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The use and abuse of scenarios

Although it is surprisingly hard to create good ones, they help you ask the right questions and prepare for the unexpected. That is hugely valuable.

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Scenarios are a powerful tool in the strategist's armory. They are particularly useful in developing strategies to navigate the kinds of extreme events we have recently seen in the world economy. Scenarios enable the strategist to steer a course between the false certainty of a single forecast and the confused paralysis that often strike in troubled times. When well executed, scenarios boast a range of advantages—but they can also set traps for the unwary.

There is a significant amount of literature on scenarios: their origins in war games, their pioneering use by Shell, how to construct them, how to move from scenarios to decisions, and so on. Rather than attempt anything encyclopedic, which would require a book rather than a short article, I have put forward my personal convictions, based on experience in building scenarios over the past 25 years, about both the power and the dangers of scenarios, and how to sidestep those dangers. I close with some rules of thumb that help me—and will, I hope, help you—get the best out of scenarios.

The power of scenarios

Scenarios have three features that make them a particularly powerful tool for understanding uncertainty and developing strategy accordingly.

Scenarios expand your thinking

You will think more broadly if you develop a range of possible outcomes, each backed by the sequence of events that would lead to them. The exercise is particularly valuable because of a human quirk that leads us to expect that the future will resemble the past and that change will occur only gradually. By demonstrating how—and why—things could quite quickly become much better or worse, we increase our readiness for the range of possibilities the future may hold. You are obliged to ask yourself why the past might not be a helpful guide, and you may find some surprisingly compelling answers.

This quirk, along with other factors, was most powerfully illustrated in the recent meltdown. Many financial modelers had used data going back only a few years and were therefore entirely unprepared for what we have since seen. If they had asked themselves why the recent past might not serve as a good guide to the future, they would have remembered the Asian collapse of the late 1990s, the real-estate slump of the early 1990s, the crash of October 1987, and so on. The very process of developing scenarios generates deeper insight into the underlying drivers of change. Scenarios force companies to ask, "What would have to be true for the following outcome to emerge?" As a result, they find themselves testing a wide range of hypotheses involving changes in all sorts of underlying drivers. They learn which drivers matter and which do not—and what will actually affect those that matter enough to change the scenario.

Scenarios uncover inevitable or near-inevitable futures

A sufficiently broad scenario-building effort yields another valuable result. As the analysis underlying each scenario proceeds, you often identify some particularly powerful drivers of change. These drivers result in outcomes that are the inevitable consequence of events that have already happened, or of trends that are already well developed. Shell, the pioneer in scenario planning, described these as "predetermined outcomes" and captured the essence of this idea with the saying, "It has rained in the mountains, so it will flood in the plains." In developing scenarios, companies should search for predetermined outcomes—particularly unexpected ones, which are often the most powerful source of new insight uncovered in the scenario-development process.

Broadly speaking, there are four kinds of predetermined outcomes: demographic trends, economic action and reaction, the reversal of unsustainable trends, and scheduled events (which may be beyond the typical planning horizon).

- *Demography is destiny.* Changes in population size and structure are among the few highly predictable aspects of the future. Some uncertainties exist (potential increases in longevity, for example), but only at the margin. Sometimes, the effects of these trends are far off—as with Social Security in the United States today—so they are generally ignored. When these trends grow near, however, their effects can be powerful indeed, as when the baby boom generation is on the brink of leaving the workforce.

- *"You canna change the laws of economics!"* Just as Scotty the engineer could not change the laws of physics when Captain Kirk[1] demanded more warp speed, so business leaders cannot assume away the laws of economics. If demand shoots up, prices will too—which will limit demand and drive increasing supply—with the result that demand, prices, or both will drop. Nothing increases in price forever, in real terms. We recently saw oil prices more than double and then sink back again by an equal amount. Price changes of this scale inevitably drive supply and demand reactions in every relevant value chain. As in physics, every economic action has a predetermined reaction. These reactions are often ignored in business strategy. If uncovered through scenario planning, however, they can generate powerful insights.

