



NORTH-HOLLAND

FROM MY PERSPECTIVE

Scenario Planning

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ABSTRACT

Today the question of what scenarios are is unclear except with regard to one point—they have become extremely popular. Many people see scenarios as forecasts of some future condition while others disavow that their scenarios are forecasts. Yet looking at scenarios that do not come labeled as forecasts or non-forecasts. It is difficult to tell them apart. The purpose of the scenario is at a meta level, since the scenario usually does not speak for itself in terms of its purpose. © 2000 Elsevier Science Inc.

“Scenario” was introduced into the common language as a term to describe a movie setting. Webster’s Ninth New Collegiate Dictionary tells the story and the history of the scenario in three definitions:

1. “An outline of the plot of the dramatic work, giving particulars of the scenes, characters, etc.”
2. “a) The outline or sometimes the complete script of a motion picture or a television program, often with directions for shooting; b) shooting script.”
3. “An imagined sequence of events, esp. any of several detailed plans or possibilities.”

The third definition is closest to what futurists do. The most recent impetus in the popularization of scenarios as a planning device is the fine book by Peter Schwartz of The Global Business Network, entitled *The Art of the Long View*. The ambiguity of the meaning of the word “art” nicely fits with the creation of scenarios as a futurist’s activity. The big push for scenarios as an organizational or institutional device for clarifying thinking about the future goes back to the Department of Defense in the 1950s. Herman Kahn was central to raising the awareness of the military, which is often purblind in regard to subtlety, to the potential complexities of nuclear war. Kahn’s monumental contribution to military thinking was his escalation ladder. The world is not a world of nuclear war or no nuclear war. There are distinct variations or stages of what may

occur between “war” and “no war” under different circumstances. His escalation ladder described a sample of those steps. To lend reality to those steps one has to have detailed accounts on how they may arise, be responded to, and resolved to create a new terminal or baseline situation. That can only be done by dealing with complexity. The human mind is capable of profound integration, but that is laborious. The great value of a scenario is being able to take complex elements and weave them into a story which is coherent, systematic, comprehensive, and plausible. The military has had great experience doing that, thanks to Kahn. They also developed the scenario war game as an equally valuable contribution to understanding conflicts. The most interesting from the scenario point of view are the policy games in which the military, the State Department and other government officials role play in situations that are thought to be realistically plausible. They will go through several rounds of interaction. In the scenarios, no one has total knowledge of the situation with the exception of central or control who plays the godlike role of watching and interpreting the changing situation based on the responses of actors in the scenario. The game’s god sets the situation for the second and subsequent rounds. There is no doubt that it is a powerful training tool, so much as that the quality of one’s participation in a game can be entered into an officer’s dossier.

Scenarios as used in business, other organizations, and government planning fall into two broad categories. One is scenarios that tell about some future state or condition in which the institution is embedded. That scenario then is used to stimulate users to develop and clarify practical choices, policies, and alternative actions that may be taken to deal with the consequences of the scenario.

The second form tells a different story. It assumes that policy has been established. Policy and its consequences are integrated into a story about some future state. This second type of scenario, rather than stimulating the discussion of policy choices, displays the consequences of a particular choice or set of choices. The first category of scenario is largely to stimulate thinking and the second is to a tool for explaining or exploring the consequences of some policy decision—either hypothetically or actually made.

Why has the scenario become so popular in the business community? The answer is simple. The world has become more complex and at the same time it presents ever larger elements of ignorance or unfamiliarity. As business globalizes it puts the typical large business in the position of dealing with customers, suppliers, regulators, cultural, social, governmental, and economic factors different from the ones that they are most familiar and comfortable with. Scenarios come to the rescue. They are educational, and integrative in dealing with the complex new factors.

How do you create scenarios? The answer to that is like the answer to many other questions about art forms. One way is to do it by doing it. Another way is to practice or receive training and then use the general rules or guidelines you learn. “How do you create scenarios?” has the directly analogous response to “How do you dance?” or “How do you paint a portrait or write a novel?” The rules, the hand holding, the guidance and the feedback are all important, but as important as any of that is having the knack or the gift for creating them.

