

Scenario Planning: A Tool for Strategic Thinking

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AMONG THE MANY TOOLS A MANAGER CAN USE FOR STRATEGIC PLANNING, SCENARIO PLANNING STANDS OUT FOR ITS ABILITY TO CAPTURE A WHOLE RANGE OF possibilities in rich detail. By identifying basic trends and uncertainties, a manager can construct a series of scenarios that will help to compensate for the usual errors in decision making — overconfidence and tunnel vision. Through case studies of Interpublic, an international advertising agency, and Anglo-American Corporation in South Africa, the author describes how to build scenarios in a step-by-step process and how to use the resulting stories to plan a company's future. ❧

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Early in this century, it was unclear how airplanes would affect naval warfare. When Brigadier General Billy Mitchell proposed that airplanes might sink battleships by dropping bombs on them, U.S. Secretary of War Newton Baker remarked, "That idea is so damned nonsensical and impossible that I'm willing to stand on the bridge of a battleship while that nitwit tries to hit it from the air." Josephus Daniels, Secretary of the Navy, was also incredulous: "Good God! This man should be writing dime novels." Even the prestigious *Scientific American* proclaimed in 1910 that "to affirm that the aeroplane is going to 'revolutionize' naval warfare of the future is to be guilty of the wildest exaggeration."¹

In hindsight, it is difficult to appreciate why air power's potential was unclear to so many. But can we predict the future any better than these defense leaders did? We are affected by the same biases they were. It was probably as hard for them to evaluate the effect of airplanes in the 1920s as it is for us to assess the impact over the next decades of multimedia, the human genome project, biotechnology, artificial intelligence, organ transplants, superconductivity, space colonization, and myriad other developments. The myopic statements in the sidebar remind us how frequently smart people have made the wrong assumptions about the future with great certainty.

Managers who can expand their imaginations to see a

wider range of possible futures will be much better positioned to take advantage of the unexpected opportunities that will come along. And managers today have something those defense leaders did not have — scenario planning. Unfortunately, too few companies use it. If only General Motors in the seventies had explored more fully the consequences of OPEC, the yuppie generation, globalization, environmentalism, and the importance of quality and speed in manufacturing; or IBM and Digital Equipment Corporation in the eighties, the full impact of the personal computer, which prompted the breakdown of the vertically integrated mainframe business and a shift toward distributed computing. Other examples abound: Federal Express's fiascos in Europe, Philips's setback in electronic markets (despite its leading-edge technologies), Disney's union and image problems with its theme park in France, Sony in movies, etc.

Scenario planning is a disciplined method for imagining possible futures that companies have applied to a great range of issues. Royal Dutch/Shell has used scenarios since the early 1970s as part of a process for generating and evaluating its strategic options.² Shell has been consistently better in its oil forecasts than other major oil companies, and first saw the overcapacity in the tanker business and Europe's petrochemicals. In the early 1980s, Anglo-American Corporation of South Africa convened an international group of experts to explore South Africa's

future through scenarios, which provided a catalyst for profound political reform (as I explain later).³ Even the Dutch Central Planning Bureau, a leading government agency traditionally wedded to econometrics and time series analyses, issued wide-ranging, twenty-five-year global scenarios.⁴ And I have personally developed scenarios with clients to estimate future environmental liability, anticipate health-care cost containment and regulatory control, assess the consequences of deregulation in electric utilities, determine the shifting dimensions of competition in financial services, develop a strategic vision for an R&D division, help Wall Street analysts see future changes in the industries they track, and so forth.

Although scenario planning has been examined by academics and described by practitioners, no previous article has sought to bridge the theory and practice.⁵ I try to fill the gap by presenting a systematic methodology, with illustrations drawn from practice, that explains the rationale and process of scenario planning.

A Planning Tool

Suppose you are planning to climb a mountain. Previous planning would provide you a detailed map describing the constant elements of the terrain. Of course, this traditional planning tool is very valuable and, indeed, indispensable in this case. Just as geographical mapping is an honored art and science, so corporate mapping can be very useful. However, it is incomplete. First, it is a distorted representation (i.e., any two-dimensional map distorts the earth's surface). Second, it ignores the variable elements, such as weather, landslides, animals, and other hikers. The most important of these uncertainties is probably the weather, and one option is to gather detailed meteorological data of past seasons, perhaps using computer simulations.

However, scenario planning goes one step further. It simplifies the avalanche of data into a limited number of possible states. Each scenario tells a story of how various elements might interact under certain conditions. When relationships between elements can be formalized, a company can develop quantitative models. It

should evaluate each scenario for internal consistency and plausibility; for example, high visibility and heavy snowdrifts are an implausible combination. Although a scenario's boundary might at times be fuzzy, a detailed and realistic narrative can direct your attention to aspects you would otherwise overlook. Thus a vivid snowdrift scenario (with low visibility) may highlight the need for skin protection, goggles, food supplies, radio, shelter, and so on.

Scenario planning differs from other planning methods, such as contingency planning, sensitivity analysis, and computer simulations. First, contingency planning examines only one uncertainty, such as "What if we don't get the patent?" It presents a base case and an exception or contingency. Scenarios explore the joint impact of various uncertainties, which stand side by side as equals.

Second, sensitivity analysis examines the effect of a change in one variable, keeping all other variables constant. Moving one variable at a time makes sense for small changes. For instance, we might ask what will happen to oil demand if the gross national product increases just a fraction of a percent, keeping everything else con-

They Believed It

"Heavier-than-air flying machines are impossible."

Lord Kelvin, British mathematician, physicist, and president of the British Royal Society, c. 1895

"With over fifty foreign cars already on sale here, the Japanese auto industry isn't likely to carve out a big slice of the U.S. market for itself."

Business Week, 2 August 1968

"A severe depression like that of 1920-1921 is outside the range of probability."

The Harvard Economic Society, 16 November 1929

"I think there is a world market for about five computers."

Thomas J. Watson, chairman of IBM, 1943

"There is no reason for any individual to have a computer in their home."

Ken Olson, president, Digital Equipment Corporation, 1977

"We don't like their sound. Groups of guitars are on the way out."

Decca Recording Co. executive, turning down the Beatles in 1962

"The phonograph . . . is not of any commercial value."

Thomas Alva Edison, inventor of the phonograph, c. 1880

"No matter what happens, the U.S. Navy is not going to be caught napping."

Frank Knox, Secretary of the Navy, 4 December 1941, just before the Japanese attack on Pearl Harbor

"They couldn't hit an elephant at this dist . . ."

