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From Forecasting to 'La Prospective' A New Way of Looking at Futures

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ABSTRACT

Although 'La Prospective' is not well known in the Anglo-Saxon forecasting literature, it has been for many years widely used in France and other Latin countries with considerable success. Lately, because of the inaccuracy of forecasting and the large forecasting errors that have been experienced, it is suggested that the Prospective approach can be used as a way of dealing with these problems. The main characteristics of 'La Prospective' are that it does not look at the future as a continuation of the past but rather as the outcome of the wishes of various actors and the constraints imposed on them by the environment. Its purpose is to assist in creating alternative futures and then select some alternative that allows for maximum freedom of action.

KEY WORDS Long term forecasting Technological forecasting
Futures 'La Prospective'

'La Prospective' (French): Science which studies the technical, scientific, economic and social forces making for accelerated change and attempts to protect the kinds of situations which could result from their interplay . . .

'La Prospective', according to its first proponent, G. Berger, is neither a doctrine, nor a system. It is a way of focusing and concentrating on the future by imagining it full-blown rather than by drawing deductions from the present. (Translated from Grand Larousse, 1963 edition.)

'La Prospective' or the prospective concept, as a way of dealing with the future, is well accepted in France, Italy, Spain and South America, and is beginning to appear in the Anglo-Saxon literature (Berger, 1967, 1964: Jouvenel, 1964; Saint-Paul and Teniere-Buchot, 1974; Lesourne, 1982, 1979; Godet, 1980, 1979; Cournand and Levy, 1973). In what way does the 'prospective' approach differ from the 'classical' forecasting methods? Before replying to this question, the criticisms of 'classical' long-term forecasting approaches will be discussed.

CLASSICAL FORECASTING AND ITS ERRORS

The economic history of industrial society has been marked by repeated forecasting errors. What is serious is not so much the existence of errors, as the systematic ignoring of past errors when new forecasts are made.

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In 1972, before what came to be known as the energy crisis, forecasts of energy consumption reckoned on the continuance of a declining trend in relative oil prices until 1980–1985. The present economic crisis is partly due to the forecasts that cheap energy would continue to be available. The enormity of the errors highlights the ridiculous precision with which the forecasts are presented. In a period of a few years, forecasts of energy prices increased more than fourfold.

The need for an overall view

Most of the forecasting models include a few explanatory variables, most of which can be easily quantified. They do not take into account the development of new relationships and the possible changes in trends. A major failure in forecasting arises from the fact that the economy is regarded as autonomous. Economic forecasting is therefore divorced from social and political forecasting and is itself fragmented into technological, demographic and other forecasts.

On the other hand, there is a strong need to study an entire system in which everything is more and more interdependent and in which the whole, as distinct from the sum of the parts, is reflected in each part. Since the parts are interdependent, reasoning based on the assumption of 'everything else being held constant' cannot explain the evolution of social economic phenomena where everything moves simultaneously. An understanding of the whole is necessary, therefore, to deal with the individual parts of a system, and not the other way round, as is advocated by 'classical' long-term forecasting approaches.

The limits of quantification and models

The impossibility of forecasting the future as a function solely of past data explains the weakness of econometric modelling which does not integrate qualitative and non-quantifiable parameters such as the wishes and behaviour of relevant actors. It should be emphasized that the dangers of false quantification—quantifying involves giving priority to what is quantifiable at the expense of what is not—should not lead to the total rejection of numbers. But we should use them with extreme caution, especially since statistics are flawed by errors. As Morgernstern (1972) emphasizes, national income and consumers purchasing figures include errors of the magnitude of plus or minus 10–15 per cent. Thus, input data are incomplete and contain errors; furthermore, the choice of model is not neutral, but conditions the result. The model embodies a theory whose value is limited by the fact that, although there is a single set of data used, there can be a multiplicity of models and interpretations. Model users, on the other hand, believe unduly in the objectivity of their models.

In addition, models are deterministic, but the future depends largely on human actions based on the exercise of free will, which makes them unrealistic. Furthermore, 'classical' forecasting models are not only deterministic, but also assume structural stability, which is another source of forecasting error, since changes are always possible.