- *"Trees don't grow to the sky."* Business plans often extrapolate into the future trends that are clearly unsustainable. Economies are fundamentally cyclical, so beware of politicians bearing tales about the end of boom and bust. Equally, do not build a strategy based on the claim that the business cycle has been tamed. Often, optimistic projections are accompanied by bold claims of a new paradigm. Strategists need to be very cautious about alleged new paradigms. The appearance of even a genuine new paradigm almost

[1] For the uninitiated, Scotty and Captain Kirk are two characters from *Star Trek*, a famous US science fiction television series from the 1960s.

always results in a speculative bubble. The "new economy" was a good example. More recently, securitization proved to be another sound idea that resulted in a speculative bubble. And in the past, many new, innovative technologies—railroads and radio, for example—were hailed as "new paradigms" and then promptly led to investment bubbles. A useful test is to project a trend at least 25 years out. Then ask how long can this trend really be sustained. Challenge yourself to try and prove why the shape of the future should be so fundamentally different from the more cyclical past. Chances are you won't be able to, and this will open your eyes to the possibility of a break in the trend.

- *Scheduled events may fall beyond typical planning horizons*. There is also a simpler kind of predetermined outcome that does not involve any unalterable laws: scenarios must take into account scheduled events just beyond corporate planning horizons. A recent example, the results of which we have already seen, is reset dates on adjustable-rate mortgages. Well before the event, one could have predicted a spike in resets as mortgages sold in 2005 and 2006—the peak years—completed their low, three-year introductory rates. Something bad was going to happen to the economy in 2008. Right now, there is another important "timetable" to watch: the wave of large bond issues that has resulted from banks having to refinance hundreds of billions of dollars of maturing debt. Although these types of scheduled events ought to be common knowledge, they tend to be overlooked in planning exercises because they fall beyond the next 12 to 18 months. Scenarios should account for scheduled events that could have a big impact in the 24–60 month time frame.

While some errors can be avoided by recalling certain fundamental economic and demographic facts or scheduled events, problems of timing will continue to exist. Your company's strategic planners may know that a massive dollar value of mortgages is about to reset. But when will the market actually wake up to this reality? Financial services cannot grow as a percentage of GDP forever. But at what percentage will this stop? We didn't know before, and we still don't know today. Still, the realization that something must happen, even if it is not clear when, leads to the inclusion of at least one scenario in which, say, financial services stop growing sooner rather than later.

Scenarios protect against 'groupthink'

Often, the power structure within companies inhibits the free flow of debate. People in meetings typically agree with whatever the most senior person in the room says. In particularly hierarchical companies, employees will wait for the most senior executive to state an opinion before venturing their own—which then magically mirrors that of the senior person. Scenarios allow companies to break out of this trap by providing a political "safe haven" for contrarian thinking.

Scenarios allow people to challenge conventional wisdom

In large corporations, there is typically a very strong status quo bias. After all, large sums of money, and many senior executives' careers, have been invested in the core assumptions underpinning the current strategy—which means that challenging these assumptions can be difficult. Scenarios provide a less threatening way to lay out alternative futures in which these assumptions may no longer be true.

Avoiding the common traps in using scenarios

For all these benefits, there is a downside to scenarios. Inexperienced people and companies are prone to fall into a number of traps.

Don't become paralyzed

Creating a range of scenarios that is appropriately broad, especially in today's uncertain climate, can paralyze a company's leadership. The tendency to think we know what is going to happen is in some ways a survival strategy: at least it makes us confident in our choices (however misplaced that confidence may be). In the face of a wide range of possible outcomes, there is a risk of acting like the proverbial deer in the headlights: the organization becomes confused and lacking in direction, and it changes nothing in its behavior as an uncertain future bears down upon it.

The answer is to pick the scenario whose outcome seems most likely and to base a plan upon that scenario. It should be buttressed with clear contingencies if another scenario—or one that hasn't been imagined—begins to emerge instead. Ascertain the "no regrets" moves that are sound under all scenarios or as many as possible. Ultimately, the existence of multiple possibilities should not distract a company from having a clear plan.