General John B. Sedgwick, last words, Battle of Spotsylvania, 1864

Source: C. Carl and V. Nevsky, *The Experts Speak* (New York: Pantheon Books, 1984).

stant. However, if the change is much larger, other variables (such as interest rates, money supply, and so on) will not stay constant. Scenarios, on the other hand, change several variables at a time, without keeping oth-

Scenario planning simplifies the avalanche of data into a limited number of possible states.

ers constant. They try to capture the new states that will develop after major shocks or deviations in key variables.

Third, scenarios are more than just the output of a complex simulation model. Instead they attempt to interpret such output by identifying patterns and clusters among the millions of possible outcomes a computer simulation might generate. They often include elements that were not or cannot be formally modeled, such as new regulations, value shifts, or innovations. Hence, scenarios go beyond objective analyses to include subjective interpretations.

In short, scenario planning attempts to capture the richness and range of possibilities, stimulating decision makers to consider changes they would otherwise ignore. At the same time, it organizes those possibilities into narratives that are easier to grasp and use than great volumes of data. Above all, however, scenarios are aimed at challenging the prevailing mind-set. Hence, scenario planning differs from the three aforementioned techniques in its epistemic level of analysis.

Using Scenarios

How can you use scenarios? In simplified form, people can use the technique to make individual decisions. A function, say, information systems, can also use scenario development to anticipate changes in its role. But perhaps most beneficial is its use in corporatewide strategic planning and vision building. Organizations facing the following conditions will especially benefit from scenario planning:

- Uncertainty is high relative to managers' ability to predict or adjust.
- Too many costly surprises have occurred in the past.
- The company does not perceive or generate new opportunities.
- The quality of strategic thinking is low (i.e., too routinized or bureaucratic).

- The industry has experienced significant change or is about to.
- The company wants a common language and framework, without stifling diversity.
- There are strong differences of opinion, with multiple opinions having merit.
- Your competitors are using scenario planning.

Once it develops strategic scenarios, the executive team might simply disseminate them throughout the organization to stimulate managerial thinking. Or it might use scenarios for evaluating proposals. For example, corporate executives might ask the strategic business units to submit investment proposals that project cash flow in each of several scenarios.⁶

In short, the technique is applicable to virtually any situation in which a decision maker would like to imagine how the future might unfold. In this article, I focus particularly on developing scenarios for strategic planning, but the same basic method applies to other situations of decision making under uncertainty.

Constructing Scenarios

Scenario planning attempts to compensate for two common errors in decision making — underprediction and overprediction of change. Most people and organizations are guilty of the first error.⁷ Although change in all aspects of our lives is accelerating dramatically, we tend to imagine the future without such a rate of change. Think how hard it would have been a hundred years ago to imagine the factors that propelled society into today's brave, new technological world where cars, airplanes, televisions, stereos, computers, ice-makers, and pacemakers are commonplace. Yet a small group of futurists overpredicted, expecting levels of change that failed to materialize, notably in medicine (we are losing the war against cancer), artificial intelligence (robots don't yet outsmart us), and space travel (most of us are still earth-bound). Often these forecasters were scientists or entrepreneurs whose general faith in technology, or whose momentary successes in science or business, induced unjustified leaps of faith.⁸

Scenario planning, then, allows us to chart a middle ground between under- and overprediction. It helps expand the range of possibilities we can see, while keeping us from drifting into unbridled science fiction. Scenario planning does this by dividing our knowledge into two areas: (1) things we believe we know something about and (2) elements we consider uncertain or unknowable. The first component casts the past forward, recognizing that our world possesses considerable momentum and

continuity. For example, we can safely make assumptions about demographic shifts (such as increases in the average age) and substitution effects of new technologies (e.g., digital recording will replace analog tapes and cassettes). Of course, nothing is ever absolutely certain — not even death and taxes — but to leave everything uncertain will cause paralysis in most organizations. The challenge is to separate aspects you are very confident about (and willing to bet the farm on) from those that are largely uncertain.

Obvious examples of uncertain aspects are future interest rates, oil prices, results of political elections, rates of innovation, and so forth. There are also less obvious examples, such as the probability that certain world-

A simple approach is to identify extreme worlds by putting all positive elements in one and all negatives in another.

views will reign (e.g., monetarism versus supply-side economics). It is not important to account for all the possible outcomes of each uncertainty; simplifying the possible outcomes is sufficient for scenario planning. For instance, you may want to think in terms of three possible interest rates (high, medium, and low) rather than hundreds of them. The purpose is not to cover all possibilities, but to circumscribe them.

Since scenarios depict possible futures but not specific strategies to deal with them, it makes sense to invite outsiders into the process, such as major customers, key suppliers, regulators, consultants, and academics. Or you can start with trends and scenarios that others have developed (e.g., de Jong and Zalm's four global scenarios, "global shift," "European renaissance," "global crisis," and "balanced growth").⁹ The objective is to see the future broadly in terms of fundamental trends and uncertainties. Line managers develop the basic ideas, while staff people, such as planners, develop the written version later, fill in the gaps, find new data, and so forth. The overall purpose is to build a shared framework for strategic thinking that encourages diversity and sharper perceptions about external changes and opportunities.

Next I describe the process for developing scenarios.

1. Define the Scope. The first step is to set the time frame and scope of analysis (in terms of products, markets, geographic areas, and technologies). Time frame can depend on a number of factors: the rate of technol-

ogy change, product life cycles, political elections, competitors' planning horizons, and so forth. Once you have determined an appropriate time frame, ask what knowledge would be of greatest value to the organization that far down the road. It is useful to look at the past and think about what you wish you had known then, that you know now.¹⁰ What have been past sources of uncertainty and volatility? Let's say you're developing ten-year scenarios. Look back over the past ten years at the changes that have occurred in your department, organization, industry, region, country, and even the world. You should anticipate a similar amount of change or even more in the next ten years. Ideally, groups (e.g., the whole management team) will participate in this part of the process. Their unstructured concerns and anxieties are often good starting points for scenario planning.

2. Identify the Major Stakeholders. Who will have an interest in these issues? Who will be affected by them? Who could influence them? Obvious stakeholders include customers, suppliers, competitors, employees, shareholders, government, and so forth. Identify their current roles, interests, and power positions, and ask how they have changed over time and why. For example, in the environmental area, judges, scientists, lawyers, journalists, and regulators are increasingly powerful stakeholders.

3. Identify Basic Trends. What political, economic, societal, technological, legal, and industry trends are sure to affect the issues you identified in step one? For example, a company concerned with the future of environmental issues might identify trends such as increasing environmental regulation, continuing growth of environmental interest groups, scientific advances in molecular biology, and an increasingly liberal judiciary due to a Democratic president. Briefly explain each trend, including how and why it exerts its influence on your organization. It may be helpful to list each trend on a chart or so-called influence diagram to identify its impact on your present strategy as positive, negative, or uncertain. Everyone participating in the process must agree that these trends will continue; any trend on which there is disagreement (within the time frame) belongs in the next step.

