# Roundtable on the Significance of the Scenario Approach in an "Age of Anxiety"

By *Japan SPOTLIGHT*

**Structural shifts in the international order and an aging society that is only getting older: our May-June 2018 issue "Anxious Individuals & Governments at a Standstill" covers many topics that require analysis from a long-term perspective.**

**It is always difficult to have an accurate take on the long-term prospects for the economy and governance on a global scale or the social structure at home. We are at a point in history of economic and social transformation that makes this an even more daunting task.**

**The scenario approach by Royal Dutch Shell suggests a way for governments and businesses to grapple with a wide variety of unexpected long-term risks. Masahiro Kakuwa was the chief economist at Showa Shell Sekiyu Kabushiki Kaisha until June 2017. Before that, in his early 40s, he spent three and a half years on the Shell scenario team at its London headquarters, where he immersed himself in the scenario approach. Kazumasa Kusaka, former vice minister for International Affairs at the Ministry of Economy, Trade and Industry (METI), has been a forceful voice for the importance of risk management as chairman of the Japan Economic Foundation (JEF). The following dialogue brings the thoughts of the two men together around the significance of the scenario approach in the "Age of Anxiety". The two are also colleagues as visiting professors at the Graduate School of Public Policy, University of Tokyo.**

**(Roundtable on March 7, 2018)**

*Kazumasa Kusaka*

*Masahiro Kakuwa*

## Material for the Scenario Approach

**Kusaka:** It is my great pleasure to have the opportunity for this dialogue with Mr. Kakuwa, who has long been associated with the scenario approach in Shell.

I am aware of the major contributions that Shell has made in oil and gas development, but personally I believe that creating the scenario approach and making it available to the rest of the world has also been a major contribution to humankind from Shell.

At JEF, our concern is that even as awareness of global risk grows, it has become difficult if not impossible to prepare against risks or to secure resiliency in our responses at the national, corporate, and individual levels with linear forecasts. We at JEF brought together corporate professionals in management and planning to set up a study group on global risk. Meeting once a month, we held the first annual symposium on the findings of the group in 2017.

The subject of this dialogue is to hear from Mr. Kakuwa how the scenario approach can help us handle global risk. With this in mind, I would like to take up the matter of "risks beyond our expectations". This is a favorite phrase of corporate management in the face of "tail risks" that they failed to respond to. But what does that mean? Whose "expectations" are we talking about here? Sometimes, they are the experts in a particular field. They could be in-house, or outside sources expressing their opinions. But it's necessary to

verify if something really was "beyond expectations". After all, an organization has its own mindset, its biases. In considering the ability to respond to risk, it appears that it is important to consider how specific organizations respond to specific risks.

There is also the question of the typical asymmetry between our knowledge of the past and our expectations for the future. We know what's in the past, but we don't know what the future holds. That said, we can learn from the past, and the extent to which that is possible is one perspective in dealing with risk.

Let's begin by looking at the national level. One example of an issue to which the scenario approach can be applied is climate change. The active participation of environmental NGOs, the media, and other players has led to some scenario approach-like efforts in the IPCC process, for instance.

Low birth rates and aging is another issue of relevance here. Here, it's not a matter of a tail risk that may or may not emerge, since we know for certain that it is going to happen.

Turning our eyes to politics, if politicians can only think about future issues against a two- or four-year horizon, well, low birth rates in an aging society are not a clear and present danger to them.

The scenario approach as it was originally conceived dealt with what to do if something that we thought of only as a tail risk actually happened. Will this approach be effective in dealing with issues that we know will happen, like the consequences of an aging society with low birth rates?

Another problem to consider is the fiscal debt. Here, the problem lies in the structure of the risk. The overarching point is that there is a risk that Japan may be headed for catastrophe as the consequence of a massive fiscal debt. On the other hand, if we levy onerous taxes on a fragile economy, the economy itself may suffer severe damage. There's a tradeoff here between two different risks. How can we get past this dilemma?

There's also the matter of the intergenerational tradeoff. If the current generation kicks the fiscal deficit down the timeline, it will be transferring the risk to people who do not yet have the right to vote, people who are not part of the current political process.