Don't let scenarios muddy communications

The former CEO of a global industrial company once suggested that scenarios are an abdication of leadership. His point was that a leader has to set a vision for the future and persuade people to follow it. Great leaders do not paint four alternative views of the future and then say, "Follow me, although I admit I'm not sure where we are going."

Leaders can use scenarios without abdicating their leadership responsibilities but should not communicate with the organization via scenarios. You cannot stand up in front of an organization and say, "Things will be good, bad, or terrible, but I am not sure which." Winston Churchill's remarks about British aims in World War II—"Victory at all costs, victory in spite of all terror, victory however long and hard the road may be"—are instructive. By insisting on only one final outcome, Churchill was not refusing to acknowledge that a wide range of conditions might exist. What he did was to set forth a goal that he regarded as what we would call "robust under different scenarios." He was acknowledging the range of uncertainties ("however long and hard the road may be"), and he resisted overoptimism (which affected many bank CEOs early in the recent crisis).

A chief executive, a prime minister, or a president must provide clear and inspiring leadership. That doesn't mean these leaders should not study and prepare for a number of possibilities. Understanding the range of likely events will embolden corporate leaders to feel prepared against most eventualities and allow those leaders to communicate a single, bold goal convincingly.

One additional point about communication and scenarios is worth noting. Scenarios can help leaders avoid looking stupid. A wide range of scenarios—even if not publicly discussed—can help prevent leaders from making statements that can be proven wrong if one of the more extreme scenarios unfolds. For instance, one financial regulator boldly announced, early in the financial crisis, that its banking system was, at the time, capitalized to a level that made it bulletproof under all reasonable scenarios—only to announce, a few months later, that a further recapitalization was required. Similarly, the head of a large bank confidently suggested that the downturn was in its final phases shortly before the major indexes plummeted by 25 percent and we entered a new and even more dangerous phase of the crisis. Many CEOs have given hostages to fortune; scenarios would have helped them avoid doing so.

Don't rely on an excessively narrow set of outcomes

The astute reader will have noticed that the above-mentioned financial regulator managed to embarrass itself even though it *was* using scenarios. One of the more dangerous traps of using them is that they can induce a sense of complacency, of having all your bets covered. In this regard at least, they are not so different from the value-at-risk models that left bankers feeling that all was well with their businesses—and for the same reason. Those models typically gave bankers probabilistic projections of what would happen 99 percent of the time. This induced a false sense of security about the potentially catastrophic effects of an event with a 1 percent probability. Creating scenarios that do not cover the full range of possibilities can leave you exposed exactly when scenarios provide most comfort.

One investment bank in 2001, for instance, modeled a 5 percent revenue decline as its worst case, which proved far too optimistic given the downturn that followed. Even when constructing scenarios, it is easy to be trapped by the past. We are typically too optimistic going into a downturn and too pessimistic on the way out. No one is immune to this trap, including professional builders of scenarios and the companies that use them. When the economy is heading into a downturn, pessimistic scenarios should always be pushed beyond what feels comfortable. When the economy has entered the downturn, there is a need for scenarios that may seem unreasonably optimistic.

The breadth of a scenario set can be tested by identifying extreme events—low-probability, high-impact outcomes—from the past 30 or 40 years and seeing whether the scenario set contains anything comparable. Obviously, such an event would never be a core scenario. But businesses ought to know what they would do, say, if some more virulent strain of avian flu were to emerge or if an unexpected geopolitical conflict exploded. Remember too that it would not take a pandemic or a terrorist attack to threaten the survival of many businesses. Sudden spikes in raw-material costs, unexpected price drops, major technological breakthroughs—any of these might take down many large businesses. Companies can't build all possible events into their scenarios and should not spend too much time on the low-probability ones. But they must be sure of surviving high-severity outcomes, so such possibilities must be identified and kept on a watch list.

