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SCENARIO WRITING—A TEACHING SESSION

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The construction of scenarios in futures studies, with illustrations from the 'Future of Property and Casualty Insurance Study' recently completed at USC by the Centre for Futures Research and the Insurance and Risk Management Institute.

MR. DAVID WILLIAMS: Our speaker this morning who gave the key note address gave us a good overview of the spectre of change that is overhanging us and how we should try and manage that. We would like to get, this afternoon, into a demonstration of the specifics of how we go about quantifying that process and trying to determine specific responses to it. Our speaker is a specialist in Futures Research, Issues Management and Policy Analysis. Presently he is Senior Research Associate at the Centre for Futures Research at the University of Southern California, where he has developed the nation's first program dedicated exclusively to the application of futures research techniques to the investigation of strategic futures for financial institutions. Of course, this is one of the major reasons why he is here today.

Prior to joining CFR in 1978 he worked at a senior level in futures oriented operations such as the task force on electronic fund transfers as a cofounder of the futures group, and at the Institute for the Future and at the Rand Corporation.

So he has obviously excellent credentials in this field. In addition he has been an active consultant in the field of futures research as applied to strategic planning. He has taught, lectured, and conducted seminars for a broad range of institutions and has also found time to author or coauthor about a hundred publications.

For recreation and a change of pace Mr. Boucher enjoys motorcycling, as well as more traditional pursuits. His friends in the actuarial profession certainly hope that this hobby will not unduly shorten his time horizon for futures investigations. Considering this additional element of uncertainty, I believe that we are extremely fortunate to have

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Mr. Boucher here to talk to us today. He will speak to us on the art or science of Scenario Writing as a futures technique, how it is done, and its role in development of strategic futures for financial institutions.

WAYNE BOUCHER: Thanks very much. I am glad to be here, and to minimize to ~~risk~~ that I wouldn't make it, I haven't ridden the motorcycle for weeks.

Most of you are members of the Futures Section of the Society of Actuaries, and I assume among other things that means that you're knowledgeable about some of the techniques that are associated with futures research like Delphi and trend extrapolation of one kind or another. You've heard about scenario writing, and some of you have actually written scenarios, I'm sure.

What I want to do in the time we have together this afternoon is to share with you a new way of looking at scenario writing, and I will give you some very concrete examples of what I have in mind. In the course of doing that I want to accomplish one other thing, that is, to demonstrate that scenario writing is the most powerful technique of Futures Research. It allows you to do things you could not do in any other way, things which are vitally important if you're not merely speculating about the future, but trying to get some useful insight into your own organization's future.

Against that background, let me say at the outset that I'm going to try to avoid all sloppy uses of the word 'scenario' henceforth. Some think that H.R. Haldeman, who came from an advertising background, introduced the use of the word 'scenario' to mean a possibility, a particular forecast, a hunch, an intention, a strategy, a plan, and so on and so on. I'm not going to be talking about scenarios in that way, but in a very different way.

What is a Scenario? Well there are some technical answers, some serious answers. Here are three of them:

1. The first is from Kahn and Weiner in their book 'The Year 2000' which is a classic statement about scenarios and how they are created and used. "Scenarios are hypothetical sequences of events constructed for the purpose of focusing attention on causal processes and decision points. They answer two kinds of questions: (i) Precisely how might some hypothetical situation come about, step by step? (ii) What alternatives exist, at each step, for preventing, diverting or facilitating the process?" This is sometimes called the Branch Point scenario, in which you look for a path over time, and clearly display the places at which crucial decisions have been made that forever close the future to you. You decide to turn left at the fork in the road but

you know you could have turned right, and in retrospect you can go back and review those paths.

2. A second definition, by S. Brown, is from a very good book that I had the pleasure of coediting, 'Systems Analysis and Policy Planning': "A scenario in Systems Analysis can be defined as a statement of assumptions about the operating environment of the particular system we are analysing." This is the Slice of Time scenario. You take your system out to some point in time and ask what the world is like in which it has to operate. Will it work because of these operating conditions?
3. The third definition is very much like the second except it adds a key word that I wanted to show you. This is from Battel, which has a program they call BASICS (the Battel Analytic Scenario Information System): "A scenario is a description of a consistent set of conditions and circumstances that defines the environment within which business will be conducted in the future". Note the addition of the word 'consistent'. An effort must be made to define the operating environment in such a way that there are no contradictions built into it.

I could have shown you many more definitions of 'scenario' from the technical literature. These are fine as far they go, but they don't go far enough. What a scenario is and how to write it goes well beyond what you see there.

If you look at scenario writing much more rigorously, you will probably find that there are four kinds of scenarios. Each has different properties, each is written in a different way, and each serves different purposes. I call these four the Demonstration scenario, the Driving Force scenario, the System Change scenario, and the Slice-of-Time scenario. I want to show you all four of them in action with real examples and tell you something about how it's done. Then I'll make it complicated, and after that you may have something you can really use.

The Demonstration Scenario

A demonstration scenario is Herman Kahn's Branch Point scenario, for all practical purposes. It posits a particular end state and then describes a distinct and plausible path of events that could lead to that end state. What is it you're worrying about? A new competitor entering the market? Failure of a product? The success of employee relations? Whatever it might be - what's the end state and how might we get there from here via a sequence of distinct and plausible events. The basic purpose of this kind of scenario is to show that at least one such path can be devised, and hence that the outcome could occur.

In writing such a scenario you have a few goals in mind. First of all is just to raise the possibility of the end state, so that the user of the scenario will say "I never thought that was a real possibility." The second is to indicate not that the end state is just possible, but that it is worth serious attention. You could write such a scenario in order to evaluate your current planning assumptions. If the end state is outside your set of planning assumptions, it challenges you to develop more robust assumptions. Having done this properly, that is, by describing the paths that lead to the end state that concerns you, you will have a whole sequence of trends and events. Then you can incorporate this material into your future studies.

You know, if these trends and events will get us to that end state, then maybe we should look at them a lot more carefully. Should we forecast them in greater detail? This line of thought suggests how the Demonstration scenario can be used to start a future study.

The Demonstration scenario is the original form of scenario, going back to the Rand days, when Herman Kahn and other futures researchers were there writing them. They wrote these scenarios because of interesting end states, i.e. to identify the path that lead there, and to establish a framework for looking at the implications of the end state. Hey look, this outcome is possible, now what does it mean? What are the implications? How do we deal with them? That was the primary application of this original kind of scenario. Another application is to motivate stakeholders and decision makers: to get them fired up, to get them thinking more creatively about the future.

Let me show you a Demonstration scenario. This is a real scenario. I can't identify the source, but I assure you it was done by somebody whose name you wouldn't recognize, for a very serious purpose, in a real organization, dealing with a real problem. The scenario writer wanted to devise a credible scenario for the outbreak of general war, i.e. an exchange of nuclear weapons from the soil of the Soviet Union to the soil of the United States.

This happens to be the most difficult scenario to write: to show that it's possible for rational people to launch a nuclear war. Incidentally, the writer was doing this to set the stage for something else. Really, he was interested in how well reconnaissance aircraft and satellites would work in a nuclear war environment. So, having brought the world to the point of war, he can ask the question, in a war game setting, of how well reconnaissance works in this environment.

