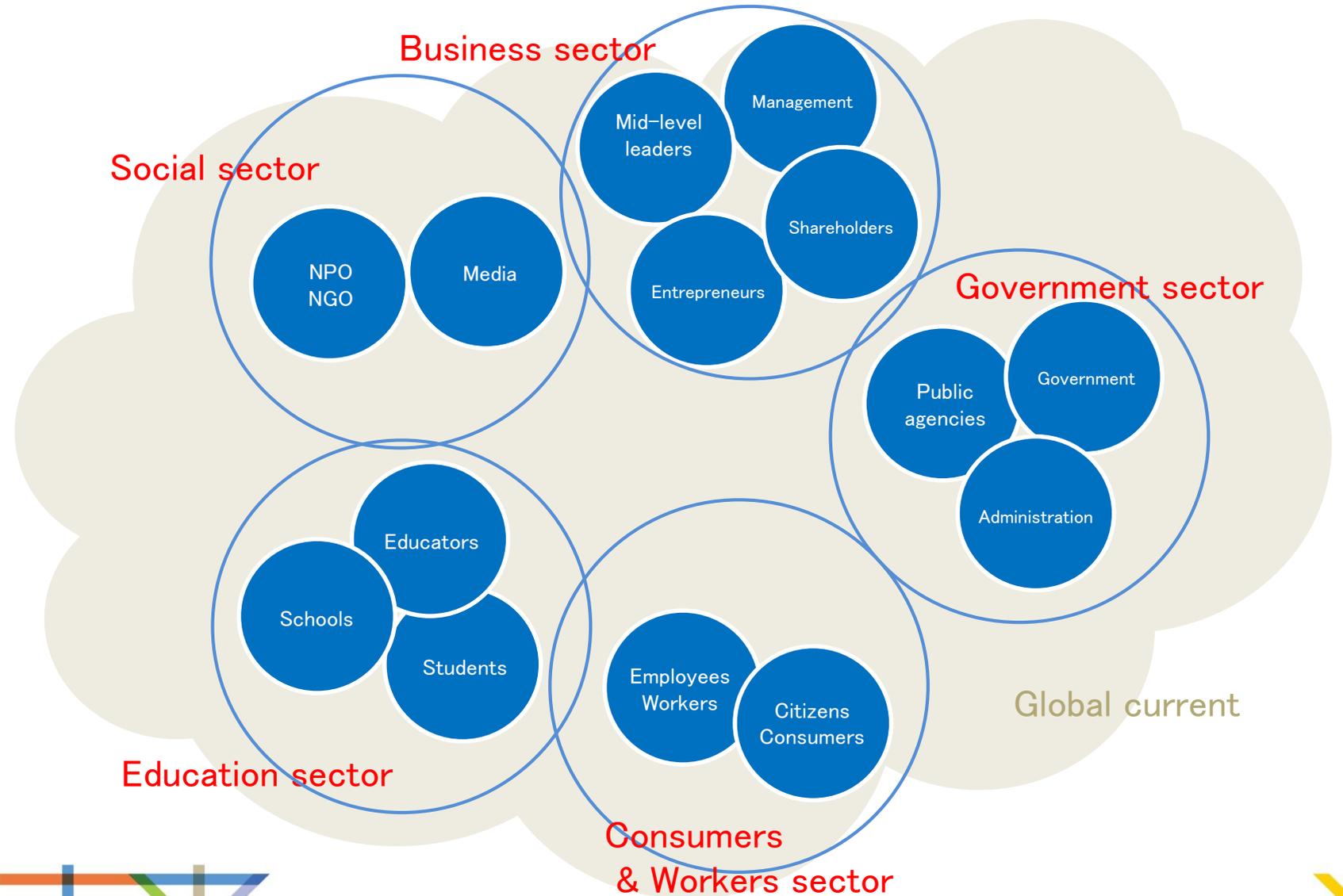
Objectives

Think about what's needed for businesses, society and people in 2030 in order to prepare for the uncertainty our future holds

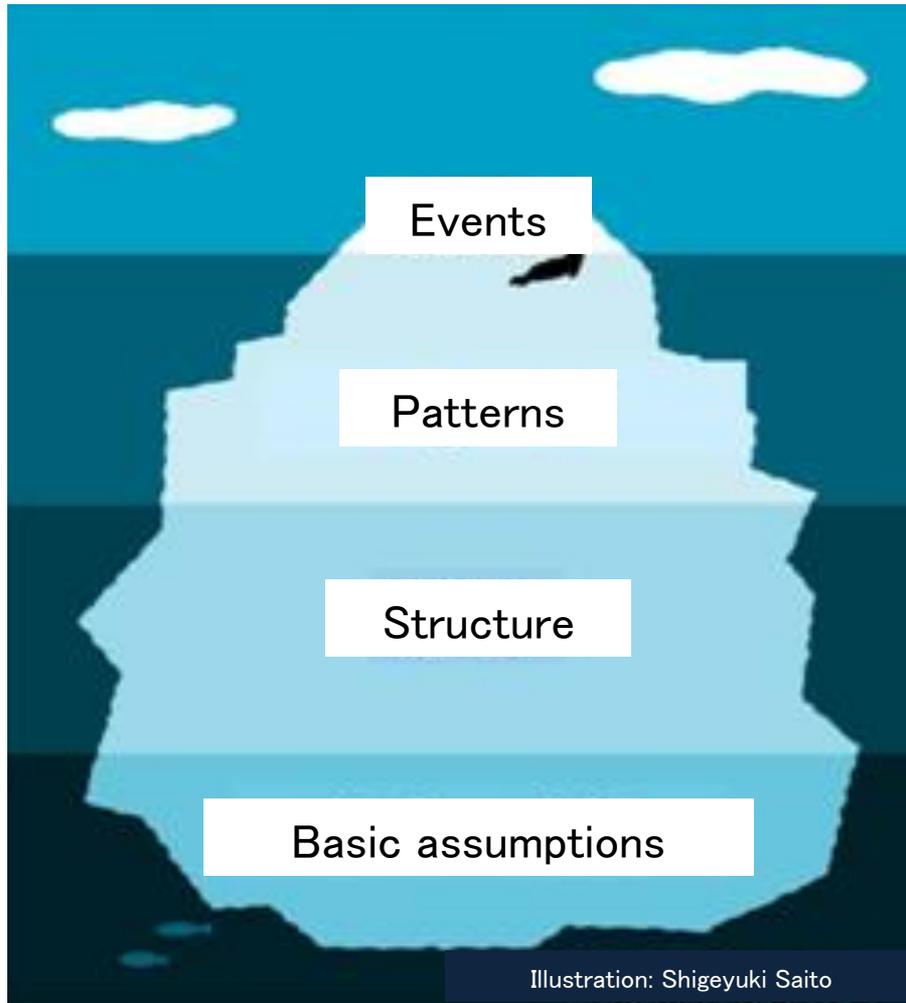
- What 2030 will look like
- What type of corporations will thrive in 2030
- What are the values that are important for firms to continue performing in the future



Who is involved in creating the future of our society?



What are the fundamental factors affecting the future?