4. Identify Key Uncertainties. What events, whose outcomes are uncertain, will significantly affect the issues you are concerned with? Again, consider economic, political, societal, technological, legal, and industry factors. Will the next U.S. president be a Republican or Democrat? Will a particular piece of legislation be passed? Will a new technology be developed? What will consumers value in the future? For each uncertainty, determine possible outcomes (e.g., Republican or Democrat; legislation passed

or not passed; technology developed or not developed; whether consumers value service or price). Again, it's best to keep these outcomes simple, with a few possibilities at most.

You may also want to identify relationships among these uncertainties, since not all combinations may occur. For example, if one economic uncertainty is "level of unemployment" and the other "level of inflation," then the combination of full employment and zero inflation may be ruled out as implausible. (Later I show how a correlation matrix can help identify such linkages among all pairs of key uncertainties.)

5. Construct Initial Scenario Themes. Once you identify trends and uncertainties, you have the main ingredients for scenario construction. A simple approach is to identify extreme worlds by putting all positive elements in one and all negatives in another. (Note that positive or negative is defined here relative to the current strategy. What seems to be a negative scenario at first may later prove to be one of innovation and hidden opportunity.) Alternatively, the various strings of possible outcomes (which jointly define a scenario) can be clustered around high versus low continuity, degree of preparedness, turmoil, and so on. Another method for finding some initial themes is to select the top two uncertainties and cross them (as illustrated later in the Anglo-American case). This technique makes the most sense if some uncertainties are clearly more important than others.

6. Check for Consistency and Plausibility. The simple worlds you have just made are not yet full-fledged scenarios, because they probably have internal inconsistencies or lack a compelling story line. There are at least three tests of internal consistency, dealing with the trends, the outcome combinations, and the reactions of major stakeholders. First, are the trends compatible within the chosen time frame? If not, remove the trends that don't fit. Second, do the scenarios combine outcomes of uncertainties that indeed go together? As noted above, full employment and zero inflation do not go together, so eliminate that possible pairing or scenario. Third, are the major stakeholders (e.g., OPEC) placed in positions they do not like and can change? (For example, OPEC may not tolerate low oil prices for very long.) If so, your scenario will evolve into another one. Try to describe this end scenario, which is more stable. The stakeholder test is especially critical when building macroscenarios involving governments, international organizations (e.g., the International Monetary Fund, the World Bank, the United Nations) or strong interest groups like OPEC.¹¹

7. Develop Learning Scenarios. From this process of

constructing simple scenarios and checking them for consistency, some general themes should emerge. The initial scenarios provide future boundaries, but they may be implausible, inconsistent, or irrelevant. The goal is to identify themes that are strategically relevant and then organize the possible outcomes and trends around them. Although the trends, by definition, appear in all the scenarios, they can be given more or less weight or attention in different scenarios.

For example, a company concerned with its future liability for hazardous waste might construct three scenarios: "Superfund II," "Environmentalists Lose," and "Compromise." The political trends and key uncertainties may get more play in "Superfund II," while legal trends and the health of the economy may feature more prominently in the other two scenarios. Naming the scenarios is also important. A scenario is a story; by capturing its essence in a title, you make the story easy to follow and remember. At this stage, you have constructed learning scenarios, which are tools for research and study, rather than for decision making. The titles and themes are focal points around which to develop and test the scenarios.

8. Identify Research Needs. At this point, you may need to do further research to flesh out your understanding of uncertainties and trends. The learning scenarios should help you find your blindspots. For example, do you really understand how a key stakeholder (say, a regulator or judge) will behave in a given scenario? Often, companies know a lot about their own industry but little beyond the fringes, from which the innovations may come. So you may wish to study new technologies that are not yet in the mainstream of your industry but may be someday. Consider the developments in multimedia, where personal computers, telecommunication, entertainment, databases, and television are merging into new products and markets. A company like Apple Computer, traditionally focused on making personal computers, must now master new domains, such as electronic miniaturization (to exploit portability), artificial intelligence (to make PCs smarter), information highways (to connect), and so on.

9. Develop Quantitative Models. After completing additional research, you should reexamine the internal consistencies of the scenarios and assess whether certain interactions should be formalized via a quantitative model. For example, Royal Dutch/Shell has developed a model that keeps oil prices, inflation, GNP growth, taxes, oil inventories, interest rates, and so forth in plausible balances. As managers imagine different outcomes of key uncertainties, they can use formal models to keep from

straying into implausible scenarios.¹² The models can also help to quantify the consequences of various scenarios, say, in terms of price behavior, growth rates, market shares, and so on.

10. Evolve toward Decision Scenarios. Finally, in an iterative process, you must converge toward scenarios that you will eventually use to test your strategies and generate new ideas. Retrace steps one through eight to see if the learning scenarios (and any quantitative models from step nine) address the real issues facing your company. Are these the scenarios that you want to give others in the organization to spur their creativity or help them appreciate better the up- and downside risks in

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various strategies? If yes, you are done. If not, repeat the steps and refocus your scenarios the way an artist judges the balance and focal point in a painting. Half of this judgment is art, half is science.¹³

How can you determine if your final scenarios are any good? The first criterion is relevance. To have impact, your scenarios should connect directly with the mental maps and concerns of the users (e.g., senior executives, middle managers, etc.). Second, the scenarios should be internally consistent (and be perceived as such) to be effective. Third, they should be archetypal. That is, they should describe generically different futures rather than variations on one theme. Fourth, each scenario ideally should describe an equilibrium or a state in which the system might exist for some length of time, as opposed to being highly transient. It does an organization little good to prepare for a possible future that will be quite short-lived. In short, the scenarios should cover a wide range of possibilities and highlight competing perspectives (within and outside the firm), while focusing on interlinkages and the internal logic within each future.

Scenario Planning at an Ad Agency

The advertising industry has experienced a flurry of takeovers and mergers, which has resulted in giant agency systems like the Interpublic Group, Saatchi and Saatchi, the Omnicom Group, and Dentsu in Japan. A few years ago, I helped Interpublic develop scenarios to assess

Table 1 Some Past Changes in the U.S. Advertising Industry

1930s

- Radio develops into a mature medium.
- Celebrities' testimony used extensively.
- Social Security supplements the incomes of senior citizens.
- Local breweries flourish (after Prohibition).

1940s

- War unites the country; patriotism flourishes.
- TV blossoms as a new communications medium.
- Population shifts to the suburbs.
- Supermarkets and shopping malls develop.
- Air travel expands greatly.

1950s

- Target markets and focused ads get attention.
- Service and financial institutions grow.
- Color TVs start to replace black and white.
- Psychoanalysis of consumers becomes prevalent.
- Trademark and patent infringement results in heavy litigation.