Another case of risk transfer occurs when instead of having the beneficiaries bear the cost, other groups are taxed so that they bear the burden instead. Foreigners do not have the right to vote, so tariffs are being used to make groups that are not part of the domestic political process bear the burden.

Going back to the issue of fiscal debts, even if raising the consumption tax rate in order to narrow the fiscal gap and sustain "high-level welfare with a high-level burden" is the better choice as a question of national governance, that would cause politicians to lose elections. Is it possible to create an environment in which politicians will not lose office when they make the better choice? For that to happen, it is necessary for voters to understand that "high-level welfare with a low-level burden" is not sustainable. Would the scenario approach be useful in convincing voters?

There are many other examples of tail risk, including security in Northeast Asia and the response to a massive flow of refugees from the continent.

In short, things went smoothly in a stable world just by having the economic players look to optimize outcomes in their respective circumstances. But when the assumptions for the long-term outlook shift, can Japan really respond appropriately like this?

Let's look at the corporate, organizational level. Things were the same in the world of business when the framework of the Cold War was firmly in place; management that sought to optimize outcomes within its own corner of the world as the logic of economics dictated was the best way to ensure survival. But today, the relationship between sovereign states has reverted to a classic, survival-of-the-fittest mode.

If that is the case, shouldn't people in business and finance be required to have true risk literacy, in geopolitical risk, in the country risk that comes with their investments? It is my view that it has become necessary for businessmen and businesswomen and bankers as well as public policy experts to come out of their stovepiped niches of expertise and adopt a holistic approach, to see the big picture.

Now the energy game has historically forced its players to take a holistic approach to international politics, security, domestic politics, and so on, and deal with a wide variety of risks. How does Shell view the areas that form the boundaries of the scenario approach? How does it consider the economics, the politics surrounding management analysis? Is the situation in the Middle East a consequence of those politics and security, for instance?

Or take the 2010 oil spill in the Gulf of Mexico caused by BP's offshore drilling rig Deepwater Horizon. It is said that the accident had its origins in a management decision. But how do you forecast risk and make choices when you adopt such a massive, complex

technological system? Is the scenario approach useful here?

My final example addresses an issue at the individual level. There is a group of occupations that require elevated levels of investment in education yet will be lost with the progress in artificial intelligence (AI). Software programmers and financial analysts are two such examples.

Previous industrial revolutions replaced unskilled labor with energy and machines. People were happy to be relieved of the backbreaking workload. Some low-skill jobs were lost, but the economy as a whole grew more quickly. When this process unfolded over, say, 30 years, whatever pockets of friction that arose could be handled by the next generation.

However, AI, being a creature of digital science, will come after the individual without giving him/her the time to respond, to adapt. How should we educate the next generation to prepare for this? This is where the scenario approach can make its greatest contributions in my view.

From the perspective of the individual, or educators, it will be difficult to deal with the rise of AI unless we change the lifetime employment mindset. Unless there's a human resources market for midcareer workers, people who fail in getting a startup off the ground will be unable to work as professionals until the next opportunity, when he/she can make another stab at a startup. One failure means that you can no longer find a bank to lend you money or investors to put up equity. My impression is that the reason that startups don't work so well in Japan is that handling risk is not well-integrated into a world of lifetime employment, that we have not been trained properly for a multilinear world at the individual level as well as society as a whole. I also hear that the Shell scenario team is a vibrant team, engaged in lively debate, anywhere, any time. I would appreciate it if you could talk about that a little as well.

## Scenario Planning & Environmental Issues

**Kakuwa:** I thought it would be interesting to look at what Shell's scenario planning actually looks like by talking about it in relation to global environmental issues. Shell first became aware of global warming as a major issue impacting management strategy around 1988. Shell came across it while they were analyzing risks regarding the Troll natural gas and oil fields, a major project that they were undertaking in Norway's territorial waters. I want to use this specific

example in order to address JEF's concern that one-track forecasts may be insufficient in preparing for risks and responding to them.