Defining the fundamental causes beneath the events on the surface

Illustration: Shigeyuki Saito



■ Certain elements

■ Demographics

- Japan's low birthrate and aging population
- Global population growth
- Expansion of the middle class worldwide(especially in Asia)

■ Sustainability

- Depletion of the earth's resources(energy, food, water)
- Climate change, increasing risks of natural disasters

■ Technology

- Advancement of technology
- Development of AI

■ International politics and security

- Instability in international affairs(Decentralization of authority)
- Emergence of developing countries
- Expansion of Chinese and Indian influence

■ Industry

- Change in structure/reorganization of industry
- Shrinkage of the domestic market

■ Employment and labor

- Change in occupations
- Promotion of diversity

■ Welfare

- Increase in the cost of welfare(e.g., nursing care)

■ Values

- Change in values



What are the certain elements impact the future?

■ Uncertain elements

■ Sustainability

- Alternative resources, development and discovery of new energy
- Outbreak of natural disasters or food crises

■ Technology

- Coexistence with technology
- Who will manage technology?

■ Management

- Awareness and role of capitalism
- How we measure corporate value
- Awareness towards economic growth
- Globalization of Japanese companies
- Core values and competitive advantage of business
- Creation of values through innovation

■ Employment and labor environment

- Fluidization of hiring and talent
- Expansion of diversity management
- Shift away from hiring only new graduates
- Implementation of severance pay system

■ Individuals

- Independence
- Participation as citizens

■ Education

- Innovation in education
- Lifelong learning and chances for re-education

■ Welfare

- Role of the safety net

■ International politics

- Power-shift and the establishment of a new world order

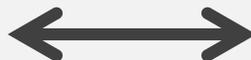


What are the uncertain elements which have a huge impact to the future?

■ Uncertain elements with a huge impact

Uniform measurements of business and corporations

Economic values (financial indicators, ROE, short-term profits, emphasis on stockholders' interests)



Diverse measurements of business and corporations

Social values, sustainability, natural capital, mid-to long-term perspective, multi-stakeholders' interests)

Uniform working style and labor forces

Japanese employment customs (lifetime employment, seniority-based pay, hiring only during a certain season, emphasis on "regular employees," slow adoption of technology)



Diverse working style and labor forces

Diversity, remote work, independent contractors, freelance, proactive adoption of technology



Four different scenarios – businesses, society and people in 2030

These four scenarios each show pictures of possible world in 2030.

Each of the scenarios share the same “certain elements,” while they are distinguished by which “uncertain elements with huge impacts” affect them.

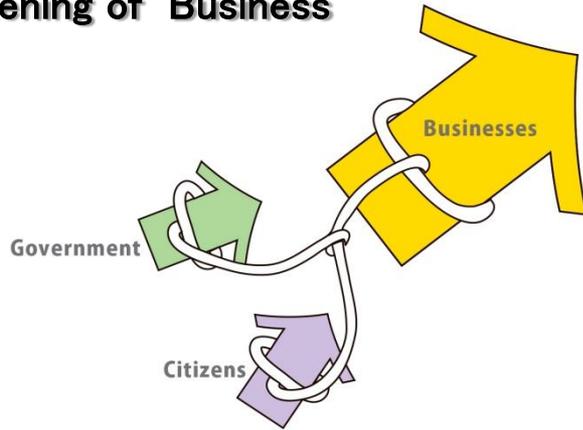
These scenarios are not the prediction of the future. They throw the questions on how we will shape our future.

Observing these four scenarios, what actions should we take to prepare for the future?

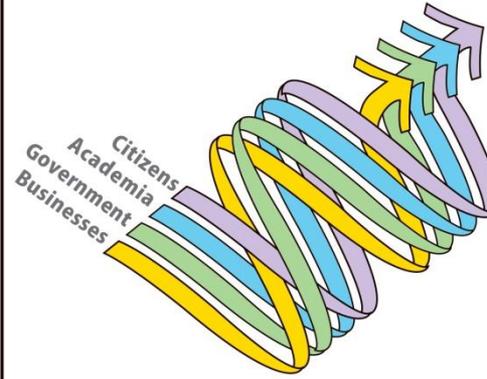
Society and business in 2030: Four scenarios

Diverse measures of business management

Scenario 3
The Awakening of Business Sectors



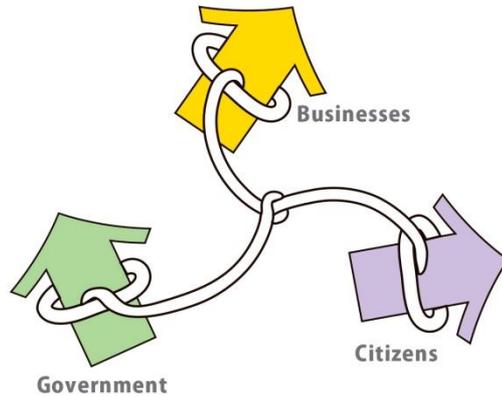
Scenario 4
The Quadruple Helix



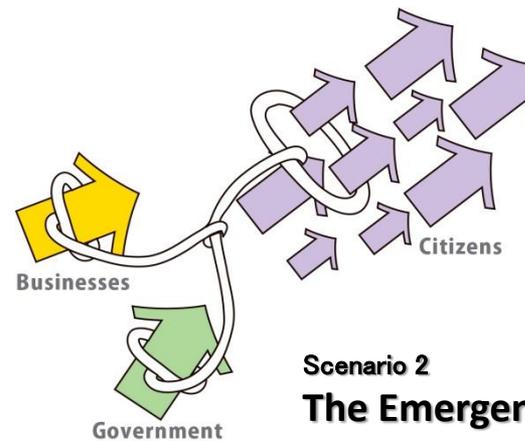
Uniform working styles

Diverse working styles

Scenario 1
The Trilemma



Scenario 2
The Emergence of Individuals



Uniform measures of business management



The Year 2030 – Scenarios

Things which will happen certainly or almost certainly by the year 2030



Things which will happen certainly or almost certainly by the year 2030 (1)

● Japan's population decline - One in three people is over 65

According to the National Institute of Population and Social Security Research, Japan's population which was 128 million in 2010, will fall to just over 116 million by 2030. When looking at the population by age group, the decline is only evident in those up to age 64, while the number of over-65s continues to increase.

The result is that in 2030, nearly one in every three people is aged 65 or above. According to statistics from the the Ministry of Health, Labor and Welfare, the working age population is expected to decline from 58.48 million in 2000 to 49.26 million by the year 2030 (a decline of 16%).

In light of this structural change in population, the domestic market will shrink, while the costs of social welfare such as pensions and nursing and medical costs will increase. Moreover, the accepting of immigrants to compensate for the decline in labor power will become a major point of debate.

● Global population growth, mainly in Asia and Africa, and urban concentration

The United Nations predicts that world population of 7.3 billion in 2015 will grow to 8.4 billion by the year 2030. The UN report on the 48th Session of the Commission on Population and Development predicts that "all of the projected 1.1 billion increase in global population over the next 15 years will take place in urban areas," and notes that "currently more than half of the world's population lives in urban areas, and in the next 15 years, that ratio will increase further." The countries of Asia and Africa will experience the majority of the population increase; about half of the world's population will live in Asia, while 15% will live in Africa. (Of note, India will surpass China as the world's most populous country in 2028.)

On the other hand, the world is still far from extinguishing poverty, and the flow of migrants and refugees from Africa and the Middle East to Europe and other developed countries has not ceased.