Don't chop the tails off the distribution

In our experience, when people who are running businesses are presented with a range of scenarios, they tend to choose one or two immediately to the right and left of reality as they experience it at the time. They regard the extreme scenarios as a waste because "they won't happen" or, if they do happen, "all bets are off." By ignoring the outer scenarios and spending their energy on moderate improvements or deteriorations from the present, leaders leave themselves exposed to dramatic changes—particularly on the downside.

So strategists must include "stretch" scenarios while acknowledging their low probability. Remember, risk and probability are not the same thing. Because the risk of an event is equal to its probability times its magnitude, a low-probability event can still be disastrous if its effects are large enough.

Don't discard scenarios too quickly

Sometimes the most interesting and insightful scenarios are the ones that initially seem the most unlikely. This raises the question of how long companies should hold on to a scenario. Scenarios ought to be treated dynamically. Depending on the level of detail they aspire to, some might have a shelf life numbered only in months. Others may be kept and reused over a period of years. To retain some relevance, a scenario must be a living thing. Companies don't get a scenario "right"—they keep it useful. Scenarios get better if revised over time. It is useful to add one scenario for each that is discarded; a suite of roughly the same number of scenarios should be maintained at all times.

Remember when to avoid scenarios altogether

Finally, bear in mind the one instance in which strategists will *not* want to use scenarios: when uncertainty is so great that they cannot be built reliably at any level of detail.[2] Just as scenarios help to avoid groupthink, they can also generate a groupthink of their own. If everyone in an organization thinks the world can be categorized into four boxes on a quadrant, it may convince itself that only four outcomes or kinds of outcomes can happen. That's very dangerous. Strategists should not think that they have all reasonable scenarios when there are quite different possibilities out there.

[2] For more, see the *McKinsey Quarterly*'s interview with author Hugh Courtney, "A fresh look at strategy under uncertainty," at mckinseyquarterly.com.

Don’t use a single variable

The future is multivariate, and there are elements strategists will miss. They should therefore avoid scenarios that fall on a single spectrum (“very good,” “good,” “not so good,” “very bad”). At least two variables should be used to construct scenarios—and the variables must not be dependent, or in reality there will be just one spectrum.

Some rules of thumb

Obviously, some general principles can be assembled from the points above: look for events that are certain or nearly certain to happen; make sure scenarios cover a broad range of outcomes; don’t ignore extremes; don’t discard scenarios too quickly just because short-term reality appears to refute them and never be embarrassed by a seemingly too pessimistic or optimistic scenario; understand when not enough is known to sketch out a scenario; and so on. But there are some additional rules of thumb that I have found particularly useful.

Always develop at least four scenarios

A scenario set should always contain at least four alternatives. Show three and people always pick the middle one. Four forces them to discover which way they truly lean—an important input into the discussion. Two is always too few unless there is only one big swing factor affecting the situation.

Technically, of course, many scenarios can be sketched out in almost any situation. All possible combinations of just three uncertainties will create 27 scenarios. But many of them will be impossible because the variables are rarely completely independent. Usually, the possibilities can be boiled down to four or five major possible futures.

“Crunch” the quadrants

Often people use a two-by-two matrix when *presenting* scenarios. But it is not routinely the case that there are just two major variables. In developing scenarios, it would be typical to identify three to five critical uncertainties. How to resolve this tension? One approach is to create multiple two-by-twos using all possible combinations of the four or five critical uncertainties. It will quickly become clear that some uncertainties are highly correlated and so can be combined—and that others are not principal drivers of the various scenarios. At minimum, this will allow for simplification. Sometimes, however, it is possible to uncover a real insight when trying to describe a quadrant created by an unusual combination of uncertainties.[3]

There should always be a base or central case

This point goes back to the chief executive, mentioned above, who claimed that scenarios were an abdication of responsibility. It is fine to put forward scenarios—it is, in fact, the

[3] I am grateful to Pherson Associates, specifically Randy Pherson and Grace Scarborough, for bringing this technique to my attention. I have found it extremely powerful in a number of client settings.

responsible thing to do. But those who must weigh scenarios and reach decisions based on them expect and deserve to get a specific point of view about the future. The scenario that is highest in probability should always be identified, and that ought to become the base case. If that proves impossible, it should at least be feasible to fashion a "central" case—but there must be crystal clarity about the degree of certainty attached to it, the alternatives, and the resilience of any strategy to those alternatives.

