

Panorama NovaView Rocks with MDX

Business intelligence (BI) has a language all its own – not the acronyms and catch phrases (KPIs, Six Sigma, Balanced Scorecards) for how you measure the effectiveness of your business, but the programming language that makes it possible to calculate KPIs and know that the numbers are right.

The language of business intelligence is MDX, MultiDimensional expressions. MDX is a query and calculation language that makes it possible for you to bring to light the relevant facts of your business and quickly act on those facts. MDX was designed to navigate, query, filter, and perform calculations against multidimensional structures, including dimensions, hierarchies, sets, members and numeric values. This kind of multidimensional analysis is often referred to as OLAP, for online analytical processing. MDX is to multidimensional OLAP databases as SQL is to relational databases.

Panorama “speaks” MDX better than anyone else, and the design of Panorama NovaView lets you also speak it fluently, even though you have little or no programming knowledge. Panorama has embedded MDX functionality in user interfaces that hide the complexity of the language from casual users, while making it available to business analysts and report authors. NovaView has a rich set of easy-to-use wizards that let you look at sales over time, or find your top ten stores or worst-performing products, or instantly see exceptions when an outlet or product is performing poorly. NovaView even lets you take advantage of MDX through the automated delivery of reports in a wide variety of formats, including HTML, PDF and Excel – without ever having to open NovaView.

NovaView delivers the benefits of MDX and business intelligence to all levels of the organization. It enables senior executives, managers and their staffs to make faster, smarter and more profitable decisions every day and in every way. We believe NovaView is the most powerful and easiest-to-use BI tool available in the world today. Here’s why.

It’s not surprising that Panorama speaks MDX so well; Panorama engineers were there at the inception of the language.

MDX originated in the mid 1990s with Panorama, an Israeli software company (now based in Toronto) that got its start with a contract from a British bank to build an OLAP business analysis system. It was a classic case of form following function. Panorama engineers first determined the functionality required by the bank (and other potential clients), and then built the OLAP server and desktop query and calculation tool (NovaView) to provide that functionality. NovaView functions – such as finding the top 10 customers, setting exceptions, creating calculated members, drilling down/up – came first. The programming language came second.

Microsoft acquired Panorama’s OLAP server and the programming language in 1996, and published the MDX standard in 1997. The Panorama OLAP server was renamed OLAP Services and released as part of SQL Server 7.0 in 1998.

In less than a decade from its roots with Panorama, MDX has become the industry standard for OLAP, also referred to as multidimensional analysis or simply, business intelligence (BI). MDX has been adopted by almost all OLAP server vendors, including Microsoft, SAP, SAS, Hyperion, SAP, AppliX, and IBM.

MDX is the basis for the industry standard OLE DB for OLAP and XML/A (analysis) interfaces used to communicate with OLAP servers. OLE DB for OLAP supports Microsoft Windows-based applications, while XML/A supports Web services on any platform.

MDX comprises nearly 200 expressions that cover mathematical and statistical functions as well as logical (Boolean), conditional, member, set, time series, and navigation functions (such as up and down dimension hierarchies and levels). MDX expressions can be combined to create advanced calculations and filters, such as identifying at risk-customers who did business with you on a regular basis in the last 26 weeks, but have not in the most recent four.

Because of its development approach, Panorama embedded basic and advanced MDX functionality into its user interface. With no knowledge or awareness of MDX you can:

- ▶ Drill down from summary to any level of detail, or drill back up in a single mouse click. You can also drill down or drill up on data elements in a chart, which simultaneously performs the same action in the crosstab.
- ▶ Drag a dimension from the slicer bar directly onto the rows or columns of a crosstab with no intermediate steps. You can either replace an existing dimension or nest the new one before or after the existing one.
- ▶ Use functions such as calculating year-over-year sales growth, percent growth, percent contribution to a total, year-to-date or month-to-date results, and running totals. All you need to do is highlight the relevant items, such as 2006 and 2007, select the calculation you want, give it a name, and NovaView does the rest.
- ▶ Highlight a single dimension member and drill across to other dimensions to analyze the member from a variety of perspectives. For instance, you could select a particular customer and then analyze sales to that customer by geography, time, product, or sales representative.
- ▶ Right-click on a column of data and select a variety of value filter functions such as top count, bottom count, top sum, bottom sum, top percent and bottom percent, inside or outside of a range, or use Boolean expressions. You select the numeric value for these functions and can specify at what level of the dimension hierarchy you want the function to operate. You can easily add a parameter, called a “slider,” to an expression so that you can “dial in” the number you want to use in the functions directly from a NovaView view.
- ▶ Build simple exceptions that highlight and color-code values based on Boolean expressions such as greater than or equal to. You can build more advanced “bubble-up” exceptions that will highlight data anomalies at the lowest level of detail from among thousands of products, customers, or sales outlets.
- ▶ Select dimension members using simple drag and drop, or use NovaView’s search capabilities to find members by exact match, starting with, or containing an alphanumeric value. This is particularly helpful when trying to find a single member from among hundreds or thousands in a dimension.



