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# Four blind alleys of scenario analysis

Gerald Harris

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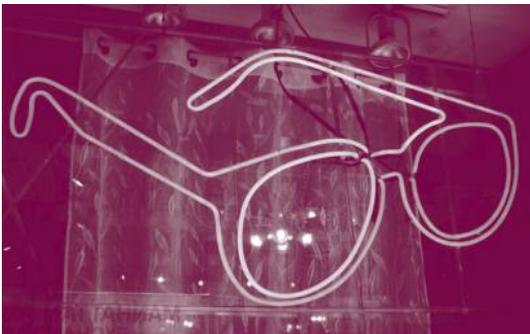
Scenario analysis is now one of the most widely accepted and used process in planning for addressing and managing uncertainty. It was pioneered in the 1970s by the Rand Corporation and, more famously, by Royal Dutch Shell Oil, which continues to use it to scope out the interaction of technology, geo-politics and economics on energy needs and supplies decades ahead.[1] Over the years various forms of scenario analysis have been adopted by companies in a wide range of industries, including electric power, transportation, engineering, construction, information technology and medical care.

Some scenarios projects broadly assess future operating environments. In other cases, scenario analysis involves first focusing on an important decision – such as investments or market entry strategies; then isolating and understanding key areas that contribute to uncertainty and finally creating strategic options for the decision.

As straight-forward as that sounds, in actual practice scenario projects can easily go astray. Some scenario projects, especially those that take short cuts, have design flaws that undermine the whole purpose of scenario analysis. In such instances, executives may believe they have worked hard to assess future uncertainty and risks, only to be surprised when unforeseen events for which the organization is unprepared suddenly emerge. Nonetheless, when done well, scenario analysis is one of the few proven tools that have helped organizations prepare for business discontinuities. In many cases the process, and the learning that flows from the analysis, have enabled organizations to thrive because of their preparation and readiness to take advantage of market or regulatory developments.

To avoid making an early misstep, it is useful to start with a clear definition of the two basic types of scenario analysis before proceeding. Exhibit 1 below explains the two basic kinds of scenarios that most organizations use, macro environment or focused. It outlines who the clients are, what expertise will be required and the types of analysis that inform the participants.

When rigorously done, scenario analysis first identifies a wide range of factors that might influence the future. This usually requires consideration of trends and potential game changes in the following mega areas: economic, social, technological, cultural, political, environmental, financial, regulatory, markets and scientific knowledge. The essence of good scenario analysis is to make an effort to see these factors in the context of alternative whole systems. The issues of critical importance – the key driving forces – will be specifically defined within the context of the decisions initially driving the scenario work.



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Exhibit 1	<i>Macro environment scenarios</i>	<i>Focused scenarios</i>
	<p>Analyses macro level trends and factors that might influence the larger business environment and which might impact the overall performance of the organization over the long run.</p> <p>Created for the top leadership of the organization to set context for overall organizational strategy.</p> <p>Can benefit from a wide range of expertise, especially with competing viewpoints to deepen understanding of developments.</p> <p>Qualitative and quantitative analysis aimed at identifying macro trends in society and the economy.</p>	<p>Analyses micro level or market specific trends and factors that can have an impact of the success of a targeted investment or short/medium term decision.</p> <p>Can be used by top leadership or managers in charge of executing a targeted investment or decision.</p> <p>Use of experts best focused in the area of the decision or investment; diverse viewpoints useful in creating alternative scenarios.</p> <p>Quantitative analysis aimed at weighing alternative business cases and performance projections.</p>

The long-range scenarios that Shell shares with the public are excellent examples of macro environment scenarios. They are literally global in scope. In contrast, focused scenarios that seek to assess specific future opportunities and threats are often proprietary, and few companies share them with the public.[2]

### Avoiding four common practice missteps

Though there are countless ways either macro environment or focused scenario work can go astray, I suggest that executives be especially careful to avoid the following four common bad practices that lead to blind alleys (see [Exhibit 2](#)).

#### Blind alley #1: Sensitivity analysis

Sensitivity analysis is based on the view that a few very important environmental variables will have the most impact on the future so it will be efficient to focus on those. Distinguishing between sensitivity analysis and scenario analysis might seem like a distinction without a difference to some, but the consequences of confusing the two can be significant. In sensitivity analysis, the variables considered critical are generally selected based on history and past experience. When there is initial group consensus on which variables are to be studied or a leader designates a few key variables as determinative of the future, then the opportunity to use the scenario analysis to do alternative whole systems thinking disappears. In many cases the sensitivities are assessed in just one view of the whole system – with just one or two variables and one scenario. If the selected factors happen to

Exhibit 2	<i>Error</i>	<i>Description</i>
	1. Mistaking sensitivity analysis for scenarios.	Sensitivity analyses are useful as they vary one or a few significant variables to see the impact. They miss changing the context around the selected variables and interconnections between the selected variables that good scenario work will not.
	2. Denying or ignoring threats or key factors causing uncertainty.	Relates to the “this cannot happen” mistake of ignoring, or for political or emotional reasons, denying the possibility of change in an area – for example, the real estate collapse of 2008-09). Group-think is often the culprit. Desired futures can be useful for visioning. But unless they are balanced by a more diverse view of the future they can blind the organization and support misguided investments.
	3. Normative or wishful thinking.	These kind of weak scenarios often arise when the work is given insufficient resources, time and attention. Skimping on research can lead to missing critical risk factors and early indicators.
	4. Safe or poorly researched scenarios.	

be out-of-date or irrelevant to emerging conditions, the analysis is flawed at best, blinding at worst. A recent example is the admission by the US Federal Reserve that it did not foresee the 2008 economic collapse because it was tracking wrong and outdated indicators. The whole system of banking and finance, taking into account derivatives, global market flows and massive consumer debt fraud, had changed and the Federal Reserve had essentially not kept up.

