

# The Planners Lab© Software

## A White Paper

### **Principal domain of use:**

The Planners Lab is not solely for financial planning, but that is its primary focus. Successful financial planning is a core critical success factor for every organization. Example applications include strategic planning, financial planning, capital budgeting, balanced scorecards, project investment analysis, merger and acquisition analysis and sales forecasting.

Today, Excel is absolutely the de facto standard for financial planning and analysis. The Planners Lab is not positioned as a replacement for Excel. Instead, the Planners Lab is positioned for new applications and for situations not now possible using Excel. The differences are clearly stated later in this document.

### **Product basics:**

The basic components of the Planners Lab are (1) an assumption description language (also called model-building language) and (2) options to visualize answers to what-if and goal-seek questions, i.e., witness changes in assumptions. The combination of these components allows business managers to build, review and manipulate the assumptions that underlie a decision making scenario.

The Planners lab handles what-if and goal-seek questions with instant answers in attractive visuals. What-if questions and answers are easily asked and answered. There are two visualization options, namely, (1) interactive “on the fly” and (2) sophisticated dashboards for interactive executive presentations. Both give instant views showing the effects of changes in assumptions. The Planners Lab visualization technology enables decision makers to immediately witness the consequences of changed assumptions.

No other product on the market today makes it so easy to communicate ideas and assumptions leading to or behind decision making. No other product supports active participation of decision makers in creating the assumptions that generate the numbers.

The product operates connected via the Internet, stand alone or a combination.

### **Planners Lab positioning:**

The Planners Lab is one of the first business decision support applications to use a development platform that supports real-time and animated interactivity (Macromedia FlashMX™). This includes the ability for decision makers to “play” with assumptions to reflect alternative views of the future with alternative scenarios. The software is a starting point to achieve the following vision: Business software should provide decision makers with engaging experiences, such as are currently available in computer gaming. Just as gamers receive immediate visual response to their actions, decision makers should have comparable feedback experiences with software-based simulators.

Every Planners Lab model is an assemblage of assumptions about the future. Assumptions may come from databases of historical performance, market research and decision maker minds, to name a few. Most assumptions about the future come from accumulated experiences in decision maker minds in the form of opinions.

In order to overcome a major source of errors inherent in widely used spreadsheet software, the Planners Lab is aimed at letting decision makers describe their financial plans in their own words and with their own assumptions. The product’s *raison d’etre* is that a *simulator should facilitate a*

*conversation with the decision maker in the process of describing business assumptions. All assumptions are described in English equations (or the user's native language).*

The collection of equations is a Planners Lab model *tells a readable story for a particular scenario.* With a product demonstration this statement becomes very meaningful.

### **Planners Lab for rehearsing the future:**

The Planners Lab is a decision support simulator for rehearsing the future and has several characteristics that can be mapped directly into the decision making process. In the early stages of a decision making process it (1) supports examination and discussion of stakeholders' assumptions, and (2) provides a training and collaboration environment for individuals, groups and organizations to build their understanding of the assumptions in complex operations.

In the latter stages of a decision process it (1) provides the basis for decision makers to anticipate how future results would be affected by alternative assumptions; (2) helps assess the outcome of alternative interventions and strategies; (3) presents results visually to provide rapid and clear understanding and communication of assumptions among decision makers; and (4) enables teams in different locations and with different responsibilities to take part in rehearsals prior to committing to a decision.

Representation of future scenarios must be made meaningful to non-experts participating in the decision process, must accurately represent the "real-world" environment which the simulation addresses, and must leverage domain experts' knowledge by providing displays and reports at multiple levels of detail. Each decision participant should be able to recognize the situation at hand and feel empowered to respond. Usability is based on a foundation of simulators with understandable and believable assumptions combined with interactive visualization.

The Planners Lab supports all of the above features of a decision support simulator for rehearsing the future.

### **The gap in market:**

The Planners Lab is a single product that integrates modeling, visualization, presentation and collaboration. The models built with the Planners Lab are not canned black boxes; they are readable by anyone. The product is a modeling language and not an electronic calculator such as Excel. All assumptions are in English, Spanish, German or whatever is the native spoken language. These features are what differentiates it from Excel or other budgeting and financial planning products.

