



IMAGINING THE GREAT UNKNOWN

Using Scenarios to Plan for Tomorrow

By MIKE ROSENBERG

In these times of uncertainty, the only thing we can know for sure is that the future will be different from what we expect. How does a business leader deal with this?

One valid strategic approach is to develop business models and capabilities that are tremendously flexible, so that a company can change or pivot, depending on how things go. Such efforts can be effective.

Many firms, for example, have drastically lowered their break-even points and moved toward outsourcing aspects of their operations as a result of the recent economic crisis. While this may give them some additional flexibility,

there is a limit to how far this approach can go.

Especially in industries in which fixed assets with significant useful life spans factor heavily – such as energy, shipping, manufacturing and mining – new investments must remain viable for a period of at least 10 or 20 years. As such, managers must place relatively big bets on what they believe the future will look like.

Firms in services or retail have to contend with another set of issues. Developing new capabilities takes time, while consumer behavior changes constantly and at an ever faster pace. The media industry, for example, faces unprecedented change as a result of digitization,



but it is still far too early to tell what the industry will look like in the not-so-distant future.

Business planners may resort to forecasting, using formal statistical methods to estimate outcomes at some future point in time. But I believe that scenario planning is a much better tool for business leaders to use in order to deal with the uncertainties they face. This article will show you how.

The Limits of Forecasting

Think of some of the truly game-changing tectonic shifts in the business landscape over the past several years: the explosion of smartphones, tablets, apps and the pervasiveness of social media platforms; the rise of China as a global economic powerhouse; or even the financial crisis of 2008-09. None of them was forecasted.

Forecasting is a person's best guess about the future. The problem with forecasting is that it assumes that the future can be predicted with some degree of certainty. Unfortunately, it can't.

Take the issue of climate change. The Intergovernmental Panel on Climate Change (IPCC) brings together scientists to review

and assess the most recent information available today, in order to try to identify potential environmental and socioeconomic impacts for tomorrow. In its 2007 Assessment Report – the latest available until the next report is published in October 2014 – the IPCC projected sea levels could rise by as much as 59 cm (23 inches) during this century.

The problem is that the planet is an extremely complex system. Positive or negative feedback loops might affect the Earth's climate much differently from any of our best projections. We might achieve an unexpected equilibrium, with relatively little impact on temperatures or sea levels. On the other hand, things might get hotter sooner. Indeed, an interim report published by climatologists asserts that the sea-level rise was underestimated, and Arctic melting might be happening faster than the IPCC predicted.

Take another timely example that is frequently the focus of forecasting efforts: oil prices. Managers typically use formal valuation methods and tools to try to predict with a degree of certainty what prices will be like down the road, so they can allocate resources and invest accordingly. But as far as Royal Dutch Shell is concerned, applying standard forecasting methods to oil prices "has been very costly" and, to put it even more bluntly, "has failed" (see **Exhibit 1**).

Although forecasting methods do try to incorporate, or at least acknowledge, some level of uncertainty in their calculations, they are not very reliable guides for the long-term future. Computer-model forecasting has its place: It can be useful for making short-term budgetary decisions. But once you start projecting 50 or 100 years into the future, so many variables enter into the equation that your guess becomes as good as mine.

Instead, scenario planning offers a fundamentally different way of anticipating the future that makes it superior to forecasting. To start with, it has, at its heart, the idea that the future *cannot* be known.

Forecasting is predicated on "If X continues to grow at current rates," which assumes tomorrow's conditions and context will be pretty much the same as today's. The fact that this isn't the case is scenario planning's starting point. It's about thoroughly exploring what *might* happen, and engaging in specific pro-

■ EXECUTIVE SUMMARY

While business planners often resort to forecasting to estimate outcomes at some future point in time, the author believes forecasting has serious limitations and is not a reliable guide for the long-term future. Instead, he recommends scenario planning as a superior way of envisaging the future, in order to help managers see the business environment more clearly and make better strategic choices.

Using the considerable experience of Shell in this area, he sets out a simple seven-step scenario planning process, which managers can use in one day or two half-day workshops. Doing this will bring organizational learning, challenge ex-

ecutive assumptions, broaden management perspectives and help everyone to see the business environment in which they operate as a complex, nonlinear system.