What the author did in this case was to pick a hierarchical and sequential structure. By sequential, I mean that he divided his discussion of the future into eleven parts, and he wrote

the whole scenario in a hundred and twelve statements. That provides a hundred and twelve branch points. It's hierarchical in the following sense: the author says, to get to the end state we're interested in, I must first look at what the world is like. Then I've got to look at Europe, at the Orient, and at the United States. Then I've got to look at a conflict situation among a couple of these parties, and then I've got to look at details of that situation, and then I've got to determine the moment of outbreak of war. So he starts very broadly, with a big picture, narrowing down to the point of calamity.

This is merely a hypothetical string of events to find out how well this war game, or the issue of reconnaissance, can be analysed. It's not a prediction or a forecast of the events that lead to the outcome, or of the outcome itself.

Particular occurrences may be unlikely but are not necessarily incredible, i.e. low probability, high impact events occur. That happens all the time in the real world. Low probability, high impact events that occur are called 'surprises', and he's built some surprises into his scenario.

(Scenario highlights and some of the scenario statements are given in Appendix A).

A scenario such as this is naturally quite dramatic. The basic question is, could it really happen? If you think it really couldn't happen, then you have to identify one or more branch points where the information is suspect, where you would change things or call for more detailed study, to see what could happen. And that's how this scenario can be used. Note further that there are all kinds of developments in this scenario. There are political developments, economic, technological, (phones that don't work and birds that don't fly), military of course, in addition to social events, trends and so on. A whole range of different kinds of developments have been interwoven together.

Actuarial scenarios would deal with developments (trends or events) that are company or industry specific.

My acronym for these categories of issues is 'MOLEST': Market place, Operations, Law, Economics, Society, and Technology. It's the MOLEST categories that you have to be concerned with in your scenario writing and your futures research. In the studies we're doing right now at the University on the future of the life and health insurance industry, we're using that structure. In each of those categories, we have identified ten sub categories so we have about a hundred categories that we're dealing with covering every possible problem we can imagine, from demographics to computers. And if you're interested in how we have organized our problems to think in that broad a way, you can look at this list.

The Driving Force Scenario

The essence of a Driving Force scenario is that it posits something called a 'scenario space'. It specifies distinctly different levels for each main trend or macro-indicator involved and then describes the future associated with one of the resulting combinations. The basic purpose of the Driving Force scenario is to clarify the nature of the future in question, and to contrast this future with other possible futures in the same scenario space. What's a scenario space? In Figure 1 we're talking about just two macro-indicators, GNP growth, and population growth. Obviously GNP growth can be high, medium or low. Population growth can also be high, medium or low. Thus the combination of these two gives you nine futures. Each of those nine is what I call a Driving Force scenario.

The driving forces in this case are population growth and GNP growth. You can imagine a multi-dimensional array in which the scenario space gets quite complicated, but the same principle holds. You set the trends at some level, even crudely (like high, medium and low), and then work out the various logical combinations and focus on them.

Driving Force scenarios are intended to give you an essentially complete range of futures. Using the scenario space to get an idea of the range, you can test your planning assumptions to see how well they work in a variety of those intersections, and you can also select a 'base case' for developing and evaluating optional strategies. Suppose you developed a particular strategy, and you found that it worked well in about eight out of ten plausible environments, you might say, "That's a good strategy or policy, because it will produce a good outcome under most circumstances" Typical applications include Multiple Scenario Analysis (MSA). That is the current buzzword of Corporate America. It simply says that you will consider at least three possible combinations of indicators, at least three of the cells in the scenario space, and test your policies, and assumptions against those worlds.

Driving force scenarios can be highly motivating, if done properly. Like all other kinds of scenarios they can promote a flow of creative juices. They are unique in that they can provide a common framework and starting point for a more detailed study of the developments throughout the scenario space, during the period of time covered by the scenario. You will recall that a Demonstration scenario is written so that you can look at something coming after it in time. In a Driving Force scenario, you write the scenario so that you can look at something inside it.

A more realistic example of a scenario space is given in Figure 2. Ted Gordon and I and another fellow developed this scenario space nine years ago for the electronics industry association.

FIGURE 1

THE CONCEPT OF A SCENARIO SPACE

	POPULATION GROWTH		
HIGH	HIGH	MEDIUM	LOW
MEDIUM			
LOW			

GNP GROWTH

FIGURE 2

SOME ELEMENTS OF U.S. LIFE	SOME POSSIBLE FUTURE WORLDS		
	I. INNER-DIRECTED	II. EXPANSIONIST	III. INTERNATIONALIST
	DOMINANT GOAL	MODE OF ACHIEVEMENT	MODE OF ACHIEVEMENT
A. NATIONAL GOALS	ENHANCED QUALITY OF LIFE	AMERICA FIRST	PERPETUAL PEACE
	1. INSTITUTIONAL REFORM & PHYSICAL RECONSTRUCTION 2. INCREMENTALISM 3. IMPERIALISM	1. GUARANTEED ECONOMIC DOMINANCE 2. RAPID ECONOMIC GROWTH 3. SOCIALISM	1. ONE-WORLD ABSTRACTION OF DIFFERENCES 2. RESPONSIBLE SOVEREIGNTY 3. AMERICA FIRST
B. MILITARY STANCE	PROTECTION OF AMERICA	PROTECTION OF U.S. ECONOMIC ADVANTAGE	PRESERVATION OF WORLD PEACE
	1. "PEOPLE'S ARMY" 2. STANDING ARMY AT HOME 3. COVERT WAR	1. STRONG FORCES WHERE NEEDED 2. LIMITED INVOLVEMENTS 3. WARS FOR MARKETS & RAW MATERIALS	1. NATIONAL POLICE FORCES ONLY 2. "PEACE DIRECTOR" NATIONAL FORCES 3. STATUS QUO
C. BUSINESS AND ECONOMIC LIFE	RESPONSIBLE GROWTH IN A MIXED ECONOMY	HIGHEST PROFITS	INTERNATIONAL BOOT-STRAPPING
	1. SOCIAL ACCOUNTABILITY 2. "FAIR-PLAY" 3. UNBUE PROFIT	1. CONTINUED UNLIMITED EXPANSION 2. SATISFACTION OF DEMAND 3. SOCIAL ACCOUNTABILITY	1. JOINT VENTURES FOR WORLD ECONOMIC DEVELOPMENT 2. MULTINATIONALISM 3. TRADE WARFARE
D. DOMESTIC POLITICS AND GOVERNMENT	DOMESTIC TRANQUILITY	ECONOMIC STABILITY AND GROWTH	WORLD COOPERATION
	1. INFORMED PARTICIPATION 2. EXPANDED SERVICES 3. "FRIENDLY FACISM"	1. PROTECTIONISM 2. STRONG MIXED ECONOMY 3. DEFICIT SPENDING, INFLATION	1. EXTENDED LIMITATIONS ON NATIONAL POWERS 2. REGIONAL COOPERATIVE ASSOCIATIONS 3. UNILATERALISM
E. PERSONAL VALUES	SELF-ACTUALIZATION	SELF-AGGRANDIZEMENT	BROTHERHOOD
	1. ALTRUISM 2. CONSTANCY 3. HEDONISM	1. "PURITAN ETHIC" 2. COOPERATION FOR PROFIT 3. SLOTH	1. "UNDERSTANDINGS" 2. SERVICE 3. JINGOISM

Q. THE THREE MODES ARE TO BE INTERPRETED AS FOLLOWS: 1 = MOST VALUED POSITION OR OUTCOME IN THE WORLD SHOWN; 2 = REASONABLY LIKELY POSITION OR OUTCOME; 3 = LEAST VALUED POSITION OR OUTCOME.