First, let me talk about scenario planning. At that time, Shell had a large-scale scenario work entitled "Global Scenarios 1989", which addressed the socio-political and economic development of the world in the future. This was an internal work, never made public. One of the scenario worlds was entitled "Sustainable World", in which all countries, developed and developing alike, were beset with pollution. The entire world would come together, developed and developing, the Soviets and their allies, the "Free World", they would all come together to clean up the Earth. This would draw the developing economies towards the industrialized economies, accelerating growth. Concern over the impact that burning hydrocarbon energy would have on the atmosphere would lead the world to shift towards the cleaner natural gas. What should Shell be doing then? That was the scenario story drawn up here.

"Global Scenario 1989" also included a narrative that stood in stark contrast to the "Sustainable World". This was the "Global Mercantilism" scenario, a survival-of-the-fittest world of international relations steeped in tension. This was a world where OPEC wielded power, nations struggled over resources, developed countries formed economic blocs, the economy and public finances of developing economies remained weak, and the North-South gap would only grow.

In this manner, you always develop multiple, different, future worlds with social, economic, and international systems constructed based on different sets of assumptions and logic. The Shell scenario team introduces the vivid simulated experience of different futures to the decision-makers to imagine as broadly as possible the various risks that may arise going forward. Different plural futures: that is the most important rule in scenario planning, be it Shell or anyone else; that is the basic rule.

Today, I want to focus on the "Sustainable World" scenario from "Global Scenarios 1989". The debate on sustainability began with the Brundtland Commission. Gro Harlem Brundtland, former prime minister of Norway, was commissioned by the United Nations to chair the commission, which launched a campaign on sustainability. *Our Common Future*, published in 1987 by the United Nations through the Oxford University Press, defines sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Here, the discussion is about intergenerational equity, or the issue of risk transfer to unborn generations.

Now, to change the subject, at the time Shell was responsible for designing the development and production facilities for the Troll natural gas and oil field in Norwegian waters. The Troll field is located in Norway's territorial waters in the North Sea. It was discovered in August 1979, 100 kilometers off the coast of Bergen at a depth of 300 meters below sea level. The supersized reserves were enough to sustain natural gas production for 50 years. In 1986, the Norwegian government and Shell entered into an agreement on a development and production plan.

Now, the "Sustainable World" scenario that was developed between 1988 and 1989 appeared and started giving a narrative of environmental degradation and pollution. Just about then, global warming was beginning to attract attention. They were the early years of the activities of the Intergovernmental Panel on Climate Change (IPCC). The first output of the IPCC was the publication of the first IPCC report in 1990.

Let's go back to the Troll project. By 1986, the specific designs for the vast production facilities on the sea bottom and the surface platform had been fixed, and production and budget plans had been agreed to with the Norwegian government. In particular, the construction of the surface platform at an astonishing cost had all but been contracted out when discussion over "Global Scenarios 1989" and how they should be reflected in the Troll project unfolded. There, it was decided that the project would be reviewed once again, employing the scenario approach.

That was when the issue raised by IPCC came within Shell's purview. The problem was that according to the draft of the first IPPC report, there was a case where the global sea level would rise by an average of one meter by the end of the 21st century. The production facilities of the Troll natural gas and oil field would be installed on the seabed 300 meters below sea level. The design called for the construction of a massive concrete structure weighing approximately 660,000 tons that would be affixed to the seabed, where it would withstand the powerful waves of the North Sea. The tension leg platform design that we use today was not applicable to the Troll project. So the platform would not float on the ocean surface. It would rise up from the seabed and tower over the sea surface.

The gas reserves were sufficient to sustain 50 years of production. In fact, last year, 22 years after the commencement of production, experts estimated that 50 more years of production would be possible. So the heart of the problem was this: since the platform would be fixed to the seabed, the distance between the sea surface and the seabed became an issue. Shell conducted a thorough review of the design. A one-meter rise of the sea surface might render the platform unusable, so they gave serious consideration to the risk of

global warming and a rising sea surface 50, 100 years in the future.