1960s

- Ads are careful to avoid provincialism and prejudice.
- Negative advertising about competitors emerges.
- Banks start to issue credit cards.
- Computer is a new word and new product.
- Big business expands; agencies follow suit.

1970s

- Segmentation and agency creativity emphasized.
- TV fails to "kill" radio; broadcasting shifts to narrowcasting.
- Vietnam is stalemated.
- Watergate is revealed.
- Gasoline is in short supply.
- Consumer groups and environmentalists gain power.
- Japanese invade and dominate U.S. markets in electronics and cars.

1980s

- Use of personal computers and servers (replacing mainframes) increases.
- Point-of-sale scanning technology provides real-time market data.
- Money and commodity markets (especially U.S. dollar) are volatile.
- Global mega-agencies form via merger/acquisition.
- Communism crumbles worldwide (with a few exceptions).
- Media are fragmented.
- Brand names decline.

whether the global agency concept, which Marion Harper pioneered at the agency, was still viable. When interviewing key advertising executives in 1990, I asked them about past changes in the industry (and its caus-

es), current trends, key uncertainties (and their interrelationships), and their overall views of the future.

In the distant past, advertising agencies had been mostly order takers that simply executed ad placement. The traditional price structure of a 15 percent commission closely reflected the number of calls and paperwork needed for such placements. Improvements in communications technology and the emergence of mass media reduced the agency's placement costs. To justify their higher profit margins, agencies started to add services for clients such as more sophisticated designs, market research, and elaborate pitches for new business. Around 1960, clients began to view the continual addition of services as not worth the implicit price they were paying via the 15 percent commission. Skyrocketing media costs in the 1970s and 1980s for television created excessive commissions for agencies that became increasingly hard to justify with additional, but unnecessary, services. Thus the 12 percent to 15 percent commission structure came under pressure, resulting in reductions in the percentage (to as low as 5 percent to 7 percent) or fee-for-service arrangements.

In the meantime, however, the costs of delivering advertising had started to climb during the 1960s, after many decades of gradual decline. These cost increases reflected the general shift away from broadcasting (in which one message reaches many millions of consumers) to narrowcasting (where many messages reach small, targeted segments). Increasingly fine segmentation, due to reduced costs of identifying and addressing these segments, meant a fragmentation of media. For instance, *Farm Journal* recognizes about 5,000 different segments today, in terms of farming practices, regions, and crops, and it produces a slightly different edition for each. Sophisticated databases, improved software to manage relational databases, and more up-to-date information (e.g., through scanning technology, direct mail response, etc.) is changing marketing into a high-tech, fragmented battlefield where rivals increasingly compete on the basis of speed and integration.¹⁴

Steps in the Process

As I described earlier, step one involves identifying the relevant issues by studying the past, especially its sources of turmoil and change. Table 1 reminds us of the scope and depth of changes in advertising during the past six decades. For this exercise, we decided to consider a seven-year time frame. Changes happen fairly quickly in the fickle world of advertising, so anything beyond seven years is quite uncertain and hard to act on. Planning horizons and budgets rarely extend beyond five

Table 2 Perceived Trends in Advertising

- T₁ North America, Europe, and the Far East are areas of greatest growth opportunities for global advertising.
- T₂ Food, consumer packaged goods, and high-tech products are most adaptable to global marketing.
- T₃ Brand names continue to decline in value.
- T₄ Agencies will provide increased services in the areas of marketing, research, and public relations.
- T₅ Agencies will not provide accounting or financial services.
- T₆ Advertising media continue to fragment as integrated marketing increases.
- T₇ There will be a further trend toward fee compensation (versus the standard 12 percent to 15 percent commission).
- T₈ Interactive marketing (e.g., via the information super-highway) is increasingly important.
- T₉ Specialized media buying/planning agencies will expand.
- T₁₀ The commoditization of advertising (as a service) will continue.
- T₁₁ New alliances will emerge with information companies.

years, since most investments (in people, buildings, and equipment) are reversible.

As assets become more specialized (meaning that their salvage value is low relative to their costs), it pays to think longer term. For example, Royal Dutch/Shell's scenarios project fifteen years ahead, given the specialized nature of their investments. Ad agencies, in contrast, are more like speedboats than tankers. They are agile and opportunistic; they can hire and fire quickly and continually adapt to their clients. Nonetheless, Interpublic had been paying premiums to acquire agencies in its quest for a global presence. Under CEO Philip H. Geier, Jr., Interpublic assembled McCann-Erickson, Lintas: Worldwide, the Lowe Group, and Ammirati & Puris. In addition, it invested in Interactive Partners and embarked on a joint venture with Time Warner to exploit interactive marketing and entertainment media. In view of this, a time frame extending beyond five (but less than ten) years seemed most appropriate for this exercise.

Table 2 lists the trends that industry experts, managers, and knowledgeable outsiders identified (step three). The question was whether these trends were mutually consistent within the five- to ten-year time frame and what support existed for each. For example, what was the evidence that food, consumer, and high-tech

Table 3 Seven Key Uncertainties in the Ad Industry and Their Correlations**Part A Uncertainties**

- U₁ Will the evolution toward a global, borderless civilization continue?
- U₂ Can mega-agencies compete with "boutiques" or Hollywood in creating ads?
- U₃ Will advertisers remain very sensitive to potential agency account conflicts?
- U₄ Will the trend toward in-house advertising reverse itself by the year 2000?
- U₅ Is the fragmentation of media conducive to global, integrated marketing?
- U₆ Will agencies supply more than just ads, such as integrated marketing?
- U₇ Will the clients' advertising expenses remain fully deductible on tax returns?

Part B Correlation Matrix

	U ₁	U ₂	U ₃	U ₄	U ₅	U ₆	U ₇
U ₁	X	+	?	0	+	+	0
U ₂	X	X	+	+	+	+	+
U ₃	X	X	X	0	?	+	0
U ₄	X	X	X	X	+	+	-
U ₅	X	X	X	X	X	+	?
U ₆	X	X	X	X	X	X	+

X = These entries were already estimated via their mirror image above the diagonal.

products are most adaptable to global marketing? Also, why might fee compensation, customary in consulting, legal, and accounting services, be less profitable to advertising agencies than a commission structure, which is common in real estate brokerage, sports promotion, and book writing? By asking such questions, we arrived at the trends in Table 2. Such additional analyses are critical to good scenario work, since they challenge and stretch people's thinking. As Will Rogers observed, "It is not what we don't know that gets us into trouble; it is what we know that ain't so."