This article includes an interview with Angela Wilkinson, who spent a decade as a leading member of Shell's global scenario team. She shares from her own personal experience of using scenario planning, suggesting who and how many should be on the team, and how often scenarios should be revisited. "In today's world of uncertainty, it's not enough just to analyze situations," she says, hinting at a new approach she calls "collaborative futures."



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cesses to develop plausible alternative futures.

So, while not many people had ever heard of, let alone forecasted, apps and subprime lending, nor their profound impact on all our lives, such things had been imagined and discussed by some companies who had envisaged what *might* happen, rather than trying to predict it.

Scenario Planning: How It Started

Royal Dutch Shell is widely acknowledged as being one of the first companies to use scenario planning effectively. For four decades, scenario planning has played a significant role in Shell's strategic decision-making processes, influencing its upstream and downstream investments.

In the late 1960s, Pierre Wack, a French executive based at Shell's London headquarters, was experimenting with unconventional ideas about "seeing the future," which seemed more the preserve of mystics than managers.

Wack and his team began by looking at the facts before them, but they didn't let those facts point them in straight lines to foregone conclusions. Instead, they used those facts as creative jumping off points to imagine different worlds, or scenarios, beyond what the facts said.

With no serious disruption in oil supplies since the Second World War, the facts said

there would be continued, sustained expansion and growth for years to come. Wack's team imagined something quite different: a changed geopolitical context, leading to a disruption in oil supplies, a subsequent rise in oil prices and various knock-on business effects.

Of course, this is exactly what did happen in 1973, when the Arab members of OPEC declared an oil embargo in protest against the West supporting Israel in the Yom Kippur War. Within weeks, the price of oil skyrocketed from \$3 to \$12 a barrel.

Thanks to scenario planning, Shell found itself one step ahead: Managers in different parts of the company had already made a number of strategic decisions and investments to diversify into other energies, such as coal and nuclear power, and to other oil fields in the North Sea, to be less dependent on the Middle East. Such measures enabled the company to emerge from the shock in relatively good shape.

This initial success lent credence to scenario planning, and the Shell team was empowered to take these ideas further. Since then, Shell has become a leading example of how an organization can use scenario planning successfully.

Besides Pierre Wack, a number of influential business thinkers have emerged from Shell over the years, including Peter Schwartz, whose books, *The Art of the Long View*, and more recently *Inevitable Surprises: Thinking Ahead in a Time of Turbulence*, have become required reading on scenario planning. It was during Schwartz's tenure in the 1980s that Shell anticipated the collapse of the Soviet Union and positioned itself for the eventual opening up of Russia and Eastern European markets nearly a decade before that actually happened.

Shell regularly publishes its scenarios (www.shell.com/scenarios). I use the publication "Shell Energy Scenarios to 2050" in teaching sustainability to MBA students and Executive Education participants at IESE Business School. Some of the ideas for this article are distilled from Shell's sophisticated work in this area.

This article is also based on my own professional background working in the automotive sector and offshore drilling industry, and my consulting work and custom programs developed for such companies as Faurecia, Gamesa, Henkel, J. Lauritzen and Rabobank.

While Shell is a good example, not all firms need to spend the time and resources that Shell

■ ABOUT THE AUTHOR

Mike Rosenberg is an assistant professor of Strategic Management at IESE where he teaches on the MBA and Global Executive MBA programs on issues related to strategy, globalization and sustainability. Between 2004 and 2009, he managed IESE's International Executive Education Unit and is currently the academic director for the Advanced Management Program in Media & Entertainment at IESE's New York Center.

Prior to joining IESE, he worked at Heidrick &

Struggles and spent 15 years as a management consultant in Europe, North America and Asia for A.T. Kearney and Arthur D. Little, primarily in the automotive sector. He began his career as an engineer for Sonat Offshore Drilling, involved in the design and construction of offshore drilling platforms in the United States, Norway and Japan.

He has a Ph.D. from Cranfield University, an MBA from IESE and a B.S. in engineering from the University of Michigan, Ann Arbor.



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does on scenario planning. However, in my view, all firms should engage in some form of scenario planning.

Experimenting With Scenarios

There are many possible approaches for developing scenarios. The process for a specific company should be chosen in light of the objectives of the exercise, and the time and money available.