In our own work, we frequently make a third use of scenarios as mere illustrations in much the way that a cartoon or a diagram is a mere illustration. For example, we may be writing about home banking or eating a meal or traveling from St. Louis to Chicago in 2020. These scenarios as illustrations have strictly limited bounds and a narrow, limited purpose. It is to illustrate in a coherent and presumably engaging way, something which has already been described in text. That kind of scenario is the equivalent of a sketch. Much more important and interesting is where the scenarios are intended to be serious in policy or planning as a way to illustrate and map a range of realistic future situations. For example in one study completed a couple of years ago, we developed 14 scenarios on the future of the automobile which covered virtually every aspect of its location, and all of the who, what, when, where, and whys associated with its future. For serious purposes, one needs a systematic approach. Creativity is important, but as important is that one has to be credible to the user or the recipient of the scenario. The ideal scenario is transparent in the sense that the user knows what the

rules of the game were for its construction, understands the stepwise process by which it was produced and sees the result with the feeling that he or she could go through the process and come up with similar results. Only when that transparency exists, does the scenario have a degree of credibility that will move an organization to consider significant change.

The process we use is straightforward. If the reader does not understand the process that is about to be described then we fail in the first step of transparency. The steps in creating the scenarios are given below:

- Identify and define the universe of concern that you are dealing with, as I suggested above, the automobile, worldwide, in 2015.
- Define the variables that will be important in shaping that future.

This is an intense and critical activity. Identify the variables but do not supply values for them. Common variables include costs, environmental concerns, market size, geographic location, power plant and on and on and on?

One must use all the knowledge one or one's team has in enumerating those variables, working them back and forth, arranging them into some superordinate and subordinate relationships and finally settle on a working lists. From 6-18 or 20 variables can enter into preparing complex scenarios. All variables will not be equally important in all scenarios.

- Identify the themes for scenarios.

This is to a large extent judgmental, and creative and depends upon experience in building scenarios. Since there are an intrinsically limitless number of scenarios that can be created from a large number of variables, the goal is to identify in that multidimensional scenario space critical points that illustrate significant possible futures. After one works up an extended list, of perhaps 8 or 10 of scenario themes pull them apart; put them back together until there is a set of themes that seem to be most significant. It is usual to work with 4 or 6 themes for most purposes. The even numbers avoids the temptation to choose a middle one. One can, however, have fewer or far more. Fourteen automotive scenarios were noted above. Example of themes are, "Environmental Concerns Dominate Car Design," "Vehicle Lifetime Doubles," "The Largest Markets for Cars are Worlds 2 and 3." There is no rule for identifying the themes. There are principles however. The fundamental principle is that one wants to identify the themes that illustrate the most significant kinds of potential future developments. Each theme is generally clustered around one or two primary variables dominating a future situation.

- Create the scenarios.

It is convenient to do that in two stages. In the first stage, take a theme and go down through each of the variables to judge for that theme a plausible value of the variable. The value may be quantitative or qualitative. In doing this, you will find that for some themes, some variables do not count and they can be just dropped out of the subsequent steps, or they can be treated in a bland or a neutral way in the scenario.

- Write the scenarios. If several people are involved in the task, different members of the team undertake to write different scenarios. The scenarios as stories can be in any literary format, e.g., a speech, a news article, a letter, a memo, a trip report, a transcript, and so on.
- The team comes together for reading, review, and evaluation. Are they interesting? Are they well

written? Are there incompatibilities within the scenario? Have all of the points been made adequately? Can a point be made more incisively than it has been made? This step is a substantive and literary critique. The process goes back and forth, and may be repeated two or three times until each of the scenarios is in a satisfactory condition.

- An optional step is to have one person go through all of the agreed on scenarios to give them into a uniform style. That is not always necessary or even desirable. But more often than not, one wants some uniformity of style.

The scenario method described above is for the production of those scenarios which describe a range of alternative futures. After the scenarios are written, one moves to the question of the implications for the sponsoring organization, for the company or the agency. Sticking with the car illustration, one conclusion may be that for ACME Car Company, the biggest future market is in World 2 and that of the most likely requirements or characteristics for a successful vehicle in that world are a, b, C, d, e,... The development of implications is separate and distinct from the scenarios and may be done by the scenario teams or the users or both together.

The strength and the limitation of the scenarios up to this point is that they are descriptions primarily of the external world the organization must respond to. One can go a step further with scenario building and in terms of everything that one has learned, create a scenario about the future for the ACME Car Company. One then goes through basically the same steps described above involving the values, the variables and so forth. But now you introduce into that new scenario, the decisions which ACME has made and the policies it proposes. That scenario is different from the others in that it doesn't just describe an external world but it describes the consequences for the company of the actions taken by ACME. That scenario is normative, i.e., goal directed, in that it reports explicit actions the company takes to influence its position in the world market.

Our experience is twofold with regard to scenarios. The first, they are valuable as an educational tool. They do inform people. If effectively done, they integrate what would otherwise be bulleted or enumerated points. Integration is a great step forward in understanding. The scenarios illustrate the interrelationships among the variables under consideration. However, equally important is the realization that some people are almost allergic to scenarios. They find them childish, even infantile, with no value, just foolish game playing. Since there is no telling among one's clients which attitudes one will find it is important to tell the same story without benefit of the scenario format in a more formal and traditional report format. The plain vanilla model free of scenarios is for those people who just simply reject scenarios.

In scenario planning it should be clear that the above process as described has two values. One is the obvious one, the plan. Equally if not more important is the complex process one goes through in developing alternative scenarios, coming to the implications and then going back and creating a goal-oriented scenario. This process forces so much thinking and so broadens one's awareness of the number of variables that one must consider that the higher value in scenario planning is educational—the expanded sophistication in thinking.

The best known creator of scenarios in the business community is Royal Dutch Shell, which for many years had developed new scenarios internally annually. There seems to be a shifting pattern and increasing ambiguity as to the role of scenarios within Shell. Based upon my conversations with the people at Shell, they do not present them as forecasts but present them as possible futures with a view to stimulating internal awareness and thinking about the future. They found that developing different scenarios each year often led to confusion within their corporate ranks. They have moved to a different strategy. Let us say at a particular year, scenarios are developed. The next year's scenario will elaborate or built upon one aspect of the previous year's

scenario. That reduces the confusion and gives an additional degree of coherence to the stories as they develop from year to year.

Since Shell is the most widely admired, and certainly the best known user of corporate scenarios in the world, it is worthwhile to hear the word directly from a high level source about how it is done and what its purpose is. Renata Karlin gave a talk, "Why and How Scenarios Are Used in Shell," at the 1998 Annual Meeting of the Industrial Research Institute. That cassette is available from Tape Productions, 8635 West Catalina Drive, Phoenix, Arizona, 85037, USA. What is striking about the Karlin presentation is how epistemologically muddy it is, as she tries to explain how scenarios are not forecasts. As she describes the use, their corrections, the underlying assumptions, and so on, it becomes clear that there is an attempt to have it both ways—to have the scenario as an interesting, reliable picture of the future, and yet to deny that it is a forecast. Understanding and appreciating how muddy that situation is is important in widening understand and expanding effective use of scenarios in the business and organizational sectors of society. The how to do it portion of the Karlin presentation is outstanding and usable. It is the conceptual confusion, however, which is distressing and misleading.

One can of course, for the purpose of scenario planning, eliminate the development of the large range of external world scenarios, our type one, and go by different routes to define the goals or the desired outcomes for the organization and then build the nominative scenario around how to get there and its consequences. For example, one can with means quite independent of scenario building come to the conclusion that Worlds 2 and 3 are the big markets for the ACME Car Company and then begin to create a scenario which would reflect the actions that had to be taken in order to make ACME a primary factor in those markets. That can then be cast into a scenario of the type described above as normative. This form of scenario planning of going directly to the normative scenario is developed in the *The Art of the Long View*. We find and prefer the greater value in going through developing alternative scenarios of how the world may evolve before coming to the normative or goal-oriented scenario that one ultimately wants to get to.

Other people in other places in other countries have developed variations on scenario building as a tool in planning. Some of the most interesting work has been done by Michel Godet in France. He has elaborated a system of futures research which has appeared in a number of his books and involves some of the special features described below.

In Godet's book, *Scenarios in Strategic Management* (Butterworths, 1987), he describes the current French enthusiasm for la prospective, a concept which attempts to free itself from some of the negatives associated with more conventional forecasting by giving his preferred version of futurizing that new name. The elements are, from my transatlantic perspective, however, fundamentally the same as those already described. He devotes a chapter to identifying key variables. Critical to his preferences is what he refers to as the MICMAC method of identifying variables, which depends upon a Boolean algebra concept. Its strength is in identifying variables of indirect importance and particularly those that are likely to elude the analyst because they are, as he puts it, counterintuitive. Godet puts great emphasis on understanding the actors' strategies in relation to the situation under consideration. This is now nearly universally recognized as a key element in any kind of serious futures research. He defines a number of techniques for reducing uncertainty, which are relatively standard futures tools, such as the Delphi technique and cross-impact methods, with strong emphasis on the use of cross-impact by experts. He then goes on to emphasize the aims of strategic management, including the matter of positioning one's business portfolio and a choice of strategic options. Godet's work is particularly strong on the question of the details connected with identifying, evaluating, and assembling material entering into scenarios. He is less clear on the actual process of producing the scenario itself.

Harold A. Linstone, the Editor-in-Chief of *Technological Forecasting and Social Change*, has introduced into

scenario thinking at least two important concepts. The first is the strong tendency to discount the future. Taking the direct analogy from economic discounting, if one discounts at 0%, 1%, or 5% per year the consequences of future payoff change drastically. Similarly, if the authors of scenarios discount future developments unconsciously and non-quantitatively at a relatively high rate one develops false and misleading images of the future.

Equally significant is his development of the concept of the “multiple perspectives approach.” Linstone’s research has shown that in almost any situation involving public or organizational policy the stakeholders fall into three broad categories. First are those who are connected with organizations—company, government, regulators, and so on. A second group is the technical people. These may often be technical experts in the employ of the organization or external to the organization. The third group is the people who have a personal stake in the situation. They are likely to be directly affected by whatever the matter is under consideration. Linstone finds that these three groups bring to the situation quite different perspectives, in terms of worldview, objectives, systems focus, methods of inquiry, ethical bias, their planning horizon, criteria for acceptable risk, their modes of communication, and other factors. The multiple perspective approach enriches any scenario connected with future choices and alternative developments.

Turning again to Europe, the German approach is exemplary of tendencies in the rest of Europe. German scenario writers tend to concentrate on organizing and running the scenario creation activity. The reciprocal of that is they pay less attention to the results, the uses, and the users of the work that they produce. This may be in part a reflection of the well-recognized German regard for expertise and hence, the reliance on experts to produce a first-rate work. The culture is not one that readily reaches out to embrace controversy. Experts are generally not well known for their subtlety. There are other characteristic differences between American and European futurism. The Germans tend to be strongly fact-based in the creation of their scenarios. This reduces the degree of speculation and conjecture that they will tolerate or accept in scenarios. Therefore, their scenarios can turn out to be relatively weak intellectually, uninteresting and relatively limited in the range of the future possibilities that they can define. The fact-based commitment is a reflection of the influence of the academic community in corporate, as well as non-corporate futures work throughout Europe.

The situation on both sides of the Atlantic, but less so than in the United States, is for scenarios to be neither systematic nor transparent in the sense they are constructed by clear rules. They lack predefined variables and are not linked to systematically identified themes. The user with a transparent scenario should have three feelings. First is that he or she understands what was done. Second is that he or she could duplicate the process. Third is that having duplicated the process similar results would occur. That transparency builds great credibility in the scenario.

A point of basic agreement on both sides of the Atlantic is that the users of scenarios should be involved in their creation as a means of building credibility and legitimacy. The experience in Europe and the United States is to use people throughout the organization principally at the top to identify key trends, issues, variables, and concerns. In the United States there is a tendency to go farther into the organization because of the feeling that the farther down you go, the more legitimacy the scenario will have and the easier it will be to positively involve the lower echelons of the staff in its implementation. This is most clearly illustrated by the work of Strategos, the strategic planning organization setup by Gary Hamel, co-author with C. K. Prahalad of the popular business management book, *Competing for the Future*.

On the question of the scenario as forecast, even the most likely scenario is unlikely to occur. For example, if we had a scenario with 20 variables, assuming that they are independent and each was 90% certain, the likelihood of the scenario based around it occurring would, on a strictly mathematical basis, be about 12%.