After trend analysis, we needed to identify the critical uncertainties (step four). Part A in Table 3 lists seven identified by industry respondents and our own analysis. Again, these presumed uncertainties should be examined further. For example, one uncertainty was whether advertisers would remain sensitive to agency account conflicts (when an agency serves competing clients). Yet agency account conflict appears not to be an issue in Spain or for Dentsu in Japan, which suggests that the assumptions underlying this uncertainty needed to be reconsidered. It was important that each person identify

only a few key uncertainties, so we could get to the core issues. Each manager wrote down three questions he or she most wanted to pose to the oracle at Delphi about the company's and industry's future environment.

Next we addressed the interrelationships among the uncertainties. We asked whether a "yes" answer to, say, U₂ affects the chance of a "yes" answer for U₃ or another uncertainty (see Part B, Table 3). If the chance of a "yes" goes up, the correlation between U₂ and U₃ is positive (+); if the chance goes down, the correlation is negative (-), and otherwise it is zero (0) or indeterminate (?). Since mega-agencies can compete better if their clients are less concerned about potential account conflicts, the correlation between U₂ and U₃ is positive. Conversely, the less deductible advertising expenses are, the more likely clients may do it in-house as part of general expenses, resulting in a negative correlation for U₄ and U₇. However, it is not clear how some of the other elements might be correlated (e.g., U₁ and U₃), and sometimes there is no

correlation at all (e.g., between U₁ and U₇). More sophisticated procedures for assessing conditional probabilities and cross-impact relationships can, of course, be used, but this simple matrix is a practical way for assessing a scenario's consistency.¹⁵

We arrived at three possible scenarios for the advertising industry, focusing on the question of global agency viability (see the sidebar). These are just learning scenarios, which require further study and shaping before becoming final decision scenarios. We placed the positive and negative outcomes (from Interpublic's perspective) of the seven uncertainties into different scenarios to obtain the extremes and added a middle-of-the road scenario. Figure 1 profiles each scenario in terms of the weight given to a "yes" answer for each uncertainty. (Because the correlation matrix in Table 3 revealed just one negative correlation, the all-positive or all-negative worlds were internally consistent.) In addition, the trends were an important part of each scenario (but, by definition, are constant across them). What needs more analysis was how the various actors are likely to behave in each scenario. For example, the mega-agencies will

Three Scenarios for the Advertising Industry

Total Globalization

The mega-shops dominate the world marketing scene in Europe, China, Japan, Korea, and beyond. The issue of agency account conflicts disappears. Advanced communication technology speeds up the homogenization of the world's cultures as global marketers expand. Attempts to create regional trading blocks fail, and global brand names flourish. Cars, electronic products, packaged foods, clothing, and many other products compete in a global marketplace with global competitors. Although media are fragmented locally, the information highway permits the transmission of targeted messages to increasingly smaller segments (i.e., mass customization).

Agencies provide a broad range of services in view of the external complexities facing clients. As agencies and advertising grow together, they become inextricably linked in terms of profits and information. The world marketing front becomes a battleground of Titans. The profits are enormous, since the barriers to entry are substantial. Fee and performance compensation structures are common, with long-term relationships being the norm. The mega-agencies thrive in part because of their more professional approach to business, with better-trained account executives and office managers. Many mega-agencies invest heavily in managerial training and development, via "in-house universities," which give them a strong edge.

Polarization Is "Hot"

Globalization and localization flourish side by side, due to the emergence of strong regional tradeblocks (NAFTA, the European

Community, Pacific Blocks, etc.). Negative reactions to the export of U.S. pop culture is on the rise (e.g., Disney's theme park in France). Mega-shops serve global marketers of consumer products, providing a broad range of services and developing close relationships. Global marketers consolidate accounts among a few key agencies. The issue of account conflicts among the high rollers exists in some accounts, in part because of a few well-reported leaks. Compensation structure varies depending on billings and client/agency relationships.

Localized, specialized, or "boutique" agencies also flourish as the mega-shops cannot maintain profitable relationships with specialized industries, small regional advertisers, or controversial products (e.g., condoms). Specialized support services such as marketing research firms continue to flourish. Some big, disillusioned clients turn increasingly toward nontraditional sources for creative ideas, notably film producers. The mega-agencies are unable to compete for new advertising, and attempts at strategic alliances with Hollywood studios fail due to culture and ego clashes. Also, the increasing fragmentation of media (with more than 500 cable channels, CD-ROMs, radio, print, etc.) favors more specialized players that understand selected niches better. In an attempt to boost their tax revenues, various governments institute percentage caps on the deductible ad expenses.

Mega-Shop Dinosaurs

The mega-shops reign for a short time, just beyond the turn of the century. They are eventually crippled by their sheer size, central ownership, and the bureaucracy that

often accompanies such structures. They are slow to adapt to media changes (especially interactive), relying instead on personal relationships through account executives. As a consequence, their flexibility and creativity suffers. Advertising by mega-agency is increasingly seen as a commodity and bought on price. The lumbering mega-shops gradually lose business to the smaller but "hotter" agencies, especially as clients restructure into networked entities with high personnel turnover. Military conflicts around the world (especially in Eastern Europe and the Middle East) lead to isolationism and nationalism and frustrate any attempts at the creation of truly global markets.

In addition, advertisers in many countries remain highly sensitive to agency account conflicts. Privately held start-ups emerge with revolutionary creative and management styles. Specialized media agencies and cooperatives develop, pooling client resources to profit from media-buying leverage. Creative compensation structures emerge as advertisers demand that agencies be financially accountable and as agencies' competition heats up. On top of this, the Democrats (in their quest to fund social programs) limit the tax deductions associated with advertising. This further undermines firms' investments in brand equity, which together with a poor economy puts an emphasis on value and price discounts. The premiums paid by mega-agencies in the 1970s and 1980s fail to deliver superior returns. The stock prices drop, and several mega-agencies are forced to divest themselves of the premium acquisitions of the 1980s and 1990s.

