

# **Quantrix: Filling the Gap Between Spreadsheets and Business Intelligence**



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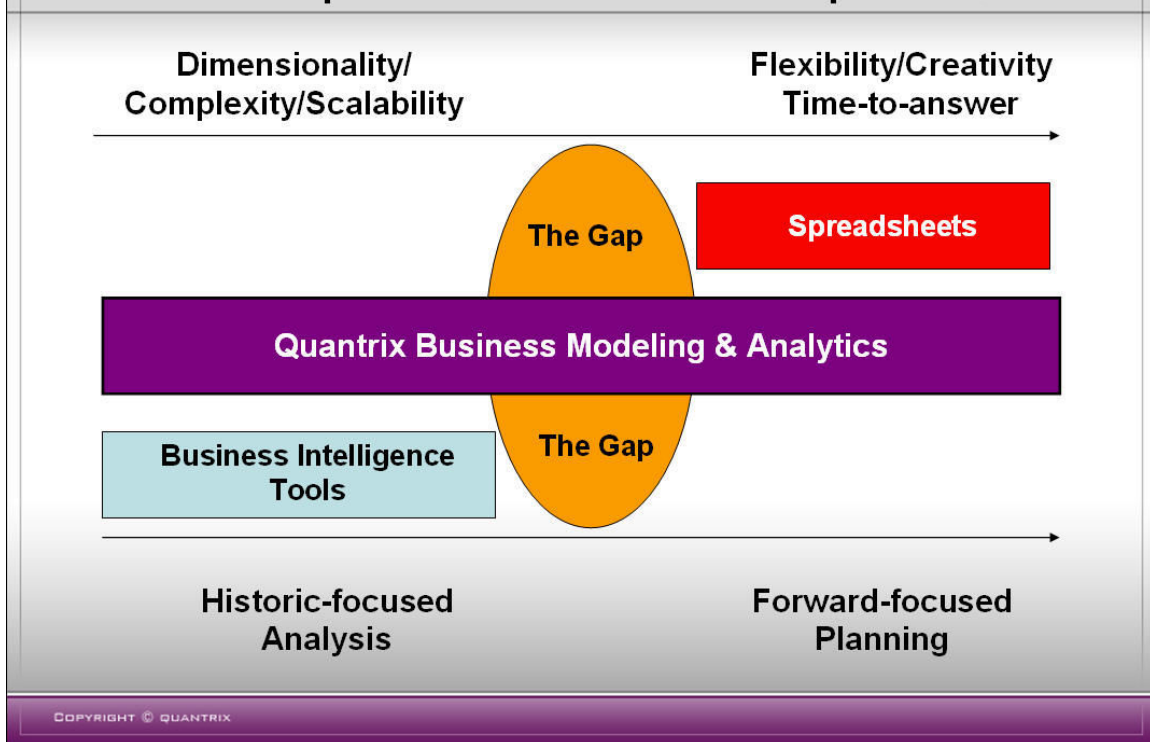
## Summary

Within many companies, there are often two distinct camps of business analyst, defined as anyone who organizes data and creates meaningful information and analyses as part of their job. In one camp, you have spreadsheet users. These are usually professionals in finance, sales, human resources, operations, etc. They are likely to have a business background and varying degrees of technical acumen. They favor spreadsheets because they can create business models such as forecasts, budgets, strategic plans, compensation and other models that provide answers to a variety of straightforward, day-to-day issues. Some of these spreadsheet users have developed advanced skills for building pivot tables, linked worksheets, and macros. In the other camp, there are the business intelligence (BI) people. They are typically professionals with degrees in computer science, database administration or some other technical specialization. They've embraced BI tools due to their superior reporting, analytics, performance, integration and scalability. They develop complex multi-dimensional OLAP analyses whose capabilities can be extended and customized with programming. They create detailed reports and dashboards by aggregating, organizing and presenting historic company data. As these two camps come from differing perspectives, have differing objectives, and use different business tools, they effectively "speak different languages" which results in a significant gap that hinders the full potential of business analytics within the organization.

