- Current Issue
- Article Archive
- Buyer's Guide
- Software Surveys
- Reprints
- Subscriptions
- Advertising
- Search
- Links
- Mail List Rental
- Author's Guidelines
- APICS Home
- 2000 Editorial Calendar

APICS -- The Performance Advantage
August 1999, Volume 9, No. 8

Software Review

Visual Thinking's SIMUL8

By Paul Mona

Program Overview

SIMUL8 from Visual Thinking is a graphically oriented simulation language. That is, the user draws on the pallet of objects offered by SIMUL8 to pick out the appropriate icons for each of the major activities. Once the appropriate icon has been selected, the user can double-click on the icon to open up a dialog/objects box (see Figure 1). By filling in the information required by this box, the user is able to define the traits of the object. Having identified the various objectives, the user next connects the objects. These connections define the flow of work within the simulation model.

In a SIMUL8 model, everything is done through the visual simulation model. The user builds the graphical model, populates it with information, and then runs it. The operation of the model (the speed of which can be easily controlled by the user) becomes the entity that is studied by the user. In addition, performance aspects of the model can be captured through various result summaries (see Figure 2).

The data can be captured in such formats as pie charts, histograms, and time charts. The time graph results can be exported to Excel, where they can be further analyzed (either within Excel or within one of the many statistics packages such as SPSS or SYSTAT, which can easily import data in Excel format). For each work center, some particularly helpful results made available include awaiting work, working (the work center is busy), blocked, and stopped. The package also can obtain data (including starting values) from an Excel spreadsheet. And SIMUL8 also offers a nice set of diagnostic tools.

SIMUL8 recognizes that the graphic interface, while sufficiently powerful, is not often adequate by itself. As a result, it offers Visual Logic, a programming language unique to this package that enables users to add flexibility to the simulation language. It is not a conventional programming language; rather, it is a language that allows the user to construct code through simple mouse clicks and icons (see Figure 3).

Although there is a learning curve, it is much less than that of other languages such as Visual Basic or C++. Further, the package offers the ability to further expand on the programming capabilities by allowing the user to connect to Visual Basic. But this method is not as easy as those encountered with other programs such as ARENA or CINEMA.

Program Performance

When reviewing a simulation model, performance can be evaluated in several ways. First, look at the time it takes to execute a model once it is built. On this dimension, a SIMUL8 model is fairly fast. Models were built and tested on a number of computer environments, including Pentium systems. In general, the speed of the model was influenced by the processing speed and power and by the amount of RAM. In some ways, this is not an appropriate way for evaluating this package because the user can influence the speed of the model by using the mouse to adjust the speed bar. A more useful evaluation method is to consider the time needed to develop, debug, and run models. On this dimension, SIMUL8 excels.

SIMUL8 is relatively easy to learn and use. The program introduces reasonable default settings that facilitate quick construction and make immediate simulation possible. Setting routings also is relatively simple: Just use the mouse to draw a connecting line between the objectives to be connected. That connection defines one part of the routing.

Further simplifying this building process are the dozens of simulation examples created by the SIMUL8 developers. These examples viewed in the examples library and can be used as templates for users to develop their own special parts of the overall model. (See Figure 4)

Documentation

A 224-page manual is included that is essentially two manuals in one. In the first part of the manual, the user gets an overview of computer simulation, including the method by which he or she can

use simulation to study problems and to improve operations. For novices, this first section is particularly useful.

The second portion of the manual covers technical features. For the most part, this introduction is adequate for building basic models, but it doesn't cover many of the features and the logic needed for more complex tasks. The manual could be more expansive, but the package is relatively low cost and some tradeoffs are necessary. Helpful additions could include a textbook or the availability of more extensive documentation at an additional cost.

Ease of Installation

This Windows-based product is relatively easy to install. Just insert the CD and follow the instructions. Visual Thinking should be commended for avoiding the use of a hardware-based copy protection system. Programs such as ProModel rely on a hardware doggle that connects through the parallel port outlet to control the copying and distribution of their programs.

Although we recognize the need for copy protection, the use of this method of protection ultimately decreases the ease of use and installation of the product. Visual Thinking, in contrast, has opted for a serial number method of copy protection control, a far more user-friendly method.

Technical Support

Visual Thinking offers three modes of technical support: the Internet, the telephone, and training sessions. Technical support staff available by phone were very knowledgeable about their product and about simulation in general. Most problems were addressed while either on the telephone or within the day. In all cases, the staff member was willing to spend as much time as necessary to address the problem.

Users are strongly encouraged to attend Visual Thinking's training seminars, which greatly reduce the learning curve and provide an opportunity to meet other users, as well as Visual Thinking representatives.

Overall Evaluation

In general, this is an attractive package. Relative to its competition, SIMUL8 is low cost. Users get more than 80 percent of the power of packages such as Witness, ProModel, and Arena, while paying less than 5 percent of the cost—an attractive tradeoff.

In addition, for most basic simulation models, this package is highly effective. In short, SIMUL8 is a great deal and highly recommended. Several areas, however, should be addressed by Visual Thinking of future revisions, the following are not deficiencies, but rather opportunities for improvement:

• Visual Logic, the programming language, should be more user friendly. At present, Visual Logic can be confusing and, as with all new things, a definite learning curve is present. Most Visual Logic functions can be simple to grasp, yet some functions are not so obvious. Some things you may want to implement require more than a basic or intermediate grasp of this unique language. Although strong technical support makes up for this, reworking the language and its supporting documentation could reduce the need for this support.

• Visual Logic could use more functions that would make it comparable to Witness or ProModel.

• Some of the language or wording that the vendor uses throughout the package can be confusing. This includes language in the tool tips or bubble boxes.

• Because some of the users who work with SIMUL8 have been using other packages (such as Witness or SIMAN), the inclusion of tips for making the transition to SIMUL8 would be helpful. The need for this feature became obvious during the development of the simulation model when one of the professors working on the project found that, while he knew how to achieve a certain outcome using ARENA or ProModel, he was lost on how to achieve the same output using SIMUL8. This resulted in several telephone calls to the technical support staff at Visual Thinking.

• Currently, the development of a user-defined results summary page is somewhat complex. Users must click on several objects to create their own results page. A better results summary default page would be far more helpful.

However, these comments do not detract from what is a very good, strong product.

Paul Mona is a recent MBA graduate (supply chain management) from the Eli Broad Graduate School of Management at Michigan State University. He is currently working with Daimler-Chrysler.