Finally, quantitative models tend to reassure. Their mathematics has become more and more sophisticated, and in relying on them, it is easy to forget that the hypothesis and choice of model determine the results achieved. 'The use of mathematics does not in itself solve the problem, even if it allows the problem to be posed more rigorously. For instance, a system of false concepts remains a system of false concepts even when a whole body of theorems is rigorously deduced. The formulation of equations does not in itself confer scientific quality' (Amin, 1971).

The absence of neutrality of information and forecasts

Information about the future, as that of the present or the past, is rarely neutral: usually it serves specific interests. How many studies and analyses are lying hidden in drawers because they are politically undesirable; how many pertinent reports are emptied of their substance by careful

selection of words; how many realities are ignored because they do not fit preconceived ideas. Information is manipulated simply because it is a major source of power. As Crozier and Friedberg (1977, pp. 107 and 181) have pointed out 'information is a rare commodity, and its communication and exchange are not neutral and free processes. To inform someone, to give him information which he does not possess, is to divest oneself, to relinquish those trump cards which could be sold, to make oneself vulnerable in the face of takeover attempts.... Total communication is impossible. To enter into a relationship with another, to seek to open up to him is at the same time to hide and to protect oneself behind fortifications and to oppose him. Briefly any relation with another is strategic and contains a power component, however repressed or sublimated it may be'.

The past and the present are irreversible, unique and certain, but the knowledge we have of them is incomplete; even if the facts of the past are certain, they are only a tiny part of the unknown number of phenomena that make up reality. In consequence, history is only a bet on one of many interpretations (the facts are unique, their interpretations are multiple). It is in this sense that we can say that there are several pasts, or rather several approximations to the same past which one never totally knows.

By the same token, any forecasting requires choices within a system of values, and an ideology, implicit or explicit. Forecasting is, therefore, only valid insofar as this system and ideology is itself acceptable to the reader or the user.

The publication of forecasts themselves influences the future as people inevitably react to forecasts. Thus, a forecast that there will be a scarcity of sugar can become a self-fulfilling prophecy when large numbers of people believe it and rush to buy sugar, thus creating a real scarcity.

TO 'LA PROSPECTIVE' AS AN APPROACH TO DEALING WITH THE FUTURE

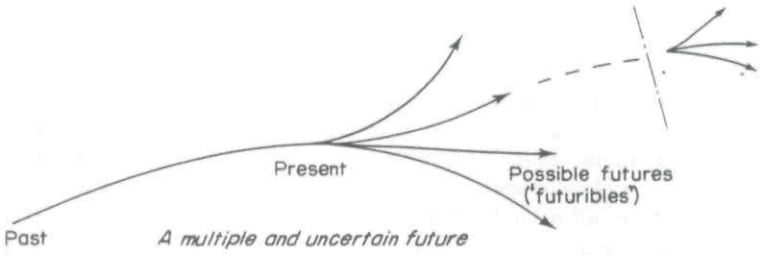
The inadequacy of 'classical' forecasting techniques can be explained by their down playing, or outright ignoring, of the role played by creative human actions in determining the future. This creative attitude is recognized by the 'prospective' approach, which reflects awareness of a future that is both deterministic and free, both passively suffered and actively willed.

'Prospective', first used by Berger (1964) has become widespread in expressing this new attitude to the future. The word 'forecasting' remains too strongly charged with its classical meaning of prediction and is used mainly in the sense of quantified calculations.

The future is not written: it has still to be built

To understand the future, one must first start with the past; what we regret about the past is usually the future ahead of us. Thus, the past is a dead future. The only determinism, we grant the past consists of varying degrees of freedom that past actions have left us to act in the present so as to realize some future plans. What happens in the future results from our past actions, while our desire explains present actions. From this viewpoint, there is no determinism except in the sense that a given evolution of the past presents one particular range of possible futures and not another. Man, insofar as he has not committed or mortgaged his future, retains many degrees of freedom from which he can profit. He can, then, promote one or another alternative future(s) depending upon what he regards as more desirable in relation to his own objectives.