● Globalization, cross-border economic activity, and Japan's weakened presence

The pace of globalization has picked up, and the world is connected. Any event can bring about unexpected effects - for example, floods in Bangkok can have dire consequences on auto manufacturers in Japan's Tohoku region. According to the 2012 White Paper on Trade released by the Ministry of Economy, Trade and Industry, the total volume of global trade grew by 1.7 times from 2000 to 2012, and goods and services transactions are accelerating. With increasing connectivity across borders, the world becomes one market - all industries and companies can no longer avoid the effects of globalization and competition from those beyond their borders.

Conversely, Japan's presence within the global economy has declined. Global Trends 2030, a publication by the National Intelligence Agency of the United States, predicts that between the years 2000 and 2050, the buying power of Japan's middle class will have fallen rapidly from ten percent share of that of the global middle class to between two and three percent. (Middle class buying power in China and India, on the other hand, is expected to reach nearly 40% of the global share by 2030.)



Things which will happen certainly or almost certainly by the year 2030 (2)

● Resource crisis risk, food crisis risk

In the base scenario of *The Limits of Growth*, food production levels fall in the first half of the twenty-first century. Currently, food production levels are keeping up with consumption, but global crop acreage per person has not increased since the latter half of the twentieth century. While acreage per person continues its decline, the growth rate of crop yield per acre has slowed. Among these circumstances, the tides of global population growth, meat-eating, and competition for fuel demand have been unleashed. Even among energy resources, for example, the amount of discovered conventional crude oil has been on the decline since its peak in 1965. Since 1984, the amount of oil produced has exceeded the amount of oil discovered, and that gap is expanding further. Regardless of the scale and effects, and whether or not the issue is more visible than now, we can say that society in 2030 will be one that bears the risk of resource and food crises.

● Natural disaster risk, political instability and terrorism risk

Damages (global total) from natural disasters rose from less than \$100 billion annually in the 1970s to between \$100 and \$200 billion in some years during the 1990s. Since the year 2000, the annual total damages have sometimes reached between \$300 and \$400 billion. Fluctuation from year to year is also increasing in intensity. In the airline industry for example, there are noticeably significant drops in industry performance coinciding with the Gulf War, 9/11, and the SARS outbreak. Events with significant impact on the industry previously happened at a pace of once every 10 years, but are now occurring every three or four years. It's an era in which external risks such as natural disasters and terrorism have greater impact on financial performance rather than business competition.

● Financial crisis risk

There is an increased risk of global financial contagion, as was seen with the collapse of Lehman Brothers and the 1997 Asian financial crisis. The financial assets economy is larger than the real economy, and the gap is expanding. The globalization of finance is also underway. Resources and food have long been objects of investment, but are expected to become financial products to invest for. In these circumstances, financial crises that take place in just one country or region, or that involve just one commodity, are ever increasingly to impact countries and industries which do not seem to be directly connected.



Things which will happen certainly or almost certainly by the year 2030 (3)

● Artificial intelligence and robots - advancements in technology and changes in occupations

As the information economy develops further, changes in industry structure and industry shakeups will occur.

Various technologies such as robotics and AI will advance. (Ray Kurzweil, famous for predicting that the “singularity,” in which AI replaces humans as the principal evolver of technology, will occur in the year 2045, believes that AI will achieve the same level of intelligence as humans by the year 2029.)

With the evolution of technology, jobs that humans perform right now will be replaced by machines, and occupations and style of work will change shape drastically. According to a Nomura Research Institute report which analyzed multidimensional quantitative data from The Japan Institute for Labour Policy and Training’s “Research of occupational structures,” 49% of the Japanese working population is under risk of being replaced by AI and robots.

We will also see a the talent war in the AI development field.

● Shift in values, the emergence of the Millennial Generation

Around the world, the “Millennials,” the generation of people who become adults in the year 2000 or later, are gathering attention for possessing qualities unique from those of previous generations. They are the first generation of people raised in a digital, online environment - the so-called “digital natives.” They can easily collect and convey information through social media, have a strong sense of belonging to a community, and tend to value relationships with their peers.

Even in Japan, research by the Hakuhodo Institute of Life and Living shows that the pre-bubble generation (those born before 1973) and the post-bubble generation (those born in 1974 or later) hold contrasting values, such as “the future is an extension of the present/the future is a break from the status quo,” “values focusing on oneself/values relationships with peers,” and “wants to continue the same lifestyle/wants to flexibly change to new lifestyles.” (The former are tendencies of the pre-bubble generation, while the latter are those of the post-bubble generation.)

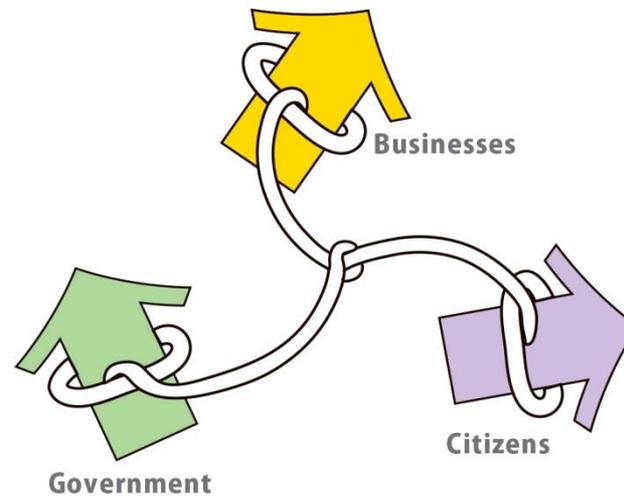
Just how much the values of the new generation will impact real society remains to be seen, but it’s certain that as time goes by, the ratio of Millennials to total population will increase. (In Japan, the pre-bubble generation makes up more than half of the country’s population, but this is expected to reverse in favor of the post-bubble generation by 2023.)



The Year 2030 – Scenario 1

The Trilemma

– Half a century that has been lost –



An Aged Society and the Myth of 20th Century-Style Labor

The population of Japan, approximately 128 million in 2016, has fallen to 116 million. The aging of Japan's population has progressed at a rate never before seen, and **more than one in three people is now aged 65 or over**. The working-age population has continued its decline, and labor shortages are cropping up in various areas.

20 years have passed since Japan's Economic and Social Research Institute released the results of its research stating that "it has become difficult for businesses to maintain seniority pay and lifetime employment systems." "A life spent working for the same company is a stable one." "In order to lead a good life, I need to enter a prestigious company as soon as I graduate university." "Work should be from Monday through Friday, and people should arrive at a certain time in the morning and do some overtime before going home." -- As more and more jobs are in effect being replaced by non-regular employees, and despite being told that the situation is deteriorating, these **myths of the 20th-century working style** remains deeply in the minds of Japan's workers.

The reality is that there has been little progress since before the Olympics in the way of creating systems that would allow women, senior citizens and foreigners to contribute more to the economy. The social status of non-regular employees, who are in effect sustaining the labor market, remains low.

As if trying to align themselves with these businesses and societal values, individuals are once again chasing **the illusion of stable employment**. There are few people actively aspiring to change professions or start their own businesses, and the movement calling for liberal working styles such as role-based or project-based work, side jobs, remote work, flex time and work sharing is still small.