- GORDON, BOUCHER, & MULLANEY, "A BACKDROP FOR PLANNING IN THE ELECTRONICS INDUSTRY," EIA (MAY 1972)

We were focussing on the United States, and we asked what we really cared about in the United States. We chose the elements listed in the left-hand column. We asked what basic states these five could take. We decided there could be an inner-directed world, in which the United States looked inward and decided to put it's own house in order before trying to save the rest of the world. On the other hand, it could be an expansionist state, in which we did just the opposite. Or it could be an internationalist world, in which we undertook foreign initiatives, but only in league with other countries or regional blocs.

In each of those three future worlds, we asked what the dominant goals might be. Having decided upon these, we asked ourselves this question: "Assuming these are the dominant goals, how can we achieve them?" In each case we listed three ways that we might be able to do this. For example you could enhance the quality of life through institutional reform and physical reconstruction, about which you hear a great deal these days. Incrementalism, i.e. disjointed incrementalism, one thing at a time, 'muddling through' would be another way of doing it. Another approach would be to adopt an imperial stance on domestic problems, saying with hauteur, we will take them up as we feel they should be taken up.

Now we have a scenario space. What scenarios do we write? Now that we have specified the elements, our readers know exactly what we have done and the alternatives we had considered. There are forty-five scenarios that could be written right off that single piece of paper. Where did we get all this information from? We made it up! In the same way, the scenario-writing actuary will create his own set of significant trends and events, simply by thinking, by reading as widely as possible, by interacting with his colleagues, and by reading the TAP reports of the ACLI.

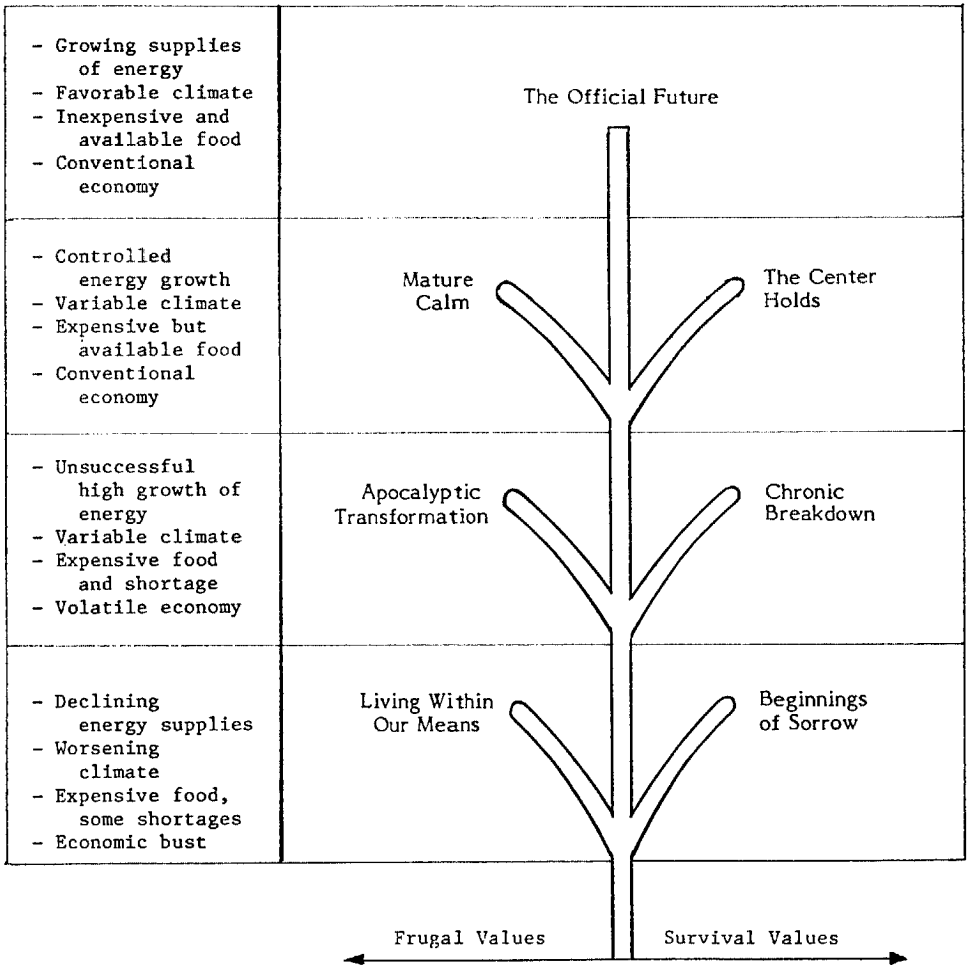
Finally, let's consider an example of a little bit more sophisticated approach to a scenario space. This comes from the Stanford Research Institute and was presented in a book called 'Seven Tomorrows'.

The scenario space contains seven Driving Force scenarios, as shown in Figure 3. Conceptually, what they did is shown in this figure. The seven tomorrows have fancy names (see Figures 3 and 4). How in the world did they get these things? Well first of all they looked at four basic elements: energy, climate, food, and the economy.

For the 'Official Future' they set the trend level as follows - growing supplies of energy, favourable climate, cheap and readily available food and an ordinary economy like the one we have right now. They also assumed that our present value structure continued more or less intact. That's how they got their official future - four trends and an assumption about

FIGURE 3

DEFINITION OF THE "SCENARIO-SPACE" IN THE SRI SCENARIOS



The Seven Scenarios: Tracks Plotted Against Value Orientations and Differing States of the Other Driving Trends

FIGURE 4

STATISTICS DESCRIBING SRI'S "TODAYS"

INDICATORS	1980	THE YEAR 2000						
		The Official Future	The Center Holds	Chronic Mature Break-down	Apocalyptic Trans-formation	Living Within Our Means		
1. World population (millions)	4500	6797	6800	6350	5921	5900	5000	6300
2. U.S. population (millions)	226	268	268	268	253	253	226	268
3. World GNP (trillions 1980 \$)	7.0	17.4	16.0	16.0	10.0	11.0	6.5	10.0
4. U.S. GNP (trillions 1980 \$)	2.6	4.6	3.1	4.4	2.9	3.0	1.2	2.2
5. U.S. per capita DPI (1980 \$)	8100	11,900	8200	10,700	7600	8200	4000	5340
6. U.S. per capita PCE (1980 \$)	7400	10,700	7400	8,800	7100	7300	3900	5050
a. Housing (%)	21	19	20	18	24	25	35	25
b. Food (%)	21	20	23	23	25	26	40	34
c. Clothing (%)	8	7	5	7	5	5	5	11
d. Medical care (%)	10	13	4	9	5	7	10	7
e. Transportation (%)	15	13	10	13	10	15	5	17
f. Other (%)	25	28	38	30	31	22	5	6
7. Av. world energy price (1980 \$/bbl crude)	35	50	80	60	40	100	100	100
8. U.S. energy consumption (quads)	78	123	85	100	78	80	40	70
a. Domestic oil (%)	26	19	21	22	19	24	37	21
b. Imported oil (%)	19	18	12	12	9	8	3	10
c. Shale oil (%)	0	2	2	2	1	1	0	0
d. Natural gas (%)	26	15	19	19	18	20	25	20
e. Coal (%)	22	33	27	25	41	25	28	26
f. Conventional nuclear (%)	4	8	9	9	5	10	0	4
g. Nuclear breeder (%)	0	0.1	1	1	0	0	0	0
h. Solar, hydro, other (%)	4	4	9	10	6	13	8	19

* Based on data presented in Paul Hawken, James Olgivy, and Peter Schwartz, Seven Tomorrows: Toward a Voluntary History (New York: Bantam Books, 1982), *passim*. (WIB)

values. Two more 'futures' were derived by assuming controlled energy growth, an erratic and variable climate, sufficient but expensive food (thanks to the climatic variations as well as continued poor distribution and storage capabilities), and the continuation of a reasonably orderly economy. You have 'Mature Calm' in this world if you are frugal.