Ultimately, the Shell subsidiary in Norway began negotiating with headquarters to change the design. They knew that changing the design after placing orders would entail significant additional costs. Strength calculations, everything had to be repeated all over again, but the design had to be changed now to make the project sustainable for a long-term future. One of the most important sayings in Shell's management philosophy calls for "minimizing maximum regret". Shell might regret it 50 years later, so must take care of it now — and that was that.

**Kusaka:** The things environmental NGOs are saying today, Shell, on the business side, was saying 28 years ago. The North Sea is a tumultuous sea, so reinforcements cannot be made later; you had to make it robust enough from the beginning, correct?

**Kakuwa:** Yes. I was told by alumni of the scenario team that there was a ferocious internal debate. Shell is essentially a massive group of scientists and engineers, who want to see the evidence. To them, the scientific basis for the inference by the IPCC scientists seemed inadequate.

However, doubts regarding what could be done if the IPCC case came true prevailed, and headquarters approved the additional budget required. My understanding is that the design was altered to incorporate sort of jacking up systems into the core of the platform so that it would not be affected even by a significant rise in the sea level. That was their experience. Shell has been doing scenario planning since 1972, so they are very much used to handling unthinkable contingencies, I think.

**Kusaka:** One of the things that impressed me in what you just talked about is that even though Shell has superb inhouse human resources, it doesn't underestimate or disqualify analysis and information from external sources. Even though the work of the scientists gathered around IPCC may be at the initial stages and it appears that it is backed up by insufficient data, Shell still had the capacity to listen to those outside voices and take them on board as options for management decisions. I felt that this was one of the strengths of the Shell management and one of the keys to making the most of the scenario approach.

**Kakuwa:** It was in 1992 that Shell began releasing its scenario works to the public. Until then, it was an internal process undertaken mainly as scenario planning to examine projects such as Troll. My story is about that period.

This specific example is related to the challenge of the "unexpected". The "unexpected" is quite tricky because the utmost bounds of "expectation" is yet subject to Shell's inhouse recongnition. Some contingencies may well be counted even when there is little scientific evidence behind them. I believe that it is when you consider the extent to which you will be willing to prepare against them. In that case, it is meaningful to listen to external voices, or, say, to capture weak signals flickering outside.

Let me raise another issue. The low-carbon movement has grown dramatically in recent years. In the financial sector, the Task Force on Climate-related Financial Disclosures (TCFD) is calling on businesses to commit to an ambitious scenario in which global warming is limited to 2C° or less from pre-industrial revolution levels and suggests that businesses that do not make this commitment, particularly energy producers and high-energy consumption businesses, may become ineligible for loans and equity investments.

The Task Force is questioning the management strategy for the transition process to a low-carbon society. The financial sector says that the 2°C, even the 1.5°C that was adopted at the COP Paris Conference, should be achieved, that the transition to a low-carbon society should be quick, and that businesses receiving loans and equity investments should make the commitment to aim at a low-carbon society. Looking back on the Paris Conference, was the international decision made there based on a common super-long-term perspective for our planet shared by each of the participating countries? Or could it have been politics and diplomacy converging towards a somewhat unsustainable option, like the "high-level welfare with a low-level burden" option that you pointed to regarding Japan's fiscal woes? There is no denying that political and diplomatic negotiations can emphasize process over substance.

But this is not how risk management works. It would be truly wonderful if a low-carbon society can be achieved by 2050, but even if that does not turn out to be true, individuals, businesses, households and their livelihoods must be sustained. It is wrong to look at the 2°C scenario, see the 30-centimeter to 60-cm rise in the sea level calculated there, and use that as the sole assumption for calculating business risk. If we fail to contain the rise in Earth's

temperature to 2°C and the IPCC's so-called "baseline" scenario comes true, the sea level rise will be greater. For example, when you are now contemplating a large-scale infrastructure project in the Mekong Delta, is it sufficient to consider only the 2°C scenario?

I think that it is wrong to make the ideal transition process towards a low-carbon society as the only working assumption for the business environment. I believe that it is necessary to conduct scenario planning where other possibilities can be recognized to undertake a realistic consideration of the risks involved.