- ▶ Show totals and subtotals, view percent contribution of members to parents or totals, and sort data.

Behind the curtain NovaView is converting user actions into highly efficient MDX queries to the OLAP server. For every user action, a new query is generated, putting a premium on fast execution. NovaView generates MDX that matches how OLAP servers such as Microsoft Analysis Services or SAP NetWeaver BI process MDX. While the MDX functionality is the same, the queries to each OLAP server can differ in substantial ways. Because Panorama knows MDX so well, it can optimize MDX for virtually any OLAP server, soon to include Hyperion Essbase and IBM's OLAP server.

Advanced users such as business analysts and report authors can create custom MDX expressions for calculations, multi-level filters, time comparisons such as Last Periods and ParallelPeriod, ratios and allocations, and advanced charts. In addition, advanced users and administrators can:

- ▶ Define key performance indicators that use MDX to select the appropriate measure, define the goals, establish trends, and select KIP indicators such as gauges, stoplights and arrows.
- ▶ Create parameters for MDX formulas that let users select the numeric values they want to use in their day-to-day reporting and analysis.
- ▶ Perform "what-if" analyses and write-back changed data to the OLAP database for later comparison. This is quite valuable for budgeting and forecasting applications.
- ▶ Look up data for use in formulas, such as exchange rates or price lists from external databases or Excel spreadsheets.
- ▶ Establish security at the briefing book, view, dimension, or cell level based on a user's profile.

With NovaView's advanced features, developers can create custom reporting and analysis applications than span industries, including media, finance, health care, manufacturing, and retailing.

While other BI tools such as Cognos, Business Objects, and ProClarity offer basic MDX functionality, no other BI tool on the market today provides anything like what NovaView can do. NovaView provides basic and advanced functionality to a user who doesn't know anything about MDX. Business analysts and report authors can create very sophisticated reports and ad hoc analysis templates for business users delivered via NovaView briefing books, dashboards, and automated email.

Recognizing the need for a Web browser-based BI tool, Panorama has migrated nearly all its desktop MDX functionality to a light-weight but very robust Web Access client. Panorama streamlined the user interface, making it much less complex and more intuitive to use. Advanced MDX functionality, including creating calculated members, defining sets, defining exceptions and alerts, modifying charts, and setting parameters, is available from task bars and context-sensitive pop-up menus without cluttering the user display.

A major benefit of the Web Access client approach is that NovaView scales to thousands of users with no need for IT to install software on desktop machines. Casual users get all the basic functionality they need, while business analysts can take advantage of advanced MDX functions.

Panorama continues to innovate. It created a "one-click" way to convert NovaView Web Access client views to highly formatted reports that retain all the NovaView MDX functionality. NovaView Smart Reports enable you to format every element of a report, from headers and footers, to color-coded groupings (bands) of data, to advanced

data visualization using color coding based on ranges of values. Charts can be included in Smart Reports, as well as images such as logos or product photos. Pre-built report templates let you standardize how your reports look without your having to format each report separately.

The Panorama Performance dashboard enables administrators to create dashboard pages that incorporate NovaView views (grids and charts), link to external data such as URLs or HTML documents, and determine what tools can be used to interact with the dashboard pages. You can create your own personal dashboards with only the information relevant to your work.



Panorama’s NovaView Business Modeler lets you create MDX-based multidimensional models that access data residing in different relational databases and OLAP data models across your company. A simple process transforms your data into relational tables and analysis cubes to understand past performance and inform future action.

NovaView Scorecards help you analyze performance and consistently track it against your company’s strategy and objectives. You can drill down from a KPI into the underlying data to understand causes and effects. Sophisticated charts and advanced visualization tools let you analyze and compare different sets of results, see trends clearly, and take corrective actions.

A new NovaView product, Spotlight, is a personal dashboard that you can access directly from Microsoft Office applications, including Outlook, Word, Excel and PowerPoint. It includes an advanced search feature that lets you find and get constantly updated information from any NovaView view or Smart Report.

It’s MDX that supports Panorama NovaView’s robust suite of integrated Web-based BI tools. MDX is “baked into” the user interfaces of NovaView Analytics, Smart Reporting, KPIs, and dashboards, including Spotlight.

MDX is the most powerful query and calculation language available for OLAP analysis and business intelligence. Its functions span virtually any type of analysis relevant to users at any level of the organization – from senior executives to shop-floor supervisors. Because MDX originated with Panorama to support NovaView functionality, Panorama’s software engineers were able to create the world’s most advanced BI tool, while constantly adding new functionality and making it easier to use.

If you are serious about using business intelligence to improve your company’s strategy, execution, and competitive advantage, you owe it to yourself and your stakeholders to look at NovaView. With MDX, NovaView delivers on the promise of BI.