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Futures Research: A New Perspective For Corporate Planning

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Introduction

Strategic planning by corporations is becoming more difficult. In the main, this development has been caused by increasing rates of change in the external environments facing business.

Various social observers have described this phenomenon of accelerating change. Peter Drucker calls it "an age of discontinuity" marked by improved technology, an explosion of knowledge and expanding markets and consumer demands.¹ The result is that organizations are not evolving in as orderly a fashion as they have in the past. Alvin Toffler calls it "future shock"-the traumatic adjustment to the increasing impermanence of people, places and things.² This implication is that people, as well as organizations, may experience psychological discomfort stemming from rapid outside changes for which they may not be ready. But whatever label is used, it is certain that society and business have entered an era in which-unlike the past-*change* rather than stability is the usual condition.

In order to cope with an increasingly dynamic environment, some businesses have made adjustments in their planning mechanisms. The most fundamental change is a renewed emphasis on long range planning. In particular, some companies have explored the utilization of "futures research."

The purpose of this article is to define the concept of "futures research" and explain its role in business planning, including its use in large corporations. Finally, some considerations in selecting a "futurist" to work with one's company are identified.

What is Futures Research?

To most people, the term "futures research" suggests research to predict the future. However, accurate prediction, is not the sole purpose of futures research. If such was the case, the folly of this endeavor could be illustrated by looking at the "track record" of the seers who attempted to project life in the 1970s and 1980s from their vantage point in the late 1930s and early 1940s.

Writing in magazines such as *Harper's*, *Atlantic*, *Time* and *Newsweek* about what life would be like today, the majority of predictions dealing with the "World of Tomorrow" made by yesterday's forecasters look ridiculous in the sober light of reality. For example, there was surprising agreement that by 1980:

- the majority of houses would be prefabricated and erected in hours. Rooms could easily be rearranged, added or sub-tracted. Plastic and light metal materials would constitute the bulk of fabrication. Prices would consistently decrease over time due to enormous economies of scale.
- -the flush toilet system would be obsolete, being replaced by chemical methods of disposal.
- -automobiles would have scratchproof and dentproof plastic bodies. The majority of cars would be powered by 40 horse-power rear located en-gines that would yield 40 miles per gallon or more.
- homes and buildings in many communities would be connected by a system of pneumatic vacuum tubes through which messages could be exchanged and perhaps even some shopping could be accomplished³

These and many other projections did not materialize. Moreover, yesterday's "futurists" were unable to foresee the de-velopment of jet transportation or the mass impact of television, undoubtedly two of the major innovations of modern times. Thus, futures research is con-ducted not so much to predict the future with certainty as to get decision makers thinking about what it could hold. In short, futures research has the following more modest objectives:

- to make explicit the assumptions people hold about the future;
- to anticipate alternative events or "futures;"
- to trace possible consequences of important current and past developments;
- to shape and guide current policy that might affect the future.

The Growth of Futures Studies

Within the perspective de-scribed, several large companies have embraced the concept of futures research. Because of the rapidly changing external en-vironment in recent years, many potential profit opportunities could have been harvested by firms capable of anticipating the future. For example, in 1974:

- shortages of cardboard boxes and packing materials held up the production of glass materials. If these had been anticipated, greater efforts could have been launched to-ward obtaining or developing substitute materials.
- the tennis and bicycle "boom" caught many sporting goods manufacturers by surprise be-cause they did not foresee changing trends in recreation.
- a temporary shortage of home freezers emerged because appliance producers did not anticipate that a prolonged inflation would result in consumers buying early and freezing food to beat expected price increases.

Due to such foregone profit opportunities and unprecedented rate of change in the external business environment, large corporations like Shell Oil, AT & T and General Electric are coping with change by looking to the future.⁴

Typically, when a large corporation retains a futurist, the execution of long range planning in the firm changes. In general, the company will pay more attention to the messages of the long range planning department.⁵ Most often, the department will broaden its historical preoccupation with economic and financial planning and commence searching for and analyzing all factors in the environment which may later affect company operations. If funding is available, the composition of personnel in the planning department may also change. Increasingly, individuals skilled in the techniques of technological forecasting, environmental scanning and sociopolitical analysis are being hired to supplement the traditional economic forecaster.⁶ Perhaps most important of all, the futures research team will utilize futures research methods—an amalgam of forecasting techniques borrowed from economics, mathematics, statistics and management and adapted in order to systematically gather perceptions and formulate projections about the future. A sampling of these techniques are described in capsule form below.