The Olympics Recoil and the Structural Weakening of Japanese Companies

The goal of corporations is to make money - to raise profit in the short-term and return profit to shareholders. This is what companies focus on, and while they are reminded from time to time by researchers and intellectuals of resource and food depletion risk, many companies tend to focus on the current fiscal year's results rather than long-term sustainability, and have management that accommodates shareholders rather than the multi-stakeholders. Around the world, there are large and small phenomena taking place which directly or indirectly affect sustainability, such as climate change and resource depletion. Japan, however, has not experienced external shocks such as large-scale food or energy crises, nor does it possess revolutionary energy sources that would replace current resources. Therefore, Japanese businesses are still primarily relying on measures **valuing shareholders and short-term profit**.

Until 2020, when the Tokyo Olympics and Paralympics took place, business boomed due to the "**Olympics Effect**," centered on construction and tourism demand, and the national economy as whole was strong. However, since the start of the "**Olympics Recoil**," businesses that were managed with a short-term outlook have found themselves in financial trouble, and the state of international affairs is unstable. Despite an excess of employees who were hired during the "Olympics Economy," dismissal regulations are strict, and there is a limit to how many staff can be laid off. Reluctant to hire young workers, the average employee's age gets higher and higher at many companies. Japanese companies are in danger of seeing a "**structural weakening**."



Lagging in Innovation - Japan's Lost Half-Century

Employment of women, senior citizens and foreigners has seen some progress, and on the surface, diverse working environments appear to be increasing. However, this is limited to certain fields and working styles, and is not the “true” diversity which gives rise to innovation. Lifetime employment, seniority and uniform working styles are obstacles to hiring foreign employees, and a major reason why Japan attracts little attention in the market for global talent.

Despite the fast evolution of technology such as robots and AI, as a result of traditional working customs and regulations such as the Act on the Protection of Personal Information, advanced technology has not been adopted as part of reforms at Japanese companies as much as initially thought. A few global companies that possess big data, as well as countries like Germany that took the initiative in Industry 4.0, are dominating the market. Industry 4.0 is a national project led by the German government, and a collaboration between industry, government and academia. With the keyword of “smart factory,” the goal is to minimize costs by raising the level of digitization, automation, virtualization and IoT in the production process.

Some intellectuals lament that “Japan has **completely fallen behind in innovation, as it is slow to create a foundation which gives rise to innovation such as liberal working styles, diversity and technology.**” To put it simply, Japanese companies have not changed since before the 2020 Olympics - or rather, since the 90s after the burst of the economic bubble. With the last 40 years of Japan's history on their minds, more and more people cynically state that Japan may soon find itself with a “**Lost Half-Century.**”

Society's Trilemma

The country faces a huge deficit every year due to pension and medical costs that increased along with the aging of the population and a smaller workforce. The shift from regular to non-regular work continues, and the risk of increased social welfare cost becomes greater and greater. What will the government do about the huge national debt? The answer is unclear. The time bought with economy-stimulating policies such as fiscal deficits (fiscal stimulus) and currency control, repeatedly invoked since the 1990s, has been wasted on ad hoc measures, rather than used for structural reform.

The paragraph below taken from a book written more than 15 years ago eerily foreshadows the current state of Japan. Businesses, citizens (laborers), government...these sectors have failed to share one vision. Society finds itself with a trilemma - reform has been inhibited as a result of each player attempting to optimize their own actions. How much has this situation changed since the following passage was written in 2013?

Japanese voters are fatalistic and have been for years. New York Times reporter Martin Fackler explains that people's “high-flying ambitions have been shelved, replaced by weariness and fear of the future, and an almost stifling air of resignation. Japan seems to have pulled into a shell, content to accept its slow fade from the global stage.” Rent-seeking by a troika of big companies, big banks, and a big bureaucracy have hindered the political system from making structural reforms. In essence, Japan seems to be stuck in the same dilemma today that it faced a century and a half ago. ... Japan needs a twenty-first-century version of the Meiji Restoration.

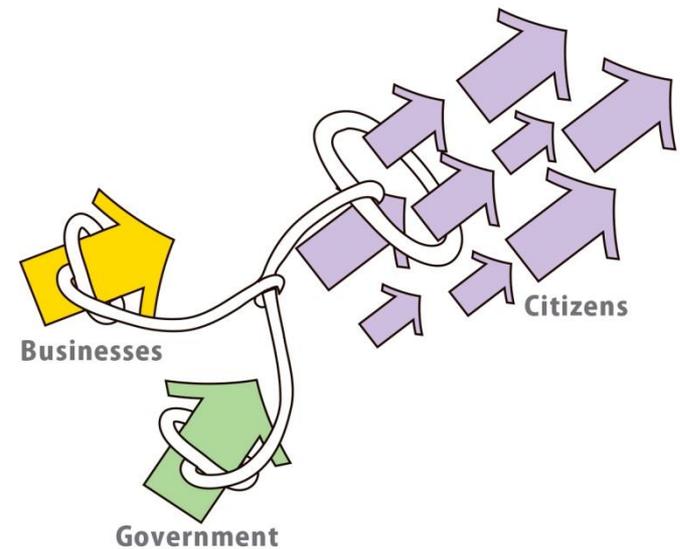
Balance: The Economics of Great Powers from Ancient Rome to Modern America; Glenn Hubbard, Tim Kane.



The Year 2030 – Scenario 2

The Emergence of Individuals

–Great Disparity and the Emergence of Niches–



2. The Emergence of Individuals - Great Disparity and the Emergence of Niches- (1)

Technology's Impact: Shift in Working Styles and the Extinction of Occupations

Nearly a quarter-century has passed since Time magazine selected "You" as the 2006 Time Person of the Year, acknowledging the spread of personal information through blogs, social media and YouTube. One can feel more and more that this is the era **"the individual leads the change of the times."**

Especially striking in the last 10 years has been **the diversification of working styles**. The development of information infrastructure which made at-home work and remote work ubiquitous, the development of AI technology which replaced back office functions, and the development of machine translation and cloud outsourcing to help with worker's tasks, are all examples of how **technological development empowered the individual's work life**, and more people find themselves changing jobs frequently. A majority of unskilled labor has been taken on by robots, and even white-collar positions such as investment manager, human resources associate, and telephone sales representative are rapidly being replaced by AI. It seems that Oxford University Assistant Professor Michael A. Osbourne and his research group, was right on the mark when he announced the paper on the **"extinction of the occupation"** in 2014.

A Shift in Demographics led changes in Working Styles

In Japan, during the late 2010s and 2020s, workers engaged in at-home caretaking increased with the rapidly aging population. As a result, the demand grew for more flexible working styles. With an insufficient working-age population, expectations rose for retired seniors and mothers with small children to participate in the labor force and the demand for **the working flexibility intensified in the face of changing demographics**. The combination of this and the technological working revolution mentioned above **have broken down the traditional "weekdays nine-to-five" working style**, and the terms **shinsotsu ikkatsu saiyo** (Simultaneous recruiting of new graduates is the system that companies hire new graduates all at once and employ them) and **shuushin koyo** (lifetime employment), which once symbolized the Japanese labor system, are now **completely obsolete**.

This trend is further enforced by **the expanding influence of Millennials** who, as digital natives, value innovation and breaking the status quo, and have a tendency to always flexibly change their lifestyles.