With good scenario work all appropriate key factors can be included and the full implications of previously identified relevant factors can be expanded upon. Good scenarios will also highlight how there might be interactions among those key factors that can lead to counter-intuitive results. For example, for many years the energy industry was obsessed with oil prices. Now a broader range of factors – such as technological change, government policies and infrastructure development – play key roles in thinking about the future of energy.

### **Blind alley #2: Denying or ignoring threats or key factors causing uncertainty**

Every Goliath corporation has a tendency to be a bit condescending to the new kid on the block armed only with a slingshot. Famous examples of corporate hubris in the face of disruptive innovation include:

- “Those are little guys; they will never threaten us.” This is how the USA auto industry used to think of Japanese car makers.
- “We are not in the same market as Apple.” This is how Blackberry executives initially perceived the iPhone.
- “We have dominant position in a large market.” IBM initially thought this way about the threat of personal computers versus mainframes, and Microsoft is eternally grateful.

Discounting the threats from seemingly unequal competitors offering inferior products is understandable but dangerous. According to innovation researchers Clayton Christensen and Michael Raynor, “Disruptive innovations don’t attempt to bring better products to existing customers in established markets”. . . rather they introduce “products and services that are not as good as currently available products and services. But disruptive technologies offer other benefits – typically they are simpler, more convenient, and less expensive products that appeal to new or less demanding customers.” And then, once the newcomers gain a foothold, they quickly improve their products to appeal to a broader slice of their giant rival’s market.[3] Clearly, scenarios that ignore the likelihood of serious competition from fledgling startups, market invaders from other industries, or even the possibility of several companies combining to gain the competencies needed to be a threat, are not addressing the future’s full spectrum of competitive uncertainty.

### **Blind alley #3: Normative or wishful thinking**

Many executives routinely practice a dangerous kind of normative thinking by performing back-of-the-envelope scenarios that take the form of best case/worst case/most-likely case modeling. Too often this set of scenarios reveals a preference for the safety of a future that is more or less like the status quo. Note that no wildcards get considered.

Going to the other extreme, some executives are seduced by the idea that a bold vision offered in the form of a scenario is the best way to address the challenge or threat they

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believe their company faces. Wanting a desired future can be a powerful motivator. Visioning has created much of the world we live in. However, selecting one desired future and barreling ahead with it is not a wise strategy. Having a clear intention and being open to multiple ways of achieving that vision works better and good scenarios can facilitate this process. Focused scenarios can help by asking “what if” questions and driving alternative analyses along the way to getting to a desired future. Both risks and opportunities can be more easily visualized with the learning orientation of scenarios, which can help leaders identify early indicators of change that would otherwise go unnoticed.

#### **Blind alley #4: Safe or poorly researched scenarios**

Poorly researched scenarios can be the most heartbreaking in hindsight. Sometimes the problem is that more time and effort could have surfaced a crucial piece of information. Imagine if American banks had taken the time to thoroughly investigate the real value of the poor quality home mortgages underlying the mortgage bonds they were creating? Michael Lewis' book, *The Big Short*, tells the story of a few smart analysts who did just that and became super rich. Just playing it safe – asking only the usual experts for information, ignoring industry “outsiders” who are exploring alternative hypotheses or have unique perspectives – is not the right way to collect insight on the future's uncertainties.

Alternatively, doing the hard work of original research can have big payoffs. An effort for a large utility considering investing in electric car charging stations in the mid-1990s assumed that battery-powered vehicles were the wave of the future. After a lot of research on battery technology, a wider analysis of the latest auto technology found that that ultra-low emission vehicles and hybrids would go a long way in addressing some of the environmental concerns of regulators and would get to market ahead of all-electric vehicles. Because of this scenario the client company decided not to invest in a network of expensive charging stations that would initially be little used and thus it avoided many years of losses.

Taking one of these four blind alley approaches to scenario analysis can be tempting, especially when resources are limited and time pressures are acute. For one reason, they all seem like shortcuts on the path to successful strategic decision making. However, good scenario analysis is an open-ended learning process in which one “right” answer is not the objective. The work must lead to making better decisions and more informed choices, but as a first step the existing mental map of decision makers or the team must be challenged. Blind alley approaches, like accepting limits to which factors to consider, denying the possibility of challenges and threats that are scary or politically off limits, wishful thinking about the longevity of the status quo and hasty research efforts must be rejected in favor of better practices.

#### **Notes**

1. Shell International BV, *New Lens Scenarios: A Shift in Perspective for a World in Transition*, 2013: available at: [www.shell.com/global/future-energy/scenarios.html?gclid=CLb256rS278CFUKCMgodlA8AFA&gclsrc=aw.ds](http://www.shell.com/global/future-energy/scenarios.html?gclid=CLb256rS278CFUKCMgodlA8AFA&gclsrc=aw.ds)

2. Examples of more focused scenario work are the WECC scenarios available at: [www.wecc.biz](http://www.wecc.biz). See my commentary on them, "A continuous-learning process that updates and enhances planning scenarios" in *Strategy & Leadership*, Vol. 41, No. 3.
3. Christensen, C. and Raynor, M., *The Innovator's Solution*, Harvard Business School Press, 2003.

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