For firms interested in experimenting with the concept but not yet ready to embark on a major effort, I would recommend the following process, which can be done effectively in one day or two half-day workshops. See **Exhibit 2**.

1. CONVENE SCENARIO PLANNING TEAM. You first have to select which members of the management team are going to be involved in scenario planning. The process should include, at the very least, the senior management team of the company or business unit, but, if possible, ought to be pushed further down in the organization to the degree that this is practical and possible.

I believe the reason Shell is so good at scenario planning is because they have a significant commitment from senior management to support the scenario planning team, as well as a large number of executives who are actively engaged in the process due to their own conviction of its value. This is key.

Apart from the commitment and conviction of everyone involved, it is important to ensure a great deal of diversity among the participants, so that the scenarios will be as rich and complete as possible.

2. DIVIDE INTO GROUPS. Next, divide the participants into two groups. Each will work separately on developing two scenarios for the future, one optimistic and the other pessimistic. Again, pay attention to the diversity of each group.

3. IDENTIFY ISSUES/DRIVERS. Each group needs to identify which are the issues or drivers that will most affect the future environment for their business or sector.

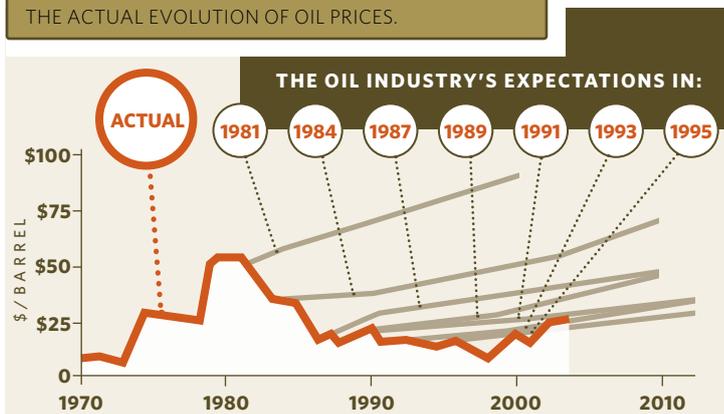
4. TAKE TO EXTREMES. Work out the time frame of the exercise. The time frame needs to exceed the normal planning horizon of the business. Participants need to look far enough into the future so they can freely use their imaginations and not be overly bound by their assumptions about the past or present. For many businesses, this might be 20 years; in a rapidly changing sector, such as information systems and technology, or consumer electronics, it may be 10 years. Whichever time frame is chosen, just make sure it is long enough to get people out of their day-to-day thinking.

Then, using the issues or drivers that you have identified in the previous step, you need to take these to extremes for the given time period. The optimistic team will imagine the best environment possible for the business, while the pessimists will develop the worst environment possible. For both groups, they

The Failure of Forecasting

EXHIBIT 1

INDUSTRY FORECASTS HAVE NOT MATCHED THE ACTUAL EVOLUTION OF OIL PRICES.