Being scientists, the IPCC scientists try to provide objective analysis. But the IPCC stands at the junction of politics and science. As such, when the IPCC message is distilled or summarized, it inevitably winds up being a message for the low-carbon movement, which leans towards the environmentalist movement.

**Kusaka:** There's a great gap between the IPCC reports and their summaries, isn't there?

**Kakuwa:** That's a matter of regret for the IPCC scientists. I believe that the role of the IPCC is to issue objective messages to make it easier for the general public to debate the issue.

Going back to the subject of our discussions, scenario planning is a valuable tool for risk assessment, a tool to facilitate decision-making by top management. My story of the Troll project is a story about putting a risk 50 years in the future into perspective. It was about how decision-makers placed their trust in the imaginative analysis of scenario planning and how this approach depicted detailed futures by using that imagination in the face of weak scientific evidence. I do believe that the decision-making process functioned as it should. The revision of the platform design was made on the basis of the best available albeit incomplete evidence.

**Kusaka:** This reminds me of how some members of the media seize on the 2% inflation rate that the Bank of Japan and the Japanese government aim to achieve and publicly question whether businesses are managing their affairs, raising wages to meet this goal. Some academics and businesses criticize this, and rightly so. Here, an honest debate is taking place. But when it comes to environmental issues, it is very difficult to challenge "the future as it should be".

**Kakuwa:** I agree. It's the same structure. Scenario planning is basically value-neutral. I think that it's not right to assume that a society has a specific purpose. We would rather take as the starting point the somewhat conservative but dispassionate analysis and account to the effect that the society that exists today is logically and completely coherent. Politics comes into play when you assume that society should have a specific purpose. The scenario approach can yield a phenomenological description of how the existing systems in a society function logically. A team of researchers from diverse backgrounds who have the insight to penetrate the world around us conducts an intensive investigation, and engages in deep dialogue to produce the scenarios.

To repeat, scenario planning does not assume that society has a purpose. It does not start from a critical approach to the status quo, where the future shape of society should be such and such and these are the areas where the shortcomings of the status quo lie.

## The Ethos of the Shell Scenario Team

**Kusaka:** What is so fascinating about Shell is that the company is the child of Britain as the mother and the Netherlands as the father. Which parent's genes have the greater influence on scenario planning? Or could it be that the scenario team may be multinational but the people trained at Oxford and Cambridge, regardless of their geographical origins, serve as the key support for this method?

**Kakuwa:** It was a Frenchman who introduced the core ethos of the scenario approach. Pierre Wack was a mystic who did a lot of meditation, someone who had personally developed the ability to understand the essence of things intuitively. Wack was chief economist in Shell Francaise. He was called up to headquarters to establish the scenario team.

His writings never fail to inspire. His library is preserved at Oxford University. It is an important font of inspiration for scenario practitioners. Last year, Professor Thomas Chermack published a study on Wack entitled *Foundation of Scenario Planning: The Story of Pierre Wack* (Routledge, 2017).

I joined the scenario team at the Shell headquarters in London in 1992. As a multinational company, Shell pays great attention to balance, be it careerwise or race, age, gender... Half of us had academic backgrounds. The members were all highly committed,

and I was fortunate to be able to learn from so many different people. Before I was called to join the scenario team, I had started off my career on a day and night shift at an oil refinery for 10 months, then I engaged in purchasing crude oil for refineries, handling oil tankers, and international oil trading, so, frankly I knew nothing about scenario planning. I suppose that everything just happened to come together at the right time for me as my aptitude, namely my home country, major in studies, and business experience happened to be what the scenario team had been looking for. After I left the team, no Japanese was added for 20 years. Finally, three years ago, a Japanese was chosen. Now, I will be able to pass along my skills and experience to the next generation.

Every few years since 1992, Shell has been publishing global scenarios however; the primary task of the scenario team is to provide risk analyses for individual projects. Projects that are expected to require large amounts of financing or are likely to encounter difficulties in reconciling the interests of the stakeholders, present and future, are appropriate for scenario planning. Every few years, the Shell scenario team takes the experience gained from the considerable numbers of researches and project scenarios, and distills the different views from around the world, newly emerging circumstances, and the spirit of the times into a Global Scenario that Shell presents to the public.