## Filling the Gap

Businesses need a tool that brings the two analyst camps together by filling the gap between spreadsheets and BI tools – one that affords the approachability of spreadsheets with the robust analysis and reporting capabilities of BI applications. In his article "The Changing Face of Business Intelligence", David Wells discusses the gap between IT-centric BI applications and office-oriented spreadsheets. As he states, "The goal of next generation analytics is not to choose – certainly not to eliminate one approach in favor of the other. Instead, it is to fill in the middle, moving from two extremes to a continuum of analytic options." He further contends that BI needs to be focused more on the business analyst. "The business analyst" says Wells "is not someone with a business analyst title, but more likely a manager who simply has to perform analysis as part of day-to-day work. This new generation of analysts has high expectations. They want their analytics fast, they want easy connections to trustworthy data, and they want to keep the data in sight. But most of all they want forward-looking analytics. The retrospective stuff of the past doesn't meet their needs. They want to answer 'what if' questions with modeling and simulation."

# The Spreadsheet & BI Gap



Some companies attempt to bridge the gap themselves by cobbling together spreadsheets with their BI tool, which often creates more problems than it solves. This unhappy marriage results in the unintended consequence of drawing out and exacerbating the deficiencies of each tool. For example, IT will use a BI tool to create a sales analysis. This analysis organizes historical product sales data in a meaningful way for reporting. However, the opportunities for extended analysis without IT support are limited. As such, if the sales and marketing group wish to use the analysis as the basis for their sales forecast, they will often manually copy the data into a spreadsheet. They can then add factors such as the time dimension, growth rates, seasonality, and the judgment of the sales force to build the forecast. This process takes considerable effort – especially when each sales person or manager needs to build their own forecast which is then manually consolidated into a company-wide forecast. For organizations that attempt to automate the process by integrating the historical analysis with the spreadsheet, they find the linkages break whenever new products, regions, channels, currencies, etc are added.

Quantrix seeks to unify business analysis across the enterprise in two ways. The first is by bridging the gap created by spreadsheets and business intelligence tools. The second is by addressing the inherent limitations and risks that each tool imposes on users and the company as a whole. By working from a common platform or, continuing the metaphor, by allowing the entire organization to “speak the same language”, a new operational dynamic takes hold. It is characterized by substantially better models and analyses, improved collaboration, seamless knowledge transfer, and more lateral insight into

disparate yet interrelated operations. Organizations build greater institutional intelligence, transparency, and awareness as information silos and knowledge islands are eliminated. Furthermore, the return on investment increases dramatically as Quantrix use grows within the organization. Quantrix makes business modeling and analytics accessible to all members of the corporate value chain by dismantling the barriers that separate the front and back office, and everything in between. The net effect is a wholesale change in the value proposition of business analytics as agility, collaboration, transparency, reporting, and overall performance improve.

Quantrix allows users to perform activities typically accomplished with spreadsheets and BI tools including the following:

### **Create Operational Models that drive the business**

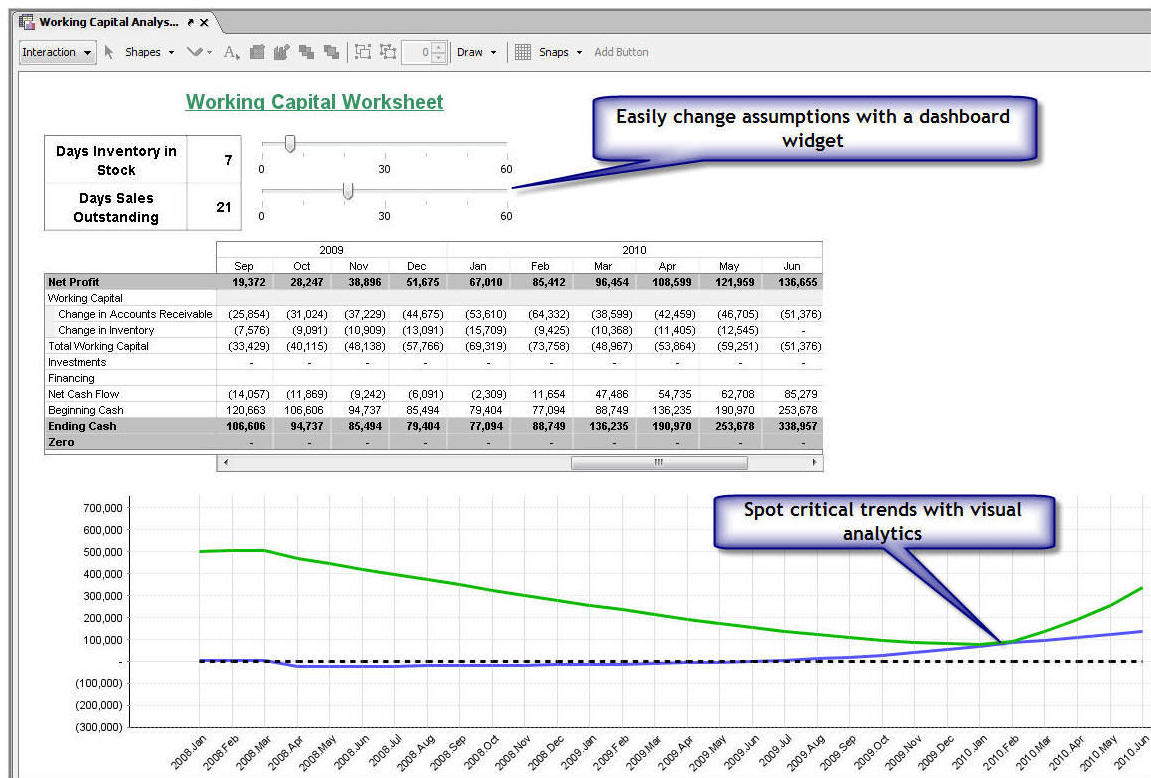
Quantrix allows users in all areas of the enterprise to build models that drive and help manage day-to-day operations. Users create and maintain forecasts, budgets, strategic plans, human resource plans, and other core models of the highest integrity, accuracy, and transparency. Most organizations function as a series of moving, interconnected parts where what happens in one department affects other departments. Many companies aren't able to see these 'cause and effect' relationships, because disconnected spreadsheets don't facilitate smooth information flows. Quantrix models, on the other hand, can be integrated so that changes in one model are dynamically reflected in changes to other models. This enables a more holistic management of the interacting parts of a business while allowing individual users to stay focused on their area of responsibility.

### **Create Ad Hoc models**

A large part of being a successful business is having the ability to understand and solve the business questions and challenges that unexpectedly arise on a daily basis. Oftentimes, these are very specific questions that can be addressed through ad hoc or "on the fly" models. As with spreadsheets, Quantrix gives users the flexibility to quickly create models that provide critical answers to urgent questions. Furthermore, Quantrix offers a "best practices" approach called the [Quantrix Modeling Methodology](#) for designing models that answer questions with a much higher degree of accuracy, efficiency, and confidence than is possible with spreadsheets.

### **Perform "What if" Analyses**

A requirement in today's highly fluid economic and business environment is the ability to model "what if" scenarios (please read Quantrix whitepaper "[Navigating Uncertainty with Quantrix Modeler](#)"). When there is a lack of historic precedent, or when the complete picture isn't quite there, "what if" scenarios and assumptions can help business analysts make more informed decisions while understanding downstream consequences. Scenarios illuminate how events, actions, and decisions will impact important factors such as cash management, gross margin, budgeting, inventory, and profitability, etc.