The most notable opportunities to differentiate the Planners Lab from other products are in these situations:

- For actual participation of decision makers in creating the assumptions that generate the numbers.
- For executive meetings where, on the fly, what-if questions can be asked and answers immediately seen. No other tool, and especially Excel, is so straightforward and intuitive for asking what-if and goal-seek questions.

### **Comparison with Excel:**

Excel is a programming like language that functions as an electronic calculator where each cell in a table performs a calculation involving a row number and a column number. Instead of a matrix of cell operations, a Planners Lab model is list of English equations (English assumptions) that tell a story that is readable, changeable, and maintainable.

Excel focuses on computation of numbers and not understanding assumption behind the numbers. Substantial errors in decision making have been made using Excel and such incidences have been extensively documented. When Excel models become real-world sized, they become very difficult to understand and almost impossible to maintain. Such statements are easily backed up by documented facts.

***There is a document entitled “Planners Lab vs. Excel” which compares the two products. Differences are immediately obvious and support the comments made in this white paper document.***

**Excel compliments the Planners Lab:**

Excel is a superior tool for formatting tables of numbers. There is no need for the Planners Lab to have its own report writer since the Planners Lab user simply clicks on a button to convert a Planners Lab model to an Excel spreadsheet. Then the user has full use of Excel to format tables in any manner they wish. Excel also supports the Planners Lab by serving as a “data base” intermediary between Excel itself, Oracle, PeopleSoft, SAS, SAP, and other data base systems. All such enterprise systems can easily pull selected data into an Excel file. Then the Planners Lab can easily pull that data into a Planners Lab model. Most dashboard presentation and design engines operate from an Excel spreadsheet. This is another way that Excel compliments the Planners Lab. The user writes their model in plain English with the Planners Lab, exports to Excel, and then designs any dashboard presentation with the original source of data being the Planners Lab.

It is important to note that when the Planners Lab exports a model to Excel the full Excel spreadsheet is kept intact with all equations imported from the Planners Lab. Thus the Excel spreadsheet is fully functional even though the assumptions were written in plain English in the Planners Lab.

**Typical scenario of a hands-on user:**

The actual hands-on Planners Lab model builder is most likely a financial analyst, business analyst or executive assistant. They work closely with decision makers to capture their opinions for the model logic. The following is a typical scenario:

The VP of Finance has a decision to make regarding investment in a new R&D project. He calls a meeting of his analyst, the VP of R&D, and others who can contribute to arriving at a good decision. They meet in a room equipped with a video projector; the analyst has a laptop computer.

The VP of Finance gives his impression of the decision at hand. Others do the same. All have seen the Planners Lab in action before so they know where they are headed, e.g., giving their opinions about assumptions.

The analyst now acts like a meeting facilitator (not leader). As each person discusses their view of the assumptions, the analyst captures them in the Planners Lab software.

For example, the VP of R&D says, “I think this investment will require \$450,000 over three years.” This causes the analyst to ask, “Can we refine that a little? Can we break it down into specific costs such as people, space, and equipment costs?” As the decision makers continue to think out loud, the analyst continues to capture the assumptions. And the model-building process is in progress. The assumptions will resemble something like this:

COLUMNS 2005, 2006, 2007

People cost = number of employees \* 95000

Number of employees = 2, 4, 6

Space cost = 24 \* 150 \* Number of employees

Even without training, anyone can understand the above start at building a model. There is a three-year planning horizon. There will be two employees in 2005, four in 2006 and six in 2007. People costs are computed from number of employees multiplied by individual salaries of 95000. Space cost is computed at the rate of 24 (\$ per square foot), multiplied by 150 (number of square feet per employee), multiplied by the number of employees. Variables can be named anything and spelled any way. Assumptions can be entered in any order and computations can be defined in any way.

The process continues until they are somewhat comfortable with a first pass at the model and its assumptions. Now, people need some thinking and soaking-in time to dwell upon the rough draft model. They can access it on their own time or reconvene to continue the group process.

Dr. Wagner has had similar experiences hundreds of times with the IFPS software mentioned elsewhere. It is easy, engaging, fun, and arrives at the data needed to make decisions. Most importantly, in the end everyone has participated, they know the underlying assumptions, and they take ownership.

### The Planners Lab software with more detail.

The model building structure is based upon the philosophy of building large-scale models by creating manageable and understandable small chunks in some hierarchical structure containing nodes. Hierarchical structures are widely used and easily comprehended. The most common example of a hierarchical structure is the organizational chart. The nodes in the hierarchy contain equations which can be entered in any order and, except for reserved words, are entirely in the words chosen by the user.