The future should not be envisaged in a unique and predetermined mode, or as a continuation of the past: the future is multiple and uncertain. The plurality of the future and the degrees of freedom for human action go hand in hand; the future is not written; it remains to be built. This is an advantage since man has control over what might come; on the other hand, the ability of man to



influence the future is a major source of uncertainty as far as forecasting is concerned. There are constraints in terms of how much the future can be influenced. Nevertheless, in a world which is unequal and confrontational, the future is the result of the interaction of unequal human forces, shaped by human actions, trends, and constraints. Finally, the future does not belong to everyone in the same way and the same degree: Some actors exercise a greater influence than others.

To accept that the future is multiple, and that there is no unique model describing its evolution, is also implicitly to acknowledge that the horizons of 'prospective' are to be viewed in the plural. Structural changes, resistances, and discontinuities are part of the future. Furthermore, the acceleration of change, coupled with the variety of systems studied, leads to accepting a range of different time scales. From this point of view, the concepts of short, medium and long term are not important except as a function of the problem being studied. For instance, 'long-term' is when many things may have changed.

The future is the *raison d'être* of the present

Societies are most frequently in a state of transition when the old equilibrium of forces has disappeared. But when the old equilibrium is not yet born or stable, it is necessary to look at the future to clarify the present, so that 'the future is the *raison d'etre* of the present'. 'Prospective' is an anticipated retrospective.

We are well familiar with the forces of the past, but to explain the present, we must also ask ourselves about the future. To understand more fully today the events that occurred in 1960 or to understand what is happening today, we must place ourselves in 1990 or beyond. With regard to the essentially subjective nature of reflection about the future, it is primarily the idea we form of the future that explains the present. For example, in basing an individual's consumption at a given moment on expected future income (theory of continuous income), Milton Friedman places importance on psychological factors. To say that production in a given year depends on prices in previous years explains nothing in itself. What is important for the enterpreneur is his idea of the price in future years, whether or not it is relative to that of past years. This determines his production and investment plans. The image of the future thus imprints itself on the present.

On that basis, and if several futures are possible, the one which will in fact be produced is born as much from the confrontations of the projections of the various actors as from the continuation of existing trends. The various actors present in a system often have contradictory ideas and preferences about possible futures. The future must be considered as the result of these different forces. In order to identify the most probable results, it is necessary to understand fully the projects and intentions of the actors, their methods of action on one another, coupled with the constraints imposed on them.

The image of the future is not solely speculative; it is, in particular, normative and results as much from actions as from constraints. The purpose of the prospective approach is to prepare the way (both desirable and feasible) for the future. Its aim is to guide our present actions so as to

expand the field of the feasible. It should, in particular, lead to the careful consideration of decisions that could irreversibly determine the future, or deprive us of freedom of movement. A prospective decision, therefore, is less concerned with maximizing short-term advantage. Its major consideration is to keep as many choices open as possible.

Central to the approach advocated in this paper is that the future is emerging, but its details are unknown. Despite these unknowns, it is necessary to take decisions today which will commit us in the future. Often our ability to predict future events is limited, and in the lack of precise information, we might find it necessary to gamble. This must be done, however, without mortgaging the future. We need freedom of action. The future is unpredictable, increasingly changing, and uncertain.

A key to understanding crises

In our view, the future is mainly the result of conflicts between unequal actors in a system of variable constraints. The future possibilities are multiple and undetermined—to be an actor implies freedom and, consequently, uncertainty. By looking at desires or wishes as a productive force of the future it is possible to understand better why political, economic and social structures break down when constraints increase beyond a certain level. Problems inevitably arise when the gap between reality and aspirations becomes too wide. This is why it is important to deal with these problems by understanding the gap between wishes and aspirations.

Crisis reflects a change in the rules of the game and the functioning (relationships) of a system. This change is desired by certain actors and rejected by others. There is a crisis when, as a result of the changing balance of power, the gap between reality and aspirations becomes too great and requires new rules. The crisis takes place when the change is sufficiently powerful to disturb the former rules of the game, but not powerful enough to impose new rules. As long as the old is dying, but the new is not yet born, the system will be unregulated and in a state of crisis.

The monetary, economic and energy crises which we have experienced since the beginning of the seventies confirm this analysis. The monetary crisis reflects the relative political and economic decline of the United States as compared with the other Western nations. In the new relationships, the dollar is not sufficiently powerful to play its former role as a regulator, but is still too powerful to be ignored. The crisis will last until another rule is found and accepted by the participants of the monetary game.