Jeremy Bentham, the current head of the scenario team, has said something like the following about Shell's scenario planning:

> Other organizations also do scenario planning, and the Shell method can be copied. If they like, they can hire consultants and have them write scenarios according to the formula. But the Shell scenario planners have been working on the latest ideas worldwide for the last 40 years, engaged top management by discussing "what if" possibilities, issuing papers, seeking out occasions for presentations, and otherwise continue to stimulate decision-makers subtly and quietly. Shell management has also recognized this challenge as a valuable activity and has invested in this approach to this day. This "learning organization", scenario planning supported by a liberal open-minded corporate culture, can never be copied by others.

Jeremy is stressing the importance of a liberal, strongly committed, highly inquisitive scenario team and the sound relationship between the team and decision-makers.

Finally, I am seeing the sustainability movement as a normative movement, one that seeks the convergence of all the potential paths that society may take going forward. Of course, I agree with the philosophy behind it. There's no way I could object. But everyone is on board for sustainability: CEOs, employees, politicians, bureaucrats, NGOs, academics and researchers, schoolteachers and students, the mass media, everyone. There's no competition here, no room for innovative ideas. People working on innovation and startups should compete in a more competitive environment. Only then will interesting things happen; only then will society be invigorated.

## The Importance of Scenarios from Multiple Perspectives

**Kusaka:** It is true that the main strength of the IPCC process is that it is based on academics, on refereed research papers. But there are many papers that have shortcomings because they reflect the biases of people who lean towards environmental activism. Still, the IPCC subcommittees are run objectively and neutrally. But as you mentioned, the summaries have become the subject of political gamesmanship. Then there's the further bias imposed through media coverage. So your suggestion that we should go back to the original

source, the original analysis, makes sense. We shouldn't start with the summary, correct?

**Kakuwa:** I think so. But, businessmen and businesswomen are too busy to look to them for this, so this is where the intellectuals come in. There, in contrast to talk shows, the intellectuals put forth reasoned arguments in areas they are familiar with, exercising self-restraint and courage. The only rule there is that you must air your views accurately and responsibly. On the other hand, you are required to listen to the experts in fields that are unfamiliar to you, carefully, without prejudice. I hope that such a healthy world of public intellectuals exists in Japan.

I believe that the scenario approach is a useful platform for this. There are no statistical data on the future that can be referenced, so it's only fair to place the knowledge and insights of a wide range of people against multiple visons of the future and treat them equally. For example, if there are three very different visions of the future, the rule of scenario planning requires the construction of three different future worlds that can provide the subjective psychological experience of equal probability. This enables us to write down the thoughts of a wide variety of people in parallel and present them as narratives. I believe that this is a particularly effective framework for participation by civil society in the debate over public policy.

## The Significance of the Scenario Approach for Business Management in Japan

**Kusaka:** In his book *The Black Swan: The Impact of the Highly Improbable* (Random House, 2017), Nassim Taleb talks about events in the world of financial markets that cannot be predicted but have an enormous impact when they do occur. Still, governments and business management must construct business plans based on the most likely future events.

With regard to today's keywords "minimize maximunm regrets", the average Japanese business faces institutional constraints from the need to draft management plans and produce results within a specific timeframe: quarterly numbers, a mid-term plan covering a minimum of three years, and the regular turnover of corporate presidents. A tail risk by contrast is a time bomb: in the case of the Troll offshore platform, a one-meter rise in the sea level over the next 100 years, an analysis warning that was not publicly shared at the time. It's not going to happen under the current CEO; it may not happen under the next one either. How does top management, under the pressure of being expected to continuously produce results, and in the short-run at that, grapple with this tail risk?

Another thing. If the scenario approach becomes part of corporate culture, part of the culture of society at large shared by everyone, the issue of tail risks will be raised as a matter of course by institutional investors. The question is when once this kind of culture has evolved in institutional investors, all might start asking business entities whether they are conducting the proper scenario-type exercises to minimize potential regrets.