Figure 3: A sample Planners Lab model.

The example shown in Figure 3 shows a model structure with thirteen nodes. The Corporate Summary node has been clicked which displays the equations for that node. These thirteen nodes are all at the same level in the hierarchy but nodes can have any level of sub nodes. Any number of nodes can be opened at a time and equations displayed.

Variable names on the left side of equal signs are shown in red. Reserved words or language words are shown in blue and must be in all capital letters. Reserved words have specific meaning. Examples of reserved words are PREVIOUS, SUM, THRU, NPV, IRR and FOR. Reserved words are auto completed after typing in one or more of the first two characters of a word. An equation can refer to variables in any other node such as Total Expenses, as shown. The node source is referenced by the reserved word IN. Nodes can be added, renamed or deleted at any time.

The column statement window shows columns for years 2005, 2006, 2007 and Total. The special column window shows computed columns such as summing columns one through three and calling it Total, as in this example. There can be any number of special columns.

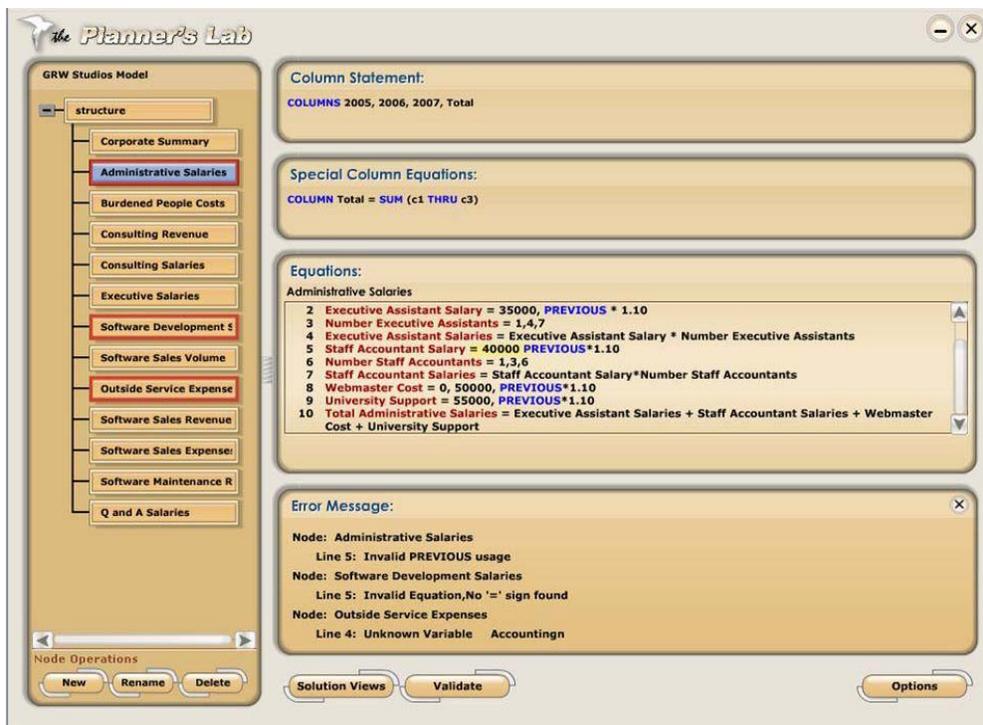


Figure 4: Display of model errors after clicking on Validate.

Clicking the Validate button checks the entire model for syntax and logic errors. If there are errors, the node name, equations and highlighted specific errors are displayed. The user can also check for syntax errors in a selected node at any time. Figure 4 is an example of results from validation. Note that errors are highlighted in yellow in the equations themselves.

When clicking on Solution Views, one user option is Tables (standard spreadsheet); here, what-if changes and goal-seek questions can be pursued. Another option is Trend Lines; the user may drag and drop points to pursue what-if changes and ask goal-seek questions. Other current options in the program include charts using the Xcelsius software.





Figure 6: Entering what-if questions.

Figure 7 illustrates the Goal Seek feature with the Tables option. The user clicks on a node from which to choose a goal variable and a node from which to select a changeable variable. In Goal Seek, users indicate what they want the goal variable to achieve and which what-if variable to move to achieve that goal value.



