

MULTILAYERED SCENARIOS, THE SCIENTIFIC METHOD AND GLOBAL MODELS

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Contents

1. Introduction
2. Multilayered Scenarios
3. Global Models—Worldviews, Forecasts, and Critics
4. Dealing with Complexity—the Scientific Method
5. Instability and Shift Points
6. Ordering the Complexity of the World System
7. The Next Generation of Scenarios

Glossary

Bibliography

Biographical Sketch

Summary

Whereas a set of alternative scenarios may create confusion, one carefully argued most probable scenario will provide a clear view of long-term developments, supported by a theoretical structure and predictive hypothesis. The one suggested picture may then be subjected to the standard scientific test. In that way, a body of scientifically verified theory may be constructed. The analysis may include the consideration of, and forecasting of, potential instability. Such a process can commence with analysis of past forecasting. Global modeling has been stimulated by, and to some extent controlled by, the worldviews of the players (both organizers and researchers). That is a factor to be considered when gathering guidance from such extensive studies. The complexity of the real world, where diverse trends and experiences coexist, can be captured in a hierarchical set of sub-scenarios which together form a multilayered mega-scenario. The most important element in such a structure is the basic, background picture of the whole system, within which all other sub-scenarios must fit. While inaccurate basic assumptions can dominate and skew further analysis, even a simplistic argument—if it captures the essence of a system—may provide useful guidance.

1. Introduction

Futures research is carried out within an environment of worldviews and cultures. Any decision to consider what lies ahead is determined by some attitude towards the future and some concern for what is to come. The choice of approach and emphasis is guided by desires and expectations and the analysis and forecasts are heavily influenced (or even predetermined) by the initiators and controllers of the research.

This is a constant feature of the human condition—each individual and each society is largely defined by past and immediate experiences, by the influence of surrounding cultures, and by the inheritance from previous generations. The importance of myth and metaphor must not, however, prevent efforts to comprehend our surroundings and improve our actions. Some means must be sought to discover universal truths and to communicate across cultural barriers.

The scientific method, which has played such a significant role in forming the modern world, provides a means of dealing with the complexity of cultures and worldviews. That approach requires the formulation of hypotheses and predictions which are capable of testing. Those theories that conform with reality within the physical world are then accepted and those that fall short are rejected. In that manner, a core set of hypotheses is constructed which accords with physical reality and which may hopefully form the basis of a common and shared worldview.

It appears that the world is moving towards a crisis of unprecedented proportions, with global collapse possible within the coming half-century. Such concerns were widely voiced some thirty years ago, and a number of extensive projects explored possible futures. Some suggested that the feared collapse might indeed occur around thirty years hence. We are then halfway towards the crisis, yet the world continues along its previous path with minimal change. If the warnings of the forecasts are accurate, the world has wasted fully one-half of the time available for a sensible preventative reaction.

That set of large projects with their use of complex global models may inform the ongoing debate in two very significant ways. A study of their formation and reception may clarify the influence of worldview, ideology and control on both the projects and the reaction to the concerns which they voiced. Was the debate disinterested and scientific or driven by particular interests? Then the various forecasts may be revisited and tested to determine which have proved robust to date. The more successful forecasts will have been guided by satisfactory hypotheses of physical and social reality, and may point most accurately to the expected future. Thus we can be guided in a choice of further scenarios.

Further scenario work should be consciously guided by the scientific approach. One central most probable scenario can be based on clearly described hypotheses, including a conscious choice of significant and dominant trends. This moves away from the specification of a set of alternative scenarios which cover a wide range of possibilities. The deliberate limitation and specification of expectations allows a test of the scenario in later years.

The full methodology may include a set of layered sub-scenarios which add detail to the broad-brush basic picture. The layers of increasing complexity may consider the experiences of different classes or groups, and may reflect the varied worldviews of dissimilar cultures. Meanwhile, the macro-scenario setting provides a unifying framework which demands consistency and which prevents double-counting.

The warnings of the previous generation of models were serious. A new generation of improved projects is urgently called for. Otherwise, we drift towards potential disaster without taking even the basic precaution of reacting to the clear warning signals and exploring thoroughly probable consequences of the continuation and extension of the modern global economy.

