

Kimball Design Tip #38: Analytic Application? What's That!?

By Bill Schmarzo

There's lots of talk about the new "toast of the town" for the data warehouse community ... analytic applications. Analytic applications promise to deliver new business value to organizations that have already made major investments in their data warehouse infrastructure and skills. But what do we mean when we say "analytic application"? And what are the recent industry developments that have led to all the analytic applications hoopla?

In its simplest form, an analytic application is really nothing more than what most data warehouse practitioners have been trying to do for the past couple of decades with decision support systems. These folks would say that an analytic application is a repeatable, guided decision process to analyze business performance. I'd add two other characteristics - "collaborative" and "delivers immediate business value" - to that definition. Examples of analytic applications include vendor performance assessment, customer profitability analysis, and product pipeline analysis. Each of these analytic applications brings together the elements of business requirements, immediate decision making processes, and data. The application then allows us to understand and positively impact business performance.

So the underlying driver for analytic applications remains the demand to "manage by the numbers." But analytic applications have become more implementable in the last year. There have been a number of industry developments fanning the flames of excitement including:

- The widespread adoption of packaged operational systems for enterprise resource planning (SAP, Oracle, PeopleSoft, Lawson, Great Plains), customer relationship management (Siebel, Clarify, Onyx), and supply chain management (i2, Manugistics). This has led to the standardization of many operational business processes. These packaged systems provide a ready source of standard, relatively clean, and relatively accessible operational data.
- The broad acceptance of dimensional modeling as a refined, extensible, and user-centric data warehouse discipline.
- The emergence of packaged dimensional models for business processes such as finance, human resources, distribution, manufacturing, sales, service, and marketing. These are actually prepackaged analytic application packages intended for end user groups.
- The packaging of source-to-target mappings for the leading packaged operational systems by vendors like Acta, Cognos, Informatica, PeopleSoft and SAP that reduces the time and effort required to extract and transform the data from packaged operational systems and load the data into the packaged dimensional models.
- The efforts by industry organizations (FASB, SCOR, APICS) to standardize a whole range of business performance metrics. This in turn is facilitating the development of prepackaged reports.
- The homogenizing of the query and reporting tools market, and the ability of these tools to take advantage of dimensional models. Many of the tools offer premium capabilities ONLY if the underlying schemas are dimensional.

- The demands of the extended enterprise (customers and suppliers outside the immediate organization) for access to key corporate metrics as a point of competitive advantage.
- The growing realization by data warehouse teams that we must focus on more than just the extracting and organizing of data to achieve real business results. Managing by the numbers is more than just looking at the numbers.

So hopefully we can see the many industry forces at work to nurture the acceptance and drive the viability of analytic applications. But to take advantage of these industry developments, it is vital that we understand the interrelationship between the analytic application and its user community profiles and preferences, the decision-making processes, and the data and dimensional model requirements. We have found that the following approach helps us bring all of this together:

1. Start with a clear definition and understanding of the analytic application, including its relationship to the organization's strategic business initiatives and financial drivers.
2. Frame the analytic application with a guided decision-making process that is designed to guide users beyond simple management and operational reporting so that they use the analytic application for immediate decision making.
3. Capture the user community requirements, usage profiles, and preferences including roles, responsibilities and expectations.
4. Identify the data and dimensional modeling requirements (facts, calculations, dimensions, dimensional attributes, grain, and aggregation strategy) necessary to support the structured decision making process.
5. Match the feature lists and capabilities of various vendors' packaged analytic applications to see which of them fit an 80-20 rule both for the ETL and the final reporting parts of the application. Ideally 80% of your needs are met without custom development, and the remaining 20% of your needs can be added "gracefully" to the vendor's package.

In my next design tip, I'll dig deeper underneath a typical analytic application to show you the architectural impact on your data warehouse environment.