SIMULATION SCENARIOS—RATIONALE AND ILLUSTRATION

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ABSTRACT

Business games, by and large, are closed systems. That is, participating firms are assumed to operate in one or several self-contained markets, unaffected by market-exogenous events. To provide a vital dimension of realism such events must be added. A series of this kind of events constitute a scenario. In 1993 the first Model Scenario of World events was developed for the International Operations Simulation (INTOPIA). A new INTOPIA Model Scenario of possible events in the 1998-2000 period has just been released.

INTRODUCTION

By definition, all simulations are dynamic. By design, most simulations, such as military gaming, pilot simulators, economic input-output models, inventory "pipelines" tracking, manufacturing process and automobile collision simulations, incorporate the possibility of exogenous events calling for adjustment by the system. A sequence of such events we shall call a scenario. Strangely, most business games pay little or no heed to such system-exogenous chains of events. In this respect they are based on the increasingly dubious assumption that the firm is like a machine conducting "business as usual" for the duration of the game.

SCENARIO RATIONALE

A scenario in the sense discussed here is at least in part providing an application of *chaos theory*. That natural science concept is concerned with attempts to reveal structure (and, hence, ultimately manageability) in aperiodic, unpredictable dynamic systems. Chaos theory is a reaction in natural, and increasingly, social science, against the notion of an orderly periodicity inherent in extant dynamic systems. It is obvious that more or less chaotic events occurring be-yond the confines of any given market may impact that market as well as the sellers and buyers composing it.

Thus, the ultimate rationale for such a scenario is to concretize the notion now broadly recognized in management theory (though far from always in practice) that strategic planning is really inherently a *continuous* activity, rather than an episodic or periodic one. Predicting the probability of a given "chaotic" event occurring, its likely impact on the market, and planning alternate strategic adjustment behaviors is also a highly lifelike experience.

ILLUSTRATION: NEW INTOPIA MODEL SCENARIO

Sample Events

Business cycles moving from one part of the world to another. Inflation changes in interest rates, devaluation. Labor peace upsets: slowdowns, unionization drives. Social responsibility tests: ray-screens on PC, smuggling in Brazil. Privatization of PC plans in Brazil. Price control, export subsidies. EU requires labeling, manuals in four languages. US-EU trade war, antitrust problems. Robotics, containerization. Breakthrough economy PC ("Network Computer"). Nippon Electric introduces major competition. World Trade Organization adjudicates trade conflicts.

Documentation and Implementation

Documentation of the INTOPIA Model Scenario includes: Introduction for the Facilitator. Listing of all events, prior notices, rumors, confirmation, Q(uarter) by Q for an 8-Q run. Reprints of *Gazette* trade journals, Q1-Q8. Sundry ideas for other Environmental Events. Default decisions of Nippon Electronic competitor. Illustrative company decisions and financial

statements from Q1. Printout of parameter changes on Scenario disk (for illustration only—not for implementation). Scenario diskette for automatic implementation. Once the Model Scenario disk has been copied to the INTOPIA directory, implementation of most events is *automatic*, including autosynchronization with whatever Q is the current one. Only some 10% of all events call for some kind of Facilitator intervention. In each case the type of human intervention called for is detailed in the Introduction for the Facilitator.

Criteria for Selecting and Introducing Events

The Facilitator is free to use the entire Model Scenario, just parts of it, or none of it. (Other circumstances equal, the latter course may be the wisest one in the first run of the simulation.) As Facilitator gains greater experience s/he may well opt to use some alternate / additional events suggested in the documentation, or design a Scenario from the ground up. (Starting from scratch will involve weeks of work.) Some criteria in the selection and introduction of events: It is probably more important to aim for variety (quality) rather than frequency (number) of events. An exception might be events especially suited for a particular course. It may make good sense in an International Finance course to introduce a series of devaluations (and revaluations) of currencies, for example. The events should not be overwhelming in number and/or impact. If participants experience a series of events as so many catastrophes, or unrealizable opportunities, they may switch from professional management to "Cowboy" (shoot-from-the-hip) management in frustration.

There is a certain creative joy in designing a scenario or individual parts thereof. Too, in INTOPIA, the Directory of Parameters makes the implementation of events "a breeze," in contrast to the invasive surgery that would be re-

quired in many other games. Team reactions to scenario events vary as widely as do those of companies in the real world in similar situations. For example a slowdown staged by labor in European PC plants is accepted stoically by some, while exceptional companies turn the potential setback into an opportunity, loading up on EU inventory by imports. This brings up another point: most events of significance in the world of practice are typically predicted or at least rumored in advance. Determination of appropriate periods of advance notice, and of a suitable quota of rumors never to be realized, is a matter of careful deliberation. As always in simulations, it is also essential that both events and prenotification periods are perceived by participants as realistic.

TO USE OR NOT TO USE A SCENARIO?

A rationale for using a scenario of exogenous events in management games was given early on. There are several reasons why such a scenario might not be used in a given run: the Facilitator simply may not wish to take the extra bother, however marginal it might be. Or s/he may feel that taking on a scenario makes the exercise overly complex for participants (say, incoming undergrads), or that s/he would like to gain more experience of the simulation as such before entering this "extension." Finally, if the endogenous variables make a sufficiently complex exercise to meet the objectives of the course and the needs of the students, this may well speak against introducing a scenario of the type discussed here.

Nevertheless, we do believe that such a scenario introduces an additional element of realism currently lacking in most strategy simulations in the management game form.