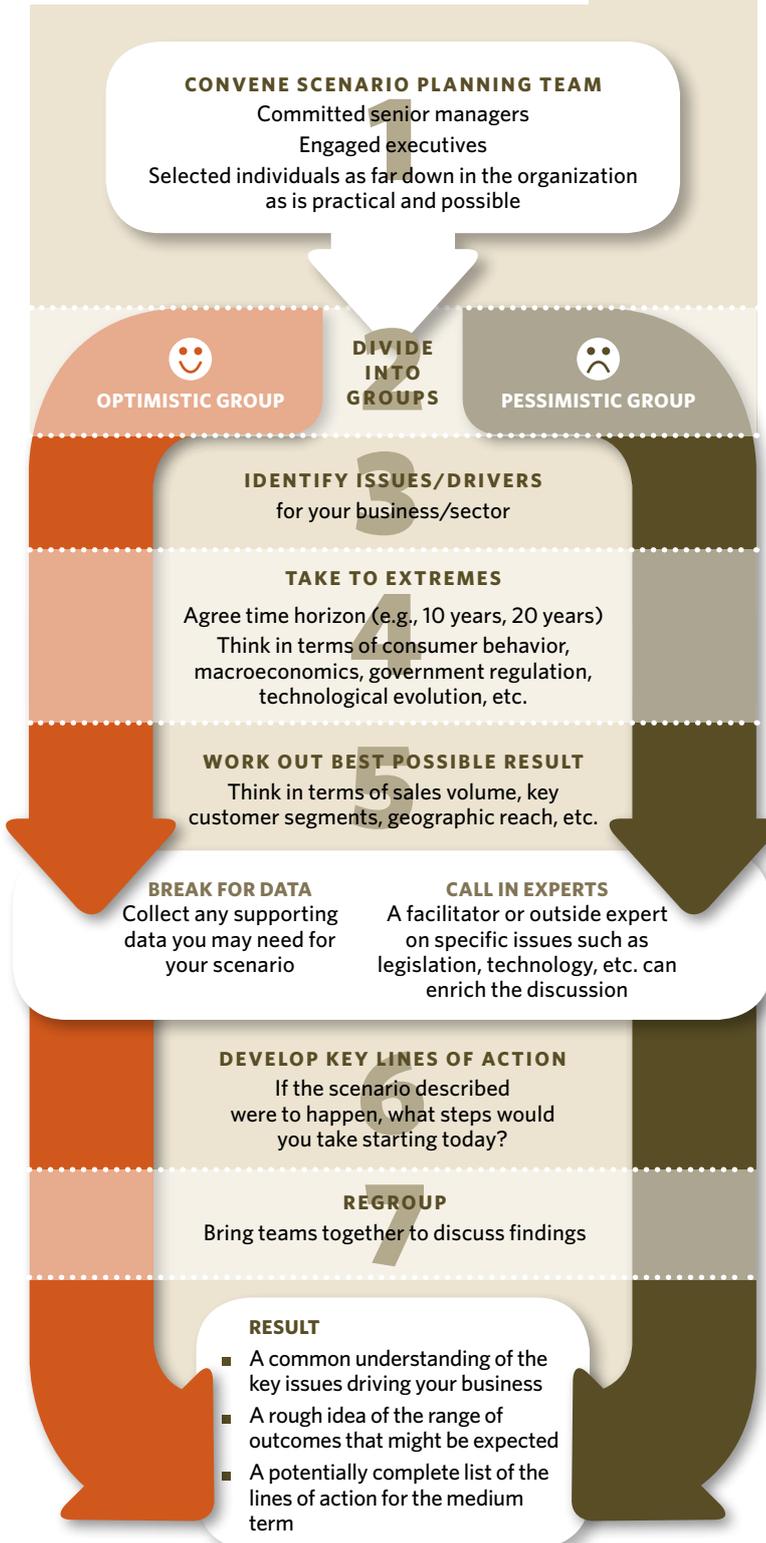
SOURCE: "Scenarios: An Explorer's Guide" (Reproduced with permission of Shell International)



Scenario Planning Process

EXHIBIT 2

THIS PROPOSED EXERCISE CAN BE DONE
IN A ONE-DAY WORKSHOP.



need to think in terms of consumer behavior, macroeconomics, government regulation, technological evolution, and so on.

5. WORK OUT BEST POSSIBLE RESULT. The next step is for both teams to work out the best possible result for the company or business unit in the positive or negative environment they have created. This can be taken to different levels of detail, but should include, at a minimum, sales volume, key customer segments, geographic reach, and so on.

6. DEVELOP KEY LINES OF ACTION. Each team needs to identify and develop key lines of action that should be undertaken by the organization in order to achieve the results discussed. If you were certain of the future environment that you have just described, what specific steps or actions would you take – starting today – in order to secure the best possible result?

7. REGROUP. Once all these steps are done, the final part of the process is to bring the teams together and discuss both teams' findings together. What emerges from this discussion is a common understanding of the key issues that are driving the business, a rough idea of the range of outcomes that might be expected, and a potentially complete list of the lines of action that the group, as a whole, could consider over the medium term.

Break for Data, Call in Experts

One issue that often arises during this process is the availability of data. When discussions stray outside the normal competence levels of the management team, it may be impossible to project the evolution of critical issues that are such big unknowns for those involved. Or it may be that one participant has much more information than any of the others.

There are various ways of handling this. One is to break the workshop into two parts, allowing some time for data collection before deciding on your key lines of action.

