

Who needs real-time business intelligence?

Optimum operational BI is often less than instantaneous. *by Colin White*

Three types of business intelligence (BI) exist, according to the general consensus of the IT industry: strategic, tactical and operational. Strategic BI and tactical BI are typically used in combination by senior managers and business analysts to help them achieve long-term business goals and optimize short-term business initiatives. An example of this is increasing annual revenue using business

initiatives such as marketing campaigns and product promotions.

Operational BI is the new kid on the block. It is a fast-growing area of BI because it can have an immediate positive impact on business efficiency and on the responsiveness of the organization to daily business needs and requirements. Operational BI is targeted at line-of-business users, who represent a much larger audience than that of strategic BI and tactical BI.

The term “real-time BI” is often used for operational BI, but it is confusing and best avoided. Operational BI has many business benefits, but the concept of real-time BI is misleading from a business perspective.

Why operational BI?

The objective of operational BI is to reduce the time it takes for a line-of-business user or application to react to a business issue or requirement. This elapsed time is known as “action time,” a phrase based on a concept introduced by Richard Hackathorn, founder and president of Bolder Technology. The business case for an operational BI project is based on identifying business situations where reduced action times can bring business benefits to the organization. Being able to detect and react more quickly to the fraudulent use of a credit card or telephone calling card is a good example of how operational BI can provide business value. By analyzing the history of fraudulent

situations, the BI system can be used to develop business rules that signify potential fraud, and operational BI can be used to apply those rules during daily business operations. The closer to real-time the fraud can be detected, the more money the organization is likely to save.

Operational BI helps businesses make more informed decisions and take more effective action in their daily business operations. It can be valuable in many areas of the business, including reducing fraud, decreasing loan processing times, optimizing pricing and supporting just-in-time inventory for a manufacturing line.

Not all operational BI applications have the near real-time BI processing requirements of fraud detection. Some companies may wish instead, for example, to use operational BI to monitor and analyze trading situations at regular intervals, perhaps every few hours rather than every few seconds. Not all operational BI, therefore, needs to happen in near real time.

Near real-time BI analysis can be expensive to implement, and it is important to balance the IT costs of implementing operational BI to the business benefits obtained. This trade-off has led some people (including me, in the past) to use the term “right-time BI” to describe operational BI operations. “Right-time” means the *right time* for the business situation. But this term is vague



Colin White, founder and president of BI Research, stresses a tailored approach to operational business intelligence for each organization.

and confusing and, therefore, should also be avoided.

Another important consideration concerning reducing action times is the point beyond which business users, business processes or business procedures cannot keep up with the increased responsiveness of the BI system. When this point is reached, reducing action time any further is a waste of money. Operational BI involves more than simply implementing new technology—it also requires business user training and possibly updating business procedures and processes to reflect new action time requirements.

A case study called “Building the Real-Time Enterprise,” which I documented for the TDWI Report Series in November 2003, discussed how Burlington Northern Santa Fe (BNSF) Railroad used a Teradata operational BI application to track and monitor customer shipments. The objective of the operational BI application was to detect delays in shipments on the railroad due to equipment failures, bad weather, etc., and to re-route shipments to meet guaranteed customer service levels. The best action time for BNSF in this case was two hours. This action time was a trade-off between the IT costs of improving the responsiveness of the system and the business benefits that could be obtained. It also was the amount of time that the business users needed to keep the BI data static in order to analyze it.

There is no doubt that reducing action times to close to zero can bring important business benefits for certain types of business applications. As action times are reduced, however, the BI system must change from being *on-demand-driven* to being *event-driven* and more automated. If, for example, the action time requirement is two hours, business users (or business applications) can poll the BI system at two-hour intervals using on-demand analysis and evaluate the results manually to

determine whether any action is required. In this case, the user drives the BI system and business operations.

If, on the other hand, the action time requirement is two seconds, then on-demand approaches are not practical. Instead, BI systems must track business operations continuously and automatically run analyses to determine whether any action is required. If it is, the business user must be alerted about the situation and sent recommendations on potential courses of action. In very urgent situations, such as credit card fraud, the BI system may take automated action, perhaps to stop a

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payment, and then notify the user about what action has been taken. With event-driven BI, business operations and the BI system drive the user, which is the reverse of demand-driven BI approaches.

Event-driven operational BI is more complex than demand-driven BI. Many organizations find it easier to implement demand-driven approaches first to gain experience and understand business requirements, and then move to an event-driven approach. Demand-driven techniques are often simply an extension to existing tactical BI processing. Event-driven BI is quite different as it requires new technologies and an event-driven infrastructure.

Continental Airlines is a good example of how an organization has gradually reduced action times as it has gained experience with operational BI. According to Judy Davis’ article “Right-Time Business Intelligence Optimizing the Business Decision Cycle—Teradata Case Study: Continental Airlines” published in

the 2006 *Business Intelligence Network Research Report*, Continental uses its Teradata enterprise data warehouse to drive several operational BI applications, including revenue management and customer relationship management. Information feeds come into the data warehouse from the customer database, flight data, reservations system and check-in system. Over time, the data in the warehouse has become closer to real time, which enables the company to react faster to events such as flight delays. For example, reservation data started as a daily load and moved to six hours and

then to hourly. The direction is to load this data in real time.

A broad spectrum

Operational BI covers a broad spectrum of usage, from event-driven BI applications with close to zero action times, to demand-driven approaches that may take place every few hours. The operational BI approach used will depend on business requirements, business user and IT expertise, and the cost of implementing the operational BI application and infrastructure. Some companies may need so-called real-time BI, but there are a large number of operational BI applications that do not require real-time operations. **T**

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