Open and Flexible Employment Systems and HR Policies

Companies have had no choice but to design **open and flexible employment systems**, and **diversity hiring** has become commonplace as women, seniors, and job-changers, previously not mainstream in Japanese company culture, become essential hires. More companies are starting to distance themselves from the idea that they must procure talent internally. Meanwhile, the profession-based working style, in which one improves upon his or her strengths (while changing jobs), and the project-based working style, in which internal and external professionals are connected through working on a project basis, are common.

This also means for companies that it has become possible to **flexibly allocate employees** and **freely utilize a mix of talent from both inside and outside the company as needed**. As a result of labor law reforms which have taken place since the 2000s, **regulations regarding dismissal of** (both regular and nonregular) **employees** have been relaxed, and it has become easier for management to quickly allocate employees to growth areas and reallocate them when growth is limited.



Myopic organizations and innovative individuals

Social vulnerabilities to the limits of food and other resources are increasing, however, there aren't any visible crises taking place. As a result, the vast majority of companies are focusing on what's in front of them - **short-term profit and shareholder return** - while sustainability efforts remain sparse. Some companies have achieved success as they cut labor costs through utilization of technology and external resources, and managed to shift to growing industries. However, Japanese society as a whole has been under pressure to streamline and invest in the business for short-term results, and innovation with long-term perspectives which could give rise to solutions to societal problems has not been taking place.

Rather, the individuals who take advantage of technology are leading innovation. The "**Maker movement**" proposed by Chris Anderson in 2012 has developed further. Individuals are making use of digital tools such as 3D printers and laser cutters, and are using global factories via the internet to outsource low-cost, small-lot production, and sell products to the world online. There are also more examples of rejuvenated communities which have developed **local innovation in partnerships** with small businesses and universities. **Small open innovation** is occurring everywhere in the world.

Even in Japan, innovative individuals have sporadically created some innovation, but few of them are backed by domestic capital. Rather, there is a noticeable trend of forming startups overseas where there is a space for innovation, freedom and more opportunities for investments.

An Age of Great Inequality where "Electric Sheep Eat Men"

Individuals who work across national borders, individuals who leave the cities to work in the countryside, individuals who work in the NPO/NGO sector. These individuals are featured in the media in place of lackluster companies, and society is hailed as being "individual-driven." But that is just one side of reality.

In fact, those who succeeded in proactively utilizing their freedom in working style are few, and those who become the working poor or unemployed have increased overall, as there is now less focus on maintaining the same job. **The era of "survival of the fittest"** has arrived as the "**labor divide**" expands and **power disparity between individuals becomes more evident**.

"Sheep are eating men," is how 16th-century English philosopher Thomas More criticized the social situation in which peasants were robbed of their land and jobs to make room for more sheep as the wool industry developed. Playing on this phrase and the title of Phillip K. Dick's classic *Do Androids Dream of Electric Sheep?*, the view that humans are being robbed of their jobs by robots and AI has become described as "**electric sheep are eating men.**"

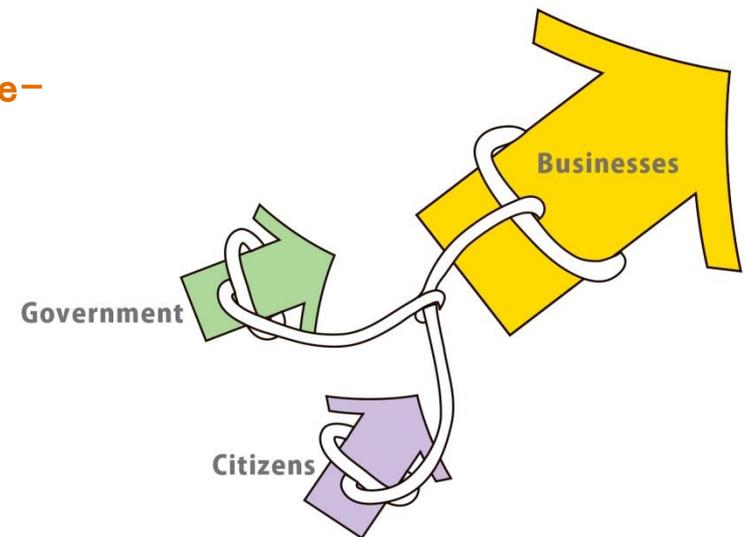
Society is polarized between the minority of successful people and the majority "underclass," but the social welfare system is not fully able to cope. **The cost of supporting the poor and unemployed is ballooning** and the country's fiscal situation is steadily growing worse. While corporate tax has been kept low to compete globally, various other taxes such as consumption tax are rising. Consumers' buying power has weakened, and the domestic market is shrinking at a faster rate than the population is. Under these circumstances, more businesses and individuals are abandoning the domestic market and flowing out to emerging countries. **The widening of the disparity and the social welfare crisis** have become major themes of the era.



The Year 2030 – Scenario 3

Awakening of Business Sectors

–Supranational governance and Creating Shared Value–



Outbreak of international food crises

Due to the exponential increase in world population, **international food crises** triggered by the Russian Winter impact in 2021 and the Sub-Saharan large drought in 2020 lead to a sharp rise in food prices around the world, causing the Great Famine in developing countries and “food shocks” in Western nations. Japan is also under influence; it has had persistently high food prices, especially wheat and sugar. At the same time, there has been a succession of large-scale natural disasters, such as the Yangtze River depletion and the Mekong Flood in 2022, which are thought to be attributed to the recent climate changes. Depletion of several fishing grounds off the New England Coast due to effects of climate change and overfishing, has hit corporations in the food industry.

Due to these changes, the importance of new international rules such as SDGs and COP21 are greater than ever and the world has begun to fully endorse implementation of these measures. Citizens in developed nations are also aware that sustainability of resources such as food, water and energy are highly important, relevant issues due to the increased exposure to news regarding such price spikes and corporate bankruptcies happening as a result. Consumer demand for services and products promoting sustainability, including certified products such as FSC and MSCs, is rising.

Sustainability becoming a key corporate issue

Sustainability is becoming **the most important corporate issue** for corporations facing resource procurement crisis and threats to business continuity. Corporations that **care about long-term sustainability** and **pay respect to the limited natural resources and diverse stakeholders** are becoming more accepted in today's society, while those that do not face increasingly larger hurdles in hiring, resource procurement, and business development.

There's an increasing amount of attention given to the idea of **focusing on “social values”** and impact on the community as a measure of corporate value. The **social investment market** that aspires to invest in corporations based on their social impact are booming at a level uncomparable to that of 10 years ago. Investors are keen on finding **“social innovations”** that create new markets and business opportunities by solving social issues. It is undoubtedly becoming easier to focus on **long-term research & development and creation of new markets** without being bound by the pursuit of short-term profits; and for corporations that are willing to take this path, there's an environment for innovation awaiting them.

The modern "Black Ships" - Supranational CSV firms

Those leading the frontier of such shifts in corporate values are the **supranational CSV firms** that have been looking ahead and pursuing a double bottom line (social value and financial profit) since more than 15 years ago. These firms are large-scale companies that pursue CSV (Creating Shared Value: Generating economic value in a way that also produces value for society) on a global-scale. These companies are reaping the benefits of looking ahead and taking action long before the world came to realize the gravity of sustainability risks.

Companies that were simply pursuing the highest short-term profits for stakeholder revenue are entering a phase where they can no longer survive unless they change course. There's an increasing number of corporations **going out of business due to their inability to overcome resource procurement and business sustainability crises**, while some of them **are acquired by supranational companies**.



