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Business Modeling: No Spreadsheets Required

Lumina's Analytica rends the veil that has kept business managers from collaborating with analysts on complex business models

By **Barry Grushkin**

Business models created in spreadsheets or using arcane code are intrinsically error prone. They require layers of translations between managers and coders and generally are organized by function rather than by intuitive, high-level concepts. Yet most corporate and government decisions are based on models built in spreadsheets.

Lumina Decision Systems' Analytica cuts through the spreadsheet obfuscation by giving you a better way to create testable, working business models and simulations, from the simple to the complex. The product uses a visual, concept-driven approach for corporate planning and strategy development that serves as an active whiteboard, allowing immediate testing and assumption variation. It also validates decisions, satisfying Sarbanes-Oxley mandates imposed on C-level executives.

"People are always making business decisions based on numbers without knowing where the numbers came from," says Gary Rushin, vice chair of the board of trustees of the University of Northern Virginia and partner in DecisionPoint. "[Analytica] lets management see what's going on."

Analyze This

To evaluate Analytica 3.0, I created several models and interviewed users who've deployed it in production applications. Mastering this product isn't easy, and the interface could be improved, but no other available product handles design, presentation and sophisticated and specialized modeling like Analytica does.

Analytica lets you manipulate objects by dragging and dropping icons onto a pallet. These objects start as qualitative descriptors of the analysis components. You use arrows to show how these components influence each other, then add quantitative information to transform the concept model into a well-documented, live model that can run your numbers and test scenario variations. Each node can be a formula (a function of other nodes, using current or past time frames, from a large library), data (a value, estimated distribution, table, cube or SQL call), a piece of code, a visualization or a set of subnodes.

The models you make can be sophisticated. Analytica is especially well suited to model situations affected by uncertainty. Several users described applications for strategic analysis at energy, electronics, automobile and pharmaceutical companies. The product also can be used for financial applications, such as corporate bankruptcies and business and derivatives valuations. Analytica supports random variables, random walks, Monte Carlo simulations,

PROS

- Offers wide range of powerful statistical and probabilistic modeling functions
- Models many complex business situations far better than spreadsheets
- Shows visualizations and options in context. Has live links to Microsoft Graph in Excel
- Connects to most major databases using ODBC
- Provides a good user guide and accessible user groups
- Lets you add new dimensions with drag and drop; sophisticated table and cube operations

CONS

- Can't extract data formally in OLAP formats
- No books available on how to use Analytica
- Needs more sample templates, solution components and how-to examples
- Some advanced operations require use of function calls instead of intuitive GUIs or wizards

Markov processes, time series and difference-equation models, and network and process simulations.

Analytica doesn't replace data mining or statistical software packages, which are made for specialized, high-level computations. Rather, its role is to represent, analyze and communicate complex business situations, simulate outcomes and create forecasts.

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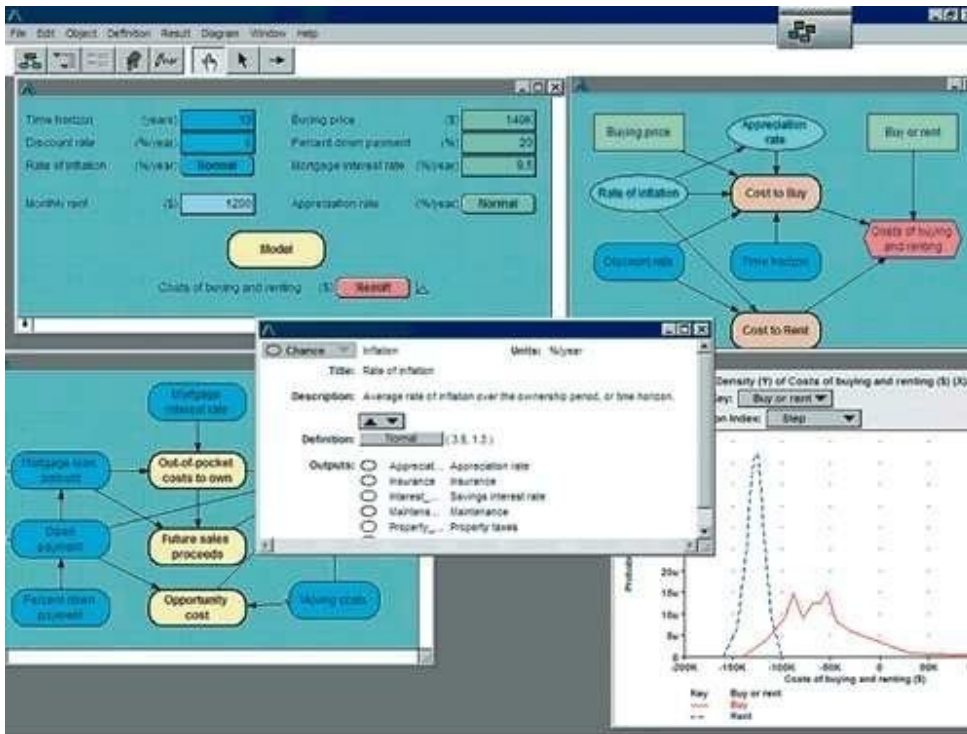
Added Dimensions

Analytica supports, in logical ways, quantitative operations on tables and cubes. One powerful feature lets you drag and drop a new dimension into place with everything integrating appropriately. Compare this to the mess you get when you add a third dimension to a 2-D model in a spreadsheet.

"Analytica allows you to easily build complexity into a model once you have a concept of how things interrelate," says Tim Nieman, a senior decision analyst at Geomatrix. "It's a great scenario-analysis tool. It's quick to build and quick to make adjustments on the fly. I use it in meetings as a live tool. With Excel, I would have to plan the variations beforehand."

But for all its unique capabilities, Analytica could be improved. For example, version 3.0 doesn't provide a convenient graphical interface for slicing and dicing, which OLAP users have come to expect. Also, it doesn't have some seemingly basic features, such as an "undo" button.

A team using Analytica must have someone with the aptitude of a quantitative MBA, but the tool helps experts communicate with stakeholders, and managers can drill into details to check if models are right.



CLOCKWISE FROM TOP LEFT: input form; concept objects and relationships; uncertainty distributions for this "rent vs. buy" analysis; a drill-down of the "cost to buy" object; (middle) specs for a "rate of inflation" object.

You might think that something that acts as both a design tool and a presentation whiteboard wouldn't be scalable, but users say that's not the case. Comparing Analytica to the spreadsheet tool he previously used for Monte Carlo simulation of warranty exposure and service provisioning and planning, Robert M. Holland, senior reliability engineer at Ballard Power Systems, says he experienced several performance improvements: The number of equations decreased from one per (worksheet) cell to one per array. File size decreased by a factor of 100 or more. Calculation speed increased by a factor of five to 10. Development time decreased by a factor of two to five. And the number of

files decreased from one per program or product to one file containing all programs and products. Holland says he also prefers Analytica's ease of use, intuitive visual interface and the ease of modification through array abstraction.

- **Analytica** costs \$1,295 to \$11,000 for a permanent license, depending on features. A downloadable 30-day free trial is available at www.lumina.com.

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