You have a future they called the 'Centre Holds' if you believe this is just a sign that the world is coming to an end, and abandon the present value structure in favour of survival values. This process is repeated to obtain the remaining four scenarios.

Defining a scenario space is relatively easy. They identified the trends they were allowed to work with, they worked out the combinations, asked themselves about the relationships and in fact drew this tree. Having done that they did some things that looked scientific.

They generated a lot of fancy projections. All of the projections and the quantified indicators are designed to reinforce their vision of their driving force world. The material in Figure 4 provides very precise detail, but its purpose is overwhelmingly rhetorical. It's to make you feel you know what you're talking about in this world. It's one thing to say "energy consumption is going down", but it is certainly more impressive to say it's going down to 123 billion quads!

The System Change Scenario

This is the most common form of scenario in use today in business, in government, etc. My forecast for the future is that this is the type of scenario that will be dominant by the end of the century. It is much harder to do, although intuition and guesswork are still present in the same degree.

This kind of scenario integrates previously developed sets of forecasted trends and events. That means you must have a set of trends and events before you can write this kind of scenario, unlike the other two where you can make up your trends and events as you go. In the first case, you know the outcome so you make up the string of occurrences that lead to it; in the second case, you know the scenario space so you make up appropriate occurrences to fill it. In this type of scenario you need a set of forecasted trends and events to begin with. And you integrate this material by using the probability of the occurrences, which means you have to have probability estimates for them, and you use these as a guide to decide what happens and what doesn't happen tomorrow. And then having decided that, you describe the resulting future or at least how the events affected each other. This is a description in broad terms of something you may have heard called cross-impact analysis.

The purpose of this kind of scenario is to explore as systematically as possible the interrelationships and the implications of the previously developed forecasted trends and events. Expressed another way, the function of this type of scenario is simply to synthesize. Any of you involved in a Delphi study for example, or even in a brain-storming exercise, know that you can come up with lots of different pieces of the future, lots of problems, lots of events, and trends. What do you do with all this material once you've got it? This kind of scenario provides a means of synthesizing those little fragments of the future. Another goal of this kind of scenario is to understand better the variability associated with those future events. For example, you have forecast with a certain level of probability that an event will occur by such and such a date. But suppose it occurred earlier or later? You can prepare this kind of scenario to answer that question, i.e. to get an idea of the price of being wrong about the timing of future events.

This type of scenario is helpful in producing one or more specific, internally consistent futures, in order to develop and evaluate policy options.

Typical applications are to integrate large sets of forecasts, and also to promote more imaginative and creative thinking. This use is unique to the System Change scenario: it develops and improves skills for dealing with alternative futures. This kind of scenario, because it is so explicit, can become a management development/management training tool.

I discovered flying out here, in the bottom of my briefcase, a System Change scenario. I can't give you specifics, because this is proprietary, but I can describe in general terms how it was done. The operation can be divided into six steps:

1. A list was compiled of 58 topics or issues with a bearing on the industry, financial services in this case. This list looks like a typical output from a brainstorming exercise.
2. The project team from this organization investigated each topic in depth, collecting information useful in projecting the evolution of that particular aspect of financial service delivery systems. They checked the literature, the abstracts of related studies, documents, etc. They may have done some original research, a Delphi Study, or other activities to assist in focusing their thoughts about these aspects in the future.
3. They then wrote a one or two paragraph statement on each of the topics, representing this organization's "Informed Opinion About How Conditions Of The Topic Area Will Change Over The Next Five Years", their best guess about developments in each area.

4. The statements were reviewed by six people outside of the organization who were considered to be experts in one or more aspects of financial services delivery systems. Each reviewer was asked to comment on the statement, either noting his agreement, suggesting modifications, or proposing an entirely different view. Each reviewer was paid. Now what have they done? Having made their projection about how the system is likely to change, looking at 58 components in front of them, using all of their inhouse resources, they are now asking outside experts to review their work. The outside experts had a real advantage, they had something to critique on paper.
5. When all reviewers had responded, the project team consolidated all of the comments pertaining to each of the statements. Judgements were made regarding revisions. In some cases, substantial changes seemed warranted because the concensus of the industry experts differed from their view. A few statements were retained unchanged despite the reviewers' suggestions, because the project team believed that their initial assessment was founded on information unavailable to the reviewers. What they did here was skillful editing.
6. The project team then wrote the scenario, incorporating reviewer comments where appropriate, and discarding some of the original topics which appeared inconsequential. In some cases, two or more topic statements were consolidated under the same heading in order to reduce the degree of fragmentation. There are about 35 pages in this scenario, and it happens to be very interesting.

What they ended up producing was their best guess as to the most likely future. Now they could take the same facts of the case, change some of the assumptions and derive another future as easily as they got this one.

Another System Change scenario is presented in Figure 5. It was developed from a data base of 100 future events. What you see here are headlines for events and not the actual event statements. This scenario was developed in 1980. You see the year in which the events were presumed to have occurred and then several descriptive paragraphs about what this all means. This is the essence of the scenario. This scenario was done by creating the data base of events (and a parallel data base of trends). For each of the events, the probability of occurrence by the year 2000 was estimated, and a Monte Carlo approach was used to decide whether events did or didn't occur.

In one path through the data base, Middle-East peace occurs in 1981, improvements in food storage technology benefited the third world in 1982, and so on. Note that further developments in food storage technology occurred in 1984 (some of the events are repeatable).

FIGURE 5

A SIMPLE "SYSTEM CHANGE" SCENARIO**SCENARIO 3**

The First Five Years - 1981 Through 1985

	EVENT	YEAR
41	Mid East Peace	1981
26	Food Spoilage Reduced	1982
11	Ban On Fission	1983
33	Min. Nat. Health Insur.	1983
60	Stan. Grad. Requirements	1983
86	One Term In Congress	1983
9	Oil Shale/Tar Sands	1984
26	Food Spoilage Reduced	1984
38	Intel. Home Terminal	1984
81	US Export Drive	1984
37	Automated Health Exams	1985
64	Nat. No-Fault Ins.	1985

The past five years reflect a level of stability that is uncharacteristic of recent times. Perhaps it is due to the lingering halo effect from the peace in the Mid-East, the recent progress in solving the world food problem, the U.S. ban on new nuclear fission plants, or maybe its merely the absence of the many calamities that were considered possible in this time period. Many believe that sense of stability in the world is really economic stagnation in disguise.

There have been no new oil discoveries in this time period. The stepped up oil shale program initiated by the U.S. in 1984 was seen as a desperation move--they couldn't possibly delay this program any longer on the hope of some massive oil discovery or a major breakthrough in an alternative energy source. Even though U.S. oil imports have remained fairly stable over this time period, oil prices have risen faster than expected and the U.S. was not able to achieve a merchandise trade surplus by 1984. As a result the U.S. mounted a massive export drive in 1984. It is claimed that this program will not only result in a trade surplus, but will provide the economic shot-in-the-arm America needs to get the economy growing again.