New rules of the game - creation and implementation of de facto global standards on sustainability

Looking at international politics, we can see that there's increasing tension between nation states as global food crises and growing international inequality become serious problem. While many governments are exacerbating the situation by taking conservative measures, supranational companies are making their contributions in international politics by pursuing economic activities across borders and maintaining or creating new schemes for cross-border connections. In many aspects, these supranational corporations are leading the formation of global societies today.

Of course, Japan is no exception to such phenomenon. Supranational corporations and international organizations that have received supranational corporations' support and lobbying efforts are building global de facto rules regarding resource procurement and accounting. They are demanding that the Japanese government and corporations follow such new rules of the game as well.

“We have piped unto you, and ye have not danced” - The emergence of next generation's leaders

An increasing number of **new generation leaders are taking up on new ways of corporate management** as a reaction to the risks taking place in Japan today. There's even a movement called "**TEAM JAPAN**" formed by a group of such leaders who aspire to compete against supranational corporations by forming a unity amongst companies leveraging on Japan's uniqueness and strengths.

On the other hand, the vast majority of Japanese society is still suffering from lack of mobility in the labor market due to old employment customs such as life-time employment that are still effective today. These customs are encouraging employees to pursue stability and defer from taking risks, hindering many corporations from innovating or adapting to global changes happening today. **With such a large, stagnant workforce**, it is very difficult for leaders to steer the organization in the direction that he or she wants to lead. Corporations that have successfully shifted their course are limited to those where management has exceptionally high leadership skills.

While we are about to approach a world where individual productivity and power are greatly enhanced by technology and artificial intelligence, we have yet to see a global consensus on whether the private sector or the public sector is going to take the lead in technology governance.

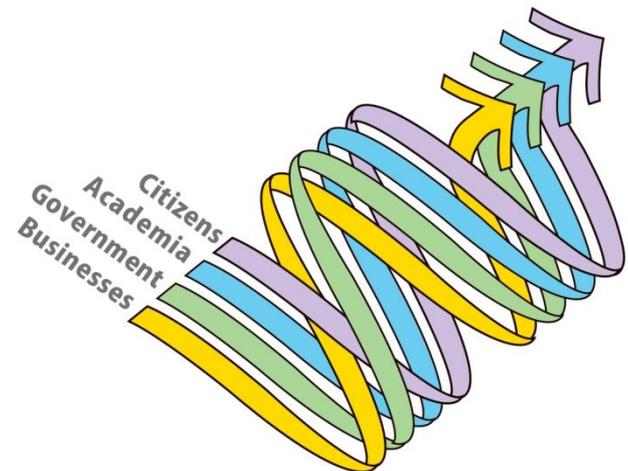
Especially in a country like Japan that the usage of technology is highly regulated, we can not keep up with the pace of technology advancements and are left behind in new technology usage. (On the other hand, citizens are keeping up with and leveraging new technology in most of the nations in the world that prefer to put legal restrictions in place only after deemed necessary.) This is one of the reasons why Japan has yet to see a radical shift in corporate management and working styles.



The Year 2030 – Scenario 4

The Quadruple Helix

–21st century with 4 sector synergies–



A season for change - Sector co-creation movement and the “2023 crisis”

Japan has experienced a “season of change” from the late 2010s to the 2020s. At the center of this era was the **“Sector co-creation movement” triggered by the 2020 education revolution and Tokyo Olympics.**

In order that these educational reforms set for 2020 be far-reaching enough to embody the ideals of “21st Century Scholarship,” these reforms must have serious and tangible outcomes extending beyond its initial rallying cry - for reformations in University entrance exams, the content and subject matter of University lectures, as well in academic counseling; to this end recommendations have been implemented to engage not just Universities and other entities in the education industry but also local communities, businesses, and individual citizens so that each and every one of them might contribute their own unique resources and opinions. Additionally, with regards to the Tokyo Olympics the concept of a “Social Olympic” was proposed and implemented, as a sort of ‘lever’ designed to encourage cooperation across otherwise separate sectors to address social issues and themes. **Beginning in 2020, partnerships have been made across sector boundaries - between business and government, academia, citizen groups (NPO, NGO) -** and this spirit of cooperation has continued to grow.

Furthermore, Japanese society had been shaken by the **“Post-Olympic Great Depression”** in the first half of the 2020s. Once the construction/real estate, transportation, tourism/entertainment bubbles created by the Olympics burst, an epidemic of technology replacing human labor quickly spread. This in combination with loosening termination guidelines produced an **enormous number of unemployed workers.** By 2022 **Japan's economic growth rate fell into the negatives.** In 2023 large protests were organized by mainly jobless millennials and women, calling their **movement the “Rebellion of the 99%.”**

In order to alleviate this situation, **the government, employers’ associations, and civilian representatives signed the “Komaba Treaty”** in December 2023 following **initiative taken by some academics** (Named as such after the location of the Tokyo University campus in which discussions were held). Looking at Netherlands’ Wassenaar Arrangement for improved **job security and work sharing**, and Denmark’s **Flexicurity** for generous prefecture-designated termination guidelines/social welfare (such as unemployment benefits) / active labor market policies (such as new technology learning support), the **“Quadruple Helix” model was adopted nationally.**

A season of Change that Japan faced in the 2020s. While there were some amounts of protesting, it is suggested that the springboard of Japanese society successfully overcoming this tumultuous period was the **increased levels of civilian engagement in politics** (as described above in the combination of the aforementioned education reformation and the “coevolution of education and political participation”), stemming from the 2016 decision to lower the voting age to 18. The ability of individuals to work independently while still cooperating with one another had created an ethic of “inclusion” across society that kept the crisis at a bare minimum.

The Quadruple Helix Society

Originating with the education reformation and the Tokyo Olympics, and building rapidly upon the “Komaba Agreement”, the collective output of the business sector, government sector, academic sector, and civilian sector is referred to as the **“Quadruple Helix.”** The term “Quadruple Helix” comes from the domains of city building and urban planning and it has been proposed as a fundamental guideline for producing innovation since the latter half of 2010s primarily in Europe. Its two contrasting points with the prior ‘Industrial-academic-government cooperation’ are as follows:

The first is how the **four sectors share a common vision for the future** and work together producing a synergistic effect. (In the prior “Industrial-academic-government cooperation,” each sector moved in vastly different directions, often finding themselves unable to cooperate effectively when partnering for certain topics and issues.)

4. The Quadruple Helix -21st century with 4 sector synergies- (2)

The other difference is the actions for **innovation by involving citizens and building consensus in a democratic manner**. In a conventional arrangement, for example, “Construction of Olympic facilities” and “Peace and well-being of near-by residents and immigrants” were handled as separate themes, leading to a lack of cross-thematic cooperation. The Quadruple Helix philosophy deems both matters - the Olympic Facilities and the residents - as integral parts of the community and takes a **‘human-centric’** perspective, thereby encouraging innovations and ideas across different themes and organizations. By now the notion that one should look to this “Quadruple Helix” philosophy in order to find solutions for social issues or to start a new business has become a mainstay of contemporary Japanese society.

21st century businesses balancing innovation and sustainability

Corporate management has changed due to the arrival of the Quadruple Helix society. There have been many examples of corporations **leading innovation through collaborations with various stakeholders** such as governments, universities, and citizens regardless of geographical restrictions and organizational boundaries.