Tools of Futures Research

The most frequently used tools in futures research can be grouped into at least three categories: (1) authority methods, (2) conjecture methods, and (3) mathematical modeling methods. Although the list of specific tools and techniques in futures research is rapidly expanding most of the new methods can easily be placed in one of the three categories.

Authority Methods

Perhaps the oldest method of obtaining an outlook for the future is to elicit the views of one or more authorities. Ancient as well as modern history is replete with examples describing how persons were consulted because of the "sense" they possessed about the future. The Greeks had their oracles, rulers in the middle ages conferred with wizards and various American and African tribes utilized medicine men. Perhaps the group with the most staying power, astrologers, have been popular throughout recorded history. Exhibit 1 provides a summary description of both the sole source and the polling methods.

Conjecture Methods

Conjecture methods are reasoned and systematic efforts to identify and describe alternative futures which may be pertinent to a forecast topic. There are two principle types of conjecture methods: qualitative and quantitative.

A qualitative conjecture is one in which the most important content cannot be counted or measured. These conjectures generally utilize words but could also be composed of pictures, sounds or music as their medium. Two principal kinds of qualitative conjectures used by futurists are the narrative methods of scenario construction and future history construction. These two techniques are briefly described in Exhibit 1.

On the other hand, quantitative conjectures are those for which the content can be counted and measured. These conjectures use such things as rate of change estimates, probability estimates, percentage changes, and numerical scales and graphs. Two principal tools utilized by futurists in developing quantitative conjectures are the cross-impact matrix and relevance trees. These two methods are briefly described in Exhibit 1.

Mathematical Modeling Methods

The third "futures" forecasting tool is mathematical modeling. A model is an abstraction of reality. Therefore, mathematical model building is the construction of relationships which portray other relationships which are

found in the "real world." The primary advantage of these models is that they can be utilized to understand, as well as predict, the events with which they deal. In futures research however, models are more concerned with understanding a system than in forecasting. Models can be constructed of relatively small sectors of activity—such as the demand for a single commodity—or they can be constructed for large sectors of activity such as M.I.T.'s widely known model of the U.S. economy.

Mathematical models can be classified as static or dynamic. Static models are those that ignore time as a variable, whereas, dynamic models consider time as an independent variable. Since futurists are concerned with future time they naturally tend to deal with dynamic as opposed to static models. Dynamic models can be of two basic types, deterministic or stochastic. Each of these are mentioned further in Exhibit 1.

Selecting a Futurist

While already instrumental in the long range planning of large corporations, the utilization of futures research is an innovation in most medium and small companies. In the coming years, small companies will hire "futurists"—individuals skilled at using the tools of futures research and convinced of the value of contemplating the future—on a consultancy basis. The "consulting" futurist will be used because a smaller company may not be able to afford a full-time long range planner, but still realizes the importance of anticipating impending events. For example, building on an earlier illustration, a sporting goods company might hire a futurist to forecast the "future of U.S. recreation." If such actions had been taken in the past, perhaps these companies would have better anticipated the boom in tennis, cycling and racquetball.

Since the implementation of futures research projects to help in corporate planning is rather recent, few iron clad rules for selecting futurists as consultants have emerged. As futures research grows, corporate executives will need to develop decision-making rules to evaluate the acceptability of futurists as consultants to their company. While only time will reveal the best "rules of thumb," several factors which should be weighed by the executive thinking about retaining a futurist are discussed below.

Companies should not judge futurists too heavily on the accuracy of their past predictions. One of the reasons that a company seeking to employ a futurist cannot judge him or her on the basis of "accuracy of past predictions" is because of the possibility of "self-defeating prophecies." In other words, once certain "futures" are uncovered, particular individuals may work vigorously in order to assure that this "future" does not occur. For example, suppose one of the large railroad magnates of the 1920 's had hired a futurist to anticipate "the future of transportation." This is improbable, but the example will serve to illustrate an important point. If the forecaster projected a "possible future" including the decline of rail roads as a passenger carrier and the rise of trucking as a major cargo carrier, one can probably assume that (if management accepts the validity of the projection) railroad management would have worked extremely hard to assure that the forecaster's prediction did not prove accurate. Thus, the ultimate value to management of a futurist is not always whether the predictions come to fruition, but rather the "early warning" function provided to decision makers. These warnings serve to indicate the dominant directions to which current events point and enable the company to adapt to them, combat them, benefit from them or all of the preceding.