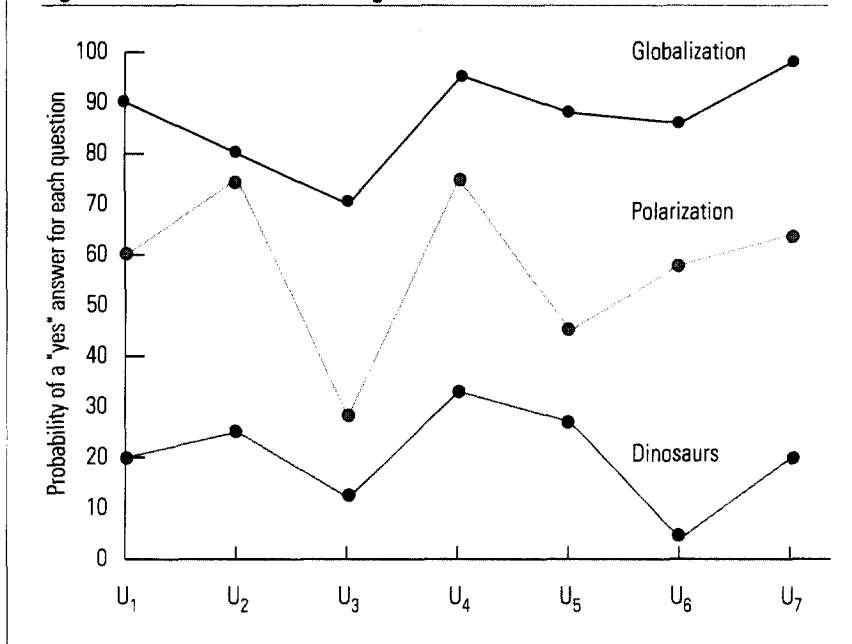
not like the "dinosaur" world, so a critical question is how they might respond if this scenario emerged. The "Polarization Is 'Hot'" scenario combined two outcomes (a "yes" for U_2 and a clear "no" for U_3), even though they are presumably positively correlated. Such tension or slight inconsistency should be an impetus for further analysis of the scenarios, perhaps through quantitative modeling.¹⁶

Implications of the Scenarios

Each scenario poses a different set of strategic challenges and requisite core capabilities. Exploring them turns the initial learning scenarios into final decision scenarios. The globalization scenario, for instance, requires a much stronger emphasis on integrative marketing. First, the ac-

count manager has to learn how to sell multiple services at multiple levels within the client organization. Second, the agency's team has to learn how to approach the client's problems from a marketing perspective rather than just an advertising one. These challenges are especially formidable since the world at large is framing advertising agencies as only a place where you can buy bold, creative ads. All other services can be procured elsewhere, including in-house. Yet the global marketplace requires integrated marketing solutions that combine advertising with direct mail, channel, and trade management. And such strategies can be devised only if the market itself is thoroughly understood, which requires stronger market research. The key question is who will do it? The client, the ad agency, or other sup-

Figure 1 Profile of the Advertising Scenarios



pliers — market research firms, direct mail specialists, public relations agencies, or marketing consulting firms?

Interpublic is vigorously pursuing the global agency concept, putting its faith in the first scenario. It is upgrading the quality of its local management teams, reducing barriers to cross-agency and cross-country collaboration, building financial muscle, and pursuing global clients. But as its motto (“Think global, act local”) indicates, Interpublic is also following the second scenario and is looking for signals that the third might emerge. Each company must decide for itself, once it constructs scenarios, whether to gamble the future on one scenario, stay flexible to exploit multiple scenarios, develop exit routes in case things sour, or hedge the risk through strategic partnering or diversification.

Whichever approach you pursue, developing early indicators for each scenario helps you recognize, before competitors, which way the world is headed. A pharmaceutical company, concerned about the empty industry pipeline for new products, was able to better track the new drug development applications filed with the Food and Drug Administration and foreign regulatory agencies. A major life insurance firm, concerned with the impact of genetic testing, identified indicators that included biotech research on DNA markers and legal rulings with various states involving the use of genetic screens in underwriting.

Scenarios can be used to (1) identify early warning signals, (2) assess the robustness of your core competencies, (3) generate better strategic options, and (4) evaluate the

risk/return profile of each option in view of the uncertainties. Also, they can help communicate messages within the firm, such as the need for fundamental change and the importance of thinking globally and developing strategic alliances.

Rules of Interaction

So far, our scenarios have described futures over which we have limited control, such as the macroeconomic or political environment. The emphasis on “trends” suggests the importance of static and largely uncontrollable forces in strategy. However, to appreciate how these trends, once combined with the uncertainties, give rise to scenarios, we must understand interactive elements. For example, if

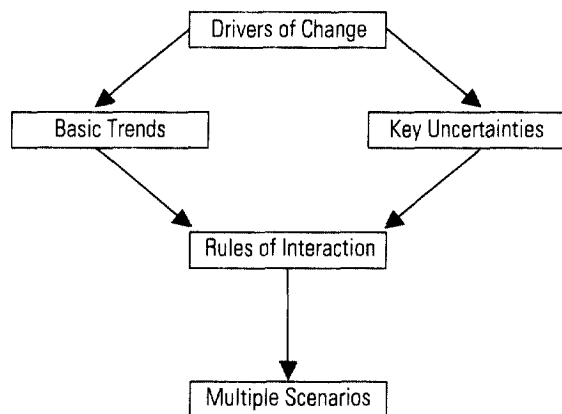
the trend in an industry is to compete on price alone, then, at some point, this trend may cease because the companies that are not the low-cost producers will try to shift the competition toward such factors as quality, service, innovation, delivery time, etc. Our earlier emphasis on stakeholder analysis acknowledges that few trends last forever. In this section, I describe how the dynamic interactions in a system, in addition to the more static trend analysis, can be built into scenario planning (see Figure 2). While finding all the hidden assumptions and reasoning in managers’ mental maps is infeasible, it is worthwhile to find the most important implicit “rules” that drive key inferences.

The more control the actors can have over a trend, the quicker it may vanish. A company cannot change the demographic trend of an aging population, but an industry can change price competition. When dealing with highly interactive situations (in which stakeholders react to events and each other), you may need to express the scenario elements not just in terms of trends and uncertainties, but also in terms of the rules of interaction. Anglo-American Corporation of South Africa, mentioned earlier, used such explicit rules to guide its scenario work.¹⁷ Its approach, which I broadly summarize next, shows how to use rules along with trends and uncertainties.

Scenario Planning at Anglo-American Corporation

In 1984, Anglo began to identify broad global trends. It

Figure 2 Building Blocks for Scenarios



projected a long-term schism between the Triad (North America, Japan, and Western Europe) and the rest of the world (billions of poor, young people). (The Triad earns just over two-thirds of the world's income, yet accounts for only 15 percent of its total population.) Another presumed trend was that the continent of Africa would remain a "swamp or pit" for several decades due to poor food production, exploding populations, political turmoil, limited natural resources, and so forth. Hence, Anglo felt that the market for new products and economic growth was in the Triad, not Africa (one of its rules and key inferences). A third global trend Anglo bet on was the emergence of a new technological wave (propelled by advances in microelectronics, telecommunications, biotechnologies, and new material sciences). This wave, it assumed, would bring about fundamental economic change.