Sharing of visions across sectors helped corporations become more aware of non-business related risks (such as weather changes, resource and food crises, and disputes) and incorporate them in their management strategies. There has also been an increase in the number of corporations **advocating for long-term corporate sustainability and inclusion of multiple stakeholders**, rather than solely focusing on short-term profits and shareholders’ opinions. These corporations are focusing on long-term research and development and opening of new markets, much to the investors’ and consumers’ delight. Japanese corporations are increasing their presence and leading the world as a global “middle power” by achieving multiple innovations in the field of **“circular economy”** (an industrial economy that is producing no waste of resources and products).

Corporate structures are also changing according to the Quadruple Helix model; many corporations are now aspiring to follow the **Holacracy model** that unleashes each individual’s potential rather than the hierarchical model that was dominant until the 2010s. An increasing number of people are leveraging the rapidly advancing technology to work in a flexible manner, overcoming job description, time, and geographical boundaries or restrictions. Labor legislation has also changed to support and accelerate such changes, leading to a formation of a society that encourages **diverse working styles**.

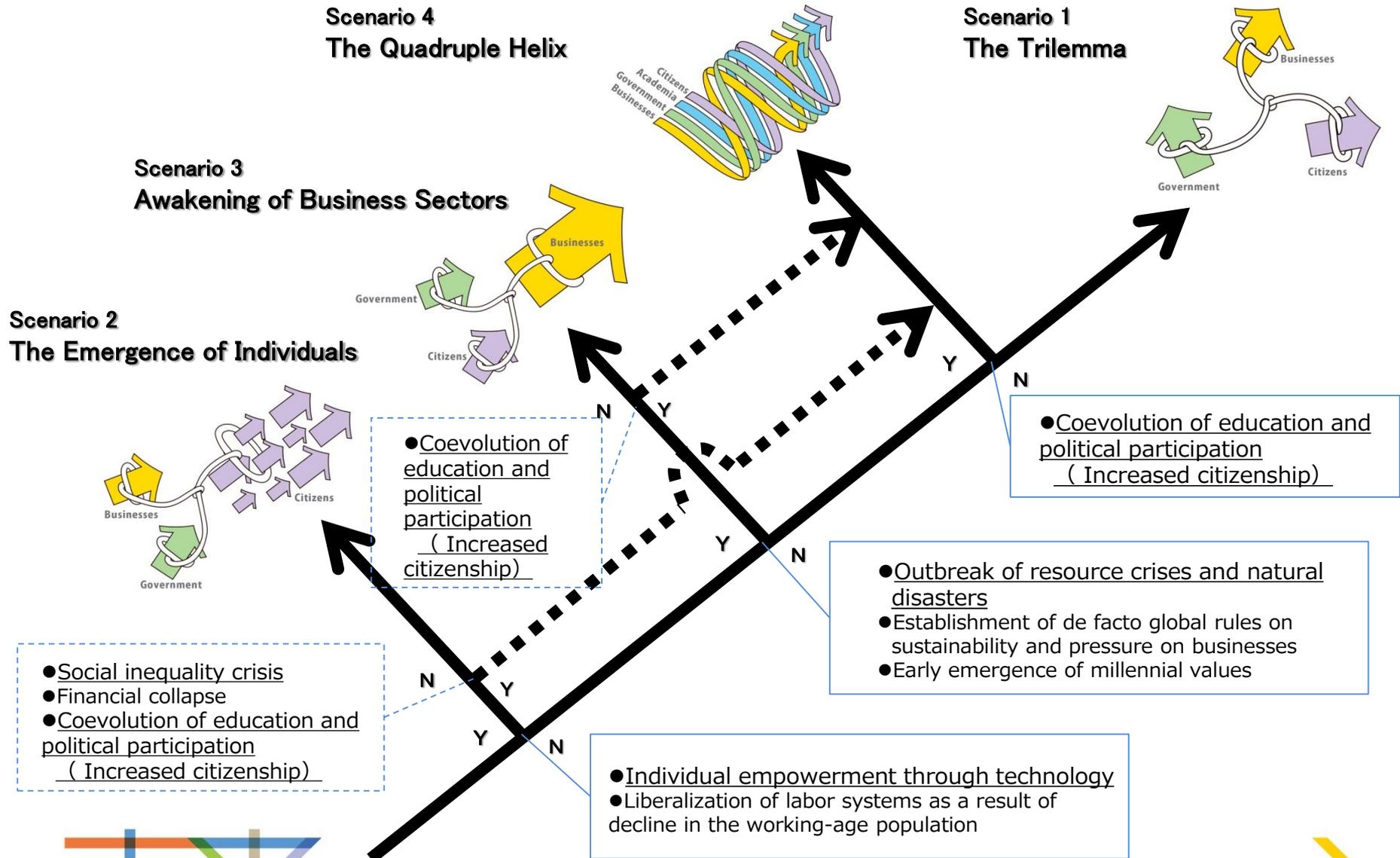
The sun rises once again

In a different perspective, we have entered an **era of self-responsibility**, where increased self-organization and independence gives birth to the widening of a gap between a small percentage of top talent and the majority “underclass.” However, Japan has avoided becoming a world where the weak are victims of the strong by **advancing its education system and increasing political participation among citizens**. Japan has been acclaimed for its ability to minimize societal costs by creating an appropriate social infrastructure to avoid the trap of increased inequality and unrest following increased freedom and self-organization.

A steady economic environment, a society that prioritizes diversity inclusion, and support for innovative social problem-solving - due to such changes, Japan and Japanese corporations are both shifting their focus from how to maintain their stance as a global economic power to **how to innovatively and efficiently become a middle power** in an era of shrinking population. Japan is prioritizing its efforts and resources on industries that it has unique strengths in - such as healthcare, environment, food and agriculture - to compete in the global economy, while contributing to the global movement of achieving sustainability.



Branching of the four scenarios



The Trilemma:

The lost half century

scenario. 1



Latent resource/food risk
Climate change/natural disaster risk
International political instability
Economic inequality...

Technology is advancing but...

Regulation of technology

Outflow of talent and businesses overseas



Difficulty innovating

Employees vs. Contractors



Things were good until the Olympics but...

People who live comfortably on past legacy



Profit Businesses

Vestiges of the high-economic-growth system



Shrinking domestic market



Long working hours
Low productivity



Difficult to change jobs or become independent
Lifetime employment restrictions
Difficult to take parental leave
But big companies provide stability...