2. Multilayered Scenarios

One methodology used to search for answers to such questions is the construction of scenarios (see *Epistemology and Methodology in the Study of the Future*). The aim of the exercise is clarification and guidance. Scenarios are, however, frequently presented in sets, outlining a number of possible future pictures—low, medium or high growth, breakdown or continuation, and so on. When a range of possibilities is provided, the message may be confused; the reader may find difficulty in deciding what to expect from a variety of often conflicting pictures, and what eventualities to plan for.

Thus an approach that is too comprehensive and over-inclusive will fail to inform. The presentation of many different options may also mask the lack of a solid theoretical foundation for the scenario development—carrying the message that the analysts have no idea what might happen. To inform, the future picture must make sense and be based on some clear idea of major trends.

A clearer message is provided by one most probable scenario. The following example was developed during the 1970s and has subsequently proved robust to date. It sets down definite expectations for the twenty-first century.

The first stage, from 1980 to the end of the century, was dominated by the end of a long-term growth period (around 1972, following the Kondratieff cyclic pattern of several decades of growth alternating with several decades of depression) and the onset of a long-term downturn. The general collapse and recovery experienced in the past (as in 1929–1933, for example) were not expected. The collapse would be dampened by a combination of welfare provisions (which support purchasing power) and the strength of global financial institutions. Without a sufficient collapse, a new growth period will not commence, and a relatively shallow depression characterized by high levels of unemployment will continue well into the twenty-first century.

Looking further ahead, the world may face the linked horrors of overpopulation and environmental degradation, food shortages, starvation, disease, and social collapse in the decades around 2030. That pattern is derived from analysis of global models. The misery and population decrease may mirror the disappearance of around one-third of the European population in the Black Death of the mid fourteenth century. That population collapse was followed by the Renaissance, a time of widespread disruption and misery coupled with extraordinary prosperity as the privileged few lived surrounded by artistic treasures and isolated from the general strife.

This dismal picture is remarkably different from that of a prosperous consumer society, driven by technological advances. Yet, that alternative picture can also be derived from major recent trends. It too deserves consideration. Indeed, the more positive and hopeful

scenario is widely debated by “technological optimists” and often dominates the center field of futures research. An essential question is then whether one of these two divergent pictures must be rejected.

The historical period from the Black Death to the Renaissance gives the clue to the solution. For some centuries widespread common misery coexisted with considerable luxury as a privileged minority developed an artificial courtly lifestyle, largely insulated from the surrounding populace.

The state of peoples in the present-day world provides a similar picture, with economic and social differences widening as some populations live in ongoing poverty while the numbers of millionaires—and billionaires—continues to grow. The world is complex, and there is no reason to expect any greater uniformity in the future. Both patterns may continue. In the future, a prosperous high-tech elite may coexist alongside masses struggling in poverty.

Another feature of the complexity will be the existence of multiple and divergent worldviews. Such complexity raises important questions for the further development of futures thinking. Realistic pictures should reflect existing complexity, yet must also be sufficiently concise and comprehensible to convey useful information.

A set of scenarios (or sub-scenarios) may more usefully describe not alternative futures, but one most probable future, as lived by different groups, or as perceived from different viewpoints. Such a set can combine to produce a multilayered, mega-scenario. There will be significant interactions among the sub-scenarios. For example, a privileged elite (technological optimism) will react to the surrounding destruction and distress (global collapse). One forecast, as summarized above, is for denial and grasping for yet more luxury, mirroring the Renaissance. If the masses remain weak, such a pattern may persist.

There must also be consistency among the sub-scenarios. Land must be used for one major purpose without double counting; trade must balance, as must resource production and use. An overriding background picture will provide a general framework and the means for a consistency check.

A mega-scenario may then be formulated within the setting of a global model. Indeed, my own scenario work outlined above was developed in this way as I took some major trends from global modeling and added information from other sources such as global ecology and European history, layering up the analysis.

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Biographical Sketch

John Robinson studied mathematics and physics at Auckland University and the Massachusetts Institute of Technology. When he was a scientist with the Department of Scientific and Industrial Research his study of the 1972 report to the Club of Rome, *The Limits to Growth*, took him into the interdisciplinary arena of futures research. In New Zealand and Europe, John's work included contracts with OECD Interfutures and several United Nations Agencies. He studied sociology, demographics, economics, history and other subjects which provided the theoretical base for more detailed scenarios of long-term trends. The interest in long-term trends subsequently waned in New Zealand with the disappearance of The Commission for the Future, and John's employment has focused on Maori statistics and analyses. His interest in futures has continued with the publication of three books and a number of articles.