## Create BI Analyses from Enterprise Data

Many organizations generate and accumulate large amounts of data as part of operations. Companies that mine and analyze these data make more insightful, fact-based decisions and are able to identify hidden trends, opportunities, and threats. Quantrix doesn't provide proprietary Extract, Transform, and Load (ETL) and data warehousing solutions – rather Quantrix enables companies to leverage existing investments in these areas to increase agility and reduce time-to-insight. The complexity of most BI tools require significant technical skills to design and implement an analysis, while Quantrix offers robust BI capabilities that are accessible to the business user. It's important to note that Quantrix takes analysis a significant step further. While BI tools focus on past performance, Quantrix allows you to build forward-focused plans from these analyses. By adding data from additional sources, the domain expertise of people within your organization, and other important contextual information, you can model and present future scenarios much more accurately.

## Integrate Models with Business Applications and Databases

Spreadsheet models often exist as islands within a business. Because of fragile integration capability, they aren't plugged into the broader organization. Unfortunately, the information and analyses contained within don't always connect to the systems and people who could most benefit from them. To allow models their rightful place within the enterprise, Quantrix offers tools for bi-directional integration with other business applications and databases. Points of integration are persistent – meaning users create the link once with the easy-to-use Wizard and they are able to update with new data or export

Quantrix model data to another application simply by clicking a button. Data refreshes can also be automated or triggered by user-defined events. Quantrix offers some of the most widely used options to maintain connectivity. It supports integration via JDBC/ODBC, web services (SOAP), XML, delimited text file, and other Quantrix matrices.

## Eliminating the Weak Links

There is a saying that a chain is only as strong as the weakest link. The following illustration identifies the most commonly cited weak links associated with spreadsheets and business intelligence tools:

Spreadsheets	Highly prone to formula and value error
	Lack transparency
	Limited to two dimensions, not multi-dimensional
	Scalability and performance issues
	Complexity and rigidity increase over time
	Collaboration risks due to lack of security and control
	Difficult, time-consuming, and costly to audit
Business Intelligence Tools	Fragile integration capability
	Require heavy IT involvement and support
	Unapproachable to the business user
	Slow turn-around times for changes to analytics reqmts
	Modeling requires programming skills
Prohibitively expensive for many organizations	

Quantrix addresses the weak links associated with both spreadsheets and BI tools with the following features:

### Errors, Transparency and Complexity

Quantrix addresses spreadsheets' problems with errors and complexity in its basic design, with an architecture that separates logic from the cells. Formulas apply to ranges of cells, rather than individual cells. This means exponentially fewer formulas that contribute to complexity and risk of error. Quantrix focuses on transparency with features that make it much easier to spot formula and value problems. The Formula Editor feature employs native intelligence that identifies potential issues with the construction of formulas and the way in which they are applied. Furthermore, formulas are constructed in plain language which makes them easy to understand and audit. By clicking on a cell, the Formula Editor shows which formula(s) apply to the cell. The Dependency Inspector visually illustrates the flow of data into and out of that cell.

## **Two Dimensional vs. Multi-Dimensional**

A “dimension” is an important concept linking business and IT. Businesses are made up of different type of dimensions. They have product dimensions, business organization dimensions and time dimensions, to name three of the most important. These dimensions often are hierarchical: product types are made up of product lines, each of which has individual stock keeping units (SKUs). Businesses may be organized by division, geography and specific office locations. Years are made up of quarters, which in turn are made up of months or weeks.

People ask questions about a business from the perspective of these dimensions – usually along multiple dimensions. For example, what were sales of product “X” in the eastern region of Division “A” in November? How does that compare to last November? How does that compare on a year-to-date basis? Because people need to answers to multi-dimensional questions, they need software that works in multiple dimensions simultaneously. Spreadsheets, however, are two dimensional tools. True, people have adapted to this limitation and trained their brains to think in only two dimensions at one time. Yet these adaptations are inherently brittle and error prone. Many times when you want to change the perspective or alter the question you’re asking, you either have to start from scratch or make extensive, time-consuming structural changes to your spreadsheet. Worse yet, analysts often conclude the task is too onerous and decide not to redevelop the model and analysis, to the detriment of the business.