Outside experts can be called in. These could be experts on specific issues, such as legislation or technology. Their insights can add richness to the discussion and fill in any missing details. Or they may be skilled facilitators who help to guide the whole scenario-building process. While there is wide litera-



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ture available on scenario planning, an expert facilitator can give more detailed guidance and make the basic process that I have just described even more effective. Such input can be especially valuable during the final steps.

Another option may be simply to recognize and accept the limits of having incomplete data. Perhaps the main benefit of this exercise is the shared learning and consensus building on the various issues confronting your company, rather than banking on the actual accuracy of the scenarios developed.

For Pierre Wack, the most valuable outcome of engaging a group of executives in scenario planning was the learning that occurred by going through the process. Executives' assumptions about the future are made explicit. Incorporating multidisciplinary viewpoints serves to broaden management perspectives. They begin to see the business environment in which they operate as a complex system, and they realize that they need to allow for non-linear effects.

Be Prepared for the Challenges

Some words of warning regarding scenario planning. First, this is not something that should be undertaken lightly. Developing in-depth, meaningful scenarios requires considerable time and effort, which not all companies feel they can afford, especially given the current economic climate. On the flip side, companies must ask themselves whether they can afford *not* to do scenario planning, given that it is the ideal tool for helping managers consider strategic options for just such uncertain times as these.

Second, using scenarios in planning decisions is undoubtedly challenging. It's one thing for managers to develop alternative visions of the future, and quite another to let those visions have bearing on day-to-day decision making and practice.

Shell, for example, requires large capital projects to show how their returns will change

under different scenarios. A range of possible outcomes will be factored into any decision to proceed with a project or not. This kind of rigor is necessary, albeit difficult to employ. Yet if scenarios are not used for making decisions, then all the time and energy that went into them will have been wasted.

Finally, many firms publish their scenarios internally, and this can be effective in preparing the people in the company for change. However, simply reading a set of scenarios prepared by others does not promote the vital learning mentioned earlier. It may even cause confusion in the minds of certain people, if they see a future organizational vision with them or their business unit severely downgraded or not even represented. That's why it's so important that as many people from across the organization as possible are included in this process.

The more I read about emerging trends, and the more I work with executives from a wide variety of industries and countries, the more I am convinced that we are living through an unparalleled period of fast change happening on multiple, complex levels. We can't change the fact that the future is, by nature, uncertain and unknown. Certainly, we must do all we can to forecast specific trends and gather as much data as possible. But this must be allied with a scenario planning process, which for me remains the best way to develop the mental agility that is needed to cope with whatever lies ahead. □

■ TO KNOW MORE

- The booklets "Signals & Signposts" (2011), "Shell Energy Scenarios to 2050" (2008) and "Scenarios: An Explorer's Guide" (2008), for those who would like to build and use scenarios and enhance their scenario-thinking skills, are all available for free download from www.shell.com/scenarios



“We continually make up stories in our heads to rehearse the future.”



SCENARIO PLANNING: AN INSIDER'S VIEW

Angela Wilkinson is the program director of the Futures Directorate of the Smith School of Enterprise and the Environment (www.smithschool.ox.ac.uk) at Oxford University. In this interview, she elaborates on how scenario planning works from her perspective as a former member of Shell International's Global Scenario Team.

How valuable is scenario planning as a decision-making tool?

A lot of people look to scenario planning to help them make decisions under uncertainty. Based on our research of Shell's 40-plus years of scenario planning history, we can find evidence of when decisions seem to have followed from Shell's scenario work – for example, its shifts out of coal and into renewable energy.

But scenario planning is different from “predict and control” decision making. Normal decision making is about getting a consensus as quickly as possible, based on either what is most likely to happen or what we would like to achieve, and then moving to implementation and monitoring progress, to see whether it's working or not.

In contrast, scenario work always encourages people to engage with uncertainty and think about what's beyond their control. By revealing

and respecting different perspectives, scenario planning creates a vital space in any organization to manage disagreement as an asset.

If you think about it, we're intuitively building scenarios all the time: Should we have a barbecue this weekend? What if it rains? We're thinking about things that might happen, whether we'd like them to or not – things that might help us or hinder us from what we're trying to achieve. We continually make up stories about the bigger picture in our heads, in order to rehearse the future and plan more effectively.