Closed Government

Uniform Citizens



Lonely millennials

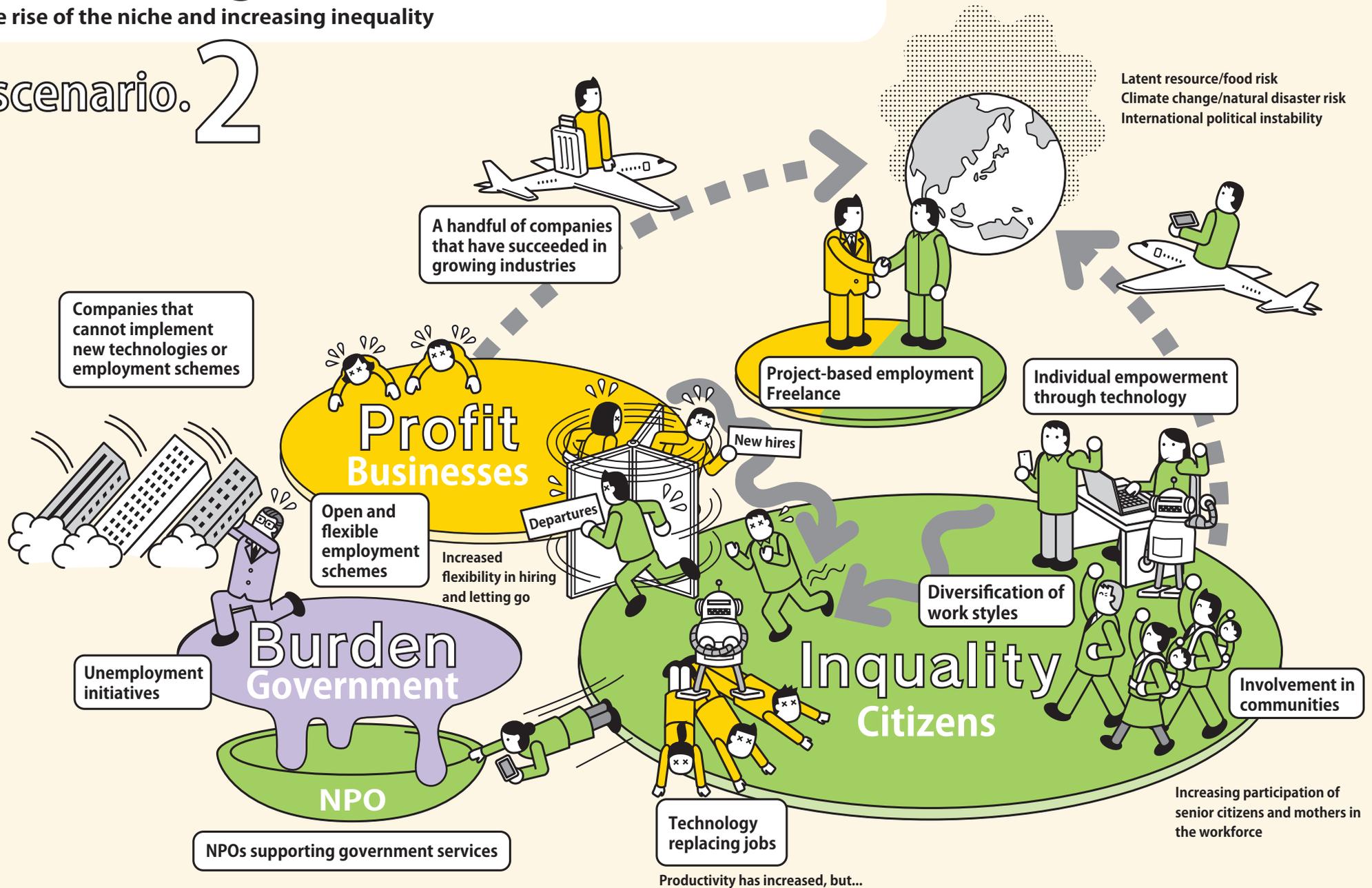
One-third of the population are senior citizens

2030

The Emergence of the Individual:

The rise of the niche and increasing inequality

scenario. 2

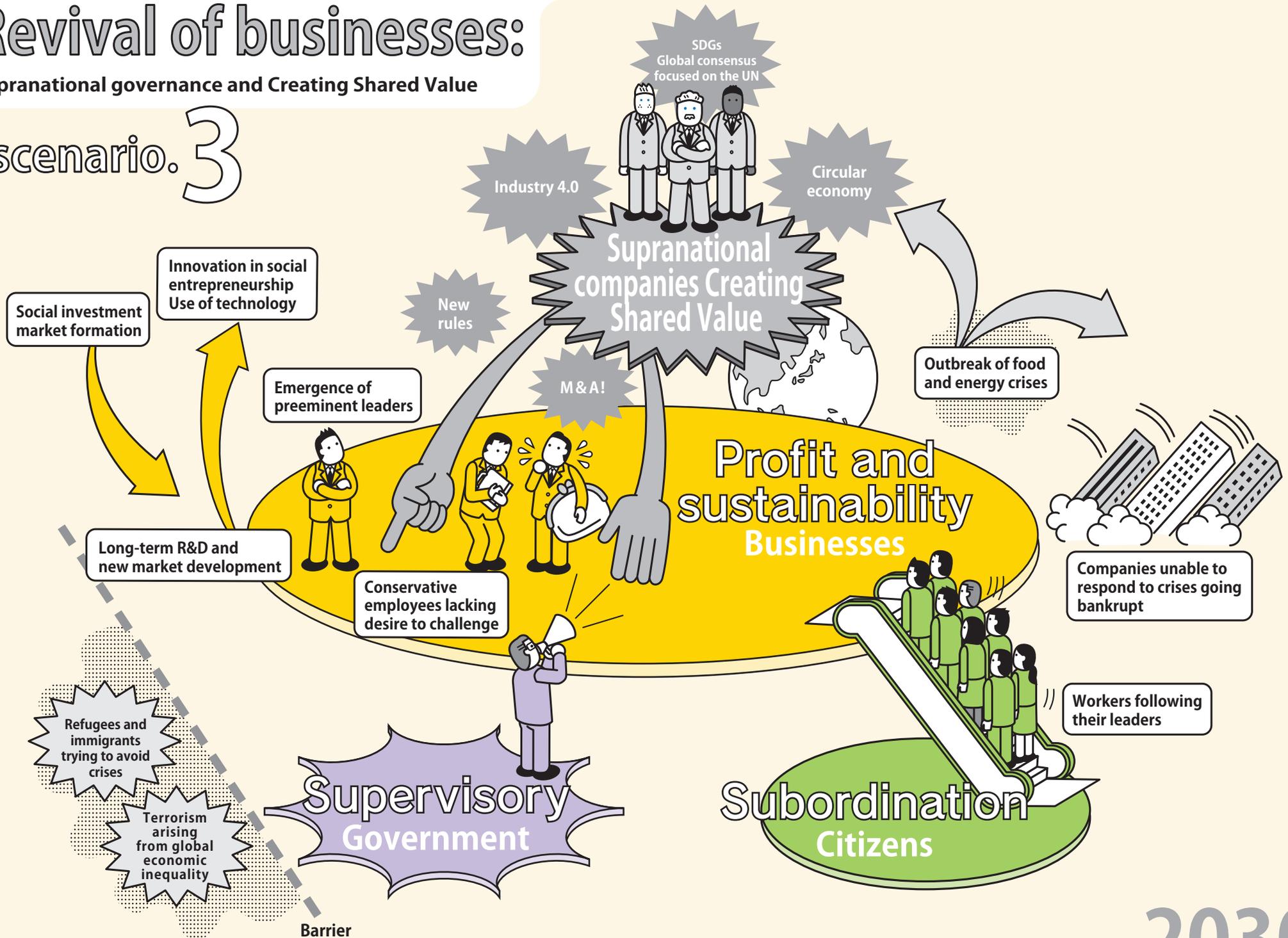


2030

Revival of businesses:

Supranational governance and Creating Shared Value

scenario. 3



2030

The Quadruple Helix Scenario:

21st century with 4-sector synergies

scenario.4