Quantrix, on the other hand, allows professional to revert to their natural multi-dimensional perception of the world. What this means to the business user is that dimensions such as products, time, business units, geographies, currencies, customers, vendors, skill sets, etc. can be manipulated, viewed, and sliced and diced simultaneously with other relevant dimensions. To understand how Quantrix would compare to spreadsheets, take an example of a margin analysis for a large family of products. Each product is created from a separate bill of materials and the cost of each material fluctuates on a monthly basis. Since the user needs to “flatten” this analysis into a spreadsheet’s two dimensions, this would result in each product requiring its own worksheet. If that company is managing tens or hundreds of such products, an efficient margin analysis is impractical as the overheads for managing so many worksheets would be overwhelming. With Quantrix, margin analysis of hundreds of products is not a problem. Products are just one dimension and the model would be much easier to create and manage.

## **Scalability and Performance**

Over time, spreadsheet models tend to grow in size and complexity. This is especially true if the model is trying to handle multiple dimensions at once. Because each cell requires its own formula, the sheer number of formulas and calculations can have a major impact on model performance. With Quantrix, models of a similar purpose are often exponentially more efficient and smaller in size. For example, one Quantrix customer in the financial services had a model comprising 25 spreadsheets with a total of 8 million formulas. Each spreadsheet was approximately 20 megabytes in size. They were able to replace the spreadsheet model with a single 10 megabyte Quantrix model employing only

500 formulas. Previously, the spreadsheet model required a full day to run. As a Quantrix model, it required approximately an hour for a complete run. Customers routinely develop models with the Professional Edition in the 20 to 30 million cell range with satisfactory performance. BI users often aggregate vast amounts of historic data for analyses. For those situations, Quantrix 64 is the recommended tool as it employs 64 bit processing with no memory constraint. Internal laboratory testing has demonstrated models surpassing 500 million cells.

## **Liberating IT**

Most IT groups within organizations have a natural reluctance to introduce or implement new solutions because it adds pressure to already over-extended resources. This is especially the case with BI tools, as IT is intimately involved in all aspects of design, development, implementation, maintenance and support. Most BI tools require an iterative implementation process, beginning with a business specification and usually going through many series of trial, error, and testing until everyone gets it right. This is a time-consuming process that introduces significant cost and project risk. When modifications or enhancements are required due to changing business conditions or analytical requirements, the process needs to be reinitiated, once again prolonging time-to-answer. Additionally, modeling with BI tools also requires programming skills, which generally puts it beyond the reach of most front office professionals. Quantrix, on the other hand, focuses on business user approachability which allows front office professionals to create sophisticated, yet easy-to-work-with enterprise models.

## **Superior Analytics, Dashboards, Reporting and Presentations**

A primary goal of analytics tools is to communicate analyses to those who need to make decisions. That's why reporting, dashboards and presentations are critical features. Visualization also becomes more important when analysts are trying to understand large datasets and models. Quantrix offers dynamic visualization capabilities associated with the most robust enterprise business intelligence tools while taking analytics a step further by enabling model visualization rather than just data visualization (please read the Quantrix whitepaper "[Visual Analytics with Quantrix](#)"). This means that the data can be further manipulated and enhanced with domain knowledge, external source data, and judgment can be incorporated into the model for greater dimensionality and insight. This is a significant advantage of Quantrix Modeler. BI tools do not allow the inclusion of non-historical corporate data into analyses which is why spreadsheets are turned to for the modeling component. Quantrix also allows model users and viewers to interact with analyses, dashboards, presentations and reports, according to the preferences of the model author or business.