The energy crisis is of similar type—the quadrupling of oil prices does not result from a sudden change in the quantities available or required but only from a change in the conditions of the supply, that is to say in the balance of power between producers and consumers.

The old price fixing rules have disappeared, new rules were established for which we were not prepared and which we refused to accept. There was a gap between the new reality and the former aspirations. Current and future increases in oil prices can only confirm or nullify the authority of the new rules of the game. The physical shortages which are predicted are only the logical consequence of our refusal to clearly see the new reality facing us and take necessary measures (capital investments, exploration, energy-savings).

Crises, on the other hand, develop because we refuse to adapt our behaviour and our structures to the new rules of the game. Crises can be visualized as the difference between existing rules, which we have already learnt, and those which still have to be learnt. It must be accepted that crises will last as long as our period of learning. We cannot expect to end crises other than by changing our behaviour and possibly our lifestyles, (for more details, see Godet, 1980).

Comparing 'classical' forecasting and 'la prospective'

Partial viewpoints, quantitative variables, the perception of relationships as static, the explanation

of the future by the past, the search for a unique and predetermined future with the help of deterministic models, are embodied in 'classical' forecasting. The result of such attitudes towards forecasting can be huge forecasting errors. Most important, however, is that actions and wishes, the things that cannot be expressed by equations, have no place in 'classical' forecasting.

The 'prospective' approach actively participates in the creation of the future. Its characteristics are radically different from those of 'classical' forecasting. Numerous forecasting errors and, in fact, the crisis in forecasting as a whole could be avoided by using the prospective approach. Table 1 shows seven characteristics of the 'prospective' approach and distinguishes them from those of 'classical' forecasting.

Table 1. Characteristics of classical forecasting compared with those of the prospective approach

	Classical forecasting	Prospective approach
Viewpoint	Piecemeal 'Everything else being equal'	Overall approach 'Nothing else being equal'
Variables	Quantitative, objective, and known	Qualitative, not necessarily quantitative, subjective, known or hidden
Relationships	Static, fixed structures	Dynamic, evolving structures
Explanation	The past explains the future	The future is the 'raison d'être' of the present
Future	Single and certain	Multiple and uncertain
Method	Deterministic and quantitative models (econometric, mathematical)	Intentional analysis Qualitative (structural analysis) and stochastic (cross-impacts) models
Attitude to the future	Passive or adaptive (future *comes* about)	Active and creative (future *brought* about)

The scenario method, widely used in 'prospective', is a powerful tool for constructing alternative futures. It is from these futures that decision makers can choose the one which best fits their objectives and which can be attained given existing constraints.

THE METHOD OF SCENARIOS AS USED BY 'LA PROSPECTIVE'

'La prospective' accepts that the future is multiple, the outcome of various actors and their actions. The scenarios method, as used in the 'prospective' approach, is concerned with deriving these multiple futures and with exploring the pathways leading to them. Literary scenarios, however, although they may represent a stimulating exercise for the imagination, suffer from a lack of credibility. It is impossible to verify the validity and plausibility of the hypotheses advanced. This is why an alternative way has been developed by the 'prospective' approach whose objectives are:

1. To identify which points should be studied as a matter of priority (key-variables), by confronting the variables relating to the phenomenon being studied and the variables describing the environment, using an overall explanatory analysis as exhaustive as possible. Structural analysis makes it possible to take this overall view. In particular, the MICMAC 1 (Cross Impact Matrices-Multiplication Applied to Classification) method, which analyses the direct relationships and feedback effects between variables makes it easier to understand the dynamics of the system being studied (Godet, 1979).
2. To determine the interrelationships among the key variables, the relative power of the fundamental actors, their strategies, the resources which they have at their disposal, their objectives, and the constraints which they must overcome. This is the specific object of the retrospective and the present situation analysis.