These events were the only ones out of the 100 that were assumed to occur, and the scenario was then written around them. Actually, this scenario was developed in a more complex manner than I've suggested, because the 100 events were inter-related by means of a cross-impact model.

Figure 6 shows what the results from a cross-impact model really look like. The trends and events are quantified, but the numbers do not mean very much to the untrained eye. Some of the 100 events of the model are shown: OPEC collapses, we get electricity cheaply and efficiently from solar radiation, use of coal synthetics expands, etc. The figure also shows some trends that are relevant in this case: the international oil price, oil consumption, oil production. A summary of event occurrences for ten different scenarios is given. In three of the ten, OPEC collapses, for example; in one case, OPEC collapses in 1985, in two others, it collapses in 1993, and that event doesn't occur in any other scenario.

The fact that OPEC collapses three out of ten times reflects the assumed probability that it could happen. The cross-impact interrelationship will affect the movement of certain trends such as oil prices, e.g. gas rationing or expanded use of coal. The whole logic of this future is contained in the model. The scenarios developed are System Change scenarios, because developments within the system drive the scenario. Once the trends and events are incorporated in the model, the scenario practically writes itself.

The Slice-of-Time Scenario

The essence of the Slice-of-Time scenario is that it jumps to some future period which may or may not be specified, in which a set of conditions has come to fruition, and then describes how key stakeholders feel, think, and behave, in that environment.

The basic purpose of such a scenario is to summarize the common wisdom about the future, or alternatively, to show that, of all the futures possible, the one that will materialize may be more (or less) desirable or attainable than is now generally thought. Stated another way, the Slice-of-Time scenario explores in detail the indirect, unintended, and ill-understood implications of current force and motion.

This kind of scenario can be used to motivate, to inspire people, to get them thinking actively about the future.

One example of a Slice-of-Time scenario is the basic long term multi-fold trend of western culture (Figure 7). This is an idea that Herman Kahn had in 1967, when he wrote 'The Year 2000'. In this book there is a version of the basic long-term multi-fold trend of western civilization, being that complex of

FIGURE 6
A "SYSTEM CHANGE" SCENARIO

SUMMARY OF EVENT OCCURRENCES

	TOTAL	1981	1983	1985	1987	1989	1991	1993
		1985	1987	1989				
1 3-DPEC COLLAPSES	3*	0	0	1	0	0	0	2
2 6-ELECTRICITY FROM SOLAR*	3*	0	0	2	1	0	0	0
3 7-COAL SYNTHETICS	8*	0	0	0	0	1	1	1
4 8-EXPANDED USE OF COAL	6*	1	1	1	0	1	1	1
5 9-DIL SHALE/TAP SANDS	5*	0	0	0	0	1	1	2
6 11-FAN ON FISSION	1*	0	0	0	0	0	1	0
7 12-GAS FATIGING	5*	1	1	0	0	2	0	1

TREND SUMMARY

MIN,MAX,AVG, AND STD. DEV. FOR EACH TREND:

	1979	1981	1983	1985	1987
	1989	1991	1993	1995	1997
1 1-INT'L OIL PRICE	1.0000 0.9266 0.8933	0.9353 0.9546	0.9129 0.7365	0.8701 0.8364	0.7425 0.8669
-----	1.0000 1.0647 1.0973	1.0036 1.0948	1.0132 1.1835	1.0255 1.1081	1.0430 1.0942
-----	1.0000 1.0057 1.0085	0.9967 1.0283	0.9960 0.9976	0.9875 0.9954	0.9866 1.0062
-----	0.0000 0.0530 0.0625	0.0205 0.0602	0.0350 0.1149	0.0572 0.0897	0.0928 0.0644
2 4-US OIL CONSUMPTION	1.0000 0.8592 0.9074	0.9410 0.8775	0.8954 0.8979	0.8469 0.8915	0.8534 0.8957
-----	1.0000 1.1002 1.1998	1.0098 1.1240	1.0298 1.1589	1.0545 1.2234	1.1137 1.1916
-----	1.0000 1.0152 1.0323	0.9994 1.0148	1.0035 1.0137	1.0105 1.0274	1.0288 1.0278
-----	0.0000 0.0706 0.0973	0.0221 0.0682	0.0472 0.0831	0.0656 0.1024	0.0766 0.0967
3 5-US OIL PRODUCTION	1.0000 0.9811 0.9753	0.9962 0.9623	0.9963 0.9795	0.9892 0.9790	0.9840 0.9791
-----	1.0000 1.0183 1.0238	1.0059 1.0219	1.0186 1.0240	1.0188 1.0264	1.0191 1.0233
-----	1.0000 1.0005 1.0022	1.0003 1.0011	1.0011 1.0012	1.0002 1.0024	0.9991 1.0024
-----	0.0000 0.0112 0.0145	0.0034 0.0135	0.0061 0.0132	0.0073 0.0134	0.0083 0.0127

FIGURE 7

THE BASIC LONG-TERM "MULTI-FOLD"
TREND OF WESTERN CULTURE

1. Declining role of traditional and common sense behavior and increasing role of explicit, manipulative rationality and social engineering. Also, increasing problems of ritualistic or pseudo-rationality and educated incapacity, as well as various reactions against rationality.
2. Increasing empirical, this-worldly, humanistic, pragmatic, contractual, and hedonistic culture.
3. Increasing accumulation of, and reliance on, scientific and technical knowledge.
4. Increasing affluence and real leisure time, plus a revolution of "rising entitlements."
5. The rise of bourgeois, bureaucratic, technocratic, and "meritocratic" elites and impersonal organizations.
6. Continued institutionalization of economic development and technological change.
7. Worldwide industrialization and modernization; also growing concept and realization of a "world city" (not "global village") but also a growing sense of "world public opinion" and of shared responsibility for all human beings.
8. Increasing capability--both private and national--for violence and destruction.
9. Population growth--now explosive but tapering off.
10. Increasing urbanization and urban sprawl.
11. Decreasing importance of primary and (recently) secondary occupations and goals; eventual emergence of postindustrial economy, institutions and culture.
12. Recent emergence of superindustrial economy and resultant dominating impact on the social and physical environment.
13. Increasing literacy and role of mass formal education; recently the "knowledge industry" and increasing decision-making and attitudes based on secondhand knowledge.
14. Future-oriented thinking, discussion and planning.
15. Increasing universality of the multifold trend--but an increasingly felt need for national, ethnic, communal, or other group differentiation and identification.
16. For 1,000 years, a more or less increasing tempo of change in all of the above.

forces which are irresistible, irreversible and are carrying us along and providing the context within which everything that matters to us is going to happen. Though I refer to this as a Slice-of-Time scenario, I must admit that the slice is very wide.

It is not 1984, it is some period - maybe a 1000 years. Time is important in this case. In the Driving Force scenario, I didn't mention time anywhere, and in the demonstration scenario we just made up time. Here, time is the axis for our thinking. John Naisbitt in 'Megatrends' is doing the same thing. His 'slice' is a lot narrower, but it is a slice nonetheless.

Here is another Slice-of-Time scenario. It happens to have been written 20 years ago, and it's fair to say that a great many people have been affected by it. I'm going to read you a few words from this scenario, and ask you to consider what kind of world this might be.