Of course, progressive business organizations will undertake to do this even when such a culture has yet to widely develop. Is dealing with tail risks a feature of the corporate culture at Shell? Are there differences among businesses? Is this thought process already adopted in the business world, or is it work in progress? What are your views about this?

**Kakuwa:** That's a very important question. There are certain strategic decisions made now that will cause people to look back 20, 30 years from now and question the accountability, at that time, for the original decision-making process by the business or government. I think that in the world of money, money moves quickly, hence that kind of protoracted review of decision making in the past may not be quite appropriate. In any case, there's the idea of "path dependency", which means that a decision made today binds management for a long time, that it is difficult to shift from a predetermined trajectory. There is a clan of businesses for whom path dependency is a matter of significance. They must take long-term uncertainty and risks into consideration.

For example, if you are building a power plant, you want it to be in operation for at least 30 years. You are making a major decision about something that you expect will be earning money for the next 30 years even though there could be many changes in Japan's energy policy. If you are in that kind of business, you must be particularly mindful of changes in the long-term business environment.

To take another example, Hitachi is committed to the British railway market. It is even committed through the operation stage. So, it will have to make money over the long-run there even if there could be many changes over the course of the future. Recently,

Japanese businesses are going out to seek their future in the overseas infrastructure market. To make money over the next 20, 30 years, they must take a close look at the country risks out there. Scenario planning should be effective for such businesses. Actually, the Shell scenario team has undertaken many projects to look at country risk on the ground. In fact, they are the most numerous projects that it has. The team has much experience in this field, although I was unable to touch on them today.

Now, Nassim Taleb was a trader. I used to be trader myself, so I know how it was like. A trader in his heyday engaged in endless, super-short-term, scenario analysis. We had no AI-enhanced computer programs to determine the direction of the market the following day. Instead, it was the intuition of the trader that performed the task. That trader would compose a narrative that was based on his/her conclusion from a set of assumptions about factors and cause and effect, and that would lead to conviction about the direction of the market. Of course, the trader, self-satisfied in his/her analysis and world view, could think twice, and just as easily decide to go in the other direction and bet on a market downturn. To put it another way, traders looked at the market as possible causal stories, passing by, coming to the front, and they weaved their own opinions from multiple directions.

But *The Black Swan* tells a story that is actually quite troubling for practitioners of scenario planning. Specifically, the book makes a powerful argument that the systems of the world are connected in unpredictable and complicated webs of cause and effect so that when an event occurs, it is impossible to foresee what will happen next, to see what risks will be generated as a result of the event. This is an argument that has been put forth from complexity science, a daunting challenge.

However, if we throw up our hands and say, "It's a conundrum, we can't form any expectations," all we'll have left to deal with in handling risks will be "resiliency" or "adaptation". But that's not how the decision-making process in governments and businesses works in the real world. If you don't have a narrative that goes something like, "these changes should occur, which should lead to this, we should place our bets on this window of opportunity, but if we're wrong, we'll be exposed to risk here, which we'll make provisions for", a powerful story explained through causal relationships, there's no other way that they can discuss in management committees. The people sitting in on these meetings are all self-assured successful people with healthy intellects, ample experience, and the ability to use the power of logic and intuition to think through issues. If all we can say is that "to be honest, complexity science tells us that there is no way of knowing how widely future risks will spread in this project" or that "this is the outlook, or so AI tells us, now my colleague, the ball is in your court", it will be by no means difficult for top management to make strategic decisions through earnest discussion.

**Kusaka:** It's often said that generals are always fighting the last war. They seek the equipment, the troops, and the tactics that will enable them to further refine the war that succeeded the last time. There is a certain logic to this, but it lacks the imagination to consider the possibility that they could be fighting a different war the next time around.

We learn from existing knowledge and expertise and apply it to existing problems. But new problems can always arise, as well as new risks. The scenario approach is valuable because it enables us to determine whether these often low-probability risks could leave us with serious regrets regarding our businesses, projects, and even sovereign states if they actually come true. JS

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