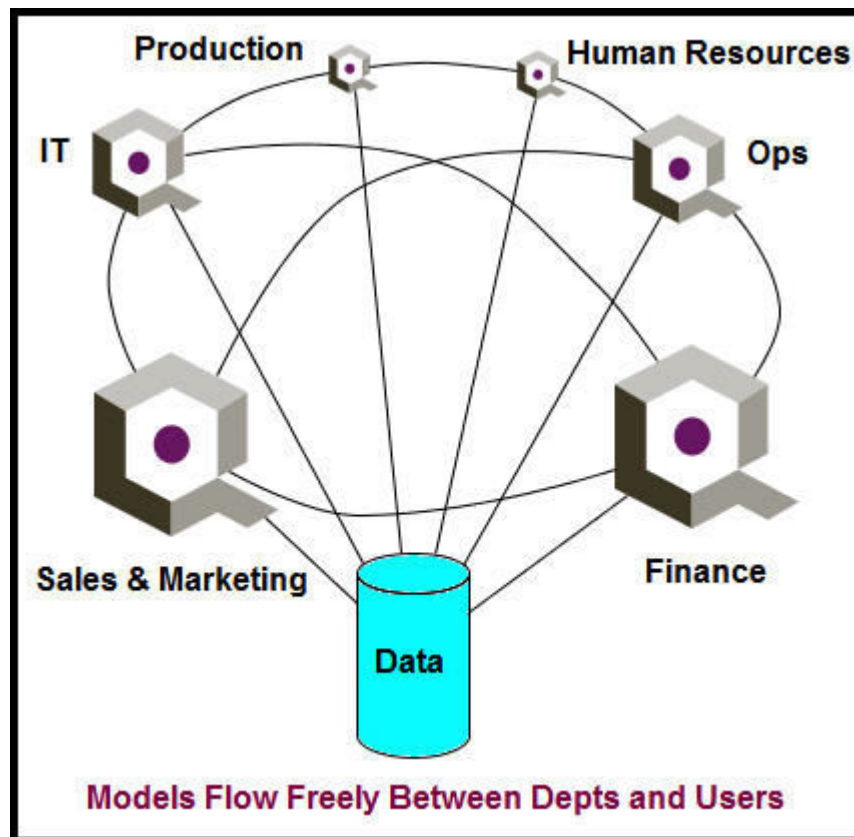
## **Within Reach of All Budgets**

The entry level pricing for many of the enterprise BI solutions begins in the six figure range. In a time of shrinking budgets, these business intelligence solutions are simply out of reach for many organizations. On the opposite end of the spectrum, most people think of the cost of spreadsheets as negligible, as they come preinstalled on the corporate desktop. However, the true cost of spreadsheets is considerably larger when errors, lost

productivity, opportunity costs and other factors are added to the calculation (please read the Quantrix whitepaper “[The True Cost of Spreadsheets](#)” to calculate the cost of spreadsheets to your organization). So, while Quantrix fills the gap between spreadsheets and BI, it also lowers the bar for companies wishing to move forward on business analytics initiatives but who are constrained by a tight budget. Quantrix licensing starts at \$329 per user and also offers volume discounts, subscription and site licensing options.