In this world at that time there will be "an abundance of all good things of life. They will be free and they will be at everyone's disposal. Trade, money and credit will gradually disappear; no money will be used. Nothing will limit the needs of the individual except his own good sense and moral values, his self-respect and his respect for the interest and needs of the other members of society."

"Full social, economic and cultural equality of all members of society will exist, that is, a complete absence of classes and social grouping."

"Science will no longer be harnessed to military ends. Science and production will really be joined in the pursuit of their common goal, the satisfaction of the continuously growing requirements of the people."

"All accounting - economic calculations, planning, statistics, and economic efficiency will be rated in kind, and in units of contributed labour, i.e. working time. The gauge of people's needs will be provided by statistics of consumption and the sum total of individual orders."

"The special group of people professionally engaged in the management of public affairs will disappear. Each individual will devote part of his time to civic work."

"There will be far more leisure time. People will have to give less and less of their time to production - four, three, two, or perhaps even fewer hours a day."

"Work will be purely voluntary."

"The need for any kind of coercive laws will disappear as well as the need for maintaining the state apparatus. It will be

replaced by the public self-government of free people and the laws will turn into customs and habits that will have become the standards of morality."

"The future family will lose its present economic importance. Love, mutual respect and spiritual kinship will be the only foundation for the family. People will marry only for love."

"Man's hunger for knowledge and his eagerness to master new skills will be as spontaneous and natural as his need for work, rest or sleep. Every man will have limitless opportunities to develop and use his abilities."

Incredible you say - fanciful nonsense. Do you know what world this is?

MR. JOHN BRAGG: Marxist - Leninist Utopia.

MR. BOUCHER: Not Marxist-Leninist in the sense it was written by someone in 1850. This is a current description of what the communist end state will be like, by the current leadership in the Soviet Union. This is a vision that some of the people, at least, share. This is what is driving them: no work, everything free, true love at long last, a classless society. Anything that gets in the way of this image is seen as a threat - like the Korean airliner.

The last paragraph of the scenario is a dead giveaway: "Religious conceptions of life and nature, of man and in his place, role, and purpose, as well as other superstitions and prejudices, will disappear. All this will be replaced by a sober scientific and materialist view of life. There will be only one faith in communist society, faith in man, in his energy, his labour, in the unlimited creative potentialities of his free spirit, in his intelligence armed with the all-conquering force of knowledge."

Another variant of the Slice-of-Time scenario is given in Figure 8. The author in this case is concerned with the future of corporate life in America. He can't look at every possibility, so he simply describes a future world that could indeed be a culmination of present forces. Then, having written that scenario, he can ask people to probe all those other issues. Against that framework, what might the answers be? That will be kind of interesting, especially if this is the way the world is going to go. Most corporations will look like this corporation.

That is four scenarios...Demonstration, Driving Force, System Change, and Slice-of-Time. The four types of scenarios described here can be further delineated, because there are several 'modes' in which you can write them. The modes are exploratory, normative, and hypothetical.

FIGURE 8

A STARTING "SLICE OF TIME" SCENARIO

SCENARIO A

The A Corporation is a typical American firm in 1995. Its 300 employees work in a hierarchical organization with dozens of rungs up the ladder. Mobility up this ladder is rapid for those who can successfully perform their jobs. Elaborate tests ensure that all promotions are based on merit and not on favoritism, seniority or any other discriminatory factors. There are extremely great differences in pay for jobs at the top of the ladder as opposed to those at the bottom. The rewards for hard work, intelligence and entrepreneurial behavior are extremely high by 1979 standards. Indeed, by these earlier standards, pay is high at all levels of the corporation. This is made possible, in part, because the company offers no fringe benefits, and passes the savings on to its employees who are then free to buy their own insurance policies, pension plans, etc. Pay is also high relative to twenty years earlier because of new tax laws that encourage much greater one-generation upward and downward social and economic mobility. To accomplish this, income tax rates have been reduced (maximum federal rate = 20% of salary over \$70,000 in 1979 dollars), and inheritance rates have been increased (to 95% on sums over \$20,000).

Because there is now a national right to work law, there is no union at A. Length of employment is on an individually-negotiated, contract basis. In fact, turnover is encouraged: people who don't make it up the ladder are quickly washed out of the corporation. There is an internal job market with active bidding for all jobs. Entry level jobs are filled by advertising in the local paper with a full description of job tasks and conditions of employment. On occasions when no one is willing to do the work at the advertised rate of pay, A will alter the conditions until an adequate supply of workers is produced.

Although one can earn a very good living working 35 hours per week, there are considerable rewards for those who work longer hours. There are no set hours, vacations or holidays: each employee takes as much time off whenever he wishes on the understanding that he is never paid for time when he isn't working. The key philosophical words used in the firm's organizational manual are: Negotiation, Competition, Mobility, Merit, and Wealth.

Exploratory Mode

In this mode, the scenario writer is trying to discover and describe the future outcome of current forces in motion. Where are current trends leading us?

There are two distinct variations. These I call the 'play-out' and the 'surprise free'. In the 'play-out' variation, you assume that present forces continue to operate. We keep our present policies, we keep our present institutions, we keep doing what we are doing now and let's see what happens. The most influential scenario in the last five years or so, 'Global 2000', was written just that way. To date it has mobilized eight million people.

The 'surprise free' variation allows new things to happen, in the way of policies, inventions, and discoveries, but only if their occurrence would not be surprising to the user. Much of the popular futurist literature is written that way.

Normative Mode

Instead of just letting the forces play out, the scenario writer chooses a specific end state, and he tries to find out if he can design a way to make it happen. He seeks to show that there is a plausible path by which we can get there from here.

The normative end state can be 'desired and obtainable', that is, not only good but having some probability of being achieved. An example (at least for the Soviets) would be the communist Slice-of-Time scenario described earlier. You can also have the 'feared but possible' outcome, e.g. the nuclear war Demonstration scenario in Appendix A.

Hypothetical Mode

The scenario writer in this case experiments with an alternative path of development or an alternative outcome.

The variations have names like Worst Case, Best Case, and Random Case, for example. Obviously, if you are working with a System Change model, you can devise a great many variations.

What I have just shown you is that in principle there are twenty kinds of scenarios. There are the types we talked about, Demonstration, Driving Force, System Change, Slice-of-Time. There are the three modes we just talked about: exploratory, normative and hypothetical. Under each of the latter there are the variations that I mentioned: the play-out and the surprise-free in the exploratory mode; the desirable and attainable and the feared but possible variants of the normative mode. There are many variants in the hypothetical mode, but they are not really as important.

In principle there are twenty possible scenario types as illustrated in Figure 9. In reality there are only sixteen. That is because types one, two, thirteen and fourteen are logically impossible. One and two aren't possible because in the Demonstration scenario the end state is established at the start. In the exploratory mode, the only thing that you know is that you have current forces which you are going to allow to play themselves out in order to find out what the end state will be. The same is true of combinations 13 and 14. You cannot have a normative System Change scenario because the system plays itself out and you are not free to select the normative end state.

Most business scenarios, as I mentioned to you, tend to conform to types 7, 8 and 9. They have such names "most likely", "best case", "worst case". I believe type 12 is the scenario of tomorrow.

Scenario writing is an art more than a science, and I have tried to illustrate some of the features of rhetoric associated with it. A terrific example of what it means to write a scenario, any type of any mode, is provided in a book called 'The Third World War', written by a NATO General named Hackett in 1978. (There is also a sequel called 'The Third World War - Full Story').