If hiring a single futurist, companies should give more weight to a generalist than a specialist. Most corporations have an initial inclination toward the specialist. This is due in large part to the fact that most executives tend to view their company's problems as permeating from one area, (we have cash flow problems or image problems) and therefore tend to seek a specialist in that area. The contemplation of possible "futures," however, is a different matter. In order to anticipate alternative futures, a generalist should be strongly considered and perhaps preferred. Many of the most likely and unanticipated futures are intertwined in complex patterns, and therefore, meaningful assessment requires many bits of information from a large number of areas to be integrated. The specialist is frequently unable to maintain a sufficiently general view to interpret these patterns. On the other hand, a futures research team will usually include a combination of generalists and specialists.

Obviously, it is helpful when the generalist has some intimate knowledge of the industry for which he is forecasting. For instance, a producer of medical instrumentation is unlikely to hire a futurist who has worked dominantly with consumer goods companies and who has little medical knowledge.

Companies should not automatically select a leader in the field they are most concerned about forecasting. For example, is a leading politician the best individual to forecast the future of social legislation? Not necessarily. Persons who enjoy the highest professional status in a given field may be fully in tune with the present, since they have probably influenced its evolution in some small measure; but they are not clearly the harbingers of the future.⁷ Because they have influenced current events, today's leaders may have a stake in preserving the current state of affairs and consequently their projections could be somewhat biased.

The Permanence of Futures Forecasting

In the coming years, some of the futures research techniques discussed above may fade away; but most of them will probably be perfected to a greater degree. One thing that seems relatively certain in this period of uncertainty is that the orientation of U.S. firms toward the future will continue to increase. General Electric, a pioneer corporation in "futures" forecasting, has been joined by many companies in employing futurists.⁸ This is not surprising since top-level corporate executives expect the external environment surrounding business to be more difficult to predict and assess in the future.⁹

The major upheavals of the 1960s and 1970s—exploding technology, a web of ecological problems, mounting legislation and an ethics crisis—to name a few—have caused business to question its preparedness for change. While the financial attitude that "a dollar earned today is worth more than a dollar ten years from now" is still rightly held, companies increasingly believe that earnings ten years down the road are dependent on what is done today and how well the "tomorrow" ten years distant is understood. Thus, the future-oriented corporation will use futures research in setting corporate goals as well as formulating future business strategies. Study of the future is a resource which can be used to attain a competitive advantage. A truly future-oriented company is "a corporation that takes responsibility for creating its own future whenever possible and adapting to change when necessary through a continuous process of futures research, long range planning and objective setting."¹⁰

Exhibit 1: Futures Research Tools

Sole Source Authority. This method, as used in futures research, consists of drawing upon the insights of an expert to forecast likely future developments. For instance, a supermarket chain might call on a leading marketing academician to draft a report on the "future of food retailing." The educator then uses his expertise and existing information to project developments in the macro-environment that the supermarket firm will probably face. The consequences of these developments on possible strategic thrusts in supermarket retailing would also be analyzed.

Polling Authorities. Polling methods are an extension of the sole source method and are distinguished by the use of a group of experts instead of one. The underlying belief here is that several heads are better than one. Utilization of a group of experts to assess the future provides several advantages including the ability to generate and analyze many more alternative futures, the ability to rely on a broader set of facts, and the utilization of specialists as well as generalists. One method of polling authorities that has received considerable attention over the last decade is the Delphi. Essentially, Delphi is a method used to attain a consensus of opinion from a group of experts without having the experts confront each other in face to face debate, but still allowing the participants to know of the opinions of the other experts involved.