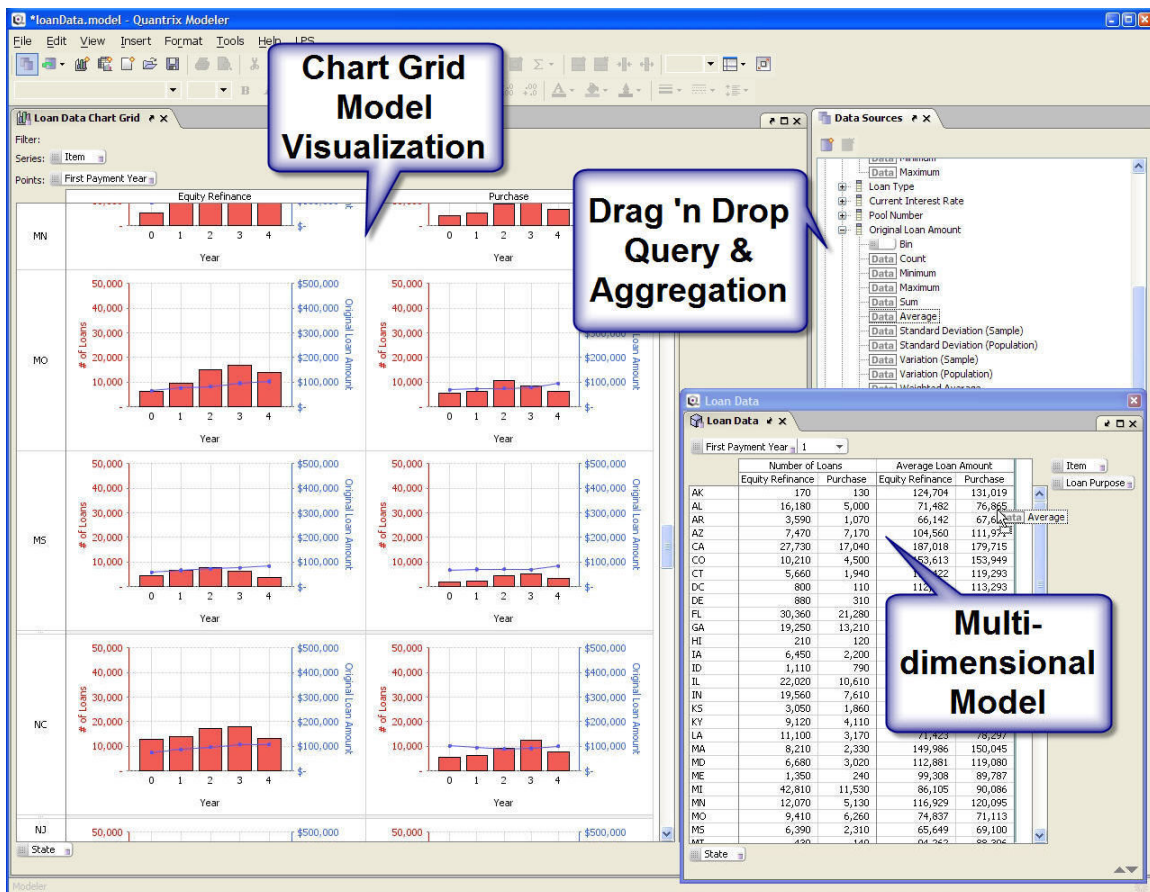
## A Common Language that Everyone Understands

Many software companies talk about a unified platform but don’t explain how that relates to actual end users. In the context of Quantrix, this means that models, charts, presentations and reports developed by any Quantrix user can be freely and securely shared across the entire organization according to established policies, controls and business rules. For example, an analyst in IT can mine repositories of historic sales data and provide a forecast model to Sales and Marketing. Sales can take this model and add their own judgmental forecast to the model and share with Finance. Finance can then incorporate the model into an income statement, cash flow statement, etc. Collaboration concerns are mitigated as two Quantrix features, user roles and permissions, eliminate the risks associated with sharing models. Another feature, perspectives, displays only those elements of the model that are desired.



## Investments That Keep Delivering

Companies with significant BI investments will derive even greater value and intelligence from the infrastructure they've built. Databases, data warehouses, and OLAP cubes can be securely accessed via Quantrix's integration tools. Integration can be performed with an easy-to-use Wizard which enables business users themselves to create multidimensional models with integrated data. For data-intensive and exploratory analytics on the largest column-oriented and relational databases, users can 'drag and drop' data directly into a model. Query, aggregation, and filtering are executed with extremely quick performance. In a real sense, Quantrix serves as the front-end analytical user interface to all of an organization's data and information assets.



## Conclusion

Quantrix is an ideal tool for organizations seeking the usability and creativity afforded by spreadsheets and the robust analytics, reporting, performance and scalability of BI tools. Quantrix provides these capabilities and more without their inherent risks, limitations, and deficiencies. By deploying Quantrix throughout the organization, organizations will unify business analysis and achieve significant improvements in business performance.