This is a book-length scenario about World War Three and the outcome, or how close we come to killing ourselves off. The prologue is reproduced here as Figure 10. Look how he writes it. "The publication of this book so soon after the cessation of hostilities." Right away you know where he is in time. He is writing after the last event in the scenario has occurred. That is very important. He is not a player in the scenario, he never is, he is always an observer after the fact.

He writes to motivate, but not to amuse. "The questions are simple", he says. "What happened, and why did it happen? What might have happened and why did it not?" Those are branch points.

Any kind of scenario is an integrating mechanism. It is a means of bringing together and synthesizing: whether the scenario writer knows it consciously or not, that is what he is doing.

Synthesizing large quantities of both hard and soft (objective and subjective) projections cannot be handled systematically by any other means. Running a scenario exploits the processing capability of a 'soft' computer, the human brain. It is like writing fiction.

Scenarios provide a framework in which it is possible to systematically and rigorously ask vital questions, to do planning, to plan a way to make the future happen (or not happen, as the case may be).

FIGURE 9

SCENARIO TYPE - MODE COMBINATIONS

SCENARIO TYPE	EXPLORATORY		NORMATIVE		HYPO-THEITICAL
	PLAY OUT	SURPRISE FREE	DESIRED & ATTAINABLE	FEARED BUT POSSIBLE	
DEMONSTRATION	1	2	3	4	5
	6	7	8	9	10
SYSTEM CHANGE	11	12	13	14	15
	16	17	18	19	20


 = NOT POSSIBLE

FIGURE 10

THE RHETORICAL STANCE OF THE SCENARIO-WRITER

Prologue

The publication of this book so soon after the cessation of hostilities between major participants in the Third World War will mean that much of what it contains will be incomplete and, even more, conjectural. In the chaotic conditions prevailing towards the end, in some key centres of power, vast quantities of records disappeared. Some have since come to light. Others probably never will.

It has nevertheless seemed important to the writers, all of whom played a part in the events of 1985 and their aftermath, whether in uniform or out of it, to put on the record as soon as possible some account, however imperfect, of what took place in a time of such transcendental importance to mankind.

We write as Britons, profoundly conscious of our debt to others. The outcome could have been vastly different – and very nearly was. The world has stood on the edge of an abyss. Under providence, through a gradual but significant shift of public attitudes and the work of growing numbers of men of foresight and good sense in the last few years before the outbreak – work often done in the face of vociferous and passionate opposition – it has been held back, but only just, from destruction. The margin, everybody now knows, was a narrow one.

Much will be said and written about these events in years to come, as further sources come to light and further thought is given to this momentous passage in the history of our world. The narrative now set out in only the broadest outline and, of our deliberate choice, in popular form, will be greatly amplified and here and there, no doubt, corrected. It seemed to us sensible, however, before these events move too far into the background of our lives, to seek answers to some important questions, in the hope that this might lessen the probability of another catastrophe from which, this time, we would not so readily escape.

The questions are simple. What happened, and why did it happen? What might have happened, and why did it not?

London, Easter, 1987

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- J. Hackett et al., The Third World War (1978)

They do one other most important thing. They force the writer, and the user, to be explicit about assumptions concerning the future. Scenario writing is a tool for forcing that to happen. Scenario writing at its best can enlarge our perspectives, stimulate our creativity, and can open our eyes to the future. They can be truly miraculous devices.

MR. WILLIAMS: Before you retire to begin writing scenarios we do have a few minutes for questions, so please feel free to pose any questions about anything that we have discussed.

FIRST QUESTIONER: In your System Change scenario example, particularly the first one with 100 events, any of which might happen: I tried a technical approach, to specify in each case the probability of an event happening. It wasn't clear to me whether the Monte Carlo was simply run on that basis, or whether you are also required to express second order dependencies and that kind of thing in initial input. If you are going to do that with 100 of them there are a lot of levels of dependencies - 2-fold, 3-fold, n-fold, etc. I want to understand what the technique was.

MR. BOUCHER: What you described was cross impact analysis as it exists today, and it is not as complicated as you suggest, although perhaps it should be. You have a cumulative probability distribution for each event over the period of interest, then you also have a specification of the cross-impact relationship between each event and every other event but only on a pair-wise basis.

I have here a cross-impact model. This is the model that we built for the property-casualty insurance industry study that we are working on. We haven't run it yet. This model is 130 pages long and describes 54 events and 85 trends. To put it together, we go over 12,000 estimates of inter-relationships and six probability estimates for each event, etc. A lot of volume is here, but it really is simple.

SECOND QUESTIONER: Will this be published sometime around the end of the year?

MR. BOUCHER: Yes, that is correct. We just alluded to the property casualty study. We have taken a twenty-year forecast of that side of the insurance business. The data base of the forecast will be available in a couple of weeks from the Centre and the final report on the subject will be available before year's end. It will be available to all of you at the cost of duplication - \$30 or \$40. You might find it interesting to play with. The data base, I can tell you, will be terrific.

We have in this data base 600 future causes of change evaluated up one side and down the other. We have 600 consequences of change and we have 700 policy alternatives the industry might consider. All are inter-related.

There are two cross-impact models built into this document.

SECOND QUESTIONER: Who commissioned this study?

MR. BOUCHER: The study was commissioned by twenty-five companies. IBM, for example, is very much interested in the insurance market and was a sponsor, but basically it was sponsored by the insurance companies.

MR. WILLIAMS: One Demonstration scenario that carried a high degree of probability was that we would understand a great deal more about scenario writing after your exposition. On behalf of all of us, I want to thank you, Wayne, for a masterful presentation. Our audience will easily appreciate why Mr. Boucher is a driving force in the field of futures research. I hope that you are all motivated to try and apply some of the ideas that he has presented to you in your work, and publish them or at least make them known, so we can begin sharing of some of the ideas and some of the problems we are coming up with.

In this way, we can develop together some useful approaches in dealing with the professional and industry problems that we face today and making a desirable and attainable future happen.

I would like to thank Kathryn Plante for acting as our recorder and express thanks to all of you for attending the session this afternoon.

HIGHLIGHTS FROM A
"DEMONSTRATION" SCENARIO

1. The challenge: To devise a credible scenario for the outbreak of general war.
2. The purpose: To set the stage for an informal war game seminar "to throw light on the problems of general war." Perhaps thereby extend the scenario through the conflict and termination phases of such a war.
3. Basic structure:
 - Hierarchical & sequential
 - 11 sections, 112 statements
4. Author's caveats:
 - Not a prediction, not a forecast of the events in question.
 - Not a prediction or forecast of any such war.
 - Peculiar occurrences are not necessarily incredible.
 - Attempt made to eliminate internal inconsistencies ("but some may remain and must be accepted in the same way one accepts inconsistencies in the daily happenings of the world").