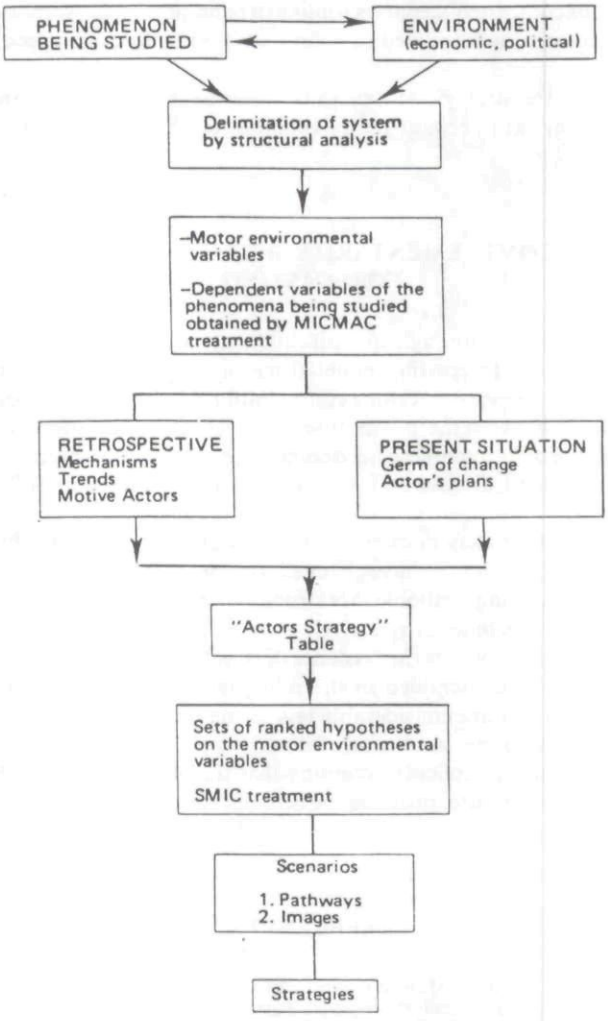


Figure 1. The method of scenarios as used by the prospective approach

When a scenario has been chosen, some 'classical' forecasting techniques can be used, within the framework defined by the scenario, to translate this scenario into quantitative terms.

The method of scenarios has been applied in many cases during the last few years. It consists of three major phases (see Figure 1):

(i) The construction of the base, where the problem posed is situated in its broadest environment and where the existing state of the system is studied so as to understand the mechanisms and to identify the development prospects.

(ii) The elaboration of the scenarios, where, using the results of the previous phase, the probabilities of realization of the various possible final images are obtained, with the use of cross impact matrix methods (Duperin and Godet, 1975). This makes it possible to select from among the most probable scenarios a reference scenario, which is then supplemented by the study of contrasted scenarios (optimistic and pessimistic scenarios). Each of these qualitative scenarios is translated in quantitative terms through appropriate forecasting techniques.

(iii) The selection of the strategic actions to be taken so that the organization may attain its objectives, taking into account the possibilities of change in the system in which it is involved.

CONCLUSIONS—COMPLEMENTARITY BETWEEN 'LA PROSPECTIVE' AND FORECASTING

To criticize is not to reject. Although quantification at any price may seem dangerous, the numerical results of 'classical' forecasting models (time series econometric) do provide stimulating indicators and valuable reference points for a consideration of the future. We believe that there is a certain complementarity between the 'prospective' and 'classical' forecasting. A forecasting model is valuable only by virtue of its hypotheses (econometric, political, . . .) whereas the objective of the 'prospective' approach is to discuss and validate the hypotheses that will make the model consistent and realistic.

Naturally, this complementarity does not hold in a uniform manner. In the long term, when everything or almost everything may have changed, the 'prospective' approach places almost no reliance on 'classical' forecasting methods since structural changes are the rule. On the other hand, as the forecasting horizon becomes progressively shorter, 'classical' forecasting methods play an increasingly important role insofar as the existence of structural stability can be assumed not to be violated. Furthermore, trends identified in the past can be extrapolated into the future. The chances of structural changes are considerably less as the forecasting horizon becomes shorter.

The prospective approach is not a substitute for making prophecies about the future. However, by its use of scenarios and by explicitly accepting that the objectives and wishes of the various actors involved do affect the future, provides the field of forecasting with an alternative approach to studying the future.

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