As such, scenarios are “pre-decision frameworks,” not just decision support tools. Even before you know what decisions you've got to make, you need a way of thinking about and framing the challenges. Scenarios harness our intuition into stories. These stories are vital in enhancing our quality of judgment. They also

support the “necessity of numbers” culture in business by making explicit the stories behind the numbers. It enables a process of *quanti-fiction* rather than quantification.

Who should be on the scenario planning team?

The team should include a good mix of optimists and pessimists, different cultures and disciplines. You want people who are curious and open to thinking about new ideas. You don't want people who are dogmatic, who are just trying to push their own ideas onto others. And you want people who can cope with ambiguity.

When you start any kind of change process, you unleash an awful lot of anxiety. A good scenario team makes space for conflict and disagreements in the strategy process. The team chemistry is fundamental for creating a different kind of interaction and thinking from the norm.

In this respect, scenario planning can also play a huge role in nurturing corporate culture. Shell's corporate culture, for example, isn't like a rational machine simply marching forward: There's a culture of curiosity and learning, with tolerance for different opinions and open engagement, which comes through this process. Scenarios are developed and used by



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different groups in Shell for different purposes – for example, to screen investments, assess risks, manage projects, and so on.

How many people should be on the team?

In the early days, there were a lot of people on the team, between 25 and 35 people. That was before computing, so if you wanted to crunch the numbers, you had to have the manpower.

Today there are about 10 to 15 people, but they can punch above their weight because they have wider management support.

To be honest, the size of a scenario planning team is irrelevant. What's important is how the team works and its relationship to other parts and processes of the organization.

How important is it to have that wider support?

The general rule is that scenarios are not built by one group and then handed over to be used by another group. That approach is problematic. Whoever is going to use these scenarios has to be involved in the building process. This can be done through workshops, interviews, conversations or other types of engagement.

I think one of the reasons that Shell achieves and sustains top-level management engagement is because, in the early days, the company was quite decentralized, so scenarios became a way of steering and navigating the organization around some common themes.

What sort of time horizon do you recommend?

In less experienced companies, there can be confusion between the decision-making time frame and the scenario time horizon.

The scenarios themselves can be short, medium or long range, which in the '70s was considered to be five to

10 years, but these days is more like 25 to 50 years.

After casting your scenarios, you don't just sit around and wait to see whether something happens. Scenarios inform present day decisions; they prepare you with several "what-ifs" for short-term decision making. You have to link your scenarios to some relevant, formal decision-making time frame or cycle that your particular organization has. It could be a project investment, or a one-off thing like: Should we put \$75 million worth of investment into a refinery in this part of the world?

How often should you revisit these scenarios?

Shell has typically updated its global scenarios every three to five years. More recently, it has embraced a philosophy of not just building scenarios, but monitoring and tracking them to extend the value of a set of sce-

to get out of the energy mind-set and think bigger than just energy through its global scenarios process.

What next?

One of Shell's legacies was to introduce the concept of *plausibility*. A lot of people do probabilistic scenarios, or only focus on preferences – the future we would like to have. Shell has a real attention to plausibility, which is achieved in the coproduction between building and using scenarios.

Ten years ago, Shell began producing scenarios jointly with other organizations to improve its understanding of a world shaped by NGOs and other forms of business. This represents a new approach, which has paved the way for what I call "collaborative futures."

So many of the big challenges we face today – climate change, poverty, health care – ultimately require three things:

- the imperative of collaboration, the



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narios with new, relevant insights and information. This helps you to avoid locking into one way of thinking and failing to look for new signals.

"Shell Energy Scenarios to 2050" painted two possible futures: "Scramble," in which nations rush to secure limited energy supplies for themselves, and "Blueprints," in which coalitions of interest groups join forces to create a new energy framework. Shell recently revisited this work with "Signals and Signposts," in order to update and broaden their thinking in light of the global financial crisis. So, while energy scenario work remains core to Shell's business, it has tried

sense that no single government or entity can tackle the problems we face today by itself;

- the agenda toward sustainability;
- a sense of future.

The concept of "collaborative futures" fills this space. In today's world of uncertainty, it's not enough just to analyze situations. "Collaborative futures" is about harnessing future possibilities as probable, preferable and plausible. It recognizes the need not only for new ideas but also for new relationships, nodes and networks, which are needed to enable change. ■

Interview by **Larisa Tatge**