Figure 7: Entering Goal Seek questions.

Another solution view option is Trend Lines (Figure 8). In this mode, the user goes through the same process as with tables to select variables.

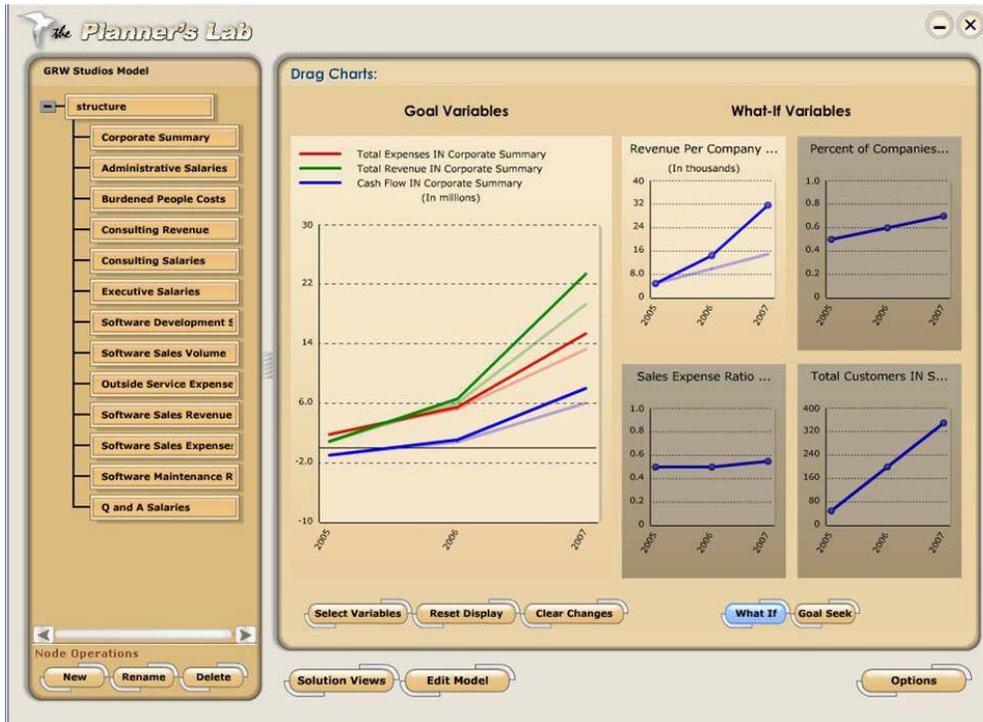


Figure 8: What-if analysis within trend lines.

The result is a window on the left that shows the goal variables and a window on the right that shows the what-if variables. If What If is selected, the user drags and drops the line for a what-if variable. The goal variables, if affected, are then automatically updated. The lighter color shadow lines show the most recent values for variables prior to what-if or goal-peek. What-if changes are not accumulated while moving from one what-if variable to another.

In a similar manner, the user can click Goal Seek and then drag one goal variable line to a desired value point as shown in Figure 9. Each what-if variable then adjusts as needed to achieve the goal. Each what-if variable behaves independently of all others.