Scenario Construction. A scenario is a background narrative which describes an alternative future. The scenario can be properly thought of as a description of some future point in time—a "prehistory," so to speak. Scenario construction is of value to corporate executives and marketing managers since familiarity with many alternative

scenarios will prevent management from experiencing "future shock" if a reasonable facsimile of one of the scenarios occurs. Predictably if a company is aware of the likely consequences of a possible scenario it will be better prepared to react to the future .

Future Histories. A future history, like a scenario, is a narrative conjecture technique based on facts and assumptions. In contrast to a scenario however, it traces the course of developments and events over a time interval in order to explain how a particular set of circumstances set forth in a scenario developed out of a preceding set of circumstances. Thus, while a scenario might deal with the status of department store retailing in 1990, a future history might begin with computerized banking in 1975 , leading to a mass system of cashless financial transactions by 1985 and finally to an automated, cash-free department store in 1990.

Cross-Impact Matrices. This technique is used to assess the impact of one event upon the likelihood of subsequent events. Initially events must be identified which may reasonably be expected to have a significant effect on the future . These events are then arrayed in a matrix with the same events listed down the rows and across the columns. The effect of the occurrence of each event on the likelihood of occurrence of every other event is then evaluated . After all calculations in such an exercise are completed, the net result is an estimate of final likelihoods of occurrence of each event, considering the accumulated impacts of all of the other occurrences in the set, but restricted to interactions among pairs of events. Through such an analysis therefore, the key events to monitor in future environments are identified.

Relevance Trees. The relevance tree method is a normative method which allows for the identification and perhaps molding of the future to best fit organizational goals. Basically, the relevance tree is constructed by establishing a desired future situation, and identifying stage by stage, the alternative means by which this future could be realized. For every stage leading to the goal each alternative is given a relevance number which is intended to represent how well the alternative has the capacity to contribute to organizational goals. The alternatives selected at each stage provide a path to the final goal and thus a strategy can be developed for achieving the desired future.

Deterministic Math Models. These models are highly quantitative in nature and are used to predict, assess and understand the future. They do so by establishing a quantitative relationship between the variable to be forecast (such as college enrollments) and various predictor variables (such as college age population, projected return on investment of a college degree, and government subsidies to stimulate college education). Deterministic models assume that the relationship between the forecasted variable and the predictors are very rigid and thus the impact of a predictor variable can be determined precisely. Therefore these models are capable of arriving at a precise estimate of the future. However, in all probability these estimates will be in error. This is due to the unrealistic assumption of certainty with regard to the relationships being modeled. Herein lies the major weakness of deterministic models, they assume certainty about an uncertain future.

Stochastic Math Models. Stochastic models are similar to deterministic models except they do not assume a rigid relationship between the variable to be forecast and the predictor variables. They therefore overcome the major weakness of deterministic models. Importantly when stochastic models are used to assess the future they will predict the future to take on a series of possible values. This type of prediction is obviously more useful than a deterministic prediction and is also less likely to be misleading.

Footnotes

¹Peter F. Drucker, *The Age of Discontinuity* (New York: Harper & Row, 1969).

²Alvin Toffler, *Future Shock* (New York: Random House, 1970).

³Adapted from: Don Olesen, "The Future is Now: What the Heck Happened?" *The Milwaukee Journal, Insight Magazine* (February 24, 1974), pp. 12-23.

⁴ Liz Roman Gallese, "The Soothsayers," *The Waif Street Journal* (March 31, 1975), p.1.

⁵"Corporate Planning: Piercing Future Fog in the Executive Suite," Business Week (April 28, 1975), pp. 46-54.

⁶Newton W. Lamson, "Plots Thicken for Corporate Planners," The New York Times (Sunday, April 13, 1975), Section 3, pp. 1, 11.

⁷Denis F. Johnston, "Forecasting Methods in the Social Sciences," Challenges from the Future, Proceedings of the International Futures Research Conference, Vol. 1, Japan Society of Futurology, Kodonsha, Ltd., Tokyo, 1970, p. 141.

⁸"Corporate Planning: Piercing Future Fog in the Executive Suite."

⁹Jon G. Udell, Gene R. Laczniak and Robert F. Lusch, "The Business Environment in 1985," Business Horizons (June 1976), pp. 45-53.

¹⁰ Burt Nanus, "The Future-Oriented Corporation," Business Horizons (February 1975), p. 6