Predictive Analysis and Your Bottom Line

What is possible with today's Business Intelligence solutions?

Ramona Maxwell

Companies seeking agile Business Intelligence [BI] solutions to protect their profit margins have seen the vendor market explode with new product offerings, each promising to shorten the time needed to evaluate business models and improve the accuracy of suggested remedies. To what degree are currently available BI solutions able to provide accurate forecasting of business trends? The fact that big business sees the current crop of BI products as superior to old-school pivot table and pie chart planning is born out by a reported 22% rise in their sale during 2008.

A recent article in Baseline magazine by Alex S. Fuss on the advent of quantum computing identified areas that today's linear computing models surprisingly cannot yet fully apply BI principles to; ordinary things like air traffic control, project scheduling and package delivery - simply because the heftiest computing systems currently available do not have the processing power to track the numerous variables involved.

Think about five factors affecting an ice cream parlor including the price of ingredients, location, seasonal events, weather and competing businesses. The business or chain owner wants a consistent pricing model to avoid alienating customers. In setting prices the cost of materials must be predicted. While a range can be estimated based on past purchases, many unknown factors can void that simple model. The price of items like milk or sugar could be affected by the success of various crops, labor strikes, currency values, transportation issues and more. The other four success factors would also have a number of unpredictable or unusual possibilities. Unless it is a quantifiable factor, with historical or contextual data available for comparison, it would not be reasonable to pay the processing costs necessary to include it in the predictive analysis; yet it may impact the business.

The customer is of course key to the success of any business model. The ice cream parlor would be unlikely to profile specific customers, yet their specific characteristics would still influence the store's profit. For instance if school-age children buy treats primarily during non-school hours, a teacher strike eliminating a vacation period would also lead to a drop in sales. In businesses that are able to build client profiles, the possibilities for useful forecasting begin to rise. Specific predictors such as typical order size, length of time between orders, product preferences, service schedules and more can be analyzed for multiple business purposes. For instance a supplier of office machines might combine this customer data with what it knows about the life expectancy of its products and the typical decision time-line for new purchases to develop an aggressive customer retention strategy.

This type of integrated data mining is the goal of a modern BI solution. For instance a large sporting goods supplier may sell a piece of exercise equipment on their website. How will they know what the customer may buy next, whether percentage discounts or free shipping are more likely to close a sale, which brands draw the most affluent customers or what kind of coupon might motivate a web customer to visit their chain store? Skilled mining of a well-designed data collection system can provide remarkably clear foresight in this scenario. Success depends upon fusing experiential knowledge regarding a specific businesses model with the database design. Bigger companies also face many challenges in standardizing and centralizing their key data.

Large BI providers are attempting to bring BI concepts into the mainstream, as exemplified in Microsoft's Data Mining Add-Ins for the 2007 Office System which allows users of Microsoft Excel® to set up what might be considered a modest version of a predictive model, yet it's analysis capabilities far exceed that of a pivot table. Still, for information to be 'intelligent', certain criteria must be guaranteed in its creation and collection and on that account database professionals tend to specialize in portions of this broad field. Consider just a few of the requisites to building a reliable data store:

- Data must be clean on system entry, i.e. no duplicates or voids and consistent formatting
- Databases must be organized in a way that is both logical and flexible
- Reporting and analysis services must have access to a full range of information
- Predictors must be correctly ranked and combined to create the analysis
- Security must be maintained even while reporting functions are accessible
- Resulting business directives must be verifiable, not 'fool's gold'

Based on the foregoing, successful implementation of a BI solution for your business requires a substantial investment of time, money and industry savvy. Unless a businesses' management and information technology branches each have a hand in selecting the right product it can greatly increase the risk of having a system's beneficial effect on sales canceled out by maintenance costs. For a price, you can get detailed comparisons of available BI products. There is a plethora of information available on the web, much of it biased to one of the major vendors or their legion of mini-me knockoffs. I recommend Microsoft's SQL Server® 2008 for its design, support base and compatibility with other enterprise offerings from Microsoft® such as SharePoint® and the Office System. In conclusion though, it must be emphasized that the product you choose will only be as good as its execution. Therefore it is also essential to have qualified engineering staff to build and maintain your new Business Intelligence system. ~ *Return to SQL Solver or to Maxwell Arts*