I. BASIC ASSUMPTIONS ABOUT THE WORLD SITUATION, 1968-1975

1. There has been no use of nuclear weapons in war since 1945, no new nuclear powers since Red China began testing weapons in 1964, and no important war since the Vietnam conflict.
2. The Vietnam war ended in a cease fire sometime before 1975, following protracted negotiations during which fighting continued. A coalition government was created in South Vietnam which included elements of the National Liberation Front. United States troops remained in South Vietnam on a reduced scale in order to insure the settlement and maintain stability in the region.
3. After repeated crises and futile attempts at negotiations, a new status quo emerged in the Middle East with Israel remaining in possession of most of the former Arab territory taken during the June war in 1967, but there was no official "recognition" of Israel and no peace treaty.
4. The Suez Canal was finally reopened under UN auspices with rights of passage tacitly allowed to Israeli cargoes under foreign flags.
5. After Mao-Tse-Tung's death, the split between Red China and the Soviet Union slowly narrowed as new leaders came to power in both countries.
6. NATO, SEATO, and CENTO continued to exist in name but their credibility as internal defense agreements was undermined by events.
7. Effectiveness of the UN was compromised by its inability to act effectively in the Middle East War on June 1967 and in the Vietnam war.

IV. THE SITUATION IN THE UNITED STATES.

1968-1975

1. The period 1968-1975 was marked by general prosperity and slow economic growth.
2. It was also a period of political, social, and racial unrest accompanied by riots and disturbances which raised doubts about the government's ability to carry out a line of action which was opposed by militant groups within the country.*
3. The dissatisfaction with the long drawn-out Vietnam war was reflected in the outcome of the Presidential and Congressional elections of 1968 and 1972. There was a determination not to be cheated out of the settlement made at such a heavy cost in the Vietnam war.
4. The inability or unwillingness of "liberal" administration to control riots, prevent sit-ins, or disorders led to a ground swell of support for extreme right-wing factions.
5. A conviction grew in right-wing circles that we should not be drawn into counterinsurgency wars in the future but should strike immediately at the source of the next major aggression.
6. A "be-firm-with-Russia" policy developed in official circles after the Berlin crisis of 1971.
7. The feat that the Soviet Union might confront the United States with a superior MIRV, ABM, and FOBS capability led to a record military budget in 1972.
8. In deciding not to balance Soviet arms shipments to the Arabs by strictly comparable arms shipment to Israel, the United States took a calculated risk that superior Israeli training, skill, and morale would offset Soviet shipments of weapons to the UAR. This contributed to the division between groups in the United States by giving the Liberal wing (which supported Israel) another reason for criticizing the government.

* This is based on the assumption that the speed at which disorders, riots, protests and dissent will increase will equal that of the last three years. The fact that concessions will be made to the rioters can only be expected to increase the violence of dissent. This seems to be a kind of "law" of revolutions.

VII. BACKGROUND OF THE CRISIS OF 1975

1. The year 1975 dawned peacefully enough but there were soon indications that it would be a troubled one.
2. There were several communist-inspired border incidents in the Korean DMZ, accompanied by North Korean claims that the United States and its imperialist allies were planning to invade North Korea.
3. In South Vietnam NLF disorders led to fears that the armistice and cease fire agreements might be terminated and fighting resume.
4. In the Middle East, Arab incursions across the Israeli borders led to reprisals which were condemned by the Soviet Union and the Arab states.
5. In the spring of 1975 the Institute of Strategic Studies in London issued its annual report on the military strengths of the powers. It expressed the opinion that the Soviet Union had superiority in the strategic weapons over the United States in the ABM, MIRV, and FOBS fields. China was credited with having a small ICBM capability in addition to IRBM's.
6. From the vantage point of his state capital, Governor Braden, the charismatic leader of the extreme right-wing party in the United States, lashed out at the weakness of the administration in Washington. He promised to end violence, disorders, insecurity in the streets, and settle international problems by dealing with the sources of aggression. After two administrations of what he called "compromise and concession," Braden seemed like a sure winner in the election of 1976.
7. Unknown to governments in the West, an important meeting of Communist leaders was held under extreme security safeguards in Tashkent on July 5, 1975. Attending were representatives of the Soviet Union, China, North Korea, North Vietnam, and East Germany. Plans were discussed for driving the United States out of Europe and Asia. Conferees agreed that the time was propitious for facing the "weak" government in Washington with a multiple challenge. There was a consensus that if the United States was faced in the fall of 1975 with a Berlin crisis, a Korean crisis, and a Middle East crisis. . .

VIII. THE MULTIPLE CRISIS OF SEPTEMBER 15, 1975

1. In the early morning of September 15, 1975, the communications room in the White House received a series of alarming messages.
2. The first was a news-flash from Tel-Aviv saying that aircraft with Arab markings had made surprise strikes at Israeli airfields catching most of the Israeli air force on the ground. These strikes were carried out in such an efficient manner that Soviet participation was suspected. Ground fighting was reported on the Jordanian, Syrian, and Sinai borders.
3. While the implications of this message were being considered, reports came in that the Communist military control point at Helmstedt had been taken over by the East Germans. An American military convoy was held up because its commander would not comply with East German orders and requests. Subsequent messages from West Berlin told of a Soviet withdrawal from the Air Safety Center in Berlin and that their functions had been turned over to East Germans. West Germans offered strong protests and requested United States support.
4. Later in the day reports came from South Korea that North Korean units in apparently divisional strength were in the process of penetrating the DMZ. South Korean and American military forces were resisting but pressure was increasing. South Korea's president asked for immediate American assistance.
5. After referring these crises to the Security Council of the United States, the President called the Ex-com into continuous session. Military forces in Europe, the Far East, and the ZI were raised to a high state of alert.
6. Nothing as big and unexpected as this crisis had ever hit the news media at one time. There was an unprecedented outpouring of rumor, news, opinion, and appeals for calm. World leaders from the Pope to the President of India appealed to the nations to renounce resort to arms. Speeches in the UN Security Council tended to blame the United States for what was occurring. . .

XI. A NUCLEAR DEMONSTRATION MISFIRES

SEPTEMBER 23, 1975

1. The Ex-Com decision of September 16-17 to show the Soviet Union in an unmistakable fashion that the United States was willing to carry out ZI nuclear exchanges before it would accept the changes threatened in the world situation resulted on September 23 in an order to fire six Minuteman missiles at carefully-selected targets in the Soviet radar chain. This would be preceded by a message on the hot line to anyone who would listen at the Kremlin that this was a limited attack designed not to initiate general war but to demonstrate the U.S. determination not to give way on the issues raised by the Soviet Union.
2. For a time, it looked as if the President might change his mind and cancel the firing, but at the last minute he gave his consent.
3. At 1600 hours on September 23, six missiles were readied for firing, but at the last minute malfunctions occurred in one of them. An additional missile was therefore hastily readied and fired off with the others.
4. All five long-ready birds flew accurate courses and airburst high over radar posts around Moscow. It was discovered a bit later that the sixth missile which was used at the last moment flew an erratic course and quite by accident detonated in the midst of the Soviet nuclear submarine base at Murmansk. It essentially wiped out the base.
5. From the viewpoint of Soviet leaders, these missile strikes seemed to indicate that the United States was in the first stage of a nuclear attack on the Soviet Union. All their military literature and doctrine stipulated that a ZI nuclear attack would inevitably escalate into general nuclear war. Yet the leadership hesitated to trust its assumed first strike capability.
6. Before even the damage inflicted by the six American missiles could be assessed, the STAVKA in the Kremlin gave orders for a retaliatory strike to be put into effect. It called for a counter--force attack of twice the number of American missiles against U.S. missile sites in the Middle West. Because of the attack on Murmansk, the U.S. Naval base at Norfolk was also selected . . .
.
.
.
12. Accordingly, a Soviet counterforce strike of 800 missiles was fired at strategic targets on September 25 at 1000 hours.