Based on these trends and its general beliefs about how the world operated, Anglo postulated the following rules of the game for "winning nations," which capture the dynamic elements, highlighting how countries can succeed. Anglo's rules emphasized the importance of having (1) a global presence in end markets, (2) a highly educated workforce, (3) access to world capital markets, (4) proprietary, as opposed to licensed, technology, and (5) a sound work ethic. Anglo assumed that countries with these features would do well in global competition, in view of the overall trends, whereas countries without them would do increasingly poorly. However, the pace of this presumed polarization, and therefore the fate of South Africa and Anglo, depended on some key uncertainties whose resolution was yet to be determined.

Hence, the third step in Anglo's process was to identify the key global uncertainties, which at that time (circa

1984) ranged from the U.S.-Soviet arms race to the spread of Islamic fundamentalism (see Table 4). It deemed two uncertainties especially critical, namely (1) how the U.S.-Japan trade dilemma would be resolved (i.e., via accommodation or trade conflict), and (2) whether detente or an arms race would prevail between the United States and the former Soviet Union. Of the four possible outcomes implied by these two dichotomies, only one was considered implausible, namely that the United States would embark on both an arms race with the former Soviet Union and a trade war with Japan. The remaining three combinations provided the basic themes for three different global scenarios: "Industrial Renaissance" (detente and trade accommodation), "Protracted Transition" (detente and trade war), and "Imperial Twilight" (arms race and trade accommodation). (See Table 4, part B.) To develop a fuller story line for each scenario, Anglo examined the other uncertainties and postulated outcomes that fit the theme. For example, political unrest in the Middle East or an explod-

Table 4 Global Uncertainties for Anglo-American Corporation

Part A Uncertainties

- U₁ Trade conflict between the United States and Japan
- U₂ Arms negotiations between the United States and the USSR
- U₃ Proliferation of nuclear weapons
- U₄ Spread of AIDS
- U₅ Rise or fall of Islamic fundamentalism
- U₆ Impact of Europe 1992
- U₇ Deterioration of ozone layer
- U₈ Middle East war (or third world war)

Note: These uncertainties are a subset of those Anglo-American Corporation examined in 1984 as part of its global scenario analysis.

Part B Two Uncertainties Combined

		United States/Japan	
		Trade Accommodation	Trade Conflict
United States/USSR	Arms Race	Imperial Twilight	X
	Detente	Industrial Renaissance	Protracted Transition

ing AIDS epidemic fit better within Imperial Twilight than Industrial Renaissance. After completing each cell, using the earlier rules of the game, Anglo then tried to quantify the growth of GNP in different parts of the world under each scenario and predict the economic success of different countries.

In the fourth step, the company examined South Africa's prospects in light of the global scenarios (reflecting the global trends, rules of the game, and key uncertainties). For the political scenarios of South Africa, Anglo presumed the following additional rules: First, whites would not "unconditionally surrender," due to their military power and the lack of historical precedence. Second, whites could not be militarily victorious, due to escalating violence and foreign pressure. Third, South Africa would be an industrialized nation with great economic potential once its internal problems were resolved. Fourth, South Africa would never fully satisfy the world's political agenda. Fifth, statutory apartheid would end. Research, historical comparisons, and common sense went into drawing up these rules of the political game, which were presented as inescapable realities within which strategic thinking and action had to take place.

Last, Anglo identified key domestic uncertainties, such as "What will be the future balance of power in South Africa?" "What will happen to the homelands?" (i.e., areas set aside in South Africa as self-governing states for nonwhites). It then combined these with the trends and rules to develop two domestic scenarios — high road and low road. The high-road scenario required strategic alliances, sharing of power, and democratic welfare (as in Switzerland) in order for South Africa to be a significant actor on the world stage. The low-road scenario was essentially a circle of violence, which would propel South Africa slowly but surely into an economic wasteland. Both scenarios were possible within the rules of the games identified and the uncertainties ahead. Neither one could be guaranteed or forced by any single party. However, their odds could be significantly influenced by future actions.

The Anglo scenarios were not just an intellectual exercise; they were powerful means of shaping the debate and influencing the agenda for political action in South Africa. Anglo apparently recognized, after examining the various scenarios, that its future would be very bleak under the low-road scenario. Consequently, executives decided to share their views and insights (via lectures, a video, and a book) in an effort to embark on the high road. The Anglo scenarios had much impact in South Africa and continue to frame internal debates. The remarkable strides made by then prime minister F.W. de

Klerk — freeing Nelson Mandela, phasing out apartheid laws, negotiating with the African National Congress, regaining recognition as an international trading partner, and calling for free elections — are in line with Anglo's high-road scenario and overall hopes for the future. The subsequent election of Mandela as South Africa's first black prime minister further solidifies the high-road scenario, although major challenges remain.

Anglo was successful because the scenarios were intellectually honest, clearly presented, and broad enough to permit a dialogue between opposing power groups. The approach of identifying trends and key uncertainties,

The Anglo scenarios were not just an intellectual exercise; they were powerful means of shaping the debate and influencing the agenda for political action in South Africa.

and making the rules of interaction explicit, provided a framework for constructive debate. Dynamic, as opposed to static, scenarios help people reason through the multiple pathways an industry or company may traverse in view of the prevailing trends, the presumed rules of the game, the uncertainties that lie ahead, and the stakeholders involved.

Scenario Planning in Your Company

To start scenario planning in your company, you may want to convene a one- or two-day scenario workshop in which the focus is on the outside world, without the complications of internal strategy or competitive issues. If you believe that your industry is not an island unto itself but is shaped by larger political, economic, social, and technological forces, start with the external drivers. Invite from six to twenty bright people to your scenario team, including some from outside the company — suppliers, customers, regulators, board members, analysts, or academics. Then untangle the external issues into underlying trends and uncertainties and repackage them into broad-ranging and fundamentally different scenarios. The recombining of the basic elements (trends, outcomes, rules, and stakeholders) can be done in at least three different ways:

1. *Intuitively.* Once all pieces are laid out, you have to find some major themes and story lines around which to organize all the elements.¹⁸

Table 5 Positive versus Negative Elements in Scenarios

	Mean	Standard Deviation	Sample Size	Significance
Number of positive trends identified per subject	2.00	.83	59	.001
Number of negative trends identified per subject	1.48	.94	59	
Number of positive outcomes listed per subject	3.58	.88	59	.16
Number of negative outcomes listed per subject	3.42	.81	59	
Subjective probability of positive outcomes	51%	12	56	.001
Subjective probability of negative outcomes	43%	13	56	
Plausibility of the positive scenario (1-7 scale)	4.7	1.1	57	.18
Plausibility of the negative scenario (1-7 scale)	4.5	1.2	56	

Note: Significance levels in the last column refer to a t-test for differences in means between positive and negative items within each pair (with a z-test for the third pair). Each subject identified about four trends on average (including indeterminate ones in terms of impact) and identified 3.7 uncertainties on average.