Scenarios must have catchy names

The notion of attaching clever names to scenarios may well sound trivial. It is not. Unless scenarios become a living part of an organization, they are useless. And if they do not have snappy, memorable names, they will not enter the organization's lexicon. Use two to four words—no more. Plays on film titles and historical events are recommended. Some names that I have used, and that appear to have stuck, are "Groundhog Day," "the long chill," "perfect summer," "end of an era," "silver age," and "Mexican spring."

Avoid long, descriptive titles. No one will remember "Restrengthening world economy at a lower level of overall growth." And avoid boring "bull, bear, and base" scenarios, even though these are used by many stock analysts. If no snappy title seems to present itself (assuming that someone creative is available), the scenario is probably too diffuse and may contain elements of two different scenarios jammed together.

Learn from being totally wrong

Developing scenarios is an art rather than a science. People learn by experience. It is useful to look back at old scenarios and ask what, in retrospect, they missed. What could have been known at the time that would have made for better scenarios? Events will prove that some scenarios were too narrow or that one was thrown out too soon. The more comfortable an organization and its people are with mistakes and learning from them, the less likely it is to be mistaken again.

Listen to contrary voices

This is a good corrective to groupthink. We tend to dismiss the mavericks. Scenarios are there to make room for them. Maverick scenarios have the virtue of being surprising, which makes people think. If a company's scenarios are all completely predictable (conventionally good, conventionally bad, and somewhere in the middle), they are not going to be valuable. The best scenarios are built on a new insight—either something predetermined that others have missed or an unobvious but critical uncertainty.

On one occasion, when oil was at $120 a barrel, we presented a scenario with oil at $70. Someone asked what would happen if oil dropped to $10 a barrel. We said that was unnecessarily radical. But we probably should not have been so dismissive, as oil promptly fell below $50 a barrel. We should have been more open to the possibility of this radical price swing—after all, oil has been at $10 a barrel well within living memory. Scenarios

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should not assume a short-term time series; they should go back as far as possible. If a data series going back 300 years is available, you should consider using it (they do exist for UK interest rates and UK government debt as a percentage of GDP and these long-term data series have certainly informed current debates about the possible interest rates and sustainable debt to GDP ratios). Most variables can only be supported by data going back tens of years—but even this is much more instructive than the meager data often used and helps broaden the range of possible outcomes.

Even modest environmental changes can have enormous impact

The best example of this principle is that specialist business models fail when the business environment changes. I call this the "saber-toothed tiger" problem. The saber-toothed tiger was a specialist killing machine, its big teeth perfectly evolved to capture large mammals. When the environment changed and the large mammals became extinct, saber-toothed tigers became extinct too—those large teeth were not as good for catching small, furry mammals. By contrast, the shark is a generalist killing machine—and so has remained highly successful for hundreds of millions of years.

A specialist business model can suffer the fate of the saber-toothed tiger if the environment changes. Many winning business models are highly specialized and precisely adapted to the current business environment. Therefore no one should ever assume that today's winners will be in an advantaged position in all possible futures (or even most of them). Therefore, scenarios should be based on creative thinking about how predicted changes in the business environment will alter the competitive landscape. If the environment changes in a scenario but the competitors remain the same, that scenario may not be imaginative enough.

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None of the above is rocket science. Why, then, don't people routinely create robust sets of scenarios, create contingency plans for each of them, watch to see which scenario is emerging, and live by it? Scenarios are in fact harder than they look—harder to conceptualize, harder to build, and uncomfortably rich in shortcomings. A good one takes time to build, and so a whole set takes a correspondingly larger investment of time and energy.

Scenarios will not provide all of the answers, but they help executives ask better questions and prepare for the unexpected. And that makes them a very valuable tool indeed.

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