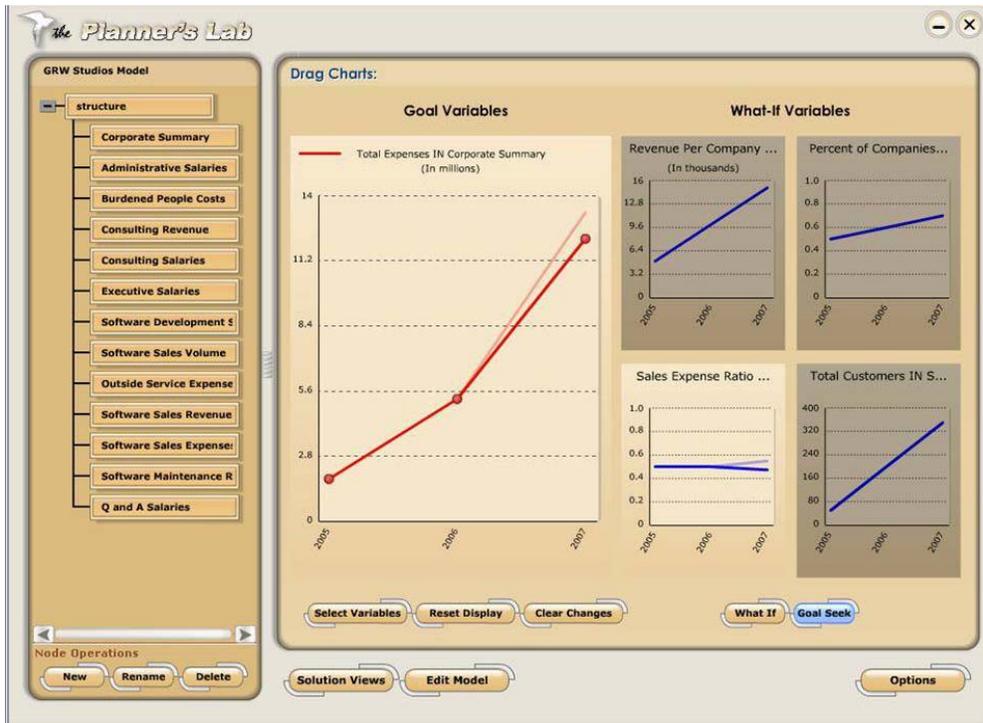


Figure 9: Goal Seek analysis within trend lines.

The Excel spreadsheet generated from the Planners Lab can be used in conjunction with a dashboard designer to provide interactive and highly attractive charts. The example in Figure 10 combines a dashboard look and feel-along with animated what-if slider bars.

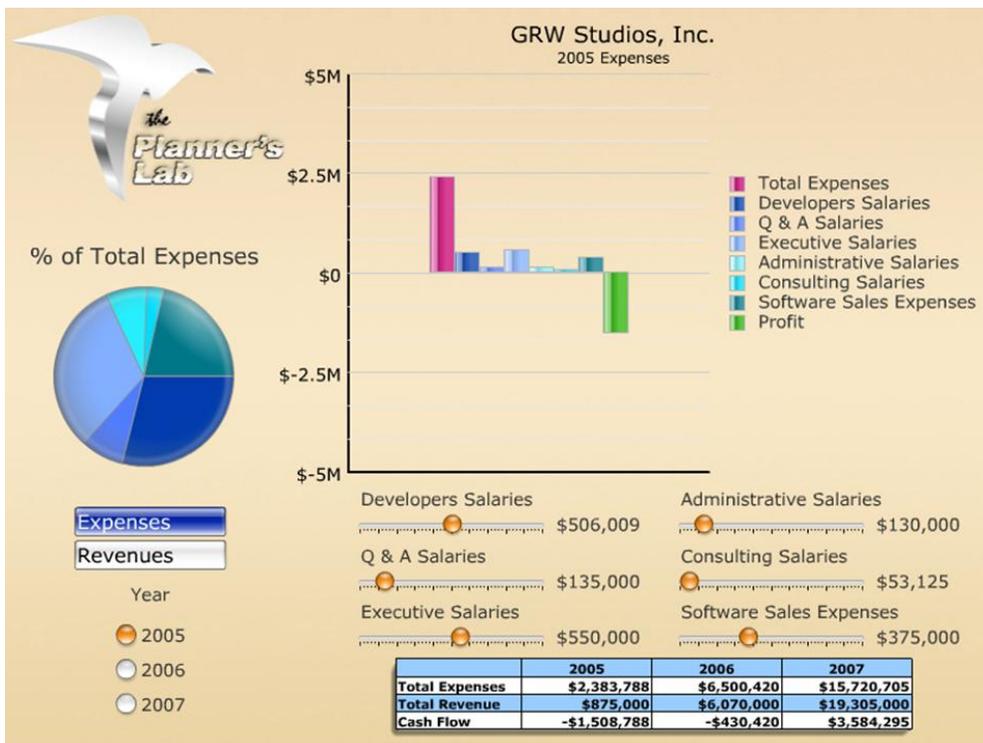


Figure 10: An Interactive Executive Dashboard using Planners Lab data.

**Related Work:**

A product with a philosophy similar to the Planners Lab existed in the 1980s that was founded, developed and commercialized by Dr. Gerald Wagner. The product was called IFPS™, or Interactive Financial Planning System; it was developed and supported by Execucom, located in Austin, Texas. IFPS was used by most large world wide corporations and several hundred academic institutions.