In relating scenario planning to an organization's activity there are three things that one can expect. First is a plan. Second is a monitoring system, which will allow one to track the reliability of the plan or the forces and factors that may be influencing choices implicit or explicit to the plan. Third, it should have a profound influence on staff awareness and enthusiasm for the work ahead. It is difficult to assign relative values to these three outcomes of scenario planning, but there is fairly broad consensus that it is the psychological affects on people through the learning experience, that is almost always more valuable than the plan or the monitoring.

None of the benefits of scenario planning can be realized unless the organization has an unequivocal willingness to change and that willingness must be clear from the top down and continually reiterated and reinforced by management behavior. More often than not scenario creation is a team activity and may involve ad hoc internal or external members and users. It is critical that that team be heterogeneous rather than homogeneous.

The big split is between seeing scenarios as forecasts and seeing them as nonforecasts that merely illustrate some circumstance. The latter seems to be a cop out as an attempt to avoid responsibility for claiming that the scenario is either high or low probability and then having to face the consequences of being wrong. It is difficult to see how a scenario can be put together as a coherent, integrated, rational picture of a future circumstance without it being a forecast.

The sign that should be attached to each forecast should be low, high, or medium probability. That is based upon low, medium, or high probability of individual elements of the forecast. That would give them greater prestige and draw more attention to them. Nevertheless, to avoid the belief that a high probability forecast has high probability of coming into being calls for clarification. If the forecast were based on only one or two elements, and if the probability of the individual elements were high, that would imply a relatively high probability outcome. The difficulty is that many of the most interesting and useful forecasts have 6 to 20 elements in them which automatically, as noted above, sharply drop the probability of the total outcome of the scenario being reliable. What is the way to handle this? One has to step outside the quantitative elements of probability and recognize that in mixed qualitative and quantitative forecasts the so called high probability forecast is based upon high probability components, but also recognize that no one expects all of those components to be realized. It is difficult to estimate beforehand what fraction of the components would have to be realized so that looking backward one could say that was a high probability forecast.

We must move from quantitative to qualitative judgment about the relative degree of probability of the forecast. Keep in mind, however, that scenario forecasting is primarily directed at stimulating the user to think about the future in new ways. It is primarily directed at helping the reader or the user to become aware of his or her own assumptions about the future and to begin to reexamine them, not just directly but for their implications for the future.

While strategic planning is an activity that one associates as an internal function of the organization, whether corporation, government body, or nonprofit group, there has been a long time need for industrial sector strategic planning. Collectively the industrial and business sectors have been resistant to planning. In the last few years with some shift in nomenclature one is now finding strategic planning becoming a significant factor in the world of associations in many industrial sectors. The key shift is the development of what are called "roadmaps." At least a dozen roadmaps of different industrial areas now exist. What they amount to is collective identification of need and in many cases nascent plans. Collective identification of critical issues, needs, developments, and the laying out of what has to be done, at least at the generic level, is a move in the right direction. Hopefully, roadmaps will continue to flourish and to legitimate the use of the older term of strategic planning and hence, facilitate the integration of the roadmap concept into more

effective management of the future. Roadmaps have yet,, to move to scenarios, but they will.

A factor in American strategic planning, which is hopefully behind us, has been the passion for three or at most five scenarios. An odd number with a best case, a worst case, and a most likely case draws the user to prefer or emphasize the middle case. This best, worst, most likely model of the use of scenarios is deficient not only in regard to the tendency to drive toward accepting the middle, but it misses the point that alternative futures are real possibilities. Hence, one wants to do one's planning or anticipations about the future in the most robust way, that is most compatible with all of the alternatives that may lie ahead.

Earlier in this article there is mention of 14 automotive scenarios. There was no magic to that number. The reason –for that is the automotive sector is one of the largest industries worldwide. A number of those scenarios were American based, others were global, others dealt with different parts of the world. Hence, the proliferation of a large number of scenarios. One alternative to dealing with a large number of scenarios while avoiding repeating material from one to the other is to develop two or three master or macro scenarios around such notions as global prosperity, global depression, or some other generic situation. Then fold the individual scenarios under one or another of those two or three macro scenarios. That tends to give a little more intellectual cohesion to a large number of snapshots of the future. This is important because users, however hard they try, have great difficulty thinking significantly about more than a half dozen future situations.

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