2. *Heuristically.* Select the two most important uncertainties (e.g., by asking members to vote for them individually) and place them in a matrix (see the Anglo-American example in Table 4) to get some starting points for the scenarios, and then layer in the other elements.

3. *Statistically.* Systematically combine the outcomes of all the key uncertainties into internally consistent strings to provide feasible boundaries, as in the advertising agency example.¹⁹

Do Scenarios Work?

So far, I have assumed that scenarios (however they are developed) do, in fact, stretch and refocus our thinking. But will they indeed correct, say, our bias toward overconfidence, i.e., the tendency to assume that we know more than we do? And can a manager benefit from scenarios without actively participating in their development? Can, for example, an executive team generate and distribute scenarios to managers and get the same effect as it would if the managers participated in creating the scenarios?

I examined these questions experimentally by contrasting best estimates and confidence ranges before and after scenario construction.²⁰ (Confidence ranges are the numerical limits on a best estimate to reflect the level of uncertainty.) For instance, a manager might estimate next quarter's sales to be Y units, and be 90 percent certain that the actual level will be between X and Z units.

The typical manager is overconfident; the range between X and Z is likely much too narrow.²¹ Therefore, if scenario planning works, it should, at a minimum, widen confidence ranges.

The sixty-eight subjects in my study were evening MBA students at the University of Chicago. I asked them to identify several issues relevant to their daytime jobs (e.g., involving product development, competitor behavior, and so on). Then I asked them to provide best estimates as well as subjective confidence ranges of 90 percent and 50 percent. For example, a student might estimate that sales for her company would be 50,000 units per year five years hence. Then she would determine that she was 90 percent sure that the actual sales volume would be between 30,000 and 70,000 and 50 percent sure that it would be between, say, 40,000 and 60,000. Each student also asked a colleague at work who was familiar with the issues for similar estimates.²²

Several weeks later, each student developed a few scenarios for the initial issues and used them as the basis for a new round of best guesses and confidence ranges (ignoring the first round). As before, each subject requested new estimates from the colleague at work after explaining the specific scenarios. This way I could test whether the scenarios had any systematic effect on the estimates of either the students or their colleagues.

Averaged across all cases, confidence ranges widened about 50 percent. The scenarios affected best guesses less than ranges, although there was considerable vari-

ability in both. Because the scenarios had the same impact when developed by the person as when supplied by others, it is clear that not everyone needs to be involved in the scenario development process. However, one benefit of personal involvement is greater intellectual ownership, so senior executives should be intimately involved in the process. Scenarios developed by others may have more surprise or learning value but perhaps lower credibility.²³ But personal involvement may mean that you bias the process or suppress new ideas.

Biases in Scenarios

Although scenarios can free our thinking, they can still be affected by biases. When we are making predictions, we tend to look for confirming evidence and discount disconfirming evidence, and this bias can creep into the scenario development. I asked some MBA students to develop both positive and negative scenarios for the industries in which they expected to be employed after graduation, ranging from banking and management consulting to consumer products and real estate. (I conducted this study in 1986, when none of the students would have imagined that a stock market crash in 1987 would adversely affect jobs on Wall Street and in management consulting for several years after.) I also asked them to score each trend as clearly positive, negative, or indeterminate. On average, each student identified two positive trends in his or her field and only 1.48 negative trends (see Table 5). They also weighted the probability of positive outcomes more heavily than negative outcomes.

People sometimes also presume correlations among the uncertainties that are inconsistent. For example, a person may believe that (1) if inflation is high, employment is high (a positive correlation), (2) if inflation is high, then interest rates will be high (another positive correlation), and (3) if employment is high, then interest rates will be low, reflecting a strong economy (a negative correlation). These three correlations, however, are not internally consistent. If the first two pairs are strongly positive in their correlation, then the third pair must also be, on purely mathematical grounds. When I tested the opinions of my students using such a statistical consistency test, I found that the vast majority held self-contradictory beliefs. Since the perceived correlations drive and constrain the clustering of outcomes in the scenario-building process, such incoherent beliefs need to be adjusted.

Fortunately, however, not all biases in scenario building are disruptive. Indeed, I believe that the method derives its power in part from what Tversky and Kahneman

termed the "conjunction fallacy."²⁴ People often deem the conjunction of two events to be more likely than the occurrence of either of these events alone, in clear violation of the elementary laws of probability. To test this, in 1986, I divided seventy-six MBA students into two groups and asked them to assign a subjective probability to one of these two events:

A. U.S. economic GNP growth will be at least 4 percent per year by 1990.

B. The United States will have a trade surplus with Japan by the end of 1990.

The average subjective probability for event A was 47 percent; for B, 18 percent. Then I asked the students to judge the probability that both A *and* B would happen and found an average probability of 20 percent.²⁵ Somehow, they perceived the conjunction of A and B as more plausible than event B alone. One reason may be that the conjunction of A and B provides a causal explanation. A strong economy may be precisely the reason why a trade surplus occurs.

As Kahneman and Tversky put it: "A scenario is especially satisfying when the path that leads from the initial to the terminal state is not immediately apparent, so that the introduction of intermediate stages actually raises the subjective probability of the target event."²⁶ Conjunction fallacies can increase the perceived plausibility of unlikely scenarios, especially if they offer concrete detail and are causally coherent.

Conclusion

When contemplating the future, it is useful to consider three classes of knowledge:

1. Things we know we know.
2. Things we know we don't know.
3. Things we don't know we don't know.

Various biases — overconfidence, under- and over-prediction, the tendency to look for confirming evidence — plague all three, but the greatest havoc is caused by the third.²⁷ Although there are no failproof techniques, focusing attention on two and three can gain much improvement. And this is where scenario planning excels, since it is essentially a study of our collective ignorance. It institutionalizes the hunt for weak signals, such as OPEC's price hikes in 1973 or Gorbachev's political ascent in the early 1980s. The scenario method continually pushes the envelope of possibilities since it views strategic planning as collective learning.²⁸

Good scenarios challenge tunnel vision by instilling a deeper appreciation for the myriad factors that shape the future.²⁹ Scenario planning requires intellectual courage to

reveal evidence that does not fit our current conceptual maps, especially when it threatens our very existence. Nonetheless, what may initially seem to be bleak scenarios could, in fact, hold the seeds of new business and unrecognized opportunity. But those opportunities can be perceived only if you actively look for them. Pierre Wack once characterized scenario planning at Royal Dutch/Shell as "the gentle art of re-perceiving."³⁰ To him, the test was whether scenario planning would lead to more innovative options. In addition to perceiving richer options, however, we must also have the courage and vision to act on them. As F. Scott Fitzgerald noted, "The test of a first-rate intelligence is the ability to hold two conflicting ideas in mind at the same time, and still